

# Net-Zero America - national state report

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These data underlie graphs and tables presented in the Princeton Net-Zero America study:

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#### Notes

- These data are all data from the study available at <a href="https://netzeroamerica.prince-ton.edu">https://netzeroamerica.prince-ton.edu</a>.
- The Net-Zero America study describes five pathways to reach net-zero emissions and one "no new policies" reference scenario. In this document, state-level results are grouped by scenario. For some scenarios, the study generated national, but not statelevel results.
- Within results for a given scenario, data tables are organized into corresponding sections of the full net-zero study (e.g., Pillar 1, Pillar 2, etc.)
- For Pillar 6 (Land sinks), values shown are maximum carbon storage potentials.

# Data by category and subcategory

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Table 1: E+ scenario - PILLAR 1: Efficiency/Electrification - Commercial

Item	2020	2025	2030	2035	2040	2045	2050
Commercial HVAC investment in 2020s - Cumulative 5-yr (million \$2018)	0	1,047,657	1,162,511	0	0	0	0
Sales of cooking units - Electric Resistance (%)	32.5	46.4	80	86.6	87	87	87
Sales of cooking units - Gas (%)	67.5	53.6	20	13.4	13	13	13
Sales of space heating units - Electric Heat Pump (%)	2.95	17.6	52.9	76.9	80.6	80.8	80.8
Sales of space heating units - Electric Resistance (%)	7.91	9.07	14.4	17.7	18.4	18.4	18.4
Sales of space heating units - Fossil (%)	3.94	3.28	0.655	0.028	0	0	0
Sales of space heating units - Gas Furnace (%)	85.2	70.1	32.1	5.37	1.07	0.82	0.817
Sales of water heating units - Electric Heat Pump (%)	0.385	7.96	43.3	59.2	61.2	61.3	61.3
Sales of water heating units - Electric Resistance (%)	3.8	7.16	24	35.7	37.5	37.6	37.6
Sales of water heating units - Gas Furnace (%)	94.1	83.3	31.5	4.03	0.235	0.003	0
Sales of water heating units - Other (%)	1.66	1.59	1.2	1.1	1.1	1.11	1.11

# Table 2: E+ scenario - PILLAR 1: Efficiency/Electrification - Electricity demand

Item	2020	2025	2030	2035	2040	2045	2050
Electricity distribution capital invested -		182	187	336	359	314	329
Cumulative 5-yr (billion \$2018)							

# Table 3: E+ scenario - PILLAR 1: Efficiency/Electrification - Overview

Item	2020	2025	2030	2035	2040	2045	2050
Final energy use - Commercial (PJ)	9,015	8,942	8,619	8,103	7,608	7,344	7,297
Final energy use - Industry (PJ)	25,107	26,056	26,110	25,372	25,108	24,870	24,572
Final energy use - Residential (PJ)	11,788	11,090	10,221	8,966	7,776	6,967	6,512
Final energy use - Transportation (PJ)	27,996	26,390	23,464	19,872	16,608	14,565	13,649

# Table 4: E+ scenario - PILLAR 1: Efficiency/Electrification - Residential

Item	2020	2025	2030	2035	2040	2045	2050
Residential HVAC investment in 2020s vs.	0	254	307	0	0	0	0
REF - Cumulative 5-yr (billion \$2018)							
Sales of cooking units - Electric	61.3	69.6	94.8	99.7	100	100	100
Resistance (%)							
Sales of cooking units - Gas (%)	38.7	30.4	5.2	0.262	0	0	0
Sales of space heating units - Electric	14.6	27.2	64.4	85	88	88.1	88.1
Heat Pump (%)							
Sales of space heating units - Electric	20.3	22.6	12.3	8.07	7.57	7.66	7.68
Resistance (%)							
Sales of space heating units - Fossil (%)	9.95	13.2	6.18	3.41	3.02	2.91	2.9
Sales of space heating units - Gas (%)	55.2	36.9	17.1	3.52	1.45	1.32	1.3
Sales of water heating units - Electric	0	7.44	41.8	56.2	58.5	59.2	59
Heat Pump (%)							
Sales of water heating units - Electric	38.4	49.2	38.5	39.8	39.9	39.3	39.5
Resistance (%)							
Sales of water heating units - Gas Furnace	58	40.9	18	2.56	0.155	0.003	0
(%)							
Sales of water heating units - Other (%)	3.58	2.47	1.63	1.47	1.51	1.54	1.53

Table 5: E+ scenario - PILLAR 1: Efficiency/Electrification - Transportation

Item	2020	2025	2030	2035	2040	2045	2050
Light-duty vehicle capital costs -	0	51,477	133,974	213,805	325,180	352,492	336,852
Cumulative 5-yr (million \$2018)							
Public EV charging plugs - DC Fast (1000	14.4	0	93.9	0	391	0	628
units)							
Public EV charging plugs - L2 (1000 units)	66.2	0	2,256	0	9,394	0	15,098
Vehicle sales - Heavy-duty - diesel (%)	97.2	92.1	67	23.3	4.22	0.628	0
Vehicle sales - Heavy-duty - EV (%)	0.588	3.81	19	45.6	57.4	59.6	60
Vehicle sales - Heavy-duty - gasoline (%)	0.227	0.227	0.176	0.066	0.013	0.002	0
Vehicle sales - Heavy-duty - hybrid (%)	0.082	0.09	0.077	0.031	0.007	0.001	0
Vehicle sales - Heavy-duty - hydrogen FC	0.392	2.54	12.7	30.4	38.2	39.7	40
(%)							
Vehicle sales - Heavy-duty - other (%)	1.5	1.23	1.07	0.568	0.163	0.038	0
Vehicle sales - Light-duty - diesel (%)	1.4	1.68	1.2	0.382	0.072	0.013	0
Vehicle sales - Light-duty - EV (%)	4.41	16.7	48.7	82.7	96.4	99.3	100
Vehicle sales - Light-duty - gasoline (%)	89.1	76.3	46.4	15.6	3.17	0.586	0
Vehicle sales - Light-duty - hybrid (%)	4.91	4.89	3.38	1.24	0.304	0.067	0
Vehicle sales - Light-duty - hydrogen FC	0.11	0.331	0.191	0.059	0.012	0.002	0
(%)							
Vehicle sales - Light-duty - other (%)	0.095	0.091	0.058	0.02	0.004	0.001	0
Vehicle sales - Medium-duty - diesel (%)	64.7	59.7	42.3	14.4	2.59	0.384	0
Vehicle sales - Medium-duty - EV (%)	0.784	5.07	25.3	60.8	76.5	79.5	80
Vehicle sales - Medium-duty - gasoline (%)	33.7	33.3	25.5	9.32	1.77	0.277	0
Vehicle sales - Medium-duty - hybrid (%)	0.363	0.402	0.341	0.14	0.03	0.005	0
Vehicle sales - Medium-duty - hydrogen	0.196	1.27	6.33	15.2	19.1	19.9	20
FC (%)							
Vehicle sales - Medium-duty - other (%)	0.253	0.255	0.205	0.083	0.019	0.004	0

Table 6: E+ scenario - PILLAR 2: Clean Electricity - Generating capacity

Item	2020	2025	2030	2035	2040	2045	2050
Capital invested - Biomass power plant	0	0	0.005	0.001	0.003	0.001	0
(billion \$2018)							
Capital invested - Biomass w/ccu allam	0	0	0	0.349	0.094	0.108	0.381
power plant (billion \$2018)							
Capital invested - Biomass w/ccu power	0	0	19.4	0.015	30.1	20.7	2.42
plant (billion \$2018)							
Installed - Biomass (MW)	9,996	9,132	7,837	6,117	4,696	3,379	2,472
Installed - Biomass w cc (MW)	0	0	2,920	2,968	7,511	10,643	11,058
Installed - Ccgt & gas steam (MW)	334,471	336,439	376,538	400,087	346,238	264,930	232,629
Installed - Ccgt w cc (MW)	0	0	243	15,162	25,271	36,796	60,031
Installed - Coal (MW)	215,907	48,614	171	170	150	122	43.4
Installed - Ct (MW)	146,567	135,736	127,617	148,354	213,247	242,832	242,414
Installed - Geothermal (MW)	2,390	2,393	2,409	2,411	2,414	2,422	2,440
Installed - Grid battery storage (MW)	0	626	2,536	15,363	51,414	131,610	178,317
Installed - Hydro (MW)	78,608	78,608	78,608	78,608	78,608	78,608	78,608
Installed - Nuclear (MW)	98,470	95,134	90,007	76,067	68,456	57,259	61,447
Installed - Offshore wind (MW)	29.3	1,034	4,949	16,240	40,241	103,788	223,624
Installed - Onshore wind (MW)	97,767	185,353	346,695	547,707	776,470	970,335	1,194,150
Installed - Other (MW)	68,045	57,078	55,303	54,113	52,213	51,122	48,463
Installed - Pumped hydro storage (MW)	0	19,418	19,418	19,418	19,418	19,418	19,418
Installed - Solar (MW)	69,875	174,828	354,594	609,266	877,752	1,166,400	1,505,790

Table 7: E+ scenario - PILLAR 2: Clean Electricity - Generation

Item	2020	2025	2030	2035	2040	2045	2050
Biomass (TWh)	18.2	19.7	39.5	26.3	18.7	13.4	0.436
Biomass power plant (GWh)	3,540	820	10,266	6,546	3,884	1,366	57.9
Biomass w cc (TWh)	0	0	21.7	21.9	53.7	76.5	79.7
Biomass w/ccu allam power plant (GWh)	0	0	0	265	294	386	767
Biomass w/ccu power plant (GWh)	0	0	21,701	21,661	53,456	76,143	78,946

Table 7: E+ scenario - PILLAR 2: Clean Electricity - Generation (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Coal (TWh)	982	284	0.599	0.598	0.526	0.429	0.152
Gas (TWh)	1,490	1,742	1,453	1,117	853	443	202
Gas w cc (TWh)	0	0	1.42	114	152	181	231
Geothermal (TWh)	14.5	14.5	14.3	14.2	13.8	13.7	13.1
Hydro (TWh)	300	312	295	295	302	292	292
Nuclear (TWh)	802	775	733	620	558	467	503
Offshore wind (TWh)	0.093	3.9	20.3	80.7	182	455	934
Onshore wind (TWh)	412	764	1,446	2,199	3,029	3,710	4,485
Solar pv (TWh)	144	379	761	1,296	1,863	2,480	3,084

Table 8: E+ scenario - PILLAR 2: Clean Electricity - Transmission

Item	2020	2025	2030	2035	2040	2045	2050
Total HV transmission (for wind and solar)	0	13.7	34	66.3	110	159	216
- Base all (%)							
Total HV transmission (for wind and solar)	0	16.2	43	81.5	130	179	247
- Constrained all (%)							

Table 9: E+ scenario - PILLAR 3: Clean fuels - Bioenergy

Item	2020	2025	2030	2035	2040	2045	2050
Biomass input - BECCS-H2 (1000 tonnes)	0	0	0	73,607	137,071	279,102	426,955
Biomass input - Bio-FT w/ CC (1000	0	0	0	108	124	156	209
tonnes)							
Biomass input - Bio-SNG w/ CC (1000	0	0	19.2	11.8	9.26	8.74	7.28
tonnes)							
Biomass input - Biopower (1000 tonnes)	10,423	20,617	56,097	42,541	34,517	26,793	639
Biomass input - Biopower w/ cc (1000 tonnes)	0	0	13,108	13,204	32,422	46,168	48,033
Biomass input - Ethanol (1000 tonnes)	129,506	129,506	129,536	125,006	67,634	10,261	905
Biomass input - FT diesel (1000 tonnes)	0	0	0	90.5	101	104	79.1
Biomass input - Pyrolysis liquids (1000	0	0	0	149	170	197	14,252
tonnes)							
Biomass input - Pyrolysis liquids w/ cc	0	0	0	102	118	164	93,276
(1000 tonnes)							
Biomass input - SNG (1000 tonnes)	0	7.13	10.7	7.2	6.76	6.79	2.63
Number of facilities - Allam power w ccu (quantity)	0	0	0	14	21	32	44
Number of facilities - Beccs hydrogen	0	0	0	95	183	377	563
(quantity)							
Number of facilities - Diesel (quantity)	0	0	0	14	14	15	16
Number of facilities - Diesel ccu (quantity)	0	0	0	14	23	34	45
Number of facilities - Power (quantity)	0	12	16	16	17	17	17
Number of facilities - Power ccu	0	0	26	30	57	81	95
(quantity)	_	_					
Number of facilities - Pyrolysis (quantity)	0	0	0	14	14	15	31
Number of facilities - Pyrolysis ccu	0	0	0	14	23	34	171
(quantity)							
Number of facilities - Sng (quantity)	0	14	15	15	15	16	17
Number of facilities - Sng ccu (quantity)	0	0	14	14	14	19	22

Table 10: E+ scenario - PILLAR 4: CCUS - CO2 pipelines

Item	2020	2025	2030	2035	2040	2045	2050
All (km)		708	18,603	40,784	51,430	69,835	105,857
Cumulative investment - All (million \$2018)		3,706	69,248	115,112	124,026	139,961	167,114
Cumulative investment - Spur (million \$2018)		0	2,974	14,456	23,370	39,305	66,458
Cumulative investment - Trunk (million \$2018)		3,706	66,274	100,656	100,656	100,656	100,656

Table 10: E+ scenario - PILLAR 4: CCUS - CO2 pipelines (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Spur (km)		0	4,432	19,716	30,362	48,767	84,789
Trunk (km)		708	14,170	21,068	21,068	21,068	21,068

# Table 11: E+ scenario - PILLAR 4: CCUS - CO2 storage

Item	2020	2025	2030	2035	2040	2045	2050
CO2 storage (MMT)	0	2.71	64.8	246	435	687	929
Injection wells (wells)	0	0	71	356	612	998	1,260
Resource characterization, appraisal, permitting costs (million \$2020)	0	1,500	8,750	13,000	13,000	13,000	13,000
Wells and facilities construction costs (million \$2020)	0	0	2,264	10,683	18,483	29,950	37,860

# Table 12: E+ scenario - PILLAR 6: Land sinks - Agriculture

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - Aggressive							-23,286
deployment - Corn-ethanol to energy							
grasses (1000 tCO2e/y)							
Carbon sink potential - Aggressive							-203,503
deployment - Cropland measures (1000							
tCO2e/y)							
Carbon sink potential - Aggressive							-7,391
deployment - Permanent conservation							
cover (1000 tC02e/y)							
Carbon sink potential - Aggressive							-234,180
deployment - Total (1000 tCO2e/y)							
Carbon sink potential - Moderate							-23,286
deployment - Corn-ethanol to energy							
grasses (1000 tC02e/y)							
Carbon sink potential - Moderate							-106,430
deployment - Cropland measures (1000							,
tCO2e/y)							
Carbon sink potential - Moderate		+					-3,696
deployment - Permanent conservation							0,070
cover (1000 tC02e/y)							
Carbon sink potential - Moderate		+					-133,412
deployment - Total (1000 tC02e/y)							100,412
Land impacted for carbon sink -							11,287
Aggressive deployment - Corn-ethanol to							11,201
energy grasses (1000 hectares)							
Land impacted for carbon sink -							136,405
Aggressive deployment - Cropland							100,400
measures (1000 hectares)							
Land impacted for carbon sink -		+	+				12,749
Aggressive deployment - Permanent							12,147
conservation cover (1000 hectares)							
Land impacted for carbon sink -							160,442
Aggressive deployment - Total (1000							100,442
hectares)							11,287
Land impacted for carbon sink - Moderate							11,287
deployment - Corn-ethanol to energy							
grasses (1000 hectares)							71.000
Land impacted for carbon sink - Moderate							71,390
deployment - Cropland measures (1000							
hectares)							
Land impacted for carbon sink - Moderate							6,375
deployment - Permanent conservation							
cover (1000 hectares)							
Land impacted for carbon sink - Moderate							89,052
deployment - Total (1000 hectares)							

Table 13: E+ scenario - PILLAR 6: Land sinks - Forests

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - High - Accelerate							-48,900
regeneration (1000 tCO2e/y)							
Carbon sink potential - High - All (not							-
counting overlap) (1000 tCO2e/y)							1,535,900
Carbon sink potential - High - Avoid							-84,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - High - Extend							-302,000
rotation length (1000 tCO2e/y)							
Carbon sink potential - High - Improve							-57,000
plantations (1000 tCO2e/y)							
Carbon sink potential - High - Increase							-
retention of HWP (1000 tCO2e/y)							300,000
Carbon sink potential - High - Increase							-60,000
trees outside forests (1000 tC02e/y)							
Carbon sink potential - High - Reforest							-242,000
cropland (1000 tCO2e/y)							
Carbon sink potential - High - Reforest							-
pasture (1000 tCO2e/y)							264,000
Carbon sink potential - High - Restore							-178,000
productivity (1000 tCO2e/y)							
Carbon sink potential - Low - Accelerate							-24,500
regeneration (1000 tCO2e/y)							
Carbon sink potential - Low - All (not							-
counting overlap) (1000 tCO2e/y)							505,500
Carbon sink potential - Low - Avoid							-14,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - Low - Extend							-116,000
rotation length (1000 tCO2e/y)							
Carbon sink potential - Low - Improve							-29,000
plantations (1000 tCO2e/y)							
Carbon sink potential - Low - Increase							-100,000
retention of HWP (1000 tCO2e/y)							
Carbon sink potential - Low - Increase							-21,000
trees outside forests (1000 tC02e/y)							
Carbon sink potential - Low - Reforest							-121,000
cropland (1000 tCO2e/y)							
Carbon sink potential - Low - Reforest							-20,000
pasture (1000 tCO2e/y)							
Carbon sink potential - Low - Restore							-60,000
productivity (1000 tCO2e/y)							
Carbon sink potential - Mid - Accelerate							-36,700
regeneration (1000 tCO2e/y)							
Carbon sink potential - Mid - All (not							-
counting overlap) (1000 tCO2e/y)							1,020,200
Carbon sink potential - Mid - Avoid							-49,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - Mid - Extend							-209,000
rotation length (1000 tCO2e/y)							
Carbon sink potential - Mid - Improve							-42,500
plantations (1000 tCO2e/y)							
Carbon sink potential - Mid - Increase							-
retention of HWP (1000 tCO2e/y)							200,000
Carbon sink potential - Mid - Increase							-40,500
trees outside forests (1000 tCO2e/y)							
Carbon sink potential - Mid - Reforest							-181,500
cropland (1000 tCO2e/y)							
Carbon sink potential - Mid - Reforest							-142,000
pasture (1000 tCO2e/y)							
Carbon sink potential - Mid - Restore							-119,000
productivity (1000 tCO2e/y)							

Table 13: E+ scenario - PILLAR 6: Land sinks - Forests (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink potential -							8,000
High - Accelerate regeneration (1000							
hectares)							
Land impacted for carbon sink potential -							11,373
High - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							154,000
High - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							21,000
High - Improve plantations (1000							
hectares)							
Land impacted for carbon sink potential -							0
High - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							5,700
High - Increase trees outside forests							
(1000 hectares)							
Land impacted for carbon sink potential -							16,000
High - Reforest cropland (1000 hectares)							
Land impacted for carbon sink potential -							7,500
High - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							59,000
High - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							282,573
High - Total impacted (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							4,000
Low - Accelerate regeneration (1000							
hectares)							
Land impacted for carbon sink potential -							10,677
Low - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							59,000
Low - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							10,500
Low - Improve plantations (1000							
hectares)							
Land impacted for carbon sink potential -							0
Low - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							3,000
Low - Increase trees outside forests							
(1000 hectares)							
Land impacted for carbon sink potential -							8,000
Low - Reforest cropland (1000 hectares)							
Land impacted for carbon sink potential -							1,300
Low - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							35,700
Low - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							132,177
Low - Total impacted (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							6,000
Mid - Accelerate regeneration (1000							
hectares)			I .				

Table 13: E+ scenario - PILLAR 6: Land sinks - Forests (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink potential -							11,025
Mid - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							106,500
Mid - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							15,800
Mid - Improve plantations (1000 hectares)							
Land impacted for carbon sink potential -							0
Mid - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							4,350
Mid - Increase trees outside forests (1000							
hectares)							
Land impacted for carbon sink potential -							12,000
Mid - Reforest cropland (1000 hectares)							
Land impacted for carbon sink potential -							9,400
Mid - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							71,900
Mid - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							236,975
Mid - Total impacted (over 30 years) (1000							
hectares)							

# Table 14: E+ scenario - PILLAR 6: Land sinks - Total assumed land sink

Item	2020	2025	2030	2035	2040	2045	2050
Total assumed land sink (Gt CO2e/y)	-0.7	-0.73	-0.75	-0.78	-0.8	-0.83	-0.85

# Table 15: E+ scenario - IMPACTS - Capital Investments

Item	2020	2025	2030	2035	2040	2045	2050
Capital under construction - Cumulative	126	343	647	1,082	1,632	2,353	2,515
from 2021 - CO2 Transport & Storage							
(billion \$2018)							
Capital under construction - Cumulative	0.3	93	47.6	6.65	11.4	30.4	0
from 2021 - Distribution (billion \$2018)							
Capital under construction - Cumulative	196	622	1,263	2,037	2,888	3,815	4,450
from 2021 - Fuels Conversion (billion							
\$2018)							
Capital under construction - Cumulative	38.1	227	450	800	1,161	1,488	1,758
from 2021 - Industry (billion \$2018)							
Capital under construction - Cumulative	36	37	65.4	69.9	61.7	64.6	0
from 2021 - Power Generation (billion							
\$2018)							
Capital under construction - Cumulative	398	1,326	2,510	4,064	5,863	7,997	8,724
from 2021 - Total System (billion \$2018)							
Capital under construction - Cumulative	2.43	3.8	36.8	67.2	109	246	0
from 2021 - Transmission (billion \$2018)							

# Table 16: E+ scenario - IMPACTS - Fossil fuel industries

Item	2020	2025	2030	2035	2040	2045	2050
Natural gas consumption - Annual (tcf)		23,206	19,562	15,689	11,811	7,431	5,154
Natural gas consumption - Cumulative		0	0	0	0	0	472,555
(tcf)							
Natural gas production - Annual (tcf)		36,257	34,274	29,850	25,241	20,015	15,548
Natural gas production - Cumulative (tcf)		0	0	0	0	0	872,962
Oil consumption - Annual (million bbls)		5,924	5,196	4,119	3,106	2,308	1,650

Table 16: E+ scenario - IMPACTS - Fossil fuel industries (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Oil consumption - Cumulative (million		0	0	0	0	0	126,839
bbls)							
Oil production - Annual (million bbls)		5,198	5,216	5,209	4,127	3,354	2,232
Oil production - Cumulative (million bbls)		0	0	0	0	0	136,632

# Table 17: E+ scenario - IMPACTS - Health

Item	2020	2025	2030	2035	2040	2045	2050
Monetary damages from air pollution -		22,661	29.5	28.3	24.2	16.6	1.24
Coal (million 2019\$)							
Monetary damages from air pollution -		13,340	9,212	6,424	5,716	3,438	1,376
Natural Gas (million 2019\$)							
Monetary damages from air pollution -		102,386	96,814	74,557	43,657	20,044	7,790
Transportation (million 2019\$)							
Premature deaths from air pollution -		2,559	3.33	3.2	2.73	1.88	0.14
Coal (deaths)							
Premature deaths from air pollution -		1,506	1,040	725	645	388	155
Natural Gas (deaths)							
Premature deaths from air pollution -		11,515	10,889	8,385	4,910	2,254	876
Transportation (deaths)							

# Table 18: E+ scenario - IMPACTS - Jobs

Table 10. Et sechario 11-11 A010 0000							
Item	2020	2025	2030	2035	2040	2045	2050
By economic sector - Agriculture (jobs)		31,616	38,522	43,996	38,634	36,139	47,266
By economic sector - Construction (jobs)		580,064	723,845	923,207	1,030,957	1,125,842	1,362,050
By economic sector - Manufacturing		626,159	816,219	958,346	880,897	806,619	910,451
(jobs)							
By economic sector - Mining (jobs)		458,886	352,163	267,470	175,190	114,496	65,837
By economic sector - Other (jobs)		55,963	80,318	117,907	146,042	174,989	239,733
By economic sector - Pipeline (jobs)		46,153	47,909	40,500	29,005	22,744	20,678
By economic sector - Professional (jobs)		329,442	391,194	505,157	591,345	679,998	852,768
By economic sector - Trade (jobs)		298,081	309,842	357,203	384,375	422,446	520,017
By economic sector - Utilities (jobs)		479,672	554,950	731,228	852,603	944,853	1,147,421
By education level - All sectors -		874,912	1,015,251	1,226,424	1,301,277	1,373,772	1,647,937
Associates degree or some college (jobs)							
By education level - All sectors -		642,516	708,555	822,294	849,811	887,001	1,052,119
Bachelors degree (jobs)							
By education level - All sectors - Doctoral		21,320	23,411	27,652	29,842	32,509	39,510
degree (jobs)							
By education level - All sectors - High		1,215,732	1,401,313	1,673,456	1,742,024	1,815,521	2,163,478
school diploma or less (jobs)							
By education level - All sectors - Masters		151,556	166,432	195,189	206,094	219,322	263,178
or professional degree (jobs)							
By education level - Biomass sector -		15,986	17,669	21,356	22,114	29,865	47,668
Associates degree or some college (jobs)							
By education level - Biomass sector -		14,722	15,948	18,940	20,437	29,494	47,871
Bachelors degree (jobs)							
By education level - Biomass sector -		722	813	1,007	1,194	1,857	3,040
Doctoral degree (jobs)							
By education level - Biomass sector - High		47,969	54,390	62,467	57,137	63,198	93,676
school diploma or less (jobs)							
By education level - Biomass sector -		4,048	4,493	5,404	5,950	8,640	13,975
Masters or professional degree (jobs)							
By education level - CO2 sector -		1,558	22,572	19,168	8,857	13,541	26,104
Associates degree or some college (jobs)							
By education level - CO2 sector -		825	10,799	9,539	4,738	7,228	12,830
Bachelors degree (jobs)							
By education level - CO2 sector - Doctoral		18.6	201	194	110	168	259
degree (jobs)							

Table 18: E+ scenario - IMPACTS - Jobs (continued)

Syeducation level - CO2 sector - High school diploma or less [jobs]   Syeducation level - CO2 sector - Masters or professional degree [jobs]   Syeducation level - CO2 sector - Masters or professional degree [jobs]   Syeducation level - Coal sector - Sasoniates degree or some college [iobs]   Syeducation level - Coal sector - Sasoniates degree or some college [iobs]   Syeducation level - Coal sector - Sasoniates degree or some college [iobs]   Syeducation level - Coal sector - Doctoral degree [jobs]   Syeducation level - Coal sector - Doctoral degree [jobs]   Syeducation level - Coal sector - Doctoral degree [jobs]   Syeducation level - Coal sector - Doctoral degree [jobs]   Syeducation level - Coal sector - High school diploma or less [jobs]   Syeducation level - Coal sector - Masters or professional degree [jobs]   Syeducation level - Grid sector - Doctoral degree [jobs]   Syeducation level - Grid sector - Doctoral degree [jobs]   Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - High sector - Syeducation level - Grid sector - Syeducation	Table 18: E+ scenario - IMPACTS - Jobs (co	ntinuedJ						
School diptoma or less (jobs)   By education level - CO2 sector - Masters or professional degree (jobs)   By education level - Coal sector - Sesociates degree or some college (jobs)   By education level - Coal sector - Sesociates degree or some college (jobs)   By education level - Coal sector - Sesociates degree (jobs)   By education level - Coal sector - Doctoral degree (jobs)   By education level - Coal sector - Doctoral degree (jobs)   By education level - Coal sector - Doctoral degree (jobs)   By education level - Coal sector - Bachelors degree (jobs)   By education level - Coal sector - Masters or professional degree (jobs)   By education level - Grid sector - Masters or professional degree (jobs)   By education level - Grid sector - Bachelors degree (jobs)   By education level - Grid sector - Bachelors degree (jobs)   By education level - Grid sector - Bachelors degree (jobs)   By education level - Grid sector - Bachelors degree (jobs)   By education level - Grid sector - Bachelors degree (jobs)   By education level - Grid sector - Bachelors degree (jobs)   By education level - Grid sector - Doctoral degree (jobs)   By education level - Grid sector - Doctoral degree (jobs)   By education level - Grid sector - Bachelors degree (jobs)   By education level - Grid sector - Bachelors degree (jobs)   By education level - Grid sector - High sector - Bachelors degree (jobs)   By education level - Grid sector - Masters or professional degree (jobs)   By education level - Grid sector - Masters or professional degree (jobs)   By education level - Grid sector - Masters or professional degree (jobs)   By education level - Stural gas sector - Bachelors degree or some college (jobs)   By education level - Natural gas sector - Bachelors degree (jobs)   By education level - Natural gas sector - Bachelors degree (jobs)   By education level - Natural gas sector - Bachelors degree (jobs)   By education level - Natural gas sector - Bachelors degree (jobs)   By education level - Nuclear sector - Bachelors degree (jobs)   By	Item	2020	2025	2030	2035	2040	2045	2050
By education level - CO2 sector - Masters or professional degree (jobs)   Py education level - Coal sector - Masters or professional degree (jobs)   Py education level - Coal sector - Masters or professional degree (jobs)   Py education level - Coal sector - Bachelors degree (jobs)   Py education level - Coal sector - Doctoral degree (jobs)   Py education level - Coal sector - Doctoral degree (jobs)   Py education level - Coal sector - Doctoral degree (jobs)   Py education level - Coal sector - High school diploma or less (jobs)   Py education level - Coal sector - High school diploma or less (jobs)   Py education level - Coal sector - Masters or professional degree (jobs)   Py education level - Coal sector - Masters or professional degree (jobs)   Py education level - Coal sector - Masters or professional degree (jobs)   Py education level - Grid sector - Masters or professional degree (jobs)   Py education level - Grid sector - Doctoral degree (jobs)   Py education level - Grid sector - Doctoral degree (jobs)   Py education level - Grid sector - Doctoral degree (jobs)   Py education level - Grid sector - Doctoral degree (jobs)   Py education level - Grid sector - Masters or professional degree (jobs)   Py education level - Grid sector - Masters or professional degree (jobs)   Py education level - Grid sector - Masters or professional degree (jobs)   Py education level - Grid sector - Masters or professional degree (jobs)   Py education level - Sector - Masters or Py education level - Rid sector - Masters or Py education level - Rid sector - Masters or Py education level - Rid sector - Masters or Py education level - Natural gas sector - Masters or Py education level - Natural gas sector - Masters or Py education level - Natural gas sector - Masters or Py education level - Natural gas sector - Masters or Py education level - Natural gas sector - Masters or Py education level - Natural gas sector - Masters or Py education level - Natural gas sector - Masters or Py education level - Natural gas sector - Master	By education level - CO2 sector - High		1,928	27,904	23,782	11,037	16,909	32,608
or professional degree (jobs) By education level - Coal sector - South Part	school diploma or less (jobs)							
or professional degree (jobs) By education level - Coal sector - South Part	By education level - CO2 sector - Masters		187	2,381	2,128	1,079	1,645	2,848
Separation   Investigation   Separation						•	·	
Associates degree or some college (jobs) By education level - Coal sector - Doctoral degree (jobs) By education level - Coal sector - Doctoral degree (jobs) By education level - Coal sector - High Solution level - Coal sector - Masters or professional degree (jobs) By education level - Coal sector - Masters or professional degree (jobs) By education level - Coal sector - Masters or professional degree (jobs) By education level - Grid sector - Base - Bas			21.423	5.650	2.974	2.582	2.322	2,057
By education level - Coal sector - Backlers degree (jobs)   Sy education level - Coal sector - High Scholard Seque (jobs)   Sy education level - Coal sector - High Scholard Seque (jobs)   Sy education level - Coal sector - High Scholard Seque (jobs)   Sy education level - Coal sector - High Scholard Seque (jobs)   Sy education level - Coal sector - Masters or professional degree (jobs)   Sy education level - Scholard Sector - Masters or professional degree (jobs)   Sy education level - Scholard Sector - Scholard Seque (jobs)   Sy education level - Grain Sector - Scholard Seque (jobs)   Sy education level - Grain Sector - Scholard Seque (jobs)   Sy education level - Grain Sector - Scholard Seque (jobs)   Sy education level - Grain Sector - Scholard Seque (jobs)   Sy education level - Grain Sector - Scholard Seque (jobs)   Sy education level - Grain Sector - Scholard Seque (jobs)   Sy education level - Grain Sector - Scholard Seque (jobs)   Sy education level - Grain Sector - High Scholard Seque (jobs)   Sy education level - Grain Sector - High Scholard Seque (jobs)   Sy education level - Grain Sector - Masters or professional degree (jobs)   Sy education level - Grain Sector - Masters or professional degree (jobs)   Sy education level - Scholard Seque (jobs)   Sy education level - Scholard Seque Se	•		,	3,333	_,,	_,00_	_,0	_,00.
Bachelors degree (jobs)   511   123   51.5   4.8   4.6.1   4.3.4			13 942	3 430	1 692	1 518	1 411	1,291
By education level - Coal sector - Doctoral degree (jobs)   Sy education level - Coal sector - High school diploma or less (jobs)   Sy education level - Coal sector - High school diploma or less (jobs)   Sy education level - Coal sector - Masters or professional degree (jobs)   Sy education level - Goal sector - Masters or professional degree (jobs)   Sy education level - Goal sector - State (jobs)   Sy education level - Goal sector - State (jobs)   Sy education level - Goal sector - State (jobs)   Sy education level - Goal sector - State (jobs)   Sy education level - Goal sector - State (jobs)   Sy education level - Goal sector - State (jobs)   Sy education level - Goal sector - State (jobs)   Sy education level - Goal sector - Doctoral degree (jobs)   Sy education level - Goal sector - Doctoral degree (jobs)   Sy education level - Goal sector - Masters or professional degree (jobs)   Sy education level - Goal sector - Masters or professional degree (jobs)   Sy education level - Goal sector - Masters or professional degree (jobs)   Sy education level - High sector - Masters or professional degree (jobs)   Sy education level - High sector - Masters or professional degree (jobs)   Sy education level - High sector - Masters or professional degree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy education level - Natural gas sector - Saschietor segree (jobs)   Sy educatio	•		10,742	0,400	1,072	1,010	1,-111	1,271
degree (jobs)   30,308   8,917   5,756   4,901   4,320   3,747   8chool diploma or less (jobs)   30,308   8,917   5,756   4,901   4,320   3,747   8chool diploma or less (jobs)   30,308   8,917   5,756   4,901   4,320   3,747   8chool diploma or less (jobs)   30,408   8,917   5,756   4,901   4,320   3,747   8chool diploma or less (jobs)   313   286   286   287			511	102	51 5	/, Q	7,61	/,2 /,
By education level - Coal sector - High school diploma or less (jobs)   Sy education level - Coal sector - Masters or professional degree (jobs)   Sy education level - Grid sector - State (jobs)   Sy education level - Grid sector - State (jobs)   Sy education level - Grid sector - State (jobs)   Sy education level - Grid sector - State (jobs)   Sy education level - Grid sector - State (jobs)   Sy education level - Grid sector - State (jobs)   Sy education level - Grid sector - State (jobs)   Sy education level - Grid sector - State (jobs)   Sy education level - Grid sector - State (jobs)   Sy education level - Grid sector - Doctoral (jobs)   Sy education level - Grid sector - High school diploma or less (jobs)   Sy education level - Grid sector - Masters or professional degree (jobs)   Sy education level - Grid sector - Masters (jobs)   Sy education level - Grid sector - Masters (jobs)   Sy education level - Grid sector - Masters (jobs)   Sy education level - Grid sector - Masters (jobs)   Sy education level - State (jobs)   Sy education level - Natural gas sector - State (jobs)   Sy education level - Natural gas sector - State (jobs)   Sy education level - Natural gas sector - State (jobs)   Sy education level - Natural gas sector - State (jobs)   Sy education level - Natural gas sector - State (jobs)   Sy education level - Natural gas sector - State (jobs)   Sy education level - Natural gas sector - State (jobs)   Sy education level - Nuclear sector - State (jobs)   Sy education level - Nuclear sector - State (jobs)   Sy education level - Nuclear sector - State (jobs)   Sy education level - Nuclear sector - State (jobs)   Sy education level - Nuclear sector - State (jobs)   Sy education level - State (jobs)   Sy education level - State (jobs)   Sy education level - State (jobs)   Sy education le			311	120	31.3	40	40.1	43.4
School diploma or less (jobs)   3,429   835   370   334   313   286   386   387   388		<del></del>	20 200	0.017	E 7E /	/, 001	/. 220	271.7
By education level - Coal sector - Masters or professional degree (jobs)			30,308	0,917	5,756	4,901	4,320	3,747
Description			0.700	005	070	207	010	000
By education level - Grid sector - Associates degree or some college (jobs)   Sy education level - Grid sector - Bachelors degree (jobs)   Sy education level - Grid sector - Doctoral degree (jobs)   Sy education level - Grid sector - Doctoral degree (jobs)   Sy education level - Grid sector - Doctoral degree (jobs)   Sy education level - Grid sector - High Sy education level - Grid sector - Masters or professional degree (jobs)   Sy education level - Grid sector - Masters or professional degree (jobs)   Sy education level - Natural gas sector - Sasociates degree or some college (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level - Natural gas sector - Sasociates degree (jobs)   Sy education level			3,429	835	370	334	313	288
Associates degree or some college (jobs) By education level - Grid sector - Bachelors degree (jobs) By education level - Grid sector - Doctoral degree (jobs) By education level - Grid sector - High school diploman or less (jobs) By education level - Grid sector - High school diploman or less (jobs) By education level - Grid sector - High school diploman or less (jobs) By education level - Grid sector - Masters or professional degree (jobs) By education level - Grid sector - Masters or professional degree (jobs) By education level - Grid sector - Masters or professional degree (jobs) By education level - Matural gas sector - Associates degree or some college (jobs) By education level - Natural gas sector - By education level - Natural gas sector - High school diploma or less (jobs) By education level - Natural gas sector - High school diploma or less (jobs) By education level - Natural gas sector - High school diploma or less (jobs) By education level - Natural gas sector - By educa			101.000	222.211	272.222			
By education level - Grid sector - Bachelors degree (jobs)   2,994   3,861   5,878   7,168   8,146   9,840   4,9840   3,861   5,878   7,168   8,146   9,840   4,984	•		181,208	239,261	372,899	465,469	541,393	669,232
Bachelors degree (jobs)   By education level - Grid sector - Doctoral degree (jobs)   23,717   307,496   481,654   604,229   706,290   877,395								
By education level - Grid sector - Doctoral degree (jobs)   By education level - Grid sector - High school diploma or less (jobs)   By education level - Natural gas sector - Sectoral degree (jobs)   By education level - Natural gas sector - Sectoral degree (jobs)   By education level - Natural gas sector - Sectoral degree (jobs)   By education level - Natural gas sector - Sectoral degree (jobs)   By education level - Natural gas sector - Sectoral degree (jobs)   By education level - Natural gas sector - Sectoral degree (jobs)   By education level - Natural gas sector - Sectoral degree (jobs)   By education level - Natural gas sector - Sectoral degree (jobs)   By education level - Natural gas sector - Sectoral degree (jobs)   Sectoral			103,842	136,215	210,933	261,630	302,411	371,528
By education level - Grid sector - High school diploma or less (jobs)   Sy education level - Grid sector - High school diploma or less (jobs)   Sy education level - Grid sector - Masters or professional degree (jobs)   Sy education level - Natural gas sector - Associates degree or some college (jobs)   Sy education level - Natural gas sector - Sy education level - Nuclear sector - Sy education level - Sy educ	· ,							
By education level - Grid sector - High school diploma or less (jobs)   Sy education level - Grid sector - Masters   Sy education level - Grid sector - Masters   Sy education level - Grid sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Natural gas sector - Masters   Sy education level - Nuclear sector - Masters   Sy education level - Sy education level   Sy education level - Sy education level   Sy education leve	By education level - Grid sector - Doctoral		2,994	3,861	5,878	7,168	8,146	9,840
School diploma or less (jobs)   By education level - Grid sector - Masters or professional degree (jobs)   By education level - Natural gas sector - Associates degree or some college (jobs)   By education level - Natural gas sector - Associates degree (jobs)   By education level - Natural gas sector - Bachelors degree (jobs)   By education level - Natural gas sector - Bachelors degree (jobs)   By education level - Natural gas sector - Bachelors degree (jobs)   By education level - Natural gas sector - Doctoral degree (jobs)   By education level - Natural gas sector - A,168   3,263   2,560   2,196   1,499   1,000   1,000   1,499   1,000   1,499   1,000   1,499   1,000   1,499   1,000   1,499   1,000   1,499   1,000   1,499   1,499   1,000   1,499								
By education level - Grid sector - Masters or professional degree (jobs)   Sector -	By education level - Grid sector - High		231,717	307,496	481,654	604,229	706,290	877,399
By education level - Grid sector - Masters or professional degree (jobs)   Sector -	school diploma or less (jobs)							
or professional degree (jobs) By education level - Natural gas sector - Associates degree or some college (jobs) By education level - Natural gas sector - Doctoral degree (jobs) By education level - Natural gas sector - Ligh school diploma or less (jobs) By education level - Natural gas sector - Associates degree or some college (jobs) By education level - Natural gas sector - Associates degree or some college (jobs) By education level - Natural gas sector - Associates degree or some college (jobs) By education level - Nuclear sector - Associates degree or some college (jobs) By education level - Nuclear sector - Bachelors degree (jobs) By education level - Nuclear sector - Doctoral degree (jobs) By education level - Nuclear sector - By education level - Oil sector - Bachelors By education level - Oil sector - High School diploma or less (jobs) By education level - Oil sector - High School diploma or less (jobs) By education level - Oil sector - Masters or By education level - Oil sector - Masters or By education level - Oil sector - Bachelors By education level - Oil sector - Bachelors By education level - Oil secto			26.130	34.169	52,749	65,228	75.170	92,077
By education level - Natural gas sector - Associates degree or some college (jobs)   By education level - Natural gas sector - 125,434   99,145   78,646   68,153   47,005   32,235   32,235   32,236   32,389   32,389   32,389   32,389   32,389   32,389   32,389   32,389   32,389   32,386			-,		,			,-
Associates degree or some college (jobs) By education level - Natural gas sector - 8chelors degree (jobs) By education level - Natural gas sector - 4,168 3,263 2,560 2,196 1,499 1,002 1,			180 210	145 444	118 725	106 910	75 492	53 529
By education level - Natural gas sector -   125,434   99,145   78,646   68,153   47,005   32,235   Bachelors degree (jobs)   By education level - Natural gas sector -   4,168   3,263   2,560   2,196   1,499   1,007   1,0			100,210	,	110,120	100,710	10,172	00,027
Bachelors degree (jobs)   By education level - Natural gas sector -			125 / 3/	991/.5	78 6/16	68 153	/₁7 በበ5	32 235
By education level - Natural gas sector -			125,454	77,140	10,040	00,100	41,000	32,233
Doctoral degree (jobs)   By education level - Natural gas sector - High school diploma or less (jobs)   By education level - Natural gas sector - 30,731   24,150   19,086   16,571   11,420   7,815		<del></del>	/. 14 0	2 062	2.540	2104	1 /.00	1.002
By education level - Natural gas sector - High school diploma or less (jobs)   By education level - Natural gas sector - Masters or professional degree (jobs)   By education level - Nuclear sector - Masters or professional degree (jobs)   By education level - Nuclear sector - Masters or professional degree (jobs)   By education level - Nuclear sector - Masters or professional degree (jobs)   By education level - Nuclear sector - Masters or professional degree (jobs)   By education level - Nuclear sector - Masters or professional degree (jobs)   By education level - Nuclear sector - Masters or professional degree (jobs)   By education level - Nuclear sector - Masters or professional degree (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Nuclear sector - Masters or professional degree (jobs)   By education level - Oil sector - Associates degree or some college (jobs)   By education level - Oil sector - Associates   Sy education level - Oil sector - Bachelors   Sy education level - Oil sector - High school diploma or less (jobs)   Sy education level - Oil sector - High school diploma or less (jobs)   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector - Masters or   Sy education level - Oil sector			4,100	3,203	2,360	2,190	1,477	1,002
High school diploma or less (jobs)   By education level - Natural gas sector -			000.050	177001	1// 070	107.000	00.110	(0.50/
By education level - Natural gas sector - Masters or professional degree (jobs)   By education level - Nuclear sector - Associates degree or some college (jobs)   By education level - Nuclear sector - Associates degree (jobs)   By education level - Nuclear sector - Bachelors degree (jobs)   By education level - Nuclear sector - Bachelors degree (jobs)   By education level - Nuclear sector - Bachelors degree (jobs)   By education level - Nuclear sector - Bachelors degree (jobs)   By education level - Nuclear sector - Bachelors degree (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Nuclear sector - Bachelors degree (jobs)   By education level - Nuclear sector - Bachelors degree (jobs)   By education level - Oil sector - Associates degree or some college (jobs)   By education level - Oil sector - Bachelors degree (jobs)   By education level - Oil sector - Bachelors degree (jobs)   By education level - Oil sector - Bachelors degree (jobs)   By education level - Oil sector - Bachelors degree (jobs)   By education level - Oil sector - Bachelors degree (jobs)   By education level - Oil sector - High school diploma or less (jobs)   By education level - Oil sector - High school diploma or less (jobs)   By education level - Oil sector - High school diploma or less (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Oil sector - Masters or Associates degree or some college (jobs)   By education level - Oil sector - Masters or Associates degree or some college (jobs)   By education level - Oil sector - Masters or Associates degree or some college (jobs)   By education level - Solar PV sector - Associates degree or some college (jobs)   By education level - Solar PV sector - Associates degree or some college (jobs)   By education level - Solar PV sector - Associates degree or some college (jobs)   By education level - Solar PV sector - Associates degree or some college (jobs)   By education level - Solar PV sector			220,352	177,991	144,372	127,389	89,118	62,586
Masters or professional degree (jobs)         By education level - Nuclear sector - Associates degree or some college (jobs)         13,674         13,245         13,298         10,139         9,866         14,52           Associates degree or some college (jobs)         By education level - Nuclear sector - Bachelors degree (jobs)         14,781         14,284         14,307         10,882         10,565         15,514           By education level - Nuclear sector - Doctoral degree (jobs)         648         622         619         468         452         660           By education level - Nuclear sector - High school diploma or less (jobs)         16,974         16,486         16,595         12,684         12,374         18,257           By education level - Nuclear sector - Masters or professional degree (jobs)         4,001         3,860         3,859         2,931         2,841         4,164           By education level - Oil sector - Associates degree or some college (jobs)         205,517         181,086         156,220         113,377         84,105         53,454           degree (jobs)         By education level - Oil sector - Bachelors degree (jobs)         211,988         183,998         156,434         111,473         81,174         50,466           degree (jobs)         By education level - Oil sector - High school diploma or less (jobs)         317,656         281,308 <td></td> <td></td> <td></td> <td>0.150</td> <td>10.00/</td> <td></td> <td>44.400</td> <td></td>				0.150	10.00/		44.400	
By education level - Nuclear sector - Associates degree or some college (jobs)   14,781   14,284   14,307   10,882   10,565   15,514   14,284   14,307   10,882   10,565   15,514   14,284   14,307   10,882   10,565   15,514   14,284   14,307   10,882   10,565   15,514   14,284   14,307   10,882   10,565   15,514   14,284   14,307   10,882   10,565   15,514   14,284   14,307   10,882   10,565   15,514   14,284   14,307   10,882   10,565   15,514   14,284   14,307   10,882   10,565   15,514   14,284   14,307   10,882   10,565   15,514   14,284   14,307   10,882   10,565   15,514   16,486   16,595   12,684   12,374   18,257   1			30,731	24,150	19,086	16,571	11,420	7,815
Associates degree or some college (jobs)  By education level - Nuclear sector - Bachelors degree (jobs)  By education level - Nuclear sector - Doctoral degree (jobs)  By education level - Nuclear sector - Doctoral degree (jobs)  By education level - Nuclear sector - High school diploma or less (jobs)  By education level - Nuclear sector - High school diploma or less (jobs)  By education level - Nuclear sector - Masters or professional degree (jobs)  By education level - Oil sector - Associates degree or some college (jobs)  By education level - Oil sector - Bachelors degree (jobs)  By education level - Oil sector - Bachelors degree (jobs)  By education level - Oil sector - Doctoral degree (jobs)  By education level - Oil sector - High school diploma or less (jobs)  By education level - Oil sector - High school diploma or less (jobs)  By education level - Oil sector - High school diploma or less (jobs)  By education level - Oil sector - High school diploma or less (jobs)  By education level - Oil sector - Masters or professional degree (jobs)  By education level - Oil sector - Masters or professional degree (jobs)  By education level - Solar PV sector - Associates degree or some college (jobs)  By education level - Solar PV sector - Associates degree or some college (jobs)  By education level - Solar PV sector - 95,882 138,470 182,673 191,608 206,823 269,992								
By education level - Nuclear sector - Bachelors degree (jobs)   By education level - Nuclear sector - Bachelors degree (jobs)   By education level - Nuclear sector - By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Oil sector - Associates degree (jobs)   By education level - Oil sector - Associates degree (jobs)   By education level - Oil sector - Bachelors degree (jobs)   By education level - Oil sector - Doctoral degree (jobs)   By education level - Oil sector - Doctoral degree (jobs)   By education level - Oil sector - High school diploma or less (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Oil sector - High school diploma or less (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Solar PV sector - Associates degree or some college (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional deg			13,674	13,245	13,298	10,139	9,866	14,521
Bachelors degree (jobs)   By education level - Nuclear sector - Doctoral degree (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Nuclear sector - High sequence (jobs)   By education level - Nuclear sector - High sequence (jobs)   By education level - Oil sector - Associates degree or some college (jobs)   By education level - Oil sector - Bachelors degree (jobs)   By education level - Oil sector - Bachelors degree (jobs)   By education level - Oil sector - Doctoral degree (jobs)   By education level - Oil sector - Doctoral degree (jobs)   By education level - Oil sector - High school diploma or less (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Solar PV sector - Associates degree or some college (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By educat								
By education level - Nuclear sector - Doctoral degree (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Nuclear sector - High school diploma or less (jobs)   By education level - Oil sector - Associates degree or some college (jobs)   By education level - Oil sector - Associates degree (jobs)   By education level - Oil sector - Bachelors degree (jobs)   By education level - Oil sector - Doctoral degree (jobs)   By education level - Oil sector - High school diploma or less (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Oil sector - Masters or professional degree (jobs)   By education level - Solar PV sector - Associates degree or some college (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree (jobs)   By education level - Solar PV sector - Possional degree			14,781	14,284	14,307	10,882	10,565	15,514
Doctoral degree (jobs)	Bachelors degree (jobs)							
Doctoral degree (jobs)	By education level - Nuclear sector -		648	622	619	468	452	660
School diploma or less (jobs)   By education level - Nuclear sector -   4,001   3,860   3,859   2,931   2,841   4,164   4,16								
School diploma or less (jobs)   By education level - Nuclear sector -   4,001   3,860   3,859   2,931   2,841   4,164   4,16	By education level - Nuclear sector - High		16,974	16.486	16.595	12.684	12.374	18,257
By education level - Nuclear sector -   4,001   3,860   3,859   2,931   2,841   4,164     Masters or professional degree (jobs)   By education level - Oil sector - Associates degree or some college (jobs)   By education level - Oil sector - Bachelors   205,517   181,086   156,220   113,377   84,105   53,454     degree (jobs)   By education level - Oil sector - Bachelors   211,988   183,998   156,434   111,473   81,174   50,468     degree (jobs)   By education level - Oil sector - Doctoral   6,849   5,981   5,123   3,669   2,686   1,676     degree (jobs)   By education level - Oil sector - High   317,656   281,308   243,630   178,026   132,908   85,196     school diploma or less (jobs)   By education level - Oil sector - Masters or   48,078   41,558   35,209   24,945   18,063   11,149     professional degree (jobs)   By education level - Solar PV sector -   164,788   234,837   307,393   320,490   343,060   443,850     By education level - Solar PV sector -   95,882   138,470   182,673   191,608   206,823   269,992			-,	-,	.,.	,	,-	-, -
Masters or professional degree (jobs)         205,517         181,086         156,220         113,377         84,105         53,454           degree or some college (jobs)         201,988         183,998         156,434         111,473         81,174         50,468           degree (jobs)         317,656         281,308         243,630         178,026         132,908         85,196           By education level - Oil sector - High school diploma or less (jobs)         317,656         281,308         243,630         178,026         132,908         85,196           By education level - Oil sector - Masters or professional degree (jobs)         48,078         41,558         35,209         24,945         18,063         11,149           By education level - Solar PV sector - Associates degree or some college (jobs)         164,788         234,837         307,393         320,490         343,060         443,850           By education level - Solar PV sector -         95,882         138,470         182,673         191,608         206,823         269,992		-	4 NN1	3.860	3 859	2 931	2 841	4,164
By education level - Oil sector - Associates degree or some college (jobs)   205,517   181,086   156,220   113,377   84,105   53,454   183,998   156,434   111,473   81,174   50,468   183,998   156,434   111,473   81,174   50,468   183,998   156,434   111,473   111	,		4,001	0,000	0,007	2,701	2,041	4,104
degree or some college (jobs)         211,988         183,998         156,434         111,473         81,174         50,468           degree (jobs)         6,849         5,981         5,123         3,669         2,686         1,676           By education level - Oil sector - High school diploma or less (jobs)         317,656         281,308         243,630         178,026         132,908         85,196           By education level - Oil sector - Masters or professional degree (jobs)         48,078         41,558         35,209         24,945         18,063         11,149           By education level - Solar PV sector - Associates degree or some college (jobs)         164,788         234,837         307,393         320,490         343,060         443,850           By education level - Solar PV sector -         95,882         138,470         182,673         191,608         206,823         269,992			205 517	101 006	156 220	112 277	Q/, 105	52 / 5/
By education level - Oil sector - Bachelors degree (jobs)       211,988       183,998       156,434       111,473       81,174       50,468         By education level - Oil sector - Doctoral degree (jobs)       6,849       5,981       5,123       3,669       2,686       1,676         By education level - Oil sector - High school diploma or less (jobs)       317,656       281,308       243,630       178,026       132,908       85,196         By education level - Oil sector - Masters or professional degree (jobs)       48,078       41,558       35,209       24,945       18,063       11,149         By education level - Solar PV sector - Associates degree or some college (jobs)       164,788       234,837       307,393       320,490       343,060       443,850         By education level - Solar PV sector -       95,882       138,470       182,673       191,608       206,823       269,992	•		200,011	101,000	130,220	113,311	04,103	33,434
degree (jobs)       By education level - Oil sector - Doctoral degree (jobs)       6,849       5,981       5,123       3,669       2,686       1,676         By education level - Oil sector - High school diploma or less (jobs)       317,656       281,308       243,630       178,026       132,908       85,196         By education level - Oil sector - Masters or professional degree (jobs)       48,078       41,558       35,209       24,945       18,063       11,149         By education level - Solar PV sector - Associates degree or some college (jobs)       164,788       234,837       307,393       320,490       343,060       443,850         By education level - Solar PV sector - Associates degree or some college (jobs)       95,882       138,470       182,673       191,608       206,823       269,992			011 000	102.000	1E/ /.0/.	111 / 70	01 17/	E0 // 0
By education level - Oil sector - Doctoral degree (jobs)       6,849       5,981       5,123       3,669       2,686       1,676         By education level - Oil sector - High school diploma or less (jobs)       317,656       281,308       243,630       178,026       132,908       85,196         By education level - Oil sector - Masters or professional degree (jobs)       48,078       41,558       35,209       24,945       18,063       11,149         By education level - Solar PV sector - Associates degree or some college (jobs)       164,788       234,837       307,393       320,490       343,060       443,850         By education level - Solar PV sector -       95,882       138,470       182,673       191,608       206,823       269,992	•		۷۱۱٫۶۵۵	103,778	100,434	111,473	01,174	50,468
degree (jobs)         317,656         281,308         243,630         178,026         132,908         85,196           school diploma or less (jobs)         By education level - Oil sector - Masters or professional degree (jobs)         48,078         41,558         35,209         24,945         18,063         11,149           By education level - Solar PV sector - Associates degree or some college (jobs)         164,788         234,837         307,393         320,490         343,060         443,850           By education level - Solar PV sector - Associates degree or some college (jobs)         95,882         138,470         182,673         191,608         206,823         269,992			( 0 ( 0	5.001	F 100	0.770	0.404	1 (7)
By education level - Oil sector - High school diploma or less (jobs)       317,656       281,308       243,630       178,026       132,908       85,196         By education level - Oil sector - Masters or professional degree (jobs)       48,078       41,558       35,209       24,945       18,063       11,149         By education level - Solar PV sector - Associates degree or some college (jobs)       164,788       234,837       307,393       320,490       343,060       443,850         By education level - Solar PV sector -       95,882       138,470       182,673       191,608       206,823       269,992			6,849	5,981	5,123	3,669	2,686	1,676
school diploma or less (jobs)       48,078       41,558       35,209       24,945       18,063       11,149         professional degree (jobs)       By education level - Solar PV sector - Associates degree or some college (jobs)       164,788       234,837       307,393       320,490       343,060       443,850         By education level - Solar PV sector -       95,882       138,470       182,673       191,608       206,823       269,992								
By education level - Oil sector - Masters or professional degree (jobs)       48,078       41,558       35,209       24,945       18,063       11,149         By education level - Solar PV sector - Associates degree or some college (jobs)       164,788       234,837       307,393       320,490       343,060       443,850         By education level - Solar PV sector -       95,882       138,470       182,673       191,608       206,823       269,992			317,656	281,308	243,630	178,026	132,908	85,196
professional degree (jobs)         164,788         234,837         307,393         320,490         343,060         443,850           Associates degree or some college (jobs)         By education level - Solar PV sector -         95,882         138,470         182,673         191,608         206,823         269,992								
By education level - Solar PV sector -       164,788       234,837       307,393       320,490       343,060       443,850         Associates degree or some college (jobs)       95,882       138,470       182,673       191,608       206,823       269,992			48,078	41,558	35,209	24,945	18,063	11,149
Associates degree or some college (jobs)         95,882         138,470         182,673         191,608         206,823         269,992								
Associates degree or some college (jobs)         95,882         138,470         182,673         191,608         206,823         269,992	By education level - Solar PV sector -		164,788	234,837	307,393	320,490	343,060	443,850
By education level - Solar PV sector - 95,882 138,470 182,673 191,608 206,823 269,992								
			95,882	138,470	182,673	191,608	206,823	269,992
Bachelors degree liobs	Bachelors degree (jobs)		-,			,	.,,,==	- ,· · -
		+	3 060	4 368	6 000	6748	7640	10,419
Doctoral degree (jobs)			0,000	.,500	0,000	5,. 40	1,540	10,417
Soctor at adg. on (Jobb)	Social all dogs on (Jobb)							

Table 18: E+ scenario - IMPACTS - Jobs (continued)

Table 18: E+ scenario - IMPACTS - Jobs (co	ontinuedJ						
Item	2020	2025	2030	2035	2040	2045	2050
By education level - Solar PV sector - High		231,393	327,184	424,471	437,706	463,185	591,893
school diploma or less (jobs)							
By education level - Solar PV sector -		20,683	29,884	40,194	43,503	48,096	64,253
Masters or professional degree (jobs)							
By education level - Wind sector -		90,548	155,487	214,391	251,340	274,127	337,524
Associates degree or some college (jobs)							
By education level - Wind sector -		61,100	106,265	149,131	179,373	200,891	250,390
Bachelors degree (jobs)						10.01-	
By education level - Wind sector -		2,350	4,179	6,218	8,241	10,015	12,570
Doctoral degree (jobs)		117 / 05	100 (00	070 700	00001	007.010	000 115
By education level - Wind sector - High		117,435	199,638	270,729	308,916	327,219	398,115
school diploma or less (jobs)  By education level - Wind sector - Masters		1/ 070	25,102	07.100	/ 5 550	E0 10E	// /10
or professional degree (jobs)		14,270	25,102	36,192	45,552	53,135	66,610
By resource sector - Biomass (jobs)		83,448	93,313	109,174	106,831	133,053	206,231
By resource sector - CO2 (jobs)		4,517	63,856	54,811	25,821	39,491	74,649
By resource sector - Coal (jobs)		69,612	18,956	10,843	9,383	8,412	7,426
By resource sector - Grid (jobs)		545,891	721,002	1,124,114	1,403,724	1,633,410	2,020,076
By resource sector - Natural Gas (jobs)		560,896	449,993	363,389	321,219	224,534	157,167
By resource sector - Nuclear (jobs)		50,077	48,496	48,678	37,104	36,098	53,115
By resource sector - Nuclear (jobs)		790,088	693,932	596,616	431,490	318,938	201,943
By resource sector - Oil (Jobs)		515,805	734,743	960,731	1,000,054	1,068,804	1,380,406
By resource sector - Wind (jobs)		285,703	490,671	676,661	793,422	865,386	1,065,209
Median wages - Annual - Biomass (\$2019		51,939	53,204	55,103	58,458	62,415	64,160
per job)		31,737	33,204	55,105	36,436	02,413	04,100
Median wages - Annual - CO2 (\$2019 per		63,115	62,869	64,234	66,184	67,224	67,032
job)		03,113	02,007	04,234	00,104	01,224	01,032
Median wages - Annual - Coal (\$2019 per		60,501	59,195	55,643	56,541	57,484	58,469
job)		00,501	07,170	00,040	30,541	01,404	00,407
Median wages - Annual - Grid (\$2019 per		62,539	63,375	64,248	65,159	66,110	67,102
job)		02,007	00,010	0 1,2 10	00/107	00,0	0.,.02
Median wages - Annual - Natural Gas		66,244	67,110	67,844	68,369	69,119	69,706
(\$2019 per job)			51,115	5.75	55,551		01,100
Median wages - Annual - Nuclear (\$2019		71,486	73,188	74,974	76,846	78,808	80,864
per job)		,	-,	,	-,-	-,	,
Median wages - Annual - Oil (\$2019 per		65,834	66,720	67,650	68,456	69,277	69,993
job)						-	
Median wages - Annual - Solar (\$2019 per		55,418	56,093	56,985	58,064	59,155	60,323
job)							
Median wages - Annual - Wind (\$2019 per		58,179	59,132	60,462	62,327	64,299	65,507
job)							
On-Site or In-Plant Training - Biomass		8,420	9,462	11,465	11,778	15,479	24,303
sector - 1 to 4 years (jobs)							
On-Site or In-Plant Training - Biomass		2,630	2,899	3,633	3,912	5,516	8,939
sector - 4 to 10 years (jobs)							
On-Site or In-Plant Training - Biomass		13,478	15,270	18,154	18,473	23,872	36,959
sector - None (jobs)							
On-Site or In-Plant Training - Biomass		584	624	716	660	802	1,299
sector - Over 10 years (jobs)							
On-Site or In-Plant Training - Biomass		58,337	65,059	75,205	72,008	87,384	134,729
sector - Up to 1 year (jobs)							
On-Site or In-Plant Training - CO2 sector -		822	11,889	10,111	4,681	7,161	13,796
1 to 4 years (jobs)							
On-Site or In-Plant Training - CO2 sector -		398	5,916	4,982	2,263	3,464	6,818
4 to 10 years (jobs)							
On-Site or In-Plant Training - CO2 sector -		696	9,738	8,397	3,989	6,102	11,439
None (jobs)							
On-Site or In-Plant Training - CO2 sector -		47.2	703	590	267	408	805
Over 10 years (jobs)				0	40.55		
On-Site or In-Plant Training - CO2 sector -		2,554	35,610	30,731	14,621	22,355	41,790
Up to 1 year (jobs)							

Table 18: E+ scenario - IMPACTS - Jobs (continued)

Table 18: E+ scenario - IMPACTS - Jobs (co	intinued)						
Item	2020	2025	2030	2035	2040	2045	2050
On-Site or In-Plant Training - Coal sector -		10,870	2,930	1,588	1,369	1,222	1,074
1 to 4 years (jobs)							
On-Site or In-Plant Training - Coal sector -		4,169	1,017	428	368	328	287
4 to 10 years (jobs)							
On-Site or In-Plant Training - Coal sector -		10,259	2,664	1,410	1,245	1,139	1,026
None (jobs)			,		·		•
On-Site or In-Plant Training - Coal sector -		502	120	47.1	41.7	38.2	34.4
Over 10 years (jobs)		002	.20			00.2	0
On-Site or In-Plant Training - Coal sector -		43,813	12,226	7,370	6,360	5,685	5,004
Up to 1 year (jobs)		40,010	12,220	1,510	0,000	0,000	3,004
On-Site or In-Plant Training - Grid sector -		94,286	124,689	194,641	243,343	283,483	350,975
		94,286	124,009	194,641	243,343	203,403	350,975
1 to 4 years (jobs)		/1 / 00	F / 7F 0	05 / / /	10 / 700	107,000	150.055
On-Site or In-Plant Training - Grid sector -		41,409	54,750	85,444	106,798	124,383	153,955
4 to 10 years (jobs)							
On-Site or In-Plant Training - Grid sector -		83,130	109,551	170,425	212,356	246,578	304,311
None (jobs)							
On-Site or In-Plant Training - Grid sector -		5,368	7,093	11,063	13,819	16,084	19,896
Over 10 years (jobs)							
On-Site or In-Plant Training - Grid sector -		321,698	424,920	662,541	827,408	962,883	1,190,940
Up to 1 year (jobs)							
On-Site or In-Plant Training - Natural gas		94,541	76,217	61,976	55,313	38,887	27,463
sector - 1 to 4 years (jobs)		,-	-,		,-		,
On-Site or In-Plant Training - Natural gas		41,989	34,111	28,034	25,381	17,986	12,842
sector - 4 to 10 years (jobs)		41,707	04,111	20,004	20,001	11,700	12,042
On-Site or In-Plant Training - Natural gas		89,308	71,273	57,315	50,611	35,322	24,690
sector - None (jobs)		07,300	11,210	31,313	30,011	33,322	24,070
		/ 000	/ 077	2 205	0.110	0.001	1.50/
On-Site or In-Plant Training - Natural gas		4,983	4,077	3,385	3,110	2,221	1,594
sector - Over 10 years (jobs)			2// 2//	212 (=2	10 ( 00 =	100110	
On-Site or In-Plant Training - Natural gas		330,074	264,314	212,678	186,805	130,118	90,578
sector - Up to 1 year (jobs)							
On-Site or In-Plant Training - Nuclear		7,389	7,165	7,200	5,494	5,352	7,883
sector - 1 to 4 years (jobs)							
On-Site or In-Plant Training - Nuclear		2,675	2,592	2,605	1,987	1,935	2,850
sector - 4 to 10 years (jobs)							
On-Site or In-Plant Training - Nuclear		8,964	8,672	8,696	6,622	6,437	9,462
sector - None (jobs)							
On-Site or In-Plant Training - Nuclear		251	243	244	186	181	266
sector - Over 10 years (jobs)							
On-Site or In-Plant Training - Nuclear		30,798	29,824	29,934	22,814	22,194	32,654
sector - Up to 1 year (jobs)		00,170	27,021	2,,,0 .	22,011	22,171	02,00
On-Site or In-Plant Training - Oil sector - 1		116,425	102,660	88,637	64,336	47,729	30,322
to 4 years (jobs)		110,425	102,000	00,031	04,330	41,127	30,322
		/1 OFO	27 / EO	21 / 0 /	00 107	17 220	11,117
On-Site or In-Plant Training - Oil sector -		41,052	36,459	31,686	23,187	17,338	11,117
4 to 10 years (jobs)		107.010	110 000	0/ /00	/7.070	10710	01.070
On-Site or In-Plant Training - Oil sector -		127,218	110,889	94,600	67,873	49,768	31,263
None (jobs)							
On-Site or In-Plant Training - Oil sector -		4,547	4,112	3,638	2,706	2,055	1,336
Over 10 years (jobs)							
On-Site or In-Plant Training - Oil sector -		500,847	439,812	378,054	273,388	202,047	127,906
Up to 1 year (jobs)							
On-Site or In-Plant Training - Solar PV		82,983	117,488	153,335	159,628	170,308	219,490
sector - 1 to 4 years (jobs)							
On-Site or In-Plant Training - Solar PV		29,899	41,330	54,513	58,499	63,477	83,065
sector - 4 to 10 years (jobs)		, -	,		,	,	,
On-Site or In-Plant Training - Solar PV		88,134	125,796	164,778	171,845	184,034	238,197
sector - None (jobs)		00,104	120,170	104,110	111,040	104,004	200,171
On-Site or In-Plant Training - Solar PV		4,143	5,851	7,655	8,016	8,585	11,107
		4,143	3,031	1,000	0,010	0,303	11,107
sector - Over 10 years (jobs)		010 ( ) (	111070	500 / 50	(00.044	(10.000	000 577
On-Site or In-Plant Training - Solar PV		310,646	444,278	580,450	602,066	642,399	828,547
sector - Up to 1 year (jobs)							

Table 18: E+ scenario - IMPACTS - Jobs (continued)

Table 18: E+ scenario - IMPACTS - Jobs (c	ontinuedj						
Item	2020	2025	2030	2035	2040	2045	2050
On-Site or In-Plant Training - Total jobs - 1		460,684	529,457	634,960	670,336	705,271	841,598
to 4 years (jobs)							
On-Site or In-Plant Training - Total jobs - 4		180,122	206,337	249,955	270,475	289,645	347,264
to 10 years (jobs)							
On-Site or In-Plant Training - Total jobs -		470,789	539,227	641,862	672,087	705,638	845,311
None (jobs)							
On-Site or In-Plant Training - Total jobs -		22,722	26,766	32,811	35,322	37,584	45,188
Over 10 years (jobs)		,			•	·	·
On-Site or In-Plant Training - Total jobs -		1,771,719	2,013,176	2,385,426	2,480,828	2,589,988	3,086,860
Up to 1 year (jobs)		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			_,,	_,_,_,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
On-Site or In-Plant Training - Wind sector		44,948	76,957	106,007	124,393	135,650	166,292
- 1 to 4 years (jobs)		44,740	10,701	100,001	124,070	100,000	100,272
On-Site or In-Plant Training - Wind sector		15,900	27,264	38,630	48,080	55,219	67,391
- 4 to 10 years (jobs)		10,700	21,204	30,000	40,000	00,217	01,071
On-Site or In-Plant Training - Wind sector		49,603	85,374	118,087	139,074	152,387	187,964
		49,603	05,514	110,001	139,014	102,301	101,704
- None (jobs) On-Site or In-Plant Training - Wind sector		0.000	20/2	F / 70	/ F10	7000	0.050
		2,298	3,943	5,473	6,518	7,209	8,850
- Over 10 years (jobs)		470.050	007400	100110	/75.057	547.000	(0) 740
On-Site or In-Plant Training - Wind sector		172,952	297,133	408,463	475,357	514,922	634,712
- Up to 1 year (jobs)							
On-the-Job Training - All sectors - 1 to 4		588,008	676,480	812,850	861,245	908,184	1,084,724
years (jobs)							
On-the-Job Training - All sectors - 4 to 10		169,526	196,581	241,260	264,166	284,985	343,527
years (jobs)							
On-the-Job Training - All sectors - None		161,120	181,252	213,541	222,332	233,363	279,915
(jobs)							
On-the-Job Training - All sectors - Over 10		29,074	33,921	40,044	40,959	42,037	49,756
years (jobs)							
On-the-Job Training - All sectors - Up to 1		1,958,309	2,226,727	2,637,320	2,740,346	2,859,558	3,408,299
year (jobs)							
On-the-Job Training - Biomass sector - 1		9,212	10,374	12,819	13,599	18,521	29,345
to 4 years (jobs)		7,2.2	10,011	,	.0,077	.0,02.	
On-the-Job Training - Biomass sector - 4		2,109	2,385	3,105	3,464	4,955	7,973
to 10 years (jobs)		2,107	2,000	0,100	0,404	4,700	1,710
On-the-Job Training - Biomass sector -		5,212	5,588	6,391	6,163	7,872	12,541
None (jobs)		3,212	3,366	0,371	0,103	1,012	12,041
On-the-Job Training - Biomass sector -		598	640	747	710	894	1,449
		370	040	141	710	074	1,447
Over 10 years (jobs)		// 01/	7/ 00/	07 110	00.005	100.011	154,923
On-the-Job Training - Biomass sector - Up		66,316	74,326	86,112	82,895	100,811	154,923
to 1 year (jobs)		1.001	15.000	10 / / /	( 011	0.500	10.077
On-the-Job Training - CO2 sector - 1 to 4		1,091	15,833	13,446	6,211	9,500	18,344
years (jobs)							
On-the-Job Training - CO2 sector - 4 to 10		398	5,980	5,013	2,256	3,455	6,872
years (jobs)							
On-the-Job Training - CO2 sector - None		217	2,962	2,581	1,248	1,911	3,519
(jobs)							
On-the-Job Training - CO2 sector - Over		45	643	552	260	398	761
10 years (jobs)							
On-the-Job Training - CO2 sector - Up to 1		2,767	38,439	33,219	15,847	24,226	45,154
year (jobs)							
On-the-Job Training - Coal sector - 1 to 4		13,806	3,667	1,903	1,643	1,469	1,294
years (jobs)							
On-the-Job Training - Coal sector - 4 to 10		4,083	1,004	421	359	318	276
years (jobs)		,	,				
On-the-Job Training - Coal sector - None		3,439	897	504	443	403	361
(jobs)		,,,,,,,	371	304	-1-10	400	
On-the-Job Training - Coal sector - Over		468	127	70.2	62.7	58	53
10 years (jobs)			121	10.2	02.1	]	
On-the-Job Training - Coal sector - Up to 1		47,816	13,261	7,946	6,876	6,164	5,442
year (jobs)		41,010	13,201	1,740	0,010	0,104	3,442
year (Juus)							

Table 18: E+ scenario - IMPACTS - Jobs (continued)

Table 18: E+ scenario - IMPACTS - Jobs (cc	-						
Item	2020	2025	2030	2035	2040	2045	2050
On-the-Job Training - Grid sector - 1 to 4		122,626	162,087	252,894	316,014	367,956	455,329
years (jobs)							
On-the-Job Training - Grid sector - 4 to 10		41,676	55,137	86,103	107,688	125,497	155,428
years (jobs)		0 ( 71 (	05.007	54.045		70.500	
On-the-Job Training - Grid sector - None		26,716	35,237	54,865	68,427	79,528	98,244
(jobs)		/ 075	F 700	0.070	11 010	10 107	17,000
On-the-Job Training - Grid sector - Over		4,375	5,789	9,042	11,312	13,187	16,339
10 years (jobs) On-the-Job Training - Grid sector - Up to 1		350,498	462,751	721,208	900,283	1,047,242	1,294,736
year (jobs)		350,496	402,731	121,200	900,203	1,041,242	1,294,130
On-the-Job Training - Natural gas sector -		124,350	100,227	81,565	72,994	51,383	36,361
1 to 4 years (jobs)		124,330	100,221	01,303	12,774	31,363	30,301
On-the-Job Training - Natural gas sector -		39,977	32,555	26,896	24,586	17,510	12,595
4 to 10 years (jobs)		32,711	02,000	20,070	24,000	11,510	12,070
On-the-Job Training - Natural gas sector -		29,256	23,161	18,408	15,980	11,043	7,637
None (jobs)		27,200	20,101	10,400	10,700	11,040	1,001
On-the-Job Training - Natural gas sector -		5,326	4,263	3,418	2,974	2,062	1,437
Over 10 years (jobs)		0,020	.,_55	,	_,,	_,00_	.,
On-the-Job Training - Natural gas sector -		361,987	289,787	233,101	204,684	142,536	99,137
Up to 1 year (jobs)		001,701	207,101	200,101	20 1,00 1	1 12,000	,,,
On-the-Job Training - Nuclear sector - 1 to		9,695	9,399	9,444	7,206	7,018	10,337
4 years (jobs)		7,070	7,077	7,	.,	.,0.0	.0,00.
On-the-Job Training - Nuclear sector - 4		2,338	2,267	2,278	1,739	1,694	2,495
to 10 years (jobs)		,	, -	, -	, -	, -	, -
On-the-Job Training - Nuclear sector -		3,363	3,256	3,267	2,489	2,420	3,560
None (jobs)			·	,			
On-the-Job Training - Nuclear sector -		521	506	508	388	378	558
Over 10 years (jobs)							
On-the-Job Training - Nuclear sector - Up		34,159	33,069	33,180	25,282	24,588	36,166
to 1 year (jobs)							
On-the-Job Training - Oil sector - 1 to 4		144,006	126,810	109,359	79,265	58,730	37,263
years (jobs)							
On-the-Job Training - Oil sector - 4 to 10		34,011	30,239	26,292	19,275	14,437	9,286
years (jobs)							
On-the-Job Training - Oil sector - None		48,070	41,572	35,156	25,044	18,229	11,385
(jobs)							
On-the-Job Training - Oil sector - Over 10		7,713	6,796	5,864	4,255	3,156	2,007
years (jobs)							
On-the-Job Training - Oil sector - Up to 1		556,287	488,515	419,945	303,651	224,385	142,002
year (jobs)							
On-the-Job Training - Solar PV sector - 1		105,483	149,158	194,772	203,084	216,861	279,704
to 4 years (jobs)							
On-the-Job Training - Solar PV sector - 4		29,617	40,781	53,887	58,122	63,247	82,980
to 10 years (jobs)							
On-the-Job Training - Solar PV sector -		29,164	41,562	54,814	57,873	62,565	81,744
None (jobs)							
On-the-Job Training - Solar PV sector -		6,568	9,287	11,937	12,111	12,638	15,909
Over 10 years (jobs)							
On-the-Job Training - Solar PV sector - Up		344,974	493,955	645,320	668,864	713,493	920,067
to 1 year (jobs)							
On-the-Job Training - Wind sector - 1 to 4		57,738	98,924	136,648	161,230	176,746	216,748
years (jobs)		1= 01=	21.221	2=211			
On-the-Job Training - Wind sector - 4 to		15,317	26,234	37,266	46,677	53,872	65,621
10 years (jobs)		17 (22	27.212			10001	
On-the-Job Training - Wind sector - None		15,682	27,018	37,554	44,665	49,391	60,924
(jobs)		0.7.40	E 074	700/	0.007	0011	44.07.0
On-the-Job Training - Wind sector - Over		3,460	5,871	7,904	8,886	9,264	11,243
10 years (jobs)		100 505	000 (0)	/ 57.000	F010//	F7/ 440	710 (70
On-the-Job Training - Wind sector - Up to		193,505	332,624	457,289	531,964	576,113	710,673
1 year (jobs)							

Table 18: E+ scenario - IMPACTS - Jobs (continued)

Table 18: E+ scenario - IMPACTS - Jobs (co	ntınued)						
Item	2020	2025	2030	2035	2040	2045	2050
Related work experience - All sectors - 1		1,056,537	1,195,884	1,417,749	1,483,718	1,555,896	1,852,919
to 4 years (jobs)							
Related work experience - All sectors - 4		673,659	766,235	911,390	958,053	1,006,857	1,200,224
to 10 years (jobs)					-		
Related work experience - All sectors -		411,112	471,328	563,632	592,544	622,780	745,590
None (jobs)		,	,020	000,002	0,2,0	022,100	1 10,070
Related work experience - All sectors -		186,998	212,488	250,578	259,277	269,155	319,055
Over 10 years (jobs)		100,770	212,400	230,310	207,211	207,133	317,033
Related work experience - All sectors - Up		577,730	((0.007	001///	835,456	070 / 00	10/0/0/
		511,130	669,027	801,666	835,456	873,438	1,048,434
to 1 year (jobs)				21.222	07.100		
Related work experience - Biomass sector		24,915	28,344	34,009	35,192	46,257	71,775
- 1 to 4 years (jobs)							
Related work experience - Biomass sector		13,033	14,336	17,291	18,283	25,407	40,776
- 4 to 10 years (jobs)							
Related work experience - Biomass sector		14,115	15,813	18,262	17,227	20,285	30,827
- None (jobs)							
Related work experience - Biomass sector		3,589	3,882	4,597	4,707	6,438	10,462
- Over 10 years (jobs)				,-	, -	-,	
Related work experience - Biomass sector		27,797	30,938	35,014	31,422	34,666	52,391
- Up to 1 year (jobs)		21,171	30,730	33,014	31,422	34,000	32,371
		1 / 00	00.757	10 500	0.07/	1/ 177	07.700
Related work experience - CO2 sector - 1		1,623	22,754	19,583	9,276	14,177	26,608
to 4 years (jobs)							
Related work experience - CO2 sector - 4		1,115	15,808	13,544	6,363	9,727	18,419
to 10 years (jobs)							
Related work experience - CO2 sector -		691	9,938	8,464	3,932	6,012	11,526
None (jobs)							
Related work experience - CO2 sector -		279	3,841	3,332	1,602	2,448	4,521
Over 10 years (jobs)			_,_	_,	,	, -	,-
Related work experience - CO2 sector -		808	11,516	9,888	4,649	7,127	13,574
Up to 1 year (jobs)		000	11,010	7,000	4,047	1,121	10,014
		07 7.00	7.001	/. 1/.7	0 E01	2 202	2.020
Related work experience - Coal sector - 1		26,408	7,201	4,147	3,581	3,203	2,820
to 4 years (jobs)		45 540	0.000	0.000	4707	4 (04	1 / / 0
Related work experience - Coal sector - 4		15,512	3,989	2,039	1,786	1,621	1,448
to 10 years (jobs)							
Related work experience - Coal sector -		9,454	2,500	1,349	1,167	1,046	923
None (jobs)							
Related work experience - Coal sector -		3,917	1,045	562	495	451	405
Over 10 years (jobs)							
Related work experience - Coal sector -		14,320	4,221	2,746	2,355	2,091	1,829
Up to 1 year (jobs)		,626	.,	_,	_,000	_,0,,	.,0_,
Related work experience - Grid sector - 1		197,397	260,515	405,854	506,416	588,827	727,660
to 4 years (jobs)		171,371	200,515	403,034	300,410	300,021	121,000
, ,		100.071	170 (00	0/5 500	001100	207 707	/75.000
Related work experience - Grid sector - 4		129,361	170,600	265,580	331,138	384,737	475,090
to 10 years (jobs)							
Related work experience - Grid sector -		81,081	107,171	167,209	208,939	243,276	301,036
None (jobs)							
Related work experience - Grid sector -		33,530	44,244	68,915	85,976	99,950	123,496
Over 10 years (jobs)							
Related work experience - Grid sector -		104,522	138,472	216,555	271,256	316,620	392,794
Up to 1 year (jobs)			,		,		_ ,
Related work experience - Natural gas		206,984	165,949	133,846	118,069	82,427	57,537
sector - 1 to 4 years (jobs)		200,704	100,747	100,040	110,009	02,421	01,001
		107707	110 E / 1	00 / 00	70 / 07	EF /OF	20.020
Related work experience - Natural gas		137,737	110,541	89,428	79,407	55,625	39,032
sector - 4 to 10 years (jobs)							
Related work experience - Natural gas		81,233	65,487	53,255	47,552	33,439	23,590
sector - None (jobs)		<u> </u>					
Related work experience - Natural gas		37,380	29,816	23,850	20,763	14,387	9,952
sector - Over 10 years (jobs)							
Related work experience - Natural gas		97,562	78,199	63,010	55,428	38,657	27,056
sector - Up to 1 year (jobs)							
op to 1/000/		1	l			L	L

Table 18: E+ scenario - IMPACTS - Jobs (continued)

Table 10. Et Scellul 10 - IMPAGIS - Jubs (cui	itiiiueuj						
Item	2020	2025	2030	2035	2040	2045	2050
Related work experience - Nuclear sector		18,691	18,095	18,157	13,835	13,456	19,792
- 1 to 4 years (jobs)							
Related work experience - Nuclear sector		12,126	11,737	11,774	8,970	8,722	12,828
- 4 to 10 years (jobs)							
Related work experience - Nuclear sector		6,312	6,119	6,149	4,692	4,569	6,729
- None (jobs)							
Related work experience - Nuclear sector		3,733	3,615	3,629	2,767	2,692	3,962
- Over 10 years (jobs)							
Related work experience - Nuclear sector		9,215	8,930	8,969	6,840	6,659	9,804
- Up to 1 year (jobs)							
Related work experience - Oil sector - 1 to		301,085	264,533	227,574	164,533	121,573	76,878
4 years (jobs)							
Related work experience - Oil sector - 4 to		182,691	160,250	137,652	99,339	73,274	46,250
10 years (jobs)							
Related work experience - Oil sector -		106,469	93,826	80,891	58,779	43,645	27,806
None (jobs)							
Related work experience - Oil sector -		52,541	46,027	39,527	28,483	20,992	13,227
Over 10 years (jobs)							
Related work experience - Oil sector - Up		147,302	129,295	110,972	80,355	59,452	37,782
to 1 year (jobs)							
Related work experience - Solar PV sector		178,700	255,062	334,418	349,336	374,646	485,644
- 1 to 4 years (jobs)							
Related work experience - Solar PV sector		115,524	164,399	215,113	224,295	239,948	310,167
- 4 to 10 years (jobs)							
Related work experience - Solar PV sector		72,936	103,860	136,243	142,633	153,161	198,797
- None (jobs)							
Related work experience - Solar PV sector		32,853	47,093	61,102	62,541	66,045	84,286
- Over 10 years (jobs)							
Related work experience - Solar PV sector		115,793	164,330	213,855	221,249	235,003	301,512
- Up to 1 year (jobs)							
Related work experience - Wind sector - 1		100,735	173,429	240,161	283,481	311,331	384,205
to 4 years (jobs)							
Related work experience - Wind sector - 4		66,560	114,576	158,967	188,472	207,796	256,214
to 10 years (jobs)							
Related work experience - Wind sector -		38,823	66,614	91,811	107,623	117,347	144,355
None (jobs)							
Related work experience - Wind sector -		19,175	32,926	45,063	51,945	55,750	68,743
Over 10 years (jobs)					•		
Related work experience - Wind sector -		60,410	103,126	140,658	161,902	173,162	211,692
Up to 1 year (jobs)			-		•		
Wage income - Biomass (million \$2019)		4,334	4,965	6,016	6,245	8,304	13,232
Wage income - CO2 (million \$2019)		285	4,015	3,521	1,709	2,655	5,004
Wage income - Coal (million \$2019)		4,212	1,122	603	531	484	434
Wage income - Grid (million \$2019)		34,140	45,693	72,222	91,465	107,985	135,551
Wage income - Natural Gas (million \$2019)		37,156	30,199	24,654	21,962	15,520	10,956
Wage income - Nuclear (million \$2019)		3,580	3,549	3,650	2,851	2,845	4,295
Wage income - Oil (million \$2019)		52,015	46,299	40,361	29,538	22,095	14,135
Wage income - Solar (million \$2019)		28,585	41,214	54,747	58,067	63,225	83,270
Wage income - Wind (million \$2019)		16,622	29,014	40,912	49,452	55,644	69,778
vvago moomo - vvina (mililon 42017)		10,022	27,014	40,712	7,402	55,044	07,110

Table 19: E- scenario - PILLAR 1: Efficiency/Electrification - Commercial

Item	2020	2025	2030	2035	2040	2045	2050
Commercial HVAC investment in 2020s -	0	1,046,837	1,158,815	0	0	0	0
Cumulative 5-yr (million \$2018)							
Sales of cooking units - Electric	32.5	36.5	41.3	53.8	71.2	81.9	85.6
Resistance (%)							
Sales of cooking units - Gas (%)	67.5	63.5	58.7	46.2	28.8	18.1	14.4
Sales of space heating units - Electric	2.95	11.9	15.9	27.6	48.1	65.9	74.2
Heat Pump (%)							

Table 19: E- scenario - PILLAR 1: Efficiency/Electrification - Commercial (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Sales of space heating units - Electric	7.91	8.18	8.72	10.5	13.8	16.4	17.6
Resistance (%)							
Sales of space heating units - Fossil (%)	3.94	3.79	3.71	2.91	1.53	0.589	0.302
Sales of space heating units - Gas Furnace	85.2	76.1	71.7	59	36.6	17.1	7.89
(%)							
Sales of water heating units - Electric	0.385	1.8	5.78	17.4	36.6	51.2	57.3
Heat Pump (%)							
Sales of water heating units - Electric	3.8	4.53	6.39	12	21.9	30.4	34.4
Resistance (%)							
Sales of water heating units - Gas Furnace	94.1	92	86.2	69	40.2	17.2	7.13
(%)							
Sales of water heating units - Other (%)	1.66	1.67	1.66	1.51	1.31	1.18	1.14

#### Table 20: E- scenario - PILLAR 1: Efficiency/Electrification - Electricity demand

Item	2020	2025	2030	2035	2040	2045	2050
Electricity distribution capital invested -		149	150	201	208	298	315
Cumulative 5-yr (billion \$2018)							

#### Table 21: E- scenario - PILLAR 1: Efficiency/Electrification - Overview

Item	2020	2025	2030	2035	2040	2045	2050
Final energy use - Commercial (PJ)	9,015	8,958	8,853	8,731	8,513	8,263	8,058
Final energy use - Industry (PJ)	25,084	26,117	26,456	26,354	26,498	26,178	25,748
Final energy use - Residential (PJ)	11,788	11,126	10,656	10,151	9,457	8,609	7,786
Final energy use - Transportation (PJ)	28,030	26,603	24,463	22,703	21,315	19,677	17,739

# Table 22: E- scenario - PILLAR 1: Efficiency/Electrification - Residential

Item	2020	2025	2030	2035	2040	2045	2050
Residential HVAC investment in 2020s vs.	0	252	303	0	0	0	0
REF - Cumulative 5-yr (billion \$2018)							
Sales of cooking units - Electric	61.2	62.2	65.8	75.1	88.1	96.2	99
Resistance (%)							
Sales of cooking units - Gas (%)	38.8	37.8	34.2	24.9	11.9	3.83	1.03
Sales of space heating units - Electric	14.6	21	25.3	37.6	58.4	75.1	82.4
Heat Pump (%)							
Sales of space heating units - Electric	20.3	24.4	23.2	19.9	14.3	10.3	8.67
Resistance (%)							
Sales of space heating units - Fossil (%)	9.95	14.5	13.8	11.4	7.66	5.01	4.02
Sales of space heating units - Gas (%)	55.2	40	37.7	31.1	19.6	9.59	4.95
Sales of water heating units - Electric	0	1.36	5.25	16.7	35.2	49.3	55.3
Heat Pump (%)							
Sales of water heating units - Electric	38.4	51.5	50.3	47	42.1	39.6	38.9
Resistance (%)							
Sales of water heating units - Gas Furnace	58	44.5	41.9	34	20.8	9.45	4.17
(%)							
Sales of water heating units - Other (%)	3.58	2.63	2.51	2.27	1.91	1.68	1.62

# Table 23: E- scenario - PILLAR 1: Efficiency/Electrification - Transportation

Item	2020	2025	2030	2035	2040	2045	2050
Light-duty vehicle capital costs - Cumulative 5-yr (million \$2018)	0	0	8,683	17,455	59,707	185,491	271,068
Public EV charging plugs - DC Fast (1000 units)	14.4	0	31.9	0	147	0	402
Public EV charging plugs - L2 (1000 units)	66.2	0	766	0	3,537	0	9,670
Vehicle sales - Heavy-duty - diesel (%)	97.4	96	91.3	79.8	58.2	32.1	13.7
Vehicle sales - Heavy-duty - EV (%)	0.498	1.45	4.11	10.8	23.6	39.5	51
Vehicle sales - Heavy-duty - gasoline (%)	0.228	0.236	0.239	0.225	0.179	0.109	0.051

Table 23: E- scenario - PILLAR 1: Efficiency/Electrification - Transportation (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Vehicle sales - Heavy-duty - hybrid (%)	0.083	0.094	0.104	0.107	0.092	0.06	0.03
Vehicle sales - Heavy-duty - hydrogen FC	0.332	0.969	2.74	7.17	15.7	26.3	34
(%)							
Vehicle sales - Heavy-duty - other (%)	1.5	1.28	1.46	1.95	2.25	1.96	1.14
Vehicle sales - Light-duty - diesel (%)	1.39	1.82	2.03	1.61	1.02	0.519	0.223
Vehicle sales - Light-duty - EV (%)	4.05	6.4	12.6	27.1	49.7	72.9	87.9
Vehicle sales - Light-duty - gasoline (%)	89.4	85.5	78.4	65.1	44.7	23.9	10.6
Vehicle sales - Light-duty - hybrid (%)	4.99	5.79	6.54	5.88	4.34	2.52	1.21
Vehicle sales - Light-duty - hydrogen FC	0.11	0.371	0.317	0.239	0.168	0.092	0.043
(%)							
Vehicle sales - Light-duty - other (%)	0.095	0.098	0.09	0.078	0.056	0.03	0.014
Vehicle sales - Medium-duty - diesel (%)	64.8	62.2	57.7	49.4	35.6	19.6	8.37
Vehicle sales - Medium-duty - EV (%)	0.664	1.94	5.49	14.3	31.4	52.6	68
Vehicle sales - Medium-duty - gasoline (%)	33.8	34.7	34.7	31.9	24.4	14.2	6.33
Vehicle sales - Medium-duty - hybrid (%)	0.363	0.418	0.464	0.478	0.414	0.275	0.141
Vehicle sales - Medium-duty - hydrogen	0.166	0.485	1.37	3.58	7.86	13.2	17
FC (%)							
Vehicle sales - Medium-duty - other (%)	0.253	0.266	0.279	0.286	0.258	0.184	0.102

Table 24: E- scenario - PILLAR 2: Clean Electricity - Generating capacity

Item	2020	2025	2030	2035	2040	2045	2050
Capital invested - Biomass power plant	0	0.001	0.009	0	0	0	0.012
(billion \$2018)		0.001	0.007	J	Ü	J	0.012
Capital invested - Biomass w/ccu allam	0	0	0	0.477	0.303	0.322	0.134
power plant (billion \$2018)				0.411	0.000	0.022	0.10-7
Capital invested - Biomass w/ccu power	0	0	65.9	57.4	23.9	0.913	0.238
plant (billion \$2018)		, o	00.7	01.4	20.7	0.710	0.200
Installed - Biomass (MW)	10,004	9,140	7,850	6,124	4,692	3,372	2,478
Installed - Biomass w cc (MW)	0	0	9,932	18,649	22,298	22,479	22,533
Installed - Ccgt & gas steam (MW)	334,698	308,455	302,510	290,709	215,137	143,639	117,846
Installed - Cogt w cc (MW)	0	000,400	67.8	17,456	40,085	51,995	52,067
Installed - Coal (MW)	215,962	59,668	162	11,430	55.9	42	34.5
Installed - Ct (MW)		140,119	132,908	111,206		148,426	241,143
• •	146,430	·	· ·		98,767	·	
Installed - Geothermal (MW)	2,393	2,397	2,422	2,418	2,427	2,437	2,450
Installed - Grid battery storage (MW)	0	989	3,715	13,014	37,934	87,773	142,016
Installed - Hydro (MW)	78,608	78,608	78,608	78,608	78,608	78,608	78,608
Installed - Nuclear (MW)	98,481	95,135	93,041	82,240	81,173	73,631	70,690
Installed - Offshore wind (MW)	29.3	1,001	5,040	13,607	38,613	103,767	217,041
Installed - Onshore wind (MW)	97,778	190,523	360,186	535,006	755,512	1,070,110	1,512,260
Installed - Other (MW)	68,061	57,347	55,269	53,804	51,795	50,874	49,607
Installed - Pumped hydro storage (MW)	0	19,418	19,418	19,418	19,418	19,418	19,418
Installed - Solar (MW)	71,005	181,655	370,622	573,098	801,472	1,137,720	1,489,910

Table 25: E- scenario - PILLAR 2: Clean Electricity - Generation

Item	2020	2025	2030	2035	2040	2045	2050
Biomass (TWh)	19.1	23.2	39.7	22.2	3.11	0.406	0.051
Biomass power plant (GWh)	3,564	883	10,475	3,401	1,584	157	35
Biomass w cc (TWh)	0	0	73.9	139	163	165	149
Biomass w/ccu allam power plant (GWh)	0	0	0	391	668	983	1,033
Biomass w/ccu power plant (GWh)	0	0	73,933	138,288	161,856	164,137	147,859
Coal (TWh)	979	260	0.568	0.427	0.196	0.147	0.121
Gas (TWh)	1,491	1,682	1,051	443	166	54.4	41.6
Gas w cc (TWh)	0	0	0.342	110	179	217	178
Geothermal (TWh)	14.5	14.5	14.2	14.1	13.4	13.4	13.2
Hydro (TWh)	300	312	295	294	300	291	292
Nuclear (TWh)	802	775	759	671	664	603	580
Offshore wind (TWh)	0.092	3.66	20.4	66.3	168	454	902
Onshore wind (TWh)	412	780	1,497	2,111	2,909	4,105	5,840

Table 25: E- scenario - PILLAR 2: Clean Electricity - Generation (continued)

	-						
Item	2020	2025	2030	2035	2040	2045	2050
Solar pv (TWh)	146	393	795	1,215	1,675	2,402	3,116

# Table 26: E- scenario - PILLAR 3: Clean fuels - Bioenergy

	<u> </u>					
2020	2025	2030	2035	2040	2045	2050
0	0	0	143,697	365,549	383,408	381,319
0	0	0	148	207	242	231
0	0	31	15.3	10.2	8.15	4.09
12,353	27,983	56,287	38,442	4,029	416	43.3
0	0	44,659	83,709	98,070	99,590	89,779
129,506	129,506	129,536	125,006	67,634	10,261	905
0	0	0	103	97.2	78.2	60.2
0	0	0	197	5,801	5,774	3,174
0	0	0	160	2,119	81,909	109,355
0	8.87	15.7	8.5	7.52	5.18	1.6
	0 0 0 12,353 0 129,506 0	0 0 0 0 0 0 129,506 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0         0         0           0         0         0           0         0         31           12,353         27,983         56,287           0         0         44,659           129,506         129,506         129,536           0         0         0           0         0         0           0         0         0           0         0         0	0         0         0         143,697           0         0         0         148           0         0         31         15.3           12,353         27,983         56,287         38,442           0         0         44,659         83,709           129,506         129,506         129,536         125,006           0         0         0         103           0         0         0         197           0         0         0         160	0         0         0         143,697         365,549           0         0         0         148         207           0         0         31         15.3         10.2           12,353         27,983         56,287         38,442         4,029           0         0         44,659         83,709         98,070           129,506         129,506         129,536         125,006         67,634           0         0         0         103         97.2           0         0         197         5,801           0         0         160         2,119	0         0         0         143,697         365,549         383,408           0         0         0         148         207         242           0         0         31         15.3         10.2         8.15           12,353         27,983         56,287         38,442         4,029         416           0         0         44,659         83,709         98,070         99,590           129,506         129,536         125,006         67,634         10,261           0         0         0         103         97.2         78.2           0         0         197         5,801         5,774           0         0         0         160         2,119         81,909

#### Table 27: E- scenario - PILLAR 6: Land sinks - Agriculture

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - Aggressive							-23,286
deployment - Corn-ethanol to energy							
grasses (1000 tCO2e/y)							
Carbon sink potential - Aggressive							-203,503
deployment - Cropland measures (1000							
tCO2e/y)							
Carbon sink potential - Aggressive							-7,391
deployment - Permanent conservation							
cover (1000 tCO2e/y)							
Carbon sink potential - Aggressive							-234,180
deployment - Total (1000 tCO2e/y)							
Carbon sink potential - Moderate							-23,286
deployment - Corn-ethanol to energy							
grasses (1000 tCO2e/y)							
Carbon sink potential - Moderate							-106,430
deployment - Cropland measures (1000							
tCO2e/y)							
Carbon sink potential - Moderate							-3,696
deployment - Permanent conservation							
cover (1000 tCO2e/y)							
Carbon sink potential - Moderate							-133,412
deployment - Total (1000 tCO2e/y)							
Land impacted for carbon sink -							11,287
Aggressive deployment - Corn-ethanol to							
energy grasses (1000 hectares)							
Land impacted for carbon sink -							136,405
Aggressive deployment - Cropland							
measures (1000 hectares)							
Land impacted for carbon sink -							12,749
Aggressive deployment - Permanent							
conservation cover (1000 hectares)							
Land impacted for carbon sink -							160,442
Aggressive deployment - Total (1000							
hectares)							
Land impacted for carbon sink - Moderate							11,287
deployment - Corn-ethanol to energy							
grasses (1000 hectares)							

Table 27: E- scenario - PILLAR 6: Land sinks - Agriculture (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink - Moderate							71,390
deployment - Cropland measures (1000 hectares)							
Land impacted for carbon sink - Moderate							6,375
deployment - Permanent conservation							0,010
cover (1000 hectares)							
Land impacted for carbon sink - Moderate							89,052
deployment - Total (1000 hectares)							

Table 28: E- scenario - PILLAR 6: Land sink Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - High - Accelerate							-48,900
regeneration (1000 tCO2e/y)							,,,,,,,
Carbon sink potential - High - All (not							_
counting overlap) (1000 tCO2e/y)							1,535,900
Carbon sink potential - High - Avoid							-84,000
deforestation (1000 tCO2e/y)							,
Carbon sink potential - High - Extend							-302,000
rotation length (1000 tCO2e/y)							,
Carbon sink potential - High - Improve							-57,000
plantations (1000 tCO2e/y)							
Carbon sink potential - High - Increase							-
retention of HWP (1000 tCO2e/y)							300,000
Carbon sink potential - High - Increase							-60,000
trees outside forests (1000 tC02e/y)							
Carbon sink potential - High - Reforest							-242,000
cropland (1000 tCO2e/y)							
Carbon sink potential - High - Reforest							-
pasture (1000 tCO2e/y)							264,000
Carbon sink potential - High - Restore							-178,000
productivity (1000 tCO2e/y)							
Carbon sink potential - Low - Accelerate							-24,500
regeneration (1000 tCO2e/y)							
Carbon sink potential - Low - All (not							-
counting overlap) (1000 tCO2e/y)							505,500
Carbon sink potential - Low - Avoid							-14,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - Low - Extend							-116,000
rotation length (1000 tCO2e/y)							
Carbon sink potential - Low - Improve							-29,000
plantations (1000 tCO2e/y)							
Carbon sink potential - Low - Increase							-100,000
retention of HWP (1000 tCO2e/y)							
Carbon sink potential - Low - Increase							-21,000
trees outside forests (1000 tCO2e/y)							
Carbon sink potential - Low - Reforest							-121,000
cropland (1000 tCO2e/y)							
Carbon sink potential - Low - Reforest							-20,000
pasture (1000 tCO2e/y)							
Carbon sink potential - Low - Restore							-60,000
productivity (1000 tCO2e/y)							
Carbon sink potential - Mid - Accelerate							-36,700
regeneration (1000 tCO2e/y)							
Carbon sink potential - Mid - All (not							-
counting overlap) (1000 tCO2e/y)							1,020,200
Carbon sink potential - Mid - Avoid							-49,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - Mid - Extend							-209,000
rotation length (1000 tCO2e/y)							

Table 28: E- scenario - PILLAR 6: Land sinks - Forests (continued)

2020	2025	2030	2035	2040	2045	2050
			T			-42,500
						-
						200,000
						-40,500
						101 500
						-181,500
						-142,000
						-142,000
						-119,000
						117,000
						8,000
						-,
						11,373
						154,000
						21,000
						0
						F 700
						5,700
						16,000
						10,000
						7,500
						1,500
						59,000
						07,000
						282,573
						, , ,
						4,000
						10,677
						59,000
						10,500
						0
						0
						2.000
						3,000
						8,000
						2 111111
		2020 2025	2020 2025 2030		2020 2025 2030 2035 2040	2020 2025 2030 2035 2040 2045

Table 28: E- scenario - PILLAR 6: Land sinks - Forests (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink potential -							1,300
Low - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							35,700
Low - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							132,177
Low - Total impacted (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							6,000
Mid - Accelerate regeneration (1000							
hectares)							
Land impacted for carbon sink potential -							11,025
Mid - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							106,500
Mid - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							15,800
Mid - Improve plantations (1000 hectares)							
Land impacted for carbon sink potential -							0
Mid - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							4,350
Mid - Increase trees outside forests (1000							
hectares)							10.000
Land impacted for carbon sink potential -							12,000
Mid - Reforest cropland (1000 hectares)							0 / 00
Land impacted for carbon sink potential -							9,400
Mid - Reforest pasture (1000 hectares)							71.000
Land impacted for carbon sink potential -							71,900
Mid - Restore productivity (1000							
hectares)							00/ 075
Land impacted for carbon sink potential - Mid - Total impacted (over 30 years) (1000							236,975
hectares)							

#### Table 29: E- scenario - PILLAR 6: Land sinks - Total assumed land sink

Item	2020	2025	2030	2035	2040	2045	2050
Total assumed land sink (Gt CO2e/y)	-0.7	-0.73	-0.75	-0.78	-0.8	-0.83	-0.85

# Table 30: E- scenario - IMPACTS - Fossil fuel industries

Item	2020	2025	2030	2035	2040	2045	2050
Natural gas consumption - Annual (tcf)		23,207	18,132	13,835	11,458	9,451	7,359
Natural gas consumption - Cumulative		0	0	0	0	0	471,240
(tcf)							
Natural gas production - Annual (tcf)		36,153	32,458	26,253	21,869	19,030	16,824
Natural gas production - Cumulative (tcf)		0	0	0	0	0	827,513
Oil consumption - Annual (million bbls)		5,987	5,545	5,112	4,510	3,786	2,730
Oil consumption - Cumulative (million		0	0	0	0	0	151,515
bbls)							
Oil production - Annual (million bbls)		5,198	5,216	5,209	5,074	4,832	3,313
Oil production - Cumulative (million bbls)		0	0	0	0	0	151,997

# Table 31: E-scenario - IMPACTS - Health

Item	2020	2025	2030	2035	2040	2045	2050
Monetary damages from air pollution -		22,661	29.5	28.3	24.2	16.6	1.24
Coal (million 2019\$)							

Table 31: E- scenario - IMPACTS - Health (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Monetary damages from air pollution - Natural Gas (million 2019\$)		12,934	7,464	3,616	1,603	552	382
Monetary damages from air pollution - Transportation (million 2019\$)		104,258	107,043	105,711	96,553	77,882	54,050
Premature deaths from air pollution - Coal (deaths)		2,559	3.33	3.2	2.73	1.88	0.14
Premature deaths from air pollution - Natural Gas (deaths)		1,460	843	408	181	62.3	43.1
Premature deaths from air pollution - Transportation (deaths)		11,726	12,039	11,890	10,859	8,759	6,079

Table 32: E- scenario - IMPACTS - Jobs

Table 32: E- Scendrio - IMPACTS - Jobs							
Item	2020	2025	2030	2035	2040	2045	2050
By economic sector - Agriculture (jobs)		32,671	42,263	55,525	55,304	48,631	47,267
By economic sector - Construction (jobs)		581,151	740,531	848,062	963,235	1,231,236	1,521,901
By economic sector - Manufacturing		643,588	841,653	842,392	846,575	1,022,744	1,121,180
(jobs)							
By economic sector - Mining (jobs)		459,533	349,848	267,959	202,834	155,840	95,673
By economic sector - Other (jobs)		56,713	82,057	105,315	133,287	185,287	253,398
By economic sector - Pipeline (jobs)		46,559	52,128	44,106	34,087	32,405	32,455
By economic sector - Professional (jobs)		329,757	396,268	484,820	601,655	769,834	955,468
By economic sector - Trade (jobs)		299,111	313,315	344,813	391,852	480,920	587,900
By economic sector - Utilities (jobs)		467,151	555,052	647,545	754,638	1,013,321	1,274,330
By education level - All sectors -		877,317	1,032,448	1,120,830	1,235,677	1,554,721	1,876,871
Associates degree or some college (jobs)		,-	,	, .,	,,-	,	, , -
By education level - All sectors -		644,556	719,700	766,180	835,715	1,022,709	1,204,395
Bachelors degree (jobs)		, , , , , , , , , , , , , , , , , , , ,	,			, , , ,	, , , , ,
By education level - All sectors - Doctoral		21,371	23,756	26,444	30,321	37,262	44,622
degree (jobs)					00,02.	0.,202	,522
By education level - All sectors - High		1,221,244	1,428,512	1,544,246	1,678,342	2,074,673	2,464,577
school diploma or less (jobs)		.,,	., .20,0.2	.,0,2 .0	.,0.0,0.1	2,0: .,0:0	
By education level - All sectors - Masters		151,747	168,698	182,837	203,411	250,853	299,109
or professional degree (jobs)		101,1 11	100,070	102,001	200,	200,000	2,,,,,,,,,,
By education level - Biomass sector -		16,251	19,569	31,894	45,570	47,098	45,477
Associates degree or some college (jobs)		10,201	17,007	0.,07	10,010	,070	,
By education level - Biomass sector -		14,930	17,672	29,620	45,296	48,357	46,565
Bachelors degree (jobs)		14,700	11,012	27,020	40,270	40,001	40,000
By education level - Biomass sector -		736	920	1,676	2,768	3,070	2,979
Doctoral degree (jobs)		100	,20	1,010	2,100	0,010	2,717
By education level - Biomass sector - High		49,010	59,413	84,349	99,696	94,444	90,761
school diploma or less (jobs)		47,010	37,410	04,047	77,070	7-,	70,101
By education level - Biomass sector -		4,115	5,002	8,479	13,078	14,098	13,643
Masters or professional degree (jobs)		4,110	3,002	0,417	10,010	14,070	10,040
By education level - CO2 sector -		2,515	38,458	32,848	15,318	23,219	44,587
Associates degree or some college (jobs)		2,010	30,430	32,040	13,310	20,217	44,501
By education level - CO2 sector -		1,259	18,272	16,339	8,256	12,395	21,828
Bachelors degree (jobs)		1,207	10,212	10,557	0,230	12,070	21,020
By education level - CO2 sector - Doctoral		25.6	334	332	195	289	436
degree (jobs)		25.0	334	332	173	207	430
By education level - CO2 sector - High		3,107	47,531	40,756	19,094	28,995	55,693
school diploma or less (jobs)		3,101	41,551	40,130	17,074	20,773	33,073
By education level - CO2 sector - Masters		281	4,019	3,644	1,884	2,820	4,839
or professional degree (jobs)		201	4,019	3,044	1,004	2,020	4,039
By education level - Coal sector -		22,072	6,164	2,995	2,610	2,316	1,994
Associates degree or some college (jobs)		22,012	0,104	2,770	2,010	2,310	1,774
By education level - Coal sector -		14,426	3,788	1,704	1,536	1,407	1,249
Bachelors degree (jobs)		14,426	3,108	1,704	1,536	1,407	1,249
By education level - Coal sector - Doctoral		527	139	51.8	48.4	45.9	42.2
		527	139	51.8	40.4	45.9	42.2
degree (jobs)		<u> </u>					

Table 32: E- scenario - IMPACTS - Jobs (continued)

Table 32: E- Scendrio - IMPACTS - Jobs (Contil	•					
Item	2020 2025	2030	2035	2040	2045	2050
By education level - Coal sector - High	31,106	9,425	5,799	4,961	4,315	3,636
school diploma or less (jobs)						
By education level - Coal sector - Masters	3,542	934	372	338	312	279
or professional degree (jobs)						
By education level - Grid sector -	173,353	228,027	308,713	396,350	576,086	740,915
Associates degree or some college (jobs)						
By education level - Grid sector -	99,341	129,819	174,626	222,780	321,789	411,323
Bachelors degree (jobs)						
By education level - Grid sector - Doctoral	2,864	3,680	4,867	6,104	8,668	10,894
degree (jobs)						
By education level - Grid sector - High	221,673	293,057	398,748	514,506	751,549	971,380
school diploma or less (jobs)	, , ,	-,		, , , , , , ,	- ,-	,
By education level - Grid sector - Masters	24,997	32,564	43,669	55,542	79,987	101,940
or professional degree (jobs)	, ,	. ,		,-	, -	, -
By education level - Natural gas sector -	177,428	132,902	100,712	86,735	70,072	57,130
Associates degree or some college (jobs)	, .25	.02/202		33,.33	. 5,5.2	0.7.00
By education level - Natural gas sector -	123,689	90,752	66,362	54,800	43,112	34,393
Bachelors degree (jobs)	.20,007	707.02	00,002	0 1,000	.5,	0.,070
By education level - Natural gas sector -	4,108	2,986	2,148	1,737	1,341	1,055
Doctoral degree (jobs)	1,100	2,700	2,	.,	.,6	1,000
By education level - Natural gas sector -	217,308	162,916	122,486	104,023	83,752	67,883
High school diploma or less (jobs)	211,000	102,710	122,400	10-1,020	00,102	01,000
By education level - Natural gas sector -	30,288	22,094	16,086	13,254	10,379	8,263
Masters or professional degree (jobs)	30,200	22,094	10,000	13,234	10,519	0,203
By education level - Nuclear sector -	13,677	15,250	15,745	15,139	13,819	12,177
Associates degree or some college (jobs)	13,011	13,230	15,145	13,139	13,017	12,111
By education level - Nuclear sector -	14,784	16,445	16,939	16,249	14,798	13,010
·	14,764	16,445	10,939	16,249	14,798	13,010
Bachelors degree (jobs)	(/0	71/	700	/00	(00	
By education level - Nuclear sector -	648	716	733	699	633	553
Doctoral degree (jobs)	1/ 077	10.001	10 / / 0	10.0/1	17.000	15.011
By education level - Nuclear sector - High	16,977	18,981	19,648	18,941	17,332	15,311
school diploma or less (jobs)			, 5,0	, 07,	0.070	
By education level - Nuclear sector -	4,002	4,444	4,569	4,376	3,978	3,492
Masters or professional degree (jobs)						
By education level - Oil sector - Associates	206,241	184,787	166,010	145,737	125,155	81,627
degree or some college (jobs)						
By education level - Oil sector - Bachelors	212,702	187,569	165,668	142,894	120,528	76,911
degree (jobs)						
By education level - Oil sector - Doctoral	6,871	6,092	5,410	4,694	3,983	2,552
degree (jobs)						
By education level - Oil sector - High	318,831	287,355	259,739	229,389	198,127	130,297
school diploma or less (jobs)						
By education level - Oil sector - Masters or	48,234	42,333	37,202	31,924	26,788	16,973
professional degree (jobs)						
By education level - Solar PV sector -	171,543	245,159	261,046	283,736	371,089	450,507
Associates degree or some college (jobs)						
By education level - Solar PV sector -	99,886	144,608	154,725	169,434	224,069	274,121
Bachelors degree (jobs)						
By education level - Solar PV sector -	3,167	4,544	5,240	6,063	8,065	10,514
Doctoral degree (jobs)	,	•			,	
By education level - Solar PV sector - High	240,887	341,586	360,137	387,232	501,802	601,052
school diploma or less (jobs)	= .5,55.	- ,3		,	,	,
By education level - Solar PV sector -	21,498	31,168	34,439	38,712	51,558	65,067
Masters or professional degree (jobs)	2., ., 0	21,100	0.7,107	55,1.2	2.,000	20,001
By education level - Wind sector -	94,236	162,133	200,866	244,482	325,867	442,456
Associates degree or some college (jobs)	74,200	102,100	200,000	∠¬¬,¬∪∠	323,001	12, <del>1</del> 00
By education level - Wind sector -	63,539	110,775	140,196	174,471	236,253	324,995
Bachelors degree (jobs)	00,007	110,110	140,170	117,411	200,200	024,/70
By education level - Wind sector -	2,424	4,346	5,986	8,014	11,167	15,597
Doctoral degree (jobs)	2,424	4,540	3,700	0,014	11,101	10,071
poctoral degree (Jone)						

Table 32: E- scenario - IMPACTS - Jobs (continued)

Table 32: E- scenario - IMPACTS - Jobs (co	ntinuedJ						
Item	2020	2025	2030	2035	2040	2045	2050
By education level - Wind sector - High		122,346	208,247	252,585	300,502	394,358	528,566
school diploma or less (jobs)							
By education level - Wind sector - Masters		14,791	26,141	34,377	44,303	60,931	84,613
or professional degree (jobs)							
By resource sector - Biomass (jobs)		85,042	102,575	156,018	206,408	207,068	199,424
By resource sector - CO2 (jobs)		7,188	108,613	93,920	44,746	67,718	127,383
By resource sector - Coal (jobs)		71,673	20,450	10,922	9,493	8,396	7,200
By resource sector - Grid (jobs)		522,228	687,148	930,623	1,195,282	1,738,078	2,236,452
By resource sector - Natural Gas (jobs)		552,821	411,650	307,795	260,549	208,657	168,724
By resource sector - Nuclear (jobs)		50,088	55,836	57,634	55,404	50,559	44,544
By resource sector - Oil (jobs)		792,878	708,136	634,028	554,637	474,581	308,359
By resource sector - Solar (jobs)		536,980	767,065	815,587	885,178	1,156,584	1,401,261
By resource sector - Wind (jobs)		297,337	511,641	634,011	771,770	1,028,576	1,396,226
Median wages - Annual - Biomass (\$2019		51,978	53,602	56,740	60,498	62,984	64,202
per job)		31,910	33,602	36,740	00,490	02,904	64,202
Median wages - Annual - CO2 (\$2019 per		/0 F0F	62,790	(/, 000	// 000	67,225	66,970
		62,505	62,790	64,228	66,288	61,225	66,970
job)		(0.5/0	50.007	FF (00	E / E4E	F7 / F4	50 / 50
Median wages - Annual - Coal (\$2019 per		60,563	59,804	55,633	56,515	57,451	58,453
job)							
Median wages - Annual - Grid (\$2019 per		62,539	63,375	64,248	65,159	66,110	67,102
job)							
Median wages - Annual - Natural Gas		66,265	67,136	67,771	68,258	68,978	69,760
(\$2019 per job)							
Median wages - Annual - Nuclear (\$2019		71,486	73,188	74,974	76,846	78,808	80,864
per job)							
Median wages - Annual - Oil (\$2019 per		65,828	66,678	67,513	68,348	69,194	69,918
job)							
Median wages - Annual - Solar (\$2019 per		55,399	56,082	57,093	58,129	59,038	60,292
job)							
Median wages - Annual - Wind (\$2019 per		58,122	59,113	60,675	62,325	63,655	64,920
iob)		,	, -		- ,	,	, -
On-Site or In-Plant Training - Biomass		8,583	10,499	16,845	23,383	23,942	23,154
sector - 1 to 4 years (jobs)		0,000	.0, ., ,	10,010	20,000	20,7 .2	
On-Site or In-Plant Training - Biomass		2,669	3,231	5,551	8,269	8,664	8,399
sector - 4 to 10 years (jobs)		2,007	0,201	3,331	0,207	0,004	0,077
On-Site or In-Plant Training - Biomass		13,768	16,945	26,595	36,348	37,151	35,807
sector - None (jobs)		13,100	10,743	20,393	30,340	31,131	33,001
On-Site or In-Plant Training - Biomass		589	670	994	1,303	1,282	1,237
		309	610	994	1,303	1,202	1,231
sector - Over 10 years (jobs) On-Site or In-Plant Training - Biomass		E0 / 20	71.000	107 000	107105	107,000	100 007
		59,432	71,230	106,033	137,105	136,029	130,827
sector - Up to 1 year (jobs)		1.005	00.057	47.007	0.007	10.000	00.577
On-Site or In-Plant Training - CO2 sector -		1,325	20,254	17,327	8,097	12,280	23,564
1 to 4 years (jobs)			10.00/	2 - 2 - 2			
On-Site or In-Plant Training - CO2 sector -		652	10,094	8,539	3,907	5,940	11,656
4 to 10 years (jobs)							
On-Site or In-Plant Training - CO2 sector -		1,101	16,551	14,388	6,918	10,464	19,512
None (jobs)							
On-Site or In-Plant Training - CO2 sector -		77.5	1,201	1,012	460	699	1,377
Over 10 years (jobs)							
On-Site or In-Plant Training - CO2 sector -		4,033	60,513	52,654	25,364	38,334	71,274
Up to 1 year (jobs)							
On-Site or In-Plant Training - Coal sector -		11,186	3,182	1,599	1,384	1,219	1,042
1 to 4 years (jobs)							
On-Site or In-Plant Training - Coal sector -		4,304	1,136	431	372	326	278
4 to 10 years (jobs)							
On-Site or In-Plant Training - Coal sector -		10,585	2,911	1,420	1,259	1,136	994
None (jobs)		10,000		1,-120	1,207	1,100	//-
On-Site or In-Plant Training - Coal sector -		519	135	47.4	42.1	38	33.4
Over 10 years (jobs)		017	133	41.4	4∠.1	30	33.4
On-Site or In-Plant Training - Coal sector -		45,080	13,086	7,424	6,436	5,677	4,853
Up to 1 year (jobs)		45,000	13,000	1,424	0,430	3,611	4,000
op to i year (Jone)							<u> </u>

Table 32: E- scenario - IMPACTS - Jobs (continued)

ntinuedJ						
2020	2025	2030	2035	2040	2045	2050
	90,199	118,834	161,138	207,208	301,648	388,568
	39,614	52,179	70,737	90,939	132,353	170,446
					-	
	79.526	104,407	141.090	180,823	262,378	336,907
	, -	, ,	,	, .	, , , , ,	
	5 135	6.760	9159	11 767	17115	22,027
	0,100	0,100	7,107	11,101	11,110	22,021
	30775/	/.0/. 068	5/.0 500	70/. 5/.5	1 02/, 58/,	1,318,505
	301,134	404,700	340,300	104,545	1,024,304	1,510,505
	02.1/./.	(0./00	E0 E70	/./. 001	27.070	29,485
	93,144	69,692	52,578	44,991	36,270	29,465
	/1.000	011/7	00.000	00.700	1/ 00/	10.770
	41,339	31,167	23,829	20,702	16,834	13,779
		(= 100			20 (20	0.000
	88,008	65,188	48,520	40,955	32,692	26,390
	4,901	3,722	2,877	2,528	2,067	1,700
	325,428	241,881	179,991	151,372	120,795	97,369
	7,391	8,249	8,525	8,204	7,495	6,611
	2,675	2,985	3,084	2,967	2,710	2,390
	,	,	, , , ,	,	, -	,
	8 966	9 9 8 5	10 296	9 888	9 015	7,935
	0,700	,,,,,	10,270	7,000	7,010	1,700
	251	280	288	277	253	223
	231	200	200	211	233	223
	20 005	27, 220	2E /. /.1	27. 047	21 005	27,385
	30,603	34,336	35,441	34,061	31,065	21,300
	11 / 001	10/70/	07.101	00.771	71.000	4 4 001
	116,831	104,736	94,131	82,661	71,002	46,291
						1/000
	41,198	37,215	33,709	29,833	25,820	16,989
	127,666	113,154	100,522	87,241	74,055	47,738
	4,563	4,197	3,868	3,480	3,059	2,041
	502,621	448,835	401,798	351,423	300,645	195,301
	86.342	122.621	130,474	141,459	183.962	222,715
	, -	, -	,	, -		, -
	30 979	43 032	47 323	52 387	67 399	83,944
	00,7.17	.0,002	,020	02,001	0.7077	00,711
	91756	131 332	130 877	152 108	199129	241,785
	71,130	101,002	137,011	132,100	177,127	241,103
	/. 200	6 10 <i>l</i> .	4 E2/.	7115	0.27.0	11,262
	4,306	0,104	6,554	7,113	9,240	11,202
	000 505	/ / 0 07/	/ 01 070	E00 100	(0/ 0//	0/155/
	323,595	463,976	491,379	532,109	696,846	841,554
	461,757	538,301	582,068	638,384	798,608	958,943
	179,879	209,415	230,069	256,135	322,842	392,957
	472,993	549,490	593,418	650,818	806,800	963,008
	22,731	27,178	29,932	33,312	42,225	51,381
				-	· ·	· ·
	1,778.875	2,048.730	2,205.052	2,404.818	2,969,743	3,523.285
	1,778,875	2,048,730	2,205,052	2,404,818	2,969,743	3,523,285
		2020 2025 90,199 39,614 79,526 5,135 307,754 93,144 41,339 88,008 4,901 325,428 7,391 2,675 8,966 251 30,805 116,831 41,198 127,666 4,563 502,621 86,342 30,979 91,756 4,308 323,595 461,757 179,879	2020         2025         2030           90,199         118,834           39,614         52,179           79,526         104,407           5,135         6,760           307,754         404,968           93,144         69,692           41,339         31,167           88,008         65,188           4,901         3,722           325,428         241,881           7,391         8,249           2,675         2,985           8,966         9,985           251         280           30,805         34,338           116,831         104,736           41,198         37,215           127,666         113,154           4,563         4,197           502,621         448,835           86,342         122,621           30,979         43,032           91,756         131,332           4,308         6,104           323,595         463,976           461,757         538,301           179,879         209,415           472,993         549,490	2020         2025         2030         2035           90,199         118,834         161,138           39,614         52,179         70,737           79,526         104,407         141,090           5,135         6,760         9,159           307,754         404,968         548,500           93,144         69,692         52,578           41,339         31,167         23,829           88,008         65,188         48,520           4,901         3,722         2,877           325,428         241,881         179,991           7,391         8,249         8,525           2,675         2,985         3,084           8,966         9,985         10,296           251         280         288           30,805         34,338         35,441           116,831         104,736         94,131           41,198         37,215         33,709           127,666         113,154         100,522           4,563         4,197         3,868           502,621         448,835         401,798           86,342         122,621         130,474           30,979	2020         2025         2030         2035         2040           90,199         118,834         161,138         207,208           39,614         52,179         70,737         90,939           79,526         104,407         141,090         180,823           5,135         6,760         9,159         11,767           307,754         404,968         548,500         704,545           93,144         69,692         52,578         44,991           41,339         31,167         23,829         20,702           88,008         65,188         48,520         40,955           4,901         3,722         2,877         2,528           325,428         241,881         179,991         151,372           7,391         8,249         8,525         8,204           2,675         2,985         3,084         2,967           8,966         9,985         10,296         9,888           251         280         288         277           30,805         34,338         35,441         34,067           41,198         37,215         33,709         29,833           127,666         113,154         100,522	2020         2025         2030         2035         2040         2045           90,199         118,834         161,138         207,208         301,648           39,614         52,179         70,737         90,939         132,353           79,526         104,407         141,090         180,823         262,378           5,135         6,760         9,159         11,767         17,115           307,754         404,968         548,500         704,545         1,024,584           93,144         69,692         52,578         44,991         36,270           41,339         31,167         23,829         20,702         16,834           88,008         65,188         48,520         40,955         32,692           4,901         3,722         2,877         2,528         2,067           325,428         241,881         179,991         151,372         120,795           7,391         8,249         8,525         8,204         7,495           2,675         2,985         3,084         2,967         2,710           8,966         9,985         10,296         9,888         9,015           251         280         288         277

Table 32: E- scenario - IMPACTS - Jobs (continued)

Table 32: E- scenario - IMPACTS - Jobs (co	ontinued)						
Item	2020	2025	2030	2035	2040	2045	2050
On-Site or In-Plant Training - Wind sector		46,757	80,235	99,452	120,997	160,789	217,513
- 1 to 4 years (jobs)							
On-Site or In-Plant Training - Wind sector		16,449	28,377	36,866	46,759	62,796	85,076
- 4 to 10 years (jobs)		F4 (4)	00.010	440 700	405.077	100 770	0/5000
On-Site or In-Plant Training - Wind sector		51,616	89,018	110,709	135,277	180,779	245,939
- None (jobs)		0.000	/ 110	F 1F0	( 0 / 0	0.777	11,480
On-Site or In-Plant Training - Wind sector - Over 10 years (jobs)		2,388	4,110	5,153	6,340	8,464	11,480
On-Site or In-Plant Training - Wind sector		180,127	309,901	381,831	462,397	615,749	836,217
- Up to 1 year (jobs)		100,121	309,701	301,031	402,371	013,147	030,211
On-the-Job Training - All sectors - 1 to 4		589,129	687,624	744,333	817,976	1,025,873	1,235,420
years (jobs)		007,127	001,024	144,000	011,710	1,020,010	1,200,420
On-the-Job Training - All sectors - 4 to 10		169,191	199,532	221,283	248,227	315,641	387,596
years (jobs)		,	,	,	,		22.,2.2
On-the-Job Training - All sectors - None		161,830	184,590	198,537	217,212	267,386	317,995
(jobs)		,	, , ,		•	,	, -
On-the-Job Training - All sectors - Over 10		29,312	34,688	36,706	39,368	48,413	57,152
years (jobs)							
On-the-Job Training - All sectors - Up to 1		1,966,773	2,266,679	2,439,679	2,660,684	3,282,905	3,891,411
year (jobs)							
On-the-Job Training - Biomass sector - 1		9,389	11,579	19,238	27,648	28,734	27,841
to 4 years (jobs)							
On-the-Job Training - Biomass sector - 4		2,148	2,693	4,803	7,245	7,639	7,428
to 10 years (jobs)							
On-the-Job Training - Biomass sector -		5,279	6,082	9,258	12,627	12,720	12,160
None (jobs)							
On-the-Job Training - Biomass sector -		604	691	1,053	1,421	1,417	1,369
Over 10 years (jobs)		(7,00	01.500	101 ( ( 5	157.7.0	157.550	150 (0)
On-the-Job Training - Biomass sector - Up		67,622	81,530	121,665	157,468	156,559	150,626
to 1 year (jobs) On-the-Job Training - CO2 sector - 1 to 4		17/0	07.077	00.070	10.7/ 0	1/ 001	01.007
years (jobs)		1,763	26,977	23,043	10,740	16,291	31,334
On-the-Job Training - CO2 sector - 4 to 10		656	10,212	8,592	3,891	5,924	11,754
years (jobs)		030	10,212	0,372	3,671	3,724	11,154
On-the-Job Training - CO2 sector - None		338	5,026	4,422	2,168	3,276	5,997
(jobs)		330	3,020	4,422	2,100	3,210	3,771
On-the-Job Training - CO2 sector - Over		71.9	1,094	946	450	683	1,298
10 years (jobs)		,	.,07.	7.0			.,_,
On-the-Job Training - CO2 sector - Up to 1		4,360	65,304	56,917	27,497	41,543	77,000
year (jobs)		,	,		,	,-	,
On-the-Job Training - Coal sector - 1 to 4		14,210	4,006	1,915	1,660	1,465	1,255
years (jobs)							
On-the-Job Training - Coal sector - 4 to 10		4,211	1,121	423	363	316	268
years (jobs)							
On-the-Job Training - Coal sector - None		3,553	972	508	448	402	350
(jobs)							
On-the-Job Training - Coal sector - Over		482	139	70.7	63.4	57.9	51.4
10 years (jobs)							
On-the-Job Training - Coal sector - Up to 1		49,217	14,212	8,005	6,959	6,155	5,276
year (jobs)							
On-the-Job Training - Grid sector - 1 to 4		117,311	154,477	209,364	269,088	391,534	504,100
years (jobs)							
On-the-Job Training - Grid sector - 4 to 10		39,869	52,548	71,283	91,697	133,538	172,077
years (jobs)		05 550	60.550	, = , = -	F0.011	0, , , ,	100=:=
On-the-Job Training - Grid sector - None		25,558	33,583	45,422	58,266	84,624	108,767
(jobs)		/ 105	F F47	7/0/	0.700	1/ 000	10.000
On-the-Job Training - Grid sector - Over		4,185	5,517	7,486	9,632	14,032	18,089
10 years (jobs)		205.005	1.11.000	E070/0	7// 500	111/ 0/0	1 / 00 / 10
On-the-Job Training - Grid sector - Up to 1		335,305	441,023	597,069	766,598	1,114,349	1,433,419
year (jobs)							

Table 32: E- scenario - IMPACTS - Jobs (continued)

Table 32: E- scenario - IMPACTS - Jobs (c	ontinuedj						
Item	2020	2025	2030	2035	2040	2045	2050
On-the-Job Training - Natural gas sector -		122,490	91,627	69,213	59,363	47,896	38,975
1 to 4 years (jobs)		-				-	
On-the-Job Training - Natural gas sector -		39,335	29,727	22,887	20,072	16,397	13,478
4 to 10 years (jobs)							
On-the-Job Training - Natural gas sector -		28,855	21,202	15,568	12,935	10,235	8,197
None (jobs)							
On-the-Job Training - Natural gas sector -		5,256	3,904	2,898	2,430	1,942	1,564
Over 10 years (jobs)							
On-the-Job Training - Natural gas sector -		356,885	265,191	197,228	165,749	132,187	106,510
Up to 1 year (jobs)							
On-the-Job Training - Nuclear sector - 1 to		9,697	10,822	11,182	10,760	9,829	8,669
4 years (jobs)							
On-the-Job Training - Nuclear sector - 4		2,339	2,610	2,697	2,596	2,372	2,092
to 10 years (jobs)							
On-the-Job Training - Nuclear sector -		3,364	3,749	3,868	3,717	3,390	2,986
None (jobs)							
On-the-Job Training - Nuclear sector -		521	582	602	580	530	468
Over 10 years (jobs)							
On-the-Job Training - Nuclear sector - Up		34,167	38,073	39,285	37,751	34,438	30,330
to 1 year (jobs)							
On-the-Job Training - Oil sector - 1 to 4		144,505	129,357	116,099	101,822	87,357	56,884
years (jobs)		-					
On-the-Job Training - Oil sector - 4 to 10		34,135	30,881	28,017	24,834	21,524	14,206
years (jobs)		,		,			•
On-the-Job Training - Oil sector - None		48,244	42,447	37,430	32,239	27,156	17,403
(jobs)		-,	,		, -	,	,
On-the-Job Training - Oil sector - Over 10		7,740	6,934	6,229	5,469	4,697	3,065
years (jobs)		,,,,,		-,==:	,	.,	5,555
On-the-Job Training - Oil sector - Up to 1		558,254	498,517	446,253	390,274	333,848	216,802
year (jobs)		555,251		,===	0.0,2.		,
On-the-Job Training - Solar PV sector - 1		109,729	155,655	165,906	180,069	234,031	283,751
to 4 years (jobs)		1077.27	.00,000	100,700	.00,007	20.700.	2007.0.
On-the-Job Training - Solar PV sector - 4		30,665	42,443	46,934	52,136	66,972	83,805
to 10 years (jobs)		00,000	,	10,70	02,.00	00,7.1	33,333
On-the-Job Training - Solar PV sector -		30,332	43,367	46,764	51,367	67,382	82,880
None (jobs)		00,002	.5,55.	,	0.,00.	0.,002	02,000
On-the-Job Training - Solar PV sector -		6,844	9,701	10,071	10,680	13,771	16,180
Over 10 years (jobs)		0,0	7,.0.	,	.0,000	.5,	.57.55
On-the-Job Training - Solar PV sector - Up		359,410	515,899	545,912	590,926	774,427	934,644
to 1 year (jobs)		007, 110	0.0,077	0 10,712	0,0,,20	,	70 1,0 1 1
On-the-Job Training - Wind sector - 1 to 4		60,037	103,125	128,372	156,825	208,736	282,610
years (jobs)		00,001	100,120	120,012	100,020	200,100	202,010
On-the-Job Training - Wind sector - 4 to		15,832	27,298	35,647	45,394	60,958	82,489
10 years (jobs)		10,002	21,270	00,041	40,074	00,700	02,407
On-the-Job Training - Wind sector - None		16,306	28,164	35,298	43,444	58,200	79,256
(jobs)		10,000	20,104	00,270	40,444	00,200	17,200
On-the-Job Training - Wind sector - Over		3,608	6,126	7,349	8,644	11,283	15,067
10 years (jobs)		0,000	0,120	1,047	0,044	11,200	10,001
On-the-Job Training - Wind sector - Up to		201,554	346,928	427,344	517,462	689,400	936,803
1 year (jobs)		201,001	0 10,720	121,011	011,102	007,100	700,000
Related work experience - All sectors - 1		1,059,755	1,215,937	1,309,813	1,433,440	1,776,043	2,113,756
to 4 years (jobs)		1,007,100	1,210,701	1,007,010	1,400,440	1,110,040	2,110,100
Related work experience - All sectors - 4		675,403	778,883	839,366	920,779	1,145,764	1,369,722
to 10 years (jobs)		0,0,400	1 10,000	007,000	,20,117	1,140,104	1,007,122
Related work experience - All sectors -		412,312	479,693	520,232	570,168	708,706	848,028
None (jobs)		712,312	71 7,073	320,232	510,100	100,100	040,020
Related work experience - All sectors -		187,752	216,027	230,005	249,597	308,897	365,935
Over 10 years (jobs)		101,132	210,021	230,003	247,371	300,071	JUU,7JU
Related work experience - All sectors - Up		581,013	682,574	741,123	809,483	1,000,808	1,192,133
to 1 year (jobs)		301,013	002,314	141,123	007,403	1,000,000	1,172,133
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Table 32: E- scenario - IMPACTS - Jobs (continued)

Table 32: E- scenario - IMPACTS - Jobs (co	ntinueaj						
Item	2020	2025	2030	2035	2040	2045	2050
Related work experience - Biomass sector		25,475	31,590	50,358	69,822	71,904	69,386
- 1 to 4 years (jobs)							
Related work experience - Biomass sector		13,243	15,909	26,334	38,711	40,580	39,157
- 4 to 10 years (jobs)		,	,	,			•
Related work experience - Biomass sector		14,396	17,318	25,423	31,889	31,116	29,868
- None (jobs)		1 1,070	,6.16	20, 120	01,007	0.,0	27,000
Related work experience - Biomass sector		3,634	4,259	6,881	10,001	10,410	10,054
- Over 10 years (jobs)		3,004	4,207	0,001	10,001	10,410	10,004
Related work experience - Biomass sector		28,293	33,498	47,022	55,985	53,058	50,959
- Up to 1 year (jobs)		20,273	33,470	41,022	33,763	33,036	30,737
Related work experience - CO2 sector - 1		0.570	20.700	00 555	1/ 00/	0/ 011	/ F 201
·		2,572	38,682	33,555	16,084	24,311	45,391
to 4 years (jobs)		1770	07,000	00.000	11.007	1/ /00	01.101
Related work experience - CO2 sector - 4		1,778	26,893	23,208	11,024	16,680	31,434
to 10 years (jobs)							
Related work experience - CO2 sector -		1,111	16,924	14,505	6,804	10,308	19,683
None (jobs)							
Related work experience - CO2 sector -		438	6,520	5,709	2,781	4,197	7,707
Over 10 years (jobs)							
Related work experience - CO2 sector -		1,290	19,595	16,943	8,053	12,221	23,169
Up to 1 year (jobs)							
Related work experience - Coal sector - 1		27,190	7,760	4,177	3,623	3,197	2,734
to 4 years (jobs)		, -	,	,	-,	-,	, -
Related work experience - Coal sector - 4		16,006	4,373	2,054	1,806	1,616	1,403
to 10 years (jobs)		10,000	4,010	2,004	1,000	1,010	1,400
Related work experience - Coal sector -		9,744	2,719	1,358	1,180	1,044	895
None (jobs)		7,144	2,117	1,550	1,100	1,044	070
		/. O2E	1,138	E//	500	450	393
Related work experience - Coal sector -		4,035	1,138	566	500	450	393
Over 10 years (jobs)		1/ /00		0.7/7	0.007	0.000	4 775
Related work experience - Coal sector -		14,699	4,460	2,767	2,384	2,089	1,775
Up to 1 year (jobs)							
Related work experience - Grid sector - 1		188,840	248,283	335,996	431,217	626,558	805,601
to 4 years (jobs)							
Related work experience - Grid sector - 4		123,754	162,589	219,867	281,967	409,391	525,979
to 10 years (jobs)							
Related work experience - Grid sector -		77,566	102,139	138,428	177,913	258,865	333,281
None (jobs)							
Related work experience - Grid sector -		32,077	42,166	57,053	73,209	106,355	136,724
Over 10 years (jobs)		,	·	,		,	•
Related work experience - Grid sector -		99,992	131,970	179,280	230,976	336,909	434,867
Up to 1 year (jobs)		,,,,,_	101,710	117,200	200,710	000,707	10 1,001
Related work experience - Natural gas		204,017	151,824	113,306	95,655	76,470	61,747
sector - 1 to 4 years (jobs)		204,011	101,024	113,300	75,055	10,410	01,141
Related work experience - Natural gas		125 700	101 000	75 757	/ /, DEO	E1 E00	41,784
		135,709	101,088	75,757	64,353	51,598	41,764
sector - 4 to 10 years (jobs)		00.007	50.077	, 5 4 5 7	00 (10	01.110	05.007
Related work experience - Natural gas		80,026	59,877	45,157	38,619	31,112	25,287
sector - None (jobs)							
Related work experience - Natural gas		36,871	27,298	20,171	16,819	13,357	10,719
sector - Over 10 years (jobs)							
Related work experience - Natural gas		96,199	71,564	53,404	45,103	36,121	29,186
sector - Up to 1 year (jobs)							
Related work experience - Nuclear sector		18,695	20,834	21,497	20,659	18,846	16,599
- 1 to 4 years (jobs)							
Related work experience - Nuclear sector		12,128	13,513	13,940	13,394	12,216	10,758
- 4 to 10 years (jobs)		, -	.,	, -	,-	, -	,
Related work experience - Nuclear sector		6,313	7,045	7,280	7,006	6,399	5,644
- None (jobs)		0,010	1,545	1,200	1,000	3,377	0,044
Related work experience - Nuclear sector		3,734	4,163	4,297	4,132	3,771	3,322
- Over 10 years (jobs)		3,134	4,103	4,271	4,132	3,111	5,522
		0.017	10 001	10 /10	10.01/	0.007	0.000
Related work experience - Nuclear sector		9,217	10,281	10,619	10,214	9,327	8,222
- Up to 1 year (jobs)							

Table 32: E- scenario - IMPACTS - Jobs (continued)

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Item	2020	2025	2030	2035	2040	2045	2050
Related work experience - Oil sector - 1 to		302,135	269,872	241,614	211,329	180,792	117,324
4 years (jobs)							
Related work experience - Oil sector - 4 to		183,324	163,462	146,091	127,563	108,950	70,576
10 years (jobs)							
Related work experience - Oil sector -		106,857	95,809	86,141	75,674	65,021	42,502
None (jobs)							
Related work experience - Oil sector -		52,718	46,922	41,873	36,525	31,181	20,166
Over 10 years (jobs)							
Related work experience - Oil sector - Up		147,845	132,071	118,309	103,547	88,636	57,791
to 1 year (jobs)							
Related work experience - Solar PV sector		186,024	266,270	284,039	309,311	405,153	492,891
- 1 to 4 years (jobs)							
Related work experience - Solar PV sector		120,241	171,610	182,799	198,639	259,422	314,784
- 4 to 10 years (jobs)							
Related work experience - Solar PV sector		75,899	108,403	115,902	126,397	165,406	201,697
- None (jobs)							
Related work experience - Solar PV sector		34,260	49,212	51,438	55,099	72,032	85,728
- Over 10 years (jobs)							
Related work experience - Solar PV sector		120,556	171,570	181,408	195,732	254,570	306,160
- Up to 1 year (jobs)							
Related work experience - Wind sector - 1		104,807	180,823	225,270	275,742	368,812	502,083
to 4 years (jobs)							
Related work experience - Wind sector - 4		69,220	119,444	149,316	183,323	245,311	333,848
to 10 years (jobs)							
Related work experience - Wind sector -		40,401	69,459	86,038	104,686	139,433	189,172
None (jobs)							
Related work experience - Wind sector -		19,986	34,349	42,016	50,530	67,143	91,120
Over 10 years (jobs)							
Related work experience - Wind sector -		62,923	107,564	131,370	157,489	207,877	280,004
Up to 1 year (jobs)							
Wage income - Biomass (million \$2019)		4,420	5,498	8,852	12,487	13,042	12,804
Wage income - CO2 (million \$2019)		449	6,820	6,032	2,966	4,552	8,531
Wage income - Coal (million \$2019)		4,341	1,223	608	536	482	421
Wage income - Grid (million \$2019)		32,660	43,548	59,790	77,883	114,904	150,070
Wage income - Natural Gas (million \$2019)		36,633	27,637	20,860	17,785	14,393	11,770
Wage income - Nuclear (million \$2019)		3,581	4,087	4,321	4,258	3,984	3,602
Wage income - Oil (million \$2019)		52,193	47,217	42,805	37,909	32,838	21,560
Wage income - Solar (million \$2019)		29,748	43,018	46,564	51,454	68,283	84,485
Wage income - Wind (million \$2019)		17,282	30,245	38,469	48,100	65,475	90,643
		,	, -	, -			,

Table 33: E+RE+ scenario - PILLAR 1: Efficiency/Electrification - Commercial

Item	2020	2025	2030	2035	2040	2045	2050
Commercial HVAC investment in 2020s -	0	1,047,657	1,162,511	0	0	0	0
Cumulative 5-yr (million \$2018)							
Sales of cooking units - Electric	32.5	46.4	80	86.6	87	87	87
Resistance (%)							
Sales of cooking units - Gas (%)	67.5	53.6	20	13.4	13	13	13
Sales of space heating units - Electric	2.95	17.6	52.9	76.9	80.6	80.8	80.8
Heat Pump (%)							
Sales of space heating units - Electric	7.91	9.07	14.4	17.7	18.4	18.4	18.4
Resistance (%)							
Sales of space heating units - Fossil (%)	3.94	3.28	0.655	0.028	0	0	0
Sales of space heating units - Gas Furnace	85.2	70.1	32.1	5.37	1.07	0.82	0.817
(%)							
Sales of water heating units - Electric	0.385	7.96	43.3	59.2	61.2	61.3	61.3
Heat Pump (%)							
Sales of water heating units - Electric	3.8	7.16	24	35.7	37.5	37.6	37.6
Resistance (%)							
Sales of water heating units - Gas Furnace	94.1	83.3	31.5	4.03	0.235	0.003	0
(%)							

# Table 33: E+RE+ scenario - PILLAR 1: Efficiency/Electrification - Commercial (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Sales of water heating units - Other (%)	1.66	1.59	1.2	1.1	1.1	1.11	1.11

# Table 34: E+RE+ scenario - PILLAR 1: Efficiency/Electrification - Electricity demand

Item	2020	2025	2030	2035	2040	2045	2050
Electricity distribution capital invested -		182	187	336	359	314	329
Cumulative 5-yr (billion \$2018)							

#### Table 35: E+RE+ scenario - PILLAR 1: Efficiency/Electrification - Overview

Item	2020	2025	2030	2035	2040	2045	2050
Final energy use - Commercial (PJ)	9,015	8,942	8,619	8,103	7,608	7,344	7,297
Final energy use - Industry (PJ)	25,107	26,056	26,110	25,372	25,108	24,870	24,572
Final energy use - Residential (PJ)	11,788	11,090	10,221	8,966	7,776	6,967	6,512
Final energy use - Transportation (PJ)	27,996	26,390	23,464	19,872	16,608	14,565	13,649

#### Table 36: E+RE+ scenario - PILLAR 1: Efficiency/Electrification - Residential

	2000	2005	0000	2005	00/0	0015	0050
Item	2020	2025	2030	2035	2040	2045	2050
Residential HVAC investment in 2020s vs.	0	254	307	0	0	0	0
REF - Cumulative 5-yr (billion \$2018)							
Sales of cooking units - Electric	61.3	69.6	94.8	99.7	100	100	100
Resistance (%)							
Sales of cooking units - Gas (%)	38.7	30.4	5.2	0.262	0	0	0
Sales of space heating units - Electric	14.6	27.2	64.4	85	88	88.1	88.1
Heat Pump (%)							
Sales of space heating units - Electric	20.3	22.6	12.3	8.07	7.57	7.66	7.68
Resistance (%)							
Sales of space heating units - Fossil (%)	9.95	13.2	6.18	3.41	3.02	2.91	2.9
Sales of space heating units - Gas (%)	55.2	36.9	17.1	3.52	1.45	1.32	1.3
Sales of water heating units - Electric	0	7.44	41.8	56.2	58.5	59.2	59
Heat Pump (%)							
Sales of water heating units - Electric	38.4	49.2	38.5	39.8	39.9	39.3	39.5
Resistance (%)							
Sales of water heating units - Gas Furnace	58	40.9	18	2.56	0.155	0.003	0
(%)							
Sales of water heating units - Other (%)	3.58	2.47	1.63	1.47	1.51	1.54	1.53

# Table 37: E+RE+ scenario - PILLAR 1: Efficiency/Electrification - Transportation

Item	2020	2025	2030	2035	2040	2045	2050
Light-duty vehicle capital costs -	0	51,477	133,974	213,805	325,180	352,492	336,852
Cumulative 5-yr (million \$2018)							
Public EV charging plugs - DC Fast (1000	14.4	0	93.9	0	391	0	628
units)							
Public EV charging plugs - L2 (1000 units)	66.2	0	2,256	0	9,394	0	15,098
Vehicle sales - Heavy-duty - diesel (%)	97.2	92.1	67	23.3	4.22	0.628	0
Vehicle sales - Heavy-duty - EV (%)	0.588	3.81	19	45.6	57.4	59.6	60
Vehicle sales - Heavy-duty - gasoline (%)	0.227	0.227	0.176	0.066	0.013	0.002	0
Vehicle sales - Heavy-duty - hybrid (%)	0.082	0.09	0.077	0.031	0.007	0.001	0
Vehicle sales - Heavy-duty - hydrogen FC	0.392	2.54	12.7	30.4	38.2	39.7	40
(%)							
Vehicle sales - Heavy-duty - other (%)	1.5	1.23	1.07	0.568	0.163	0.038	0
Vehicle sales - Light-duty - diesel (%)	1.4	1.68	1.2	0.382	0.072	0.013	0
Vehicle sales - Light-duty - EV (%)	4.41	16.7	48.7	82.7	96.4	99.3	100
Vehicle sales - Light-duty - gasoline (%)	89.1	76.3	46.4	15.6	3.17	0.586	0
Vehicle sales - Light-duty - hybrid (%)	4.91	4.89	3.38	1.24	0.304	0.067	0
Vehicle sales - Light-duty - hydrogen FC	0.11	0.331	0.191	0.059	0.012	0.002	0
(%)							
Vehicle sales - Light-duty - other (%)	0.095	0.091	0.058	0.02	0.004	0.001	0

Table 37: E+RE+ scenario - PILLAR 1: Efficiency/Electrification - Transportation (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Vehicle sales - Medium-duty - diesel (%)	64.7	59.7	42.3	14.4	2.59	0.384	0
Vehicle sales - Medium-duty - EV (%)	0.784	5.07	25.3	60.8	76.5	79.5	80
Vehicle sales - Medium-duty - gasoline (%)	33.7	33.3	25.5	9.32	1.77	0.277	0
Vehicle sales - Medium-duty - hybrid (%)	0.363	0.402	0.341	0.14	0.03	0.005	0
Vehicle sales - Medium-duty - hydrogen	0.196	1.27	6.33	15.2	19.1	19.9	20
FC (%)							
Vehicle sales - Medium-duty - other (%)	0.253	0.255	0.205	0.083	0.019	0.004	0

# Table 38: E+RE+ scenario - PILLAR 2: Clean Electricity - Generating capacity

Item	2020	2025	2030	2035	2040	2045	2050
Capital invested - Biomass power plant	0	0.001	0.006	0.011	0.001	0	0
(billion \$2018)							
Capital invested - Biomass w/ccu allam	0	0	0	0.175	0.15	0.086	0.162
power plant (billion \$2018)							
Capital invested - Biomass w/ccu power	0	0	0.198	0.008	0.074	0.13	0.137
plant (billion \$2018)							
Installed - Biomass (MW)	10,003	9,140	7,854	6,156	4,735	3,409	2,488
Installed - Biomass w cc (MW)	0	0	29.9	54.6	85.8	108	150
Installed - Ccgt & gas steam (MW)	334,781	312,898	343,874	346,127	273,137	203,281	171,091
Installed - Ccgt w cc (MW)	0	0	77.3	164	233	304	331
Installed - Coal (MW)	216,076	60,056	185	104	84.5	61	26.1
Installed - Ct (MW)	146,242	137,398	142,744	165,901	204,190	319,096	515,962
Installed - Geothermal (MW)	2,390	2,394	2,414	2,426	2,428	2,457	4,871
Installed - Grid battery storage (MW)	0	987	11,630	42,944	105,233	143,960	186,175
Installed - Hydro (MW)	78,608	78,608	78,608	78,608	78,608	78,608	78,608
Installed - Nuclear (MW)	98,501	94,063	83,809	56,742	41,522	14,825	0
Installed - Offshore wind (MW)	29.3	1,026	4,957	36,176	99,902	227,465	457,951
Installed - Onshore wind (MW)	97,803	200,500	386,229	693,913	1,069,220	1,521,230	2,186,500
Installed - Other (MW)	68,093	57,211	55,709	54,353	52,339	51,350	40,191
Installed - Pumped hydro storage (MW)	0	19,418	19,418	19,418	19,418	19,418	19,418
Installed - Solar (MW)	70,059	204,578	431,979	816,379	1,237,320	1,813,750	2,640,440

# Table 39: E+RE+ scenario - PILLAR 2: Clean Electricity - Generation

Item	2020	2025	2030	2035	2040	2045	2050
Biomass (TWh)	18.8	17.7	39	29.3	21.4	15.2	0.108
Biomass power plant (GWh)	3,549	620	9,773	9,073	6,438	2,637	31.1
Biomass w cc (TWh)	0	0	0.079	0.098	0.188	0.358	0.556
Biomass w/ccu allam power plant (GWh)	0	0	0	51.1	90	161	285
Biomass w/ccu power plant (GWh)	0	0	79	47.1	97.6	197	271
Coal (TWh)	981	328	0.647	0.364	0.296	0.214	0.092
Gas (TWh)	1,489	1,589	1,262	737	422	151	51.9
Gas w cc (TWh)	0	0	0.154	0.216	0.297	0.344	0.23
Geothermal (TWh)	14.5	14.5	14.1	14.2	13.7	13.5	25.7
Hydro (TWh)	300	312	295	294	300	291	291
Nuclear (TWh)	802	766	683	462	338	121	0
Offshore wind (TWh)	0.092	3.82	20.2	183	437	978	1,833
Onshore wind (TWh)	413	816	1,593	2,720	4,109	5,852	8,245
Solar pv (TWh)	145	446	929	1,741	2,603	3,857	5,503

# Table 40: E+RE+ scenario - PILLAR 2: Clean Electricity - Transmission

Item	2020	2025	2030	2035	2040	2045	2050
Total HV transmission (for wind and solar)	0	13.4	35.1	86.8	162	267	430
- Base all (%)							

Table 41: E+RE+ scenario - PILLAR 3: Clean fuels - Bioenergy

Item	2020	2025	2030	2035	2040	2045	2050
Biomass input - BECCS-H2 (1000 tonnes)	0	0	0	2.28	19,065	118,177	120,886
Biomass input - Bio-FT w/ CC (1000	0	0	0	67.5	112	276	352
tonnes)							
Biomass input - Bio-SNG w/ CC (1000	0	0	9.39	4.81	7.06	45.5	179,016
tonnes)							
Biomass input - Biopower (1000 tonnes)	11,647	16,788	55,652	45,494	37,066	28,898	161
Biomass input - Biopower w/ cc (1000	0	0	47.7	51.6	99.5	192	292
tonnes)							
Biomass input - Ethanol (1000 tonnes)	129,506	129,506	129,536	125,006	67,634	10,261	905
Biomass input - FT diesel (1000 tonnes)	0	0	0	158	201	193	104
Biomass input - Pyrolysis liquids (1000	0	0	0	64,735	133,702	142,225	140,053
tonnes)							
Biomass input - Pyrolysis liquids w/ cc	0	0	0	65.4	117	7,078	142,580
(1000 tonnes)							
Biomass input - SNG (1000 tonnes)	0	9.34	18.9	26	25.6	52.2	8.78

# Table 42: E+RE+ scenario - PILLAR 4: CCUS - CO2 storage

Item	2020	2025	2030	2035	2040	2045	2050
CO2 storage (MMT)	0	0	0	0	0	0	0

# Table 43: E+RE+ scenario - PILLAR 6: Land sinks - Agriculture

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - Aggressive deployment - Corn-ethanol to energy							-23,286
grasses (1000 tC02e/y)							
Carbon sink potential - Aggressive							-203,503
deployment - Cropland measures (1000							200,000
tC02e/y)							
Carbon sink potential - Aggressive							-7,391
deployment - Permanent conservation							
cover (1000 tCO2e/y)							
Carbon sink potential - Aggressive							-234,180
deployment - Total (1000 tCO2e/y)							
Carbon sink potential - Moderate							-23,286
deployment - Corn-ethanol to energy							
grasses (1000 tCO2e/y)							
Carbon sink potential - Moderate							-106,430
deployment - Cropland measures (1000							
tCO2e/y)							
Carbon sink potential - Moderate							-3,696
deployment - Permanent conservation							
cover (1000 tC02e/y)							100 / 10
Carbon sink potential - Moderate							-133,412
deployment - Total (1000 tC02e/y)							44.007
Land impacted for carbon sink -							11,287
Aggressive deployment - Corn-ethanol to							
energy grasses (1000 hectares)							10 ( ) 05
Land impacted for carbon sink -							136,405
Aggressive deployment - Cropland measures (1000 hectares)							
Land impacted for carbon sink -							12,749
Aggressive deployment - Permanent							12,749
conservation cover (1000 hectares)							
Land impacted for carbon sink -							160,442
Aggressive deployment - Total (1000							100,442
hectares)							
Land impacted for carbon sink - Moderate							11,287
deployment - Corn-ethanol to energy							11,201
grasses (1000 hectares)							

Table 43: E+RE+ scenario - PILLAR 6: Land sinks - Agriculture (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink - Moderate deployment - Cropland measures (1000 hectares)							71,390
Land impacted for carbon sink - Moderate deployment - Permanent conservation cover (1000 hectares)							6,375
Land impacted for carbon sink - Moderate deployment - Total (1000 hectares)							89,052

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - High - Accelerate							-48,900
regeneration (1000 tCO2e/y)							
Carbon sink potential - High - All (not							-
counting overlap) (1000 tCO2e/y)							1,535,900
Carbon sink potential - High - Avoid							-84,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - High - Extend							-302,000
rotation length (1000 tCO2e/y)							
Carbon sink potential - High - Improve							-57,000
plantations (1000 tCO2e/y)							
Carbon sink potential - High - Increase							-
retention of HWP (1000 tCO2e/y)							300,000
Carbon sink potential - High - Increase							-60,000
trees outside forests (1000 tCO2e/y)							
Carbon sink potential - High - Reforest							-242,000
cropland (1000 tCO2e/y)							
Carbon sink potential - High - Reforest							-
pasture (1000 tCO2e/y)							264,000
Carbon sink potential - High - Restore							-178,000
productivity (1000 tCO2e/y)							
Carbon sink potential - Low - Accelerate							-24,500
regeneration (1000 tCO2e/y)							
Carbon sink potential - Low - All (not							-
counting overlap) (1000 tCO2e/y)							505,500
Carbon sink potential - Low - Avoid							-14,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - Low - Extend							-116,000
rotation length (1000 tCO2e/y)							
Carbon sink potential - Low - Improve							-29,000
plantations (1000 tCO2e/y)							
Carbon sink potential - Low - Increase							-100,000
retention of HWP (1000 tCO2e/y)							
Carbon sink potential - Low - Increase							-21,000
trees outside forests (1000 tCO2e/y)							
Carbon sink potential - Low - Reforest							-121,000
cropland (1000 tCO2e/y)							
Carbon sink potential - Low - Reforest							-20,000
pasture (1000 tCO2e/y)							
Carbon sink potential - Low - Restore							-60,000
productivity (1000 tCO2e/y)							
Carbon sink potential - Mid - Accelerate							-36,700
regeneration (1000 tCO2e/y)							
Carbon sink potential - Mid - All (not							-
counting overlap) (1000 tCO2e/y)							1,020,200
Carbon sink potential - Mid - Avoid							-49,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - Mid - Extend							-209,000
rotation length (1000 tCO2e/y)							

Table 44: E+RE+ scenario - PILLAR 6: Land sinks - Forests (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - Mid - Improve							-42,500
plantations (1000 tC02e/y)							
Carbon sink potential - Mid - Increase							-
retention of HWP (1000 tCO2e/y)							200,000
Carbon sink potential - Mid - Increase trees outside forests (1000 tC02e/y)							-40,500
Carbon sink potential - Mid - Reforest							-181,500
cropland (1000 tCO2e/y)							-101,500
Carbon sink potential - Mid - Reforest							-142,000
pasture (1000 tC02e/y)							142,000
Carbon sink potential - Mid - Restore							-119,000
productivity (1000 tC02e/y)							117,000
Land impacted for carbon sink potential -							8,000
High - Accelerate regeneration (1000							-,,,,,
hectares)							
Land impacted for carbon sink potential -							11,373
High - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							154,000
High - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							21,000
High - Improve plantations (1000							
hectares)							
Land impacted for carbon sink potential -							0
High - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							5,700
High - Increase trees outside forests							
(1000 hectares)							1/ 000
Land impacted for carbon sink potential -							16,000
High - Reforest cropland (1000 hectares)  Land impacted for carbon sink potential -							7,500
High - Reforest pasture (1000 hectares)							1,500
Land impacted for carbon sink potential -							59,000
High - Restore productivity (1000							39,000
hectares)							
Land impacted for carbon sink potential -							282,573
High - Total impacted (over 30 years)							202,0.0
(1000 hectares)							
Land impacted for carbon sink potential -							4,000
Low - Accelerate regeneration (1000							-
hectares)							
Land impacted for carbon sink potential -							10,677
Low - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							59,000
Low - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							10,500
Low - Improve plantations (1000							
hectares)							
Land impacted for carbon sink potential -							0
Low - Increase retention of HWP (1000							
hectares)							0.000
Land impacted for carbon sink potential -							3,000
Low - Increase trees outside forests							
(1000 hectares)							0.000
Land impacted for carbon sink potential - Low - Reforest cropland (1000 hectares)							8,000
I NW - Retorest cropland (1000 hectares)							

Table 44: E+RE+ scenario - PILLAR 6: Land sinks - Forests (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink potential -							1,300
Low - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							35,700
Low - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							132,177
Low - Total impacted (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							6,000
Mid - Accelerate regeneration (1000							
hectares)							
Land impacted for carbon sink potential -							11,025
Mid - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							106,500
Mid - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							15,800
Mid - Improve plantations (1000 hectares)							
Land impacted for carbon sink potential -							0
Mid - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							4,350
Mid - Increase trees outside forests (1000							
hectares)							
Land impacted for carbon sink potential -							12,000
Mid - Reforest cropland (1000 hectares)							
Land impacted for carbon sink potential -							9,400
Mid - Reforest pasture (1000 hectares)							,
Land impacted for carbon sink potential -							71,900
Mid - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							236,975
Mid - Total impacted (over 30 years) (1000							•
hectares)							

# Table 45: E+RE+ scenario - PILLAR 6: Land sinks - Total assumed land sink

Item	2020	2025	2030	2035	2040	2045	2050
Total assumed land sink (Gt CO2e/y)	-0.7	-0.73	-0.75	-0.78	-0.8	-0.83	-0.85

## Table 46: E+RE+ scenario - IMPACTS - Fossil fuel industries

Item	2020	2025	2030	2035	2040	2045	2050
Natural gas consumption - Annual (tcf)		22,299	18,474	12,539	8,059	4,669	3,040
Natural gas consumption - Cumulative		0	0	0	0	0	408,044
(tcf)							
Natural gas production - Annual (tcf)		35,349	33,543	27,543	22,024	15,809	9,807
Natural gas production - Cumulative (tcf)		0	0	0	0	0	798,868
Oil consumption - Annual (million bbls)		5,925	5,139	3,984	2,776	1,608	0.837
Oil consumption - Cumulative (million		0	0	0	0	0	115,785
bbls)							
Oil production - Annual (million bbls)		5,198	5,216	5,078	3,797	2,654	583
Oil production - Cumulative (million bbls)		0	0	0	0	0	125,883

## Table 47: E+RE+ scenario - IMPACTS - Health

Item	2020	2025	2030	2035	2040	2045	2050
Monetary damages from air pollution -		22,661	29.5	28.3	24.2	16.6	1.24
Coal (million 2019\$)							

Table 47: E+RE+ scenario - IMPACTS - Health (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Monetary damages from air pollution - Natural Gas (million 2019\$)		11,869	8,363	4,638	3,236	1,166	340
Monetary damages from air pollution - Transportation (million 2019\$)		102,386	96,814	74,557	43,657	20,044	7,790
Premature deaths from air pollution - Coal (deaths)		2,559	3.33	3.2	2.73	1.88	0.14
Premature deaths from air pollution - Natural Gas (deaths)		1,340	944	524	365	132	38.4
Premature deaths from air pollution - Transportation (deaths)		11,515	10,889	8,385	4,910	2,254	876

Table 48: E+RE+ scenario - IMPACTS - Jobs

Table 40. E+KE+ Scellullo - IMPAGIS - Jubs							
Item	2020	2025	2030	2035	2040	2045	2050
By economic sector - Agriculture (jobs)		31,644	36,897	42,750	36,387	31,197	47,266
By economic sector - Construction (jobs)		615,091	766,830	1,095,266	1,315,338	1,662,012	2,268,223
By economic sector - Manufacturing		708,145	931,655	1,298,402	1,269,224	1,433,061	1,851,180
(jobs)							
By economic sector - Mining (jobs)		455,199	345,035	249,121	151,098	81,299	14,201
By economic sector - Other (jobs)		62,554	92,801	154,006	200,123	276,352	415,903
By economic sector - Pipeline (jobs)		44,749	39,489	31,071	21,589	13,204	3,548
By economic sector - Professional (jobs)		343,678	420,403	600,437	759,221	993,617	1,406,825
By economic sector - Trade (jobs)		307,034	326,576	410,763	477,213	603,718	845,202
By economic sector - Utilities (jobs)		489,095	552,098	796,794	1,016,890	1,333,474	1,878,475
By education level - All sectors -		923,227	1,076,952	1,462,875	1,664,246	2,059,407	2,814,023
Associates degree or some college (jobs)							
By education level - All sectors -		670,997	748,208	965,469	1,070,614	1,301,578	1,756,710
Bachelors degree (jobs)							
By education level - All sectors - Doctoral		22,068	24,725	32,096	37,384	46,651	64,043
degree (jobs)							
By education level - All sectors - High		1,283,452	1,486,758	1,991,046	2,216,725	2,701,665	3,661,110
school diploma or less (jobs)							
By education level - All sectors - Masters		157,445	175,142	227,123	258,114	318,631	434,938
or professional degree (jobs)							
By education level - Biomass sector -		15,552	16,889	19,994	22,250	26,445	49,645
Associates degree or some college (jobs)							
By education level - Biomass sector -		14,138	15,252	17,355	20,555	25,986	49,050
Bachelors degree (jobs)							
By education level - Biomass sector -		685	770	905	1,198	1,633	3,096
Doctoral degree (jobs)							
By education level - Biomass sector - High		47,358	52,271	59,779	55,811	55,334	96,306
school diploma or less (jobs)					-		
By education level - Biomass sector -		3,886	4,287	4,946	5,961	7,609	14,274
Masters or professional degree (jobs)							
By education level - CO2 sector -		0	0.004	0.003	0.004	0.006	0.003
Associates degree or some college (jobs)							
By education level - CO2 sector -		0	0.004	0.003	0.004	0.006	0.003
Bachelors degree (jobs)							
By education level - CO2 sector - Doctoral		0	0	0	0	0	0
degree (jobs)							
By education level - CO2 sector - High		0.001	0.005	0.004	0.006	0.007	0.004
school diploma or less (jobs)							
By education level - CO2 sector - Masters		0	0.001	0.001	0.001	0.001	0.001
or professional degree (jobs)							
By education level - Coal sector -		22,915	6,176	2,967	2,570	2,312	1,923
Associates degree or some college (jobs)							
By education level - Coal sector -		14,923	3,797	1,687	1,511	1,405	1,200
Bachelors degree (jobs)							•
By education level - Coal sector - Doctoral		540	139	51.4	47.7	45.9	40.7
degree (jobs)							

Table 48: E+RE+ scenario - IMPACTS - Jobs (continued)

Table 48: E+RE+ scenario - IMPACIS - Jobs	s (continue	•					
Item	2020	2025	2030	2035	2040	2045	2050
By education level - Coal sector - High		32,770	9,431	5,745	4,884	4,306	3,504
school diploma or less (jobs)							
By education level - Coal sector - Masters		3,640	937	369	332	311	269
or professional degree (jobs)							
By education level - Grid sector -		191,619	259,230	444,808	596,108	824,718	1,195,826
Associates degree or some college (jobs)							
By education level - Grid sector -		109,809	147,584	251,609	335,059	460,670	663,869
Bachelors degree (jobs)							
By education level - Grid sector - Doctoral		3,166	4,183	7,012	9,180	12,409	17,582
degree (jobs)							
By education level - Grid sector - High		245,031	333,160	574,535	773,813	1,075,909	1,567,793
school diploma or less (jobs)							
By education level - Grid sector - Masters		27,631	37,021	62,921	83,535	114,508	164,530
or professional degree (jobs)							
By education level - Natural gas sector -		173,454	138,732	102,315	85,093	58,524	45,741
Associates degree or some college (jobs)		-, -		, , ,	,-		_,
By education level - Natural gas sector -		120,841	94,837	68,163	54,426	35,865	26,072
Bachelors degree (jobs)		-,-	,		- , -		.,-
By education level - Natural gas sector -		4,018	3,128	2,237	1,770	1,141	785
Doctoral degree (jobs)		1,010	0,120	2,201	., 0	.,	
By education level - Natural gas sector -		212,153	169,881	124,164	100,764	67,931	51,285
High school diploma or less (jobs)		212,100	107,001	124,104	100,104	01,701	01,200
By education level - Natural gas sector -		29,607	23,107	16,579	13,286	8,767	6,406
Masters or professional degree (jobs)		27,001	23,101	10,517	13,200	0,101	0,400
By education level - Nuclear sector -		13,635	13,082	9,708	6,639	3,957	1,115
Associates degree or some college (jobs)		13,033	13,002	7,100	0,007	3,731	1,113
By education level - Nuclear sector -		14,739	14,107	10,444	7,125	4,238	1,191
Bachelors degree (jobs)		14,137	14,101	10,444	1,120	4,230	1,171
By education level - Nuclear sector -		646	615	452	307	181	50.7
Doctoral degree (jobs)		040	010	432	307	101	50.7
		1/ 00/	1/ 000	10 11E	0.205	/: 0//:	1 / 00
By education level - Nuclear sector - High		16,926	16,282	12,115	8,305	4,964	1,402
school diploma or less (jobs)		2.000	0.010	0.017	1 010	1 100	200
By education level - Nuclear sector -		3,990	3,812	2,817	1,919	1,139	320
Masters or professional degree (jobs)		005 507	100 (7)	151.000	100 550	( ) (70	10 / / /
By education level - Oil sector - Associates		205,534	180,474	151,993	103,553	64,672	10,464
degree or some college (jobs)			100 100	150.010	101.011		10.110
By education level - Oil sector - Bachelors		212,005	183,408	152,219	101,861	62,544	10,118
degree (jobs)							
By education level - Oil sector - Doctoral		6,849	5,963	4,985	3,354	2,073	341
degree (jobs)							
By education level - Oil sector - High		317,683	280,308	237,011	162,536	102,033	16,377
school diploma or less (jobs)							
By education level - Oil sector - Masters or		48,082	41,430	34,263	22,801	13,932	2,261
professional degree (jobs)							
By education level - Solar PV sector -		199,096	287,606	435,512	467,266	589,662	824,354
Associates degree or some college (jobs)							
By education level - Solar PV sector -		116,255	169,874	259,498	279,991	356,591	502,913
Bachelors degree (jobs)							
By education level - Solar PV sector -		3,596	5,264	8,256	9,557	12,503	18,225
Doctoral degree (jobs)							
By education level - Solar PV sector - High		279,619	400,826	601,954	639,042	798,578	1,104,496
school diploma or less (jobs)							
By education level - Solar PV sector -		24,804	36,432	56,429	62,798	81,195	116,575
Masters or professional degree (jobs)							
By education level - Wind sector -		101,421	174,762	295,578	380,766	489,116	684,955
Associates degree or some college (jobs)		,	.,			,	
By education level - Wind sector -		68,289	119,349	204,494	270,085	354,280	502,298
Bachelors degree (jobs)		22,207		', '	,		
By education level - Wind sector -		2,569	4,664	8,198	11,971	16,666	23,922
Doctoral degree (jobs)		2,007	.,554	5,1,75	11/711	10,000	25,722
2000, 0, 009, 00 (1000)							

Table 48: E+RE+ scenario - IMPACTS - Jobs (continued)

Table 48: E+RE+ scenario - IMPACIS - Jobs	•	•					
Item	2020	2025	2030	2035	2040	2045	2050
By education level - Wind sector - High		131,912	224,599	375,743	471,570	592,611	819,947
school diploma or less (jobs)							
By education level - Wind sector - Masters		15,806	28,118	48,799	67,482	91,169	130,304
or professional degree (jobs)							
By resource sector - Biomass (jobs)		81,618	89,469	102,980	105,776	117,006	212,370
By resource sector - CO2 (jobs)		0.001	0.013	0.011	0.016	0.02	0.012
By resource sector - Coal (jobs)		74,788	20,480	10,819	9,345	8,380	6,937
By resource sector - Grid (jobs)		577,256	781,177	1,340,885	1,797,695	2,488,215	3,609,601
By resource sector - Natural Gas (jobs)		540,072	429,685	313,458	255,339	172,228	130,289
By resource sector - Nuclear (jobs)		49,936	47,897	35,536	24,295	14,480	4,078
By resource sector - Oil (jobs)		790,152	691,583	580,471	394,105	245,253	39,559
By resource sector - Solar (jobs)		623,369	900,002	1,361,648	1,458,654	1,838,529	2,566,564
By resource sector - Wind (jobs)		319,998	551,492	932,812	1,201,874	1,543,842	2,161,427
Median wages - Annual - Biomass (\$2019		51,709	53,024	54,711	58,635	62,473	64,124
per job)							
Median wages - Annual - CO2 (\$2019 per job)		70,992	72,624	74,331	76,115	77,980	79,929
Median wages - Annual - Coal (\$2019 per		60,299	59,831	55,635	56,518	57,460	58,461
job)			-	-	•	-	•
Median wages - Annual - Grid (\$2019 per		62,539	63,375	64,248	65,159	66,110	67,102
job)						-	
Median wages - Annual - Natural Gas (\$2019 per job)		66,255	67,149	67,918	68,399	68,816	68,665
Median wages - Annual - Nuclear (\$2019		71,486	73,188	74,974	76,846	78,808	80,864
per job)		11,400	13,100	14,714	10,040	10,000	00,004
Median wages - Annual - Oil (\$2019 per		65,834	66,727	67,655	68,473	69,353	70,884
job)		03,034	00,121	01,033	00,413	07,333	10,004
Median wages - Annual - Solar (\$2019 per		55,327	56,038	56,875	57,941	58,924	60,009
job)		00,021	30,000	30,013	01,741	30,724	00,007
Median wages - Annual - Wind (\$2019 per		58,021	59,082	60,123	61,956	63,600	64,825
iob)		00,021	07,002	00,120	01,700	00,000	04,020
On-Site or In-Plant Training - Biomass		8,227	9,032	10,798	11,784	13,705	25,340
sector - 1 to 4 years (jobs)		0,221	7,002	10,170	11,104	10,100	20,040
On-Site or In-Plant Training - Biomass		2,556	2,763	3,401	3,988	4,919	9,426
sector - 4 to 10 years (jobs)		2,000	2,100	0,401	0,700	7,717	7,420
On-Site or In-Plant Training - Biomass		13,142	14,575	17,029	18,260	20,980	37,999
sector - None (jobs)		10,142	14,010	11,027	10,200	20,700	01,777
On-Site or In-Plant Training - Biomass		572	605	679	668	712	1,355
sector - Over 10 years (jobs)		312	000	017	000	112	1,000
On-Site or In-Plant Training - Biomass		57,121	62,494	71,072	71,076	76,689	138,249
sector - Up to 1 year (jobs)		31,121	02,474	11,012	11,010	10,007	130,247
On-Site or In-Plant Training - CO2 sector -		0	0.002	0.002	0.002	0.003	0.002
1 to 4 years (jobs)		0	0.002	0.002	0.002	0.003	0.002
On-Site or In-Plant Training - CO2 sector -		0	0.001	0.001	0.001	0.001	0.001
4 to 10 years (jobs)		0	0.001	0.001	0.001	0.001	0.001
On-Site or In-Plant Training - CO2 sector -		0	0.002	0.002	0.003	0.003	0.002
None (jobs)		0	0.002	0.002	0.003	0.003	0.002
On-Site or In-Plant Training - CO2 sector -		0	0	0	0	0	0
Over 10 years (jobs)		0	0		O		
On-Site or In-Plant Training - CO2 sector -		0.001	0.008	0.007	0.01	0.012	0.007
Up to 1 year (jobs)		0.001	0.008	0.001	0.01	0.012	0.001
On-Site or In-Plant Training - Coal sector -		11,633	3,188	1,585	1,363	1,217	1,005
1 to 4 years (jobs)		11,033	3,100	1,565	1,363	1,211	1,005
On-Site or In-Plant Training - Coal sector -		4,427	1,140	427	366	326	268
4 to 10 years (jobs)		4,421	1,140	421	300	320	200
		10.007	0.017	1/0/	1 0 0 0	1 10 /	957
On-Site or In-Plant Training - Coal sector -		10,986	2,917	1,406	1,239	1,134	751
None (jobs)		EOO	10.5	1.7	1.1 /	20	32.2
On-Site or In-Plant Training - Coal sector -		532	135	47	41.4	38	32.2
Over 10 years (jobs) On-Site or In-Plant Training - Coal sector -		/.7.010	10 101	705/	/ 00/	E / / F	1. /7/
		47,210	13,101	7,354	6,336	5,665	4,674
Up to 1 year (jobs)							

Table 48: E+RE+ scenario - IMPACTS - Jobs (continued)

Item	2050 627,144 275,097 543,762 35,551 2,128,047 23,136 11,033
1 to 4 years (jobs)	275,097 543,762 35,551 2,128,047 23,136 11,033
On-Site or In-Plant Training - Grid sector - 4 to 10 years (jobs)         43,788         59,319         101,921         136,772         189,475           On-Site or In-Plant Training - Grid sector - None (jobs)         87,906         118,694         203,289         271,956         375,618           On-Site or In-Plant Training - Grid sector - Over 10 years (jobs)         5,676         7,685         13,196         17,697         24,502           On-Site or In-Plant Training - Grid sector - Up to 1 year (jobs)         340,182         460,384         790,303         1,059,630         1,466,784           On-Site or In-Plant Training - Natural gas sector - 1 to 4 years (jobs)         91,008         72,717         53,365         43,919         29,964           On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)         40,405         32,509         24,091         20,136         13,945           On-Site or In-Plant Training - Natural gas sector - None (jobs)         85,997         68,068         49,491         40,303         27,179           On-Site or In-Plant Training - Natural gas         4,794         3,885         2,913         2,474         1,732	543,762 35,551 2,128,047 23,136 11,033
4 to 10 years (jobs)       87,906       118,694       203,289       271,956       375,618         None (jobs)       5,676       7,685       13,196       17,697       24,502         Over 10 years (jobs)       5,676       7,685       13,196       17,697       24,502         On-Site or In-Plant Training - Grid sector - Up to 1 year (jobs)       340,182       460,384       790,303       1,059,630       1,466,784         On-Site or In-Plant Training - Natural gas sector - 1 to 4 years (jobs)       91,008       72,717       53,365       43,919       29,964         On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)       40,405       32,509       24,091       20,136       13,945         On-Site or In-Plant Training - Natural gas sector - None (jobs)       85,997       68,068       49,491       40,303       27,179         On-Site or In-Plant Training - Natural gas       4,794       3,885       2,913       2,474       1,732	543,762 35,551 2,128,047 23,136 11,033
4 to 10 years (jobs)       87,906       118,694       203,289       271,956       375,618         None (jobs)       5,676       7,685       13,196       17,697       24,502         Over 10 years (jobs)       5,676       7,685       13,196       17,697       24,502         On-Site or In-Plant Training - Grid sector - Up to 1 year (jobs)       340,182       460,384       790,303       1,059,630       1,466,784         On-Site or In-Plant Training - Natural gas sector - 1 to 4 years (jobs)       91,008       72,717       53,365       43,919       29,964         On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)       40,405       32,509       24,091       20,136       13,945         On-Site or In-Plant Training - Natural gas sector - None (jobs)       85,997       68,068       49,491       40,303       27,179         On-Site or In-Plant Training - Natural gas       4,794       3,885       2,913       2,474       1,732	543,762 35,551 2,128,047 23,136 11,033
On-Site or In-Plant Training - Grid sector - None (jobs)         87,906         118,694         203,289         271,956         375,618           On-Site or In-Plant Training - Grid sector - Over 10 years (jobs)         5,676         7,685         13,196         17,697         24,502           On-Site or In-Plant Training - Grid sector - Up to 1 year (jobs)         340,182         460,384         790,303         1,059,630         1,466,784           On-Site or In-Plant Training - Natural gas sector - 1 to 4 years (jobs)         91,008         72,717         53,365         43,919         29,964           On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)         40,405         32,509         24,091         20,136         13,945           On-Site or In-Plant Training - Natural gas sector - None (jobs)         85,997         68,068         49,491         40,303         27,179           On-Site or In-Plant Training - Natural gas         4,794         3,885         2,913         2,474         1,732	35,551 2,128,047 23,136 11,033
None (jobs)       5,676       7,685       13,196       17,697       24,502         Over 10 years (jobs)       340,182       460,384       790,303       1,059,630       1,466,784         Up to 1 year (jobs)       340,182       460,384       790,303       1,059,630       1,466,784         On-Site or In-Plant Training - Natural gas sector - 1 to 4 years (jobs)       91,008       72,717       53,365       43,919       29,964         On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)       40,405       32,509       24,091       20,136       13,945         On-Site or In-Plant Training - Natural gas sector - None (jobs)       85,997       68,068       49,491       40,303       27,179         On-Site or In-Plant Training - Natural gas       4,794       3,885       2,913       2,474       1,732	35,551 2,128,047 23,136 11,033
On-Site or In-Plant Training - Grid sector - Over 10 years (jobs)         5,676         7,685         13,196         17,697         24,502           On-Site or In-Plant Training - Grid sector - Up to 1 year (jobs)         340,182         460,384         790,303         1,059,630         1,466,784           On-Site or In-Plant Training - Natural gas sector - 1 to 4 years (jobs)         91,008         72,717         53,365         43,919         29,964           On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)         40,405         32,509         24,091         20,136         13,945           On-Site or In-Plant Training - Natural gas sector - None (jobs)         85,997         68,068         49,491         40,303         27,179           On-Site or In-Plant Training - Natural gas         4,794         3,885         2,913         2,474         1,732	2,128,047 23,136 11,033
Over 10 years (jobs)         340,182         460,384         790,303         1,059,630         1,466,784           Up to 1 year (jobs)         91,008         72,717         53,365         43,919         29,964           Sector - 1 to 4 years (jobs)         91,008         72,717         53,365         43,919         29,964           On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)         40,405         32,509         24,091         20,136         13,945           On-Site or In-Plant Training - Natural gas sector - None (jobs)         85,997         68,068         49,491         40,303         27,179           On-Site or In-Plant Training - Natural gas         4,794         3,885         2,913         2,474         1,732	2,128,047 23,136 11,033
On-Site or In-Plant Training - Grid sector - Up to 1 year (jobs)       340,182       460,384       790,303       1,059,630       1,466,784         On-Site or In-Plant Training - Natural gas sector - 1 to 4 years (jobs)       91,008       72,717       53,365       43,919       29,964         On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)       40,405       32,509       24,091       20,136       13,945         On-Site or In-Plant Training - Natural gas sector - None (jobs)       85,997       68,068       49,491       40,303       27,179         On-Site or In-Plant Training - Natural gas       4,794       3,885       2,913       2,474       1,732	23,136
Up to 1 year (jobs)       91,008       72,717       53,365       43,919       29,964         sector - 1 to 4 years (jobs)       91,008       72,717       53,365       43,919       29,964         On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)       40,405       32,509       24,091       20,136       13,945         On-Site or In-Plant Training - Natural gas sector - None (jobs)       85,997       68,068       49,491       40,303       27,179         On-Site or In-Plant Training - Natural gas       4,794       3,885       2,913       2,474       1,732	23,136
On-Site or In-Plant Training - Natural gas sector - 1 to 4 years (jobs)       91,008       72,717       53,365       43,919       29,964         On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)       40,405       32,509       24,091       20,136       13,945         On-Site or In-Plant Training - Natural gas sector - None (jobs)       85,997       68,068       49,491       40,303       27,179         On-Site or In-Plant Training - Natural gas       4,794       3,885       2,913       2,474       1,732	11,033
sector - 1 to 4 years (jobs)       40,405       32,509       24,091       20,136       13,945         sector - 4 to 10 years (jobs)       40,405       32,509       24,091       20,136       13,945         On-Site or In-Plant Training - Natural gas sector - None (jobs)       85,997       68,068       49,491       40,303       27,179         On-Site or In-Plant Training - Natural gas       4,794       3,885       2,913       2,474       1,732	11,033
On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)       40,405       32,509       24,091       20,136       13,945         On-Site or In-Plant Training - Natural gas sector - None (jobs)       85,997       68,068       49,491       40,303       27,179         On-Site or In-Plant Training - Natural gas       4,794       3,885       2,913       2,474       1,732	
sector - 4 to 10 years (jobs)       85,997       68,068       49,491       40,303       27,179         sector - None (jobs)       0n-Site or In-Plant Training - Natural gas       4,794       3,885       2,913       2,474       1,732	
On-Site or In-Plant Training - Natural gas sector - None (jobs)       85,997       68,068       49,491       40,303       27,179         On-Site or In-Plant Training - Natural gas       4,794       3,885       2,913       2,474       1,732	00 (5)
sector - None (jobs) On-Site or In-Plant Training - Natural gas 4,794 3,885 2,913 2,474 1,732	
On-Site or In-Plant Training - Natural gas         4,794         3,885         2,913         2,474         1,732	20,634
sector - Over 10 years (inhs)	1,384
On-Site or In-Plant Training - Natural gas         317,869         252,506         183,598         148,507         99,407	74,103
sector - Up to 1 year (jobs)	
On-Site or In-Plant Training - Nuclear         7,369         7,076         5,256         3,598         2,147	605
sector - 1 to 4 years (jobs)	
On-Site or In-Plant Training - Nuclear 2,667 2,560 1,901 1,301 776	219
sector - 4 to 10 years (jobs)	
On-Site or In-Plant Training - Nuclear         8,938         8,565         6,348         4,336         2,582	727
sector - None (jobs)	
On-Site or In-Plant Training - Nuclear 250 240 178 122 72.4	20.4
sector - Over 10 years (jobs)	20.4
On-Site or In-Plant Training - Nuclear 30,712 29,456 21,852 14,938 8,903	2,507
sector - Up to 1 year (jobs)	2,301
	5,954
	5,954
to 4 years (jobs)	0.157
On-Site or In-Plant Training - Oil sector -         41,055         36,334         30,828         21,174         13,322	2,156
4 to 10 years (jobs)	
On-Site or In-Plant Training - Oil sector -         127,228         110,514         92,040         61,993         38,270	6,123
None (jobs)	
On-Site or In-Plant Training - Oil sector -         4,547         4,098         3,539         2,472         1,580	261
Over 10 years (jobs)	
On-Site or In-Plant Training - Oil sector - 500,887 438,320 367,823 249,700 155,369	25,065
Up to 1 year (jobs)	
On-Site or In-Plant Training - Solar PV 100,025 143,715 216,807 232,302 291,908	406,416
sector - 1 to 4 years (jobs)	
On-Site or In-Plant Training - Solar PV 35,315 49,977 75,490 83,404 105,119	147,501
sector - 4 to 10 years (jobs)	,
On-Site or In-Plant Training - Solar PV 106,536 154,101 233,551 250,640 316,508	442,691
sector - None (jobs)	442,071
On-Site or In-Plant Training - Solar PV 4,979 7,145 10,791 11,628 14,635	20,426
sector - Over 10 years (jobs)	20,420
	1,549,529
Un vite en in Dient Treining Colon DV   974 E1/,   E/E 04/,   99E 000   990 490   1110 940	1,549,529
On-Site or In-Plant Training - Solar PV         376,514         545,064         825,009         880,680         1,110,360	1,426,206
sector - Up to 1 year (jobs)	1 1 476 7116
sector - Up to 1 year (jobs)       484,678       559,607       752,069       851,450       1,048,770	1,720,200
sector - Up to 1 year (jobs)       484,678       559,607       752,069       851,450       1,048,770         to 4 years (jobs)       484,678       559,607       752,069       851,450       1,048,770	
sector - Up to 1 year (jobs)       484,678       559,607       752,069       851,450       1,048,770         0n-Site or In-Plant Training - Total jobs - 4       187,730       215,098       289,739       337,916       421,771	576,579
sector - Up to 1 year (jobs)       484,678       559,607       752,069       851,450       1,048,770         to 4 years (jobs)       187,730       215,098       289,739       337,916       421,771         to 10 years (jobs)       421,771	576,579
sector - Up to 1 year (jobs)       484,678       559,607       752,069       851,450       1,048,770         to 4 years (jobs)       187,730       215,098       289,739       337,916       421,771         to 10 years (jobs)       0n-Site or In-Plant Training - Total jobs -       496,271       573,379       765,795       859,173       1,053,568	
sector - Up to 1 year (jobs)       484,678       559,607       752,069       851,450       1,048,770         to 4 years (jobs)       187,730       215,098       289,739       337,916       421,771         to 10 years (jobs)       0n-Site or In-Plant Training - Total jobs - None (jobs)       496,271       573,379       765,795       859,173       1,053,568	576,579 1,433,509
sector - Up to 1 year (jobs)       484,678       559,607       752,069       851,450       1,048,770         to 4 years (jobs)       187,730       215,098       289,739       337,916       421,771         to 10 years (jobs)       496,271       573,379       765,795       859,173       1,053,568	576,579
sector - Up to 1 year (jobs)       484,678       559,607       752,069       851,450       1,048,770         to 4 years (jobs)       187,730       215,098       289,739       337,916       421,771         to 10 years (jobs)       0n-Site or In-Plant Training - Total jobs - None (jobs)       496,271       573,379       765,795       859,173       1,053,568	576,579 1,433,509
sector - Up to 1 year (jobs)       484,678       559,607       752,069       851,450       1,048,770         to 4 years (jobs)       187,730       215,098       289,739       337,916       421,771         to 10 years (jobs)       496,271       573,379       765,795       859,173       1,053,568         None (jobs)       23,913       28,218       38,829       44,899       55,961         Over 10 years (jobs)	576,579 1,433,509 76,771
sector - Up to 1 year (jobs)       484,678       559,607       752,069       851,450       1,048,770         to 4 years (jobs)       187,730       215,098       289,739       337,916       421,771         to 10 years (jobs)       496,271       573,379       765,795       859,173       1,053,568         None (jobs)       23,913       28,218       38,829       44,899       55,961	576,579 1,433,509 76,771

Table 48: E+RE+ scenario - IMPACTS - Jobs (continued)

Don-Site or In-Plant Training - Wind sector	Table 48: E+RE+ scenario - IMPACTS - Jobs	Continu	cuj					
-1 to 4 years (jobs) On-Site or In-Plant Training - Wind sector - 4 to 10 years (jobs) On-Site or In-Plant Training - Wind sector - None (jobs) On-Site or In-Plant Training - Wind sector - None (jobs) On-Site or In-Plant Training - Wind sector - Over 10 years (jobs) On-Site or In-Plant Training - Wind sector - Over 10 years (jobs) On-Site or In-Plant Training - Wind sector - Up to I year (jobs) On-Site or In-Plant Training - Wind sector - Up to I year (jobs) On-Site or In-Plant Training - Wind sector - Up to I year (jobs) On-Site or In-Plant Training - Wind sector - Up to I year (jobs) On-the-Job Training - All sectors - 1 to 4 years (jobs) On-the-Job Training - All sectors - 4 to 10 years (jobs) On-the-Job Training - All sectors - None (jobs) On-the-Job Training - All sectors - Up to 1 year (jobs) On-the-Job Training - All sectors - Up to 1 year (jobs) On-the-Job Training - Biomass sector - 1 8,979 On-the-Job Training - Biomass sector - 4 to 10 years (jobs) On-the-Job Training - Biomass sector - 5,066 On-the-Job Training - Oo2 sector - None (jobs) On-the-Job Training - OO3 sector - None (jobs) On-the-J	Item	2020	2025	2030	2035		2045	2050
On-Site or In-Plant Training - Wind sector			50,279	86,466	145,842	188,079	241,280	336,605
- 4 to 10 years (jobs) On-Site or In-Plant Training - Wind sector - None (jobs) On-Site or In-Plant Training - Wind sector - Over 10 years (jobs) On-Site or In-Plant Training - Wind sector - Over 10 years (jobs) On-Site or In-Plant Training - Wind sector - Over 10 years (jobs) On-Site or In-Plant Training - Wind sector - Up to 1 years (jobs) On-Site or In-Plant Training - Wind sector - Up to 1 years (jobs) On-Site or In-Plant Training - Wind sector - Up to 1 years (jobs) On-the-Job Training - All sectors - 1 to 4 years (jobs) On-the-Job Training - All sectors - 4 to 10 years (jobs) On-the-Job Training - All sectors - None (jobs) On-the-Job Training - All sectors - None (jobs) On-the-Job Training - All sectors - Vincolate (jobs) On-the-Job Training - All sectors - Up to 1 years (jobs) On-the-Job Training - Siomass sector - 1 8,979 On-the-Job Training - Siomass sector - 4 to 10 years (jobs) On-the-Job Training - Biomass sector - 4 2,054 2,258 2,913 3,534 4,432 8, to 10 years (jobs) On-the-Job Training - Biomass sector - 5,066 S,387 S,981 6,164 6,923 12, None (jobs) On-the-Job Training - Biomass sector - Up to 1 years (jobs) On-the-Job Training - Biomass sector - Up to 1 years (jobs) On-the-Job Training - Biomass sector - Up to 1 years (jobs) On-the-Job Training - Biomass sector - Up to 1 years (jobs) On-the-Job Training - Biomass sector - Up to 1 years (jobs) On-the-Job Training - Biomass sector - Up to 1 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) On-the-Job Training - Oc2 sector - 1 to 4 years (jobs) O								
On-Site or In-Plant Training - Wind sector			17,516	30,496	51,680	70,775	93,888	130,879
None								
On-Site or In-Plant Training - Wind sector			55,538	95,944	162,639	210,445	271,296	380,616
- Ouer 10 years (jobs) On-Site or In-Plant Training - Wind sector - Up to 1 year (jobs) On-the-Job Training - All sectors - 1 to 4 years (jobs) On-the-Job Training - All sectors - 4 to 10 years (jobs) On-the-Job Training - All sectors - 1 to 4 years (jobs) On-the-Job Training - All sectors - 1 to 4 years (jobs) On-the-Job Training - All sectors - None (jobs) On-the-Job Training - All sectors - Over 10 years (jobs) On-the-Job Training - All sectors - Over 10 years (jobs) On-the-Job Training - All sectors - Up to 1 year (jobs) On-the-Job Training - Biomass sector - 1 to 4 years (jobs) On-the-Job Training - Biomass sector - 4 to 10 years (jobs) On-the-Job Training - Biomass sector - 5,066 On-the-Job Training - Biomass sector - 5,066 On-the-Job Training - Biomass sector - Up to 10 years (jobs) On-the-Job Training - Biomass sector - Up to 10 years (jobs) On-the-Job Training - Biomass sector - Up to 10 years (jobs) On-the-Job Training - Biomass sector - Up to 10 years (jobs) On-the-Job Training - Biomass sector - Up to 10 years (jobs) On-the-Job Training - Biomass sector - Up to 10 years (jobs) On-the-Job Training - CO2 sector - 4 to 10 years (jobs) On-the-Job Training - CO2 sector - 4 to 10 years (jobs) On-the-Job Training - CO2 sector - 4 to 10 years (jobs) On-the-Job Training - CO2 sector - 4 to 10 years (jobs) On-the-Job Training - CO2 sector - 4 to 10 years (jobs) On-the-Job Training - CO2 sector - Vore 10 O 0.001 0.0			0.5.0		7,07	0.707	40 (00	477/0
On-Site or In-Plant Training - Wind sector			2,563	4,426	7,487	9,797	12,690	17,742
- Up to 1 year (jobs) On-the-Job Training - All sectors - 1 to 4 years (jobs) On-the-Job Training - All sectors - 4 to 10 years (jobs) On-the-Job Training - All sectors - 4 to 10 years (jobs) On-the-Job Training - All sectors - 4 to 10 years (jobs) On-the-Job Training - All sectors - None (jobs) On-the-Job Training - All sectors - Over 10 30,947 36,394 48,635 53,200 64,096 85 years (jobs) On-the-Job Training - All sectors - Up to 1 years (jobs) On-the-Job Training - Biomass sector - 1 8,979 9,877 12,031 13,677 16,440 30, to 4 years (jobs) On-the-Job Training - Biomass sector - 4 to 10 years (jobs) On-the-Job Training - Biomass sector - 5,066 5,387 5,981 6,164 6,923 12, None (jobs) On-the-Job Training - Biomass sector - 5,066 5,387 5,981 6,164 6,923 12, None (jobs) On-the-Job Training - Biomass sector - 5,066 5,387 5,981 6,164 6,923 12, None (jobs) On-the-Job Training - Biomass sector - 0 0 0.002 0.003 0.004 0.004 years (jobs) On-the-Job Training - Biomass sector - 1 0 0.001 0			107 101	00/1/0	F/F1//	700 770	00/ /00	1.005.507
On-the-Job Training - All sectors - 1 to 4 years (jobs)			194,101	334,160	565,164	722,779	924,688	1,295,584
Vears (jobs)			(10.00/	71/ 0//	0/1.00/	1 000 57/	10500/0	1 000 055
On-the-Job Training - All sectors - 4 to 10         176,961         205,039         280,398         331,116         416,603         572, years (jobs)           On-the-Job Training - All sectors - None (jobs)         169,235         192,437         253,227         282,712         345,779         470 (jobs)           On-the-Job Training - All sectors - Over 10 years (jobs)         30,947         36,394         48,635         53,200         64,096         85 (jobs)           On-the-Job Training - All sectors - Up to 1 year (jobs)         2,061,750         2,363,671         3,134,544         3,486,479         4,251,206         5,763, year (jobs)           On-the-Job Training - Biomass sector - 1 to 4 years (jobs)         8,979         9,877         12,031         13,677         16,440         30, 10 (jobs)           On-the-Job Training - Biomass sector - 4 to 10 years (jobs)         0.10 (jobs)         2,054         2,258         2,913         3,534         4,432         8, 12, 12, 12, 12, 12, 12, 12, 12, 12, 12			618,296	/14,244	961,804	1,093,576	1,350,249	1,838,355
Vears (jobs)			17/ 0/1	205.020	200 200	001 117	/1/ /02	572,624
On-the-Job Training - All sectors - None (jobs)         169,235         192,437         253,227         282,712         345,779         470 (jobs)           On-the-Job Training - All sectors - Over 10 years (jobs)         30,947         36,394         48,635         53,200         64,096         85 (jobs)           On-the-Job Training - All sectors - Up to 1 year (jobs)         2,061,750         2,363,671         3,134,544         3,486,479         4,251,206         5,763,763,763           On-the-Job Training - Biomass sector - 1 to 4 years (jobs)         8,979         9,877         12,031         13,677         16,440         30,777           On-the-Job Training - Biomass sector - 4 to 10 years (jobs)         2,054         2,258         2,913         3,534         4,432         8,772           On-the-Job Training - Biomass sector - 5,066         5,387         5,981         6,164         6,923         12,779           On-the-Job Training - Biomass sector - Up         64,933         71,327         81,346         81,677         88,415         158,77           On-the-Job Training - CO2 sector - 1 to 4 years (jobs)         0         0.002         0.002         0.003         0.004         0.001           On-the-Job Training - CO2 sector - None (jobs)         0         0         0         0         0         0			170,901	205,039	280,398	331,116	410,603	572,624
Company   Comp			140 025	100 /.97	052 007	202712	27.5 770	470,199
On-the-Job Training - All sectors - Over 10 years (jobs)         30,947         36,394         48,635         53,200         64,096         85 years (jobs)           On-the-Job Training - All sectors - Up to 1 year (jobs)         2,061,750         2,363,671         3,134,544         3,486,479         4,251,206         5,763,763,763,770           On-the-Job Training - Biomass sector - 1 to 4 years (jobs)         8,979         9,877         12,031         13,677         16,440         30,764           On-the-Job Training - Biomass sector - 4 to 10 years (jobs)         2,054         2,258         2,913         3,534         4,432         8,760           On-the-Job Training - Biomass sector - 4 to 10 years (jobs)         5,066         5,387         5,981         6,164         6,923         12,760           On-the-Job Training - Biomass sector - 1 to 4 years (jobs)         586         619         708         722         796         1           On-the-Job Training - Biomass sector - 1 to 4 years (jobs)         64,933         71,327         81,346         81,677         88,415         158,415           On-the-Job Training - C02 sector - 1 to 4 years (jobs)         0         0.002         0.002         0.003         0.004         0.004           On-the-Job Training - C02 sector - None (jobs)         0         0         0         0 <td>=</td> <td></td> <td>169,233</td> <td>192,437</td> <td>253,221</td> <td>202,112</td> <td>345,779</td> <td>470,199</td>	=		169,233	192,437	253,221	202,112	345,779	470,199
years (jobs)         2,061,750         2,363,671         3,134,544         3,486,479         4,251,206         5,763,763,763,763,763,763,763,763,763,763			20.07	24 20/.	7.0 425	E3 300	6/: 006	85,918
On-the-Job Training - All sectors - Up to 1 year (jobs)         2,061,750         2,363,671         3,134,544         3,486,479         4,251,206         5,763, 57	=		30,941	30,394	40,033	55,200	04,090	05,710
Non-the-Job Training - Biomass sector - 1   10,000   10,0001   1			2.041.750	2 2 4 2 4 7 1	212/. 5/./.	2 /.04 /.70	/, 251 204	5,763,728
On-the-Job Training - Biomass sector - 1			2,001,130	2,303,011	3,134,344	3,460,419	4,231,200	3,103,120
Texas   Company   Compan			9 070	0.977	12 021	12 677	16 /./.0	30,702
On-the-Job Training - Biomass sector - 4 to 10 years (jobs)	=		0,717	2,011	12,031	13,011	10,440	30,102
to 10 years (jobs)  On-the-Job Training - Biomass sector -			2.05/	2 250	2 013	2 52/.	/, /,32	8,465
On-the-Job Training - Biomass sector - None (jobs)         5,066         5,387         5,981         6,164         6,923         12,70           On-the-Job Training - Biomass sector - Over 10 years (jobs)         586         619         708         722         796         1           On-the-Job Training - Biomass sector - Up to 1 year (jobs)         64,933         71,327         81,346         81,677         88,415         158, 158, 158, 158, 158, 158, 158, 158,			2,034	2,230	2,713	3,334	4,432	0,400
None (jobs)   On-the-Job Training - Biomass sector - Over 10 years (jobs)   On-the-Job Training - Biomass sector - Up to 1 year (jobs)   On-the-Job Training - Biomass sector - Up to 1 year (jobs)   On-the-Job Training - CO2 sector - 1 to 4 years (jobs)   On-the-Job Training - CO2 sector - 4 to 10 years (jobs)   On-the-Job Training - CO2 sector - None (jobs)   On-the-Job Training - CO2 sector - None (jobs)   On-the-Job Training - CO2 sector - Over 10 years (jobs)   On-the-Job Training - CO2 sector - Up to 1 years (jobs)   On-the-Job Training - CO2 sector - Up to 1 years (jobs)   On-the-Job Training - CO2 sector - Up to 1 years (jobs)   On-the-Job Training - CO2 sector - 1 to 4 years (jobs)   On-the-Job Training - CO2 sector - 1 to 4 years (jobs)   On-the-Job Training - Coal sector - 4 to 10 years (jobs)   On-the-Job Training - Coal sector - 4 to 10 years (jobs)   On-the-Job Training - Coal sector - A to 10 years (jobs)   On-the-Job Training - Coal sector - A to 10 years (jobs)   On-the-Job Training - Coal sector - None   On-the-Job Training - Coal sector - A to 10 years (jobs)   On-the-Job Training - Coal sector - None   On-			5.066	5 387	5 021	6 16/1	6 923	12,884
On-the-Job Training - Biomass sector - Over 10 years (jobs)         586         619         708         722         796         1           On-the-Job Training - Biomass sector - Up to 1 year (jobs)         64,933         71,327         81,346         81,677         88,415         158, 158, 158, 158, 158, 158, 158, 158,	=		3,000	3,301	3,761	0,104	0,723	12,004
Over 10 years (jobs)         0n-the-Job Training - Biomass sector - Up to 1 year (jobs)         64,933         71,327         81,346         81,677         88,415         158, to 1 year (jobs)           On-the-Job Training - CO2 sector - 1 to 4 years (jobs)         0         0.002         0.002         0.003         0.004         0. years (jobs)           On-the-Job Training - CO2 sector - 4 to 10 years (jobs)         0         0.001         0			586	619	708	722	796	1,521
On-the-Job Training - Biomass sector - Up to 1 year (jobs)         64,933         71,327         81,346         81,677         88,415         158, 158, 158, 158, 158, 158, 158, 158,			300	017	100	122	170	1,021
to 1 year (jobs)       0       0.002       0.002       0.003       0.004       0.004         years (jobs)       0       0.001			64 933	71 327	81 346	81 677	88 415	158,798
On-the-Job Training - CO2 sector - 1 to 4 years (jobs)         0         0.002         0.002         0.003         0.004         0. years (jobs)         0         0.001	=		04,700	11,021	01,040	01,011	00,410	100,170
years (jobs)         0n-the-Job Training - CO2 sector - 4 to 10         0 0.001         0.001 <th< td=""><td></td><td></td><td>0</td><td>0.002</td><td>0.002</td><td>0.003</td><td>0.004</td><td>0.002</td></th<>			0	0.002	0.002	0.003	0.004	0.002
On-the-Job Training - CO2 sector - 4 to 10 years (jobs)         0         0.001 <th< td=""><td></td><td></td><td></td><td>0.002</td><td>0.002</td><td>0.000</td><td>0.001</td><td>0.002</td></th<>				0.002	0.002	0.000	0.001	0.002
years (jobs)         0         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.002         0.002         0.002         0.003			0	0.001	0.001	0.001	0.001	0.001
On-the-Job Training - CO2 sector - None (jobs)         0         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.001         0.002         0.002         0.002         0.002         0.003 <td></td> <td></td> <td></td> <td>0.00.</td> <td>0.001</td> <td>0.00.</td> <td>0.001</td> <td>0.00.</td>				0.00.	0.001	0.00.	0.001	0.00.
(jobs)       0 <td></td> <td></td> <td>0</td> <td>0.001</td> <td>0.001</td> <td>0.001</td> <td>0.001</td> <td>0.001</td>			0	0.001	0.001	0.001	0.001	0.001
On-the-Job Training - CO2 sector - Over 10 years (jobs)         0	_							
10 years (jobs)       0.001       0.009       0.008       0.011       0.014       0.0         year (jobs)       0.001       0.009       0.008       0.011       0.014       0.0         On-the-Job Training - Coal sector - 1 to 4 years (jobs)       14,738       4,014       1,898       1,635       1,463         On-the-Job Training - Coal sector - 4 to 10 years (jobs)       4,330       1,125       419       357       316         On-the-Job Training - Coal sector - None       3,704       973       503       441       401			0	0	0	0	0	0
On-the-Job Training - CO2 sector - Up to 1 year (jobs)       0.001       0.009       0.008       0.011       0.014       0.01 year (jobs)         On-the-Job Training - Coal sector - 1 to 4 years (jobs)       14,738       4,014       1,898       1,635       1,463       1         On-the-Job Training - Coal sector - 4 to 10 years (jobs)       4,330       1,125       419       357       316         On-the-Job Training - Coal sector - None       3,704       973       503       441       401	=							
year (jobs)     14,738     4,014     1,898     1,635     1,463       years (jobs)     14,738     4,014     1,898     1,635     1,463       On-the-Job Training - Coal sector - 4 to 10 years (jobs)     4,330     1,125     419     357     316       On-the-Job Training - Coal sector - None     3,704     973     503     441     401			0.001	0.009	0.008	0.011	0.014	0.008
On-the-Job Training - Coal sector - 1 to 4 years (jobs)       14,738       4,014       1,898       1,635       1,463       1         On-the-Job Training - Coal sector - 4 to 10 years (jobs)       4,330       1,125       419       357       316         On-the-Job Training - Coal sector - None       3,704       973       503       441       401								
On-the-Job Training - Coal sector - 4 to 10 years (jobs)       4,330       1,125       419       357       316         On-the-Job Training - Coal sector - None       3,704       973       503       441       401			14,738	4,014	1,898	1,635	1,463	1,211
years (jobs) On-the-Job Training - Coal sector - None 3,704 973 503 441 401	years (jobs)							
On-the-Job Training - Coal sector - None 3,704 973 503 441 401	On-the-Job Training - Coal sector - 4 to 10		4,330	1,125	419	357	316	258
	years (jobs)							
	On-the-Job Training - Coal sector - None		3,704	973	503	441	401	336
(jobs)	(jobs)							
On-the-Job Training - Coal sector - Over 500 139 70 62.4 57.8	On-the-Job Training - Coal sector - Over		500	139	70	62.4	57.8	49.6
10 years (jobs)								
			51,515	14,229	7,928	6,850	6,142	5,081
year (jobs)								
			129,672	175,615	301,662	404,707	560,517	813,611
years (jobs)								
	=		44,070	59,739	102,707	137,912	191,172	277,729
years (jobs)								
	_	-	28,251	38,178	65,446	87,631	121,147	175,548
(jobs)								
	=		4,626	6,272	10,786	14,487	20,089	29,196
10 years (jobs)								
			370,636	501,373	860,284	1,152,958	1,595,290	2,313,517
	year (jobs)							

Table 48: E+RE+ scenario - IMPACTS - Jobs (continued)

Table 48: E+RE+ scenario - IMPACIS - Joi	bs (continue	eaj					
Item	2020	2025	2030	2035	2040	2045	2050
On-the-Job Training - Natural gas sector -		119,696	95,608	70,226	57,982	39,688	30,848
1 to 4 years (jobs)							
On-the-Job Training - Natural gas sector -		38,459	31,003	23,091	19,510	13,659	11,015
4 to 10 years (jobs)							
On-the-Job Training - Natural gas sector -		28,179	22,136	15,903	12,710	8,434	6,257
None (jobs)							
On-the-Job Training - Natural gas sector -		5,129	4,071	2,940	2,350	1,565	1,166
Over 10 years (jobs)							
On-the-Job Training - Natural gas sector -		348,610	276,866	201,297	162,788	108,882	81,003
Up to 1 year (jobs)							
On-the-Job Training - Nuclear sector - 1 to		9,668	9,283	6,895	4,718	2,815	794
4 years (jobs)							
On-the-Job Training - Nuclear sector - 4		2,332	2,239	1,663	1,138	679	192
to 10 years (jobs)							
On-the-Job Training - Nuclear sector -		3,354	3,216	2,385	1,630	971	273
None (jobs)							
On-the-Job Training - Nuclear sector -		520	499	371	254	152	42.8
Over 10 years (jobs)							
On-the-Job Training - Nuclear sector - Up		34,063	32,660	24,223	16,554	9,863	2,777
to 1 year (jobs)		- 1,000		- 1,	,	,,,,,,	_,
On-the-Job Training - Oil sector - 1 to 4		144,018	126,388	106,403	72,405	45,178	7,322
years (jobs)		,	.20,000	100,100	,	.575	.,622
On-the-Job Training - Oil sector - 4 to 10		34,014	30,133	25,578	17,598	11,082	1,779
years (jobs)		04,014	00,100	20,010	11,070	11,002	1,112
On-the-Job Training - Oil sector - None		48,074	41,427	34,202	22,869	14,003	2,203
(jobs)		40,014	71,721	04,202	22,007	14,000	2,200
On-the-Job Training - Oil sector - Over 10		7,714	6,774	5,705	3,886	2,427	392
years (jobs)		1,114	0,114	3,103	3,000	2,421	372
On-the-Job Training - Oil sector - Up to 1		556,332	486,861	408,582	277,346	172,564	27,863
year (jobs)		330,332	400,001	400,302	211,540	112,504	21,000
On-the-Job Training - Solar PV sector - 1		127,012	182,347	275,103	295,223	371,019	516,749
to 4 years (jobs)		121,012	102,341	215,105	293,223	371,019	310,749
On-the-Job Training - Solar PV sector - 4		34,865	49,217	74,363	82,591	104,163	146,379
		34,865	49,217	14,363	82,391	104,163	146,379
to 10 years (jobs)		05.007	F0.77/	77.007	00.071	107 700	150.157
On-the-Job Training - Solar PV sector -		35,086	50,776	77,297	83,961	106,609	150,156
None (jobs)		707/	11 / 10	17.005	17700	00.07.0	001/0
On-the-Job Training - Solar PV sector -		7,976	11,410	17,025	17,793	22,040	30,143
Over 10 years (jobs)		/40 / 00	(0,054	047.050	070.007	100//07	1700101
On-the-Job Training - Solar PV sector - Up		418,430	606,251	917,859	979,086	1,234,697	1,723,136
to 1 year (jobs)			11111	100000	2/222	212.122	
On-the-Job Training - Wind sector - 1 to 4		64,513	111,110	187,587	243,229	313,130	437,118
years (jobs)							
On-the-Job Training - Wind sector - 4 to		16,836	29,325	49,662	68,475	91,099	126,807
10 years (jobs)							
On-the-Job Training - Wind sector - None		17,520	30,343	51,510	67,305	87,290	122,541
(jobs)							
On-the-Job Training - Wind sector - Over		3,897	6,610	11,029	13,645	16,970	23,408
10 years (jobs)							
On-the-Job Training - Wind sector - Up to		217,231	374,104	633,024	809,220	1,035,353	1,451,553
1 year (jobs)							
Related work experience - All sectors - 1		1,109,104	1,264,286	1,674,545	1,878,001	2,299,966	3,119,060
to 4 years (jobs)							
Related work experience - All sectors - 4		707,289	809,720	1,077,428	1,215,185	1,492,852	2,027,011
to 10 years (jobs)							
Related work experience - All sectors -		432,155	498,000	666,430	750,787	922,233	1,256,756
None (jobs)				,		,	
Related work experience - All sectors -		196,988	225,752	298,693	331,047	402,870	543,997
Over 10 years (jobs)		,			, -	, , , ,	
Related work experience - All sectors - Up		611,652	714,028	961,513	1,072,062	1,310,012	1,784,001
to 1 year (jobs)		5.1,002	,525	,3,,5,5	.,0.2,002	.,0.0,0.2	.,. 5 .,551
			l	1			I

Table 48: E+RE+ scenario - IMPACTS - Jobs (continued)

Term	2050 73,929 42,237 31,692 10,830 53,683
Total years (jobs)   Related work experience - Biomass sector   12,619   13,694   16,064   18,393   22,461   17,786   17,786   17,786   17,786   17,786   17,786   18,385   15,184   17,335   16,944   17,786	42,237 31,692 10,830
Related work experience - Biomass sector   12,619   13,694   16,064   18,393   22,461   - 4 to 10 years (jobs)   Related work experience - Biomass sector   13,859   15,184   17,335   16,944   17,786   - None (jobs)   Related work experience - Biomass sector   3,478   3,729   4,280   4,755   5,696   - Over 10 years (jobs)   Related work experience - Biomass sector   27,386   29,866   33,448   30,859   30,376   - Up to 1 year (jobs)   Related work experience - CO2 sector - 1   0.001   0.005   0.004   0.006   0.008   Related work experience - CO2 sector - 4   0   0.003   0.003   0.004   0.005   Related work experience - CO2 sector - 4   0   0.002   0.002   0.002   0.002   Related work experience - CO2 sector - 0   0.001   0.001   0.001   0.001   None (jobs)   Related work experience - CO2 sector - 0   0.001   0.001   0.001   0.001   Over 10 years (jobs)   Related work experience - CO2 sector - 0   0.002   0.002   0.003   0.003   Up to 1 year (jobs)   Related work experience - CO2 sector - 0   0.002   0.002   0.003   0.003   Up to 1 year (jobs)   Related work experience - Coal sector - 1   0.49   0.005   0.002   0.003   0.003   Related work experience - Coal sector - 1   0.49   0.005   0.005   0.005   0.005   0.005   Related work experience - Coal sector - 1   0.49   0.005	31,692
Related work experience - Biomass sector	31,692
Related work experience - Biomass sector - None (jobs) - Over 10 years (jobs) - Over 10 ye	10,830
None (jobs)   Related work experience - Biomass sector   3,478   3,729   4,280   4,755   5,696   6   Over 10 years (jobs)   Related work experience - Biomass sector   27,386   29,866   33,448   30,859   30,376   Up to 1 year (jobs)   Related work experience - CO2 sector - 1   0.001   0.005   0.004   0.006   0.008   to 4 years (jobs)   Related work experience - CO2 sector - 4   0   0.003   0.003   0.003   0.004   0.005   to 10 years (jobs)   Related work experience - CO2 sector - 0   0.002   0.002   0.002   0.002   0.003   None (jobs)   Related work experience - CO2 sector - 0   0.001   0.0	10,830
Related work experience - Biomass sector - 0.0 ver 10 years (jobs)	
Related work experience - Biomass sector - Up to 1 year (jobs)	53.683
Related work experience - CO2 sector - 1	
Related work experience - CO2 sector - 4 to 10 years (jobs) Related work experience - CO2 sector - 0 Related work experience - Co3 sector - 1 Related work experience - Co3 sector - 1 Sector -	0.007
Related work experience - CO2 sector - None (jobs)   Related work experience - CO2 sector - O 0.002   0.002   0.002   0.003   0.001	0.004
Related work experience - CO2 sector - None (jobs)   Related work experience - CO2 sector - O	0.003
None (jobs)   Related work experience - CO2 sector - O	0.002
Over 10 years (jobs)   Related work experience - CO2 sector - Up to 1 year (jobs)   Related work experience - Coal sector - 1 to 4 years (jobs)   Related work experience - Coal sector - 4 to 10 years (jobs)   Related work experience - Coal sector - 4 to 10 years (jobs)   Related work experience - Coal sector - 4 to 10 years (jobs)   Related work experience - Coal sector - 10,136   2,723   1,346   1,162   1,042	
Related work experience - CO2 sector - Up to 1 year (jobs)         0         0.002         0.002         0.003         0.003           Related work experience - Coal sector - 1 to 4 years (jobs)         28,389         7,771         4,137         3,566         3,191           Related work experience - Coal sector - 4 to 10 years (jobs)         16,591         4,383         2,034         1,778         1,613           Related work experience - Coal sector - None (jobs)         10,136         2,723         1,346         1,162         1,042           None (jobs)         10,136         2,723         1,346         1,162         1,042           None (jobs)         10,136         2,723         1,346         1,162         1,042           None (jobs)         10,411         561         493         449           Over 10 years (jobs)         15,483         4,463         2,741         2,347         2,085           Related work experience - Grid sector - 1 to 4 years (jobs)         208,739         282,258         484,118         648,547         896,974           Related work experience - Grid sector - 4 to 10 years (jobs)         136,794         184,838         316,794         424,076         586,079           Related work experience - Grid sector - 35,457         47,936         82,204         <	0.001
Up to 1 year (jobs)   Related work experience - Coal sector - 1   28,389   7,771   4,137   3,566   3,191   to 4 years (jobs)   Related work experience - Coal sector - 4   16,591   4,383   2,034   1,778   1,613   to 10 years (jobs)   Related work experience - Coal sector - 10,136   2,723   1,346   1,162   1,042   None (jobs)   Related work experience - Coal sector - 4,189   1,141   561   493   449   Over 10 years (jobs)   Related work experience - Coal sector - 15,483   4,463   2,741   2,347   2,085   Up to 1 year (jobs)   Related work experience - Grid sector - 1   208,739   282,258   484,118   648,547   896,974   to 4 years (jobs)   Related work experience - Grid sector - 4   136,794   184,838   316,794   424,076   586,079   to 10 years (jobs)   Related work experience - Grid sector - 85,739   116,116   199,454   267,580   370,589   None (jobs)   Related work experience - Grid sector - 35,457   47,936   82,204   110,106   152,256   Over 10 years (jobs)   Related work experience - Grid sector - 110,528   150,029   258,315   347,387   482,316   Up to 1 year (jobs)	0.002
The first state   The first	
Related work experience - Coal sector - 4       16,591       4,383       2,034       1,778       1,613         to 10 years (jobs)       10,136       2,723       1,346       1,162       1,042         None (jobs)       10,136       2,723       1,346       1,162       1,042         None (jobs)       4,189       1,141       561       493       449         Over 10 years (jobs)       15,483       4,463       2,741       2,347       2,085         Up to 1 year (jobs)       15,483       4,463       2,741       2,347       2,085         Related work experience - Grid sector - 1       208,739       282,258       484,118       648,547       896,974         to 4 years (jobs)       136,794       184,838       316,794       424,076       586,079         to 10 years (jobs)       136,794       184,838       316,794       424,076       586,079         Related work experience - Grid sector - None (jobs)       85,739       116,116       199,454       267,580       370,589         Related work experience - Grid sector - Over 10 years (jobs)       35,457       47,936       82,204       110,106       152,256         Related work experience - Grid sector - Up to 1 year (jobs)       110,528       150,029       25	2,634
Related work experience - Coal sector - None (jobs)       10,136       2,723       1,346       1,162       1,042         Related work experience - Coal sector - Over 10 years (jobs)       4,189       1,141       561       493       449         Related work experience - Coal sector - Up to 1 year (jobs)       15,483       4,463       2,741       2,347       2,085         Related work experience - Grid sector - 1 to 4 years (jobs)       208,739       282,258       484,118       648,547       896,974         Related work experience - Grid sector - 4 to 10 years (jobs)       136,794       184,838       316,794       424,076       586,079         Related work experience - Grid sector - None (jobs)       85,739       116,116       199,454       267,580       370,589         Related work experience - Grid sector - Over 10 years (jobs)       35,457       47,936       82,204       110,106       152,256         Related work experience - Grid sector - Up to 1 year (jobs)       110,528       150,029       258,315       347,387       482,316	1,351
None (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Selated work experience - Coal sector - Over 10 years (jobs)   Selated work experience - Coal sector - Over 10 years (jobs)   Selated work experience - Grid sector - Over 10 years (jobs)   Selated work e	862
Over 10 years (jobs)         15,483         4,463         2,741         2,347         2,085           Up to 1 year (jobs)         Related work experience - Grid sector - 1 to 4 years (jobs)         208,739         282,258         484,118         648,547         896,974 to 4 years (jobs)           Related work experience - Grid sector - 4 to 10 years (jobs)         136,794         184,838         316,794         424,076         586,079 to 10 years (jobs)           Related work experience - Grid sector - Over 10 years (jobs)         85,739         116,116         199,454         267,580         370,589 to 10 years (jobs)           Related work experience - Grid sector - Over 10 years (jobs)         35,457         47,936         82,204         110,106         152,256 to 10 years (jobs)           Related work experience - Grid sector - Over 10 years (jobs)         110,528         150,029         258,315         347,387         482,316 to 10 years (jobs)	
Related work experience - Coal sector - Up to 1 year (jobs)       15,483       4,463       2,741       2,347       2,085         Related work experience - Grid sector - 1 to 4 years (jobs)       208,739       282,258       484,118       648,547       896,974         Related work experience - Grid sector - 4 to 10 years (jobs)       136,794       184,838       316,794       424,076       586,079         Related work experience - Grid sector - None (jobs)       85,739       116,116       199,454       267,580       370,589         Related work experience - Grid sector - Over 10 years (jobs)       35,457       47,936       82,204       110,106       152,256         Up to 1 year (jobs)       110,528       150,029       258,315       347,387       482,316	379
Up to 1 year (jobs)       208,739       282,258       484,118       648,547       896,974         to 4 years (jobs)       Related work experience - Grid sector - 4 to 10 years (jobs)       136,794       184,838       316,794       424,076       586,079 to 10 years (jobs)         Related work experience - Grid sector - None (jobs)       85,739       116,116       199,454       267,580       370,589 to 10 years (jobs)         Related work experience - Grid sector - Over 10 years (jobs)       35,457       47,936       82,204       110,106       152,256 to 10 years (jobs)         Related work experience - Grid sector - Up to 1 year (jobs)       110,528       150,029       258,315       347,387       482,316 to 10 years (jobs)	1,710
to 4 years (jobs)  Related work experience - Grid sector - 4 to 10 years (jobs)  Related work experience - Grid sector - 85,739	
Related work experience - Grid sector - 4 to 10 years (jobs)       136,794       184,838       316,794       424,076       586,079         Related work experience - Grid sector - None (jobs)       85,739       116,116       199,454       267,580       370,589         Related work experience - Grid sector - Over 10 years (jobs)       35,457       47,936       82,204       110,106       152,256         Related work experience - Grid sector - Up to 1 year (jobs)       110,528       150,029       258,315       347,387       482,316	1,300,229
Related work experience - Grid sector - None (jobs)       85,739       116,116       199,454       267,580       370,589         Related work experience - Grid sector - Over 10 years (jobs)       35,457       47,936       82,204       110,106       152,256         Related work experience - Grid sector - Up to 1 year (jobs)       110,528       150,029       258,315       347,387       482,316	848,922
None (jobs)         35,457         47,936         82,204         110,106         152,256           Over 10 years (jobs)         Related work experience - Grid sector - Up to 1 year (jobs)         110,528         150,029         258,315         347,387         482,316	537,911
Over 10 years (jobs)         110,528         150,029         258,315         347,387         482,316           Up to 1 year (jobs)         482,316         482,	
Related work experience - Grid sector - 110,528 150,029 258,315 347,387 482,316 Up to 1 year (jobs)	220,671
Up to 1 year (jobs)	701,869
	.=
Related work experience - Natural gas 199,314 158,500 115,534 93,908 63,139 sector - 1 to 4 years (jobs)	47,424
Related work experience - Natural gas         132,613         105,533         77,155         63,183         42,812	32,649
sector - 4 to 10 years (jobs)       78,199       62,490       45,890       37,795       25,770	19,842
sector - None (jobs)	17,042
Related work experience - Natural gas 36,004 28,497 20,599 16,500 10,944	8,038
sector - Over 10 years (jobs)         93,942         74,664         54,280         43,954         29,562	22,336
sector - Up to 1 year (jobs)	
Related work experience - Nuclear sector 18,639 17,871 13,255 9,059 5,397 - 1 to 4 years (jobs)	1,520
Related work experience - Nuclear sector         12,092         11,592         8,595         5,873         3,499	985
- 4 to 10 years (jobs)  Related work experience - Nuclear sector 6,294 6,044 4,489 3,072 1,833	517
- None (jobs)	
Related work experience - Nuclear sector 3,722 3,571 2,650 1,812 1,080 - Over 10 years (jobs)	304
Related work experience - Nuclear sector 9,189 8,820 6,548 4,479 2,671 - Up to 1 year (jobs)	753

Table 48: E+RE+ scenario - IMPACTS - Jobs (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Related work experience - Oil sector - 1 to 4 years (jobs)		301,109	263,650	221,423	150,297	93,538	15,160
Related work experience - Oil sector - 4 to 10 years (jobs)		182,706	159,719	133,934	90,747	56,384	9,131
Related work experience - Oil sector - None (jobs)		106,478	93,499	78,696	53,672	33,526	5,380
Related work experience - Oil sector - Over 10 years (jobs)		52,545	45,879	38,462	26,026	16,169	2,639
Related work experience - Oil sector - Up to 1 year (jobs)		147,314	128,836	107,956	73,363	45,636	7,249
Related work experience - Solar PV sector - 1 to 4 years (jobs)		215,901	312,361	473,727	509,206	643,629	901,300
Related work experience - Solar PV sector - 4 to 10 years (jobs)		139,474	201,262	304,569	326,808	412,018	575,424
Related work experience - Solar PV sector - None (jobs)		87,975	127,078	192,688	207,571	262,410	367,716
Related work experience - Solar PV sector - Over 10 years (jobs)		40,027	57,947	87,332	92,037	115,384	159,820
Related work experience - Solar PV sector - Up to 1 year (jobs)		139,992	201,354	303,331	323,032	405,087	562,303
Related work experience - Wind sector - 1 to 4 years (jobs)		112,738	194,877	330,496	428,594	553,411	776,866
Related work experience - Wind sector - 4 to 10 years (jobs)		74,402	128,700	218,284	284,327	367,984	516,311
Related work experience - Wind sector - None (jobs)		43,474	74,867	126,533	162,991	209,277	292,837
Related work experience - Wind sector - Over 10 years (jobs)		21,566	37,053	62,605	79,320	100,892	141,315
Related work experience - Wind sector - Up to 1 year (jobs)		67,818	115,995	194,894	246,642	312,279	434,098
Wage income - Biomass (million \$2019)		4,220	4,744	5,634	6,202	7,310	13,618
Wage income - CO2 (million \$2019)		0	0.001	0.001	0.001	0.002	0.001
Wage income - Coal (million \$2019)		4,510	1,225	602	528	482	406
Wage income - Grid (million \$2019)		36,101	49,507	86,149	117,136	164,496	242,211
Wage income - Natural Gas (million \$2019)		35,783	28,853	21,290	17,465	11,852	8,946
Wage income - Nuclear (million \$2019)		3,570	3,505	2,664	1,867	1,141	330
Wage income - Oil (million \$2019)		52,019	46,147	39,272	26,986	17,009	2,804
Wage income - Solar (million \$2019)		34,489	50,435	77,444	84,516	108,333	154,016
Wage income - Wind (million \$2019)		18,567	32,583	56,084	74,464	98,189	140,114

Table 49: E+RE- scenario - PILLAR 1: Efficiency/Electrification - Commercial

Item	2020	2025	2030	2035	2040	2045	2050
Commercial HVAC investment in 2020s -	0	1,047,657	1,162,511	0	0	0	0
Cumulative 5-yr (million \$2018)							
Sales of cooking units - Electric	32.5	46.4	80	86.6	87	87	87
Resistance (%)							
Sales of cooking units - Gas (%)	67.5	53.6	20	13.4	13	13	13
Sales of space heating units - Electric	2.95	17.6	52.9	76.9	80.6	80.8	80.8
Heat Pump (%)							
Sales of space heating units - Electric	7.91	9.07	14.4	17.7	18.4	18.4	18.4
Resistance (%)							
Sales of space heating units - Fossil (%)	3.94	3.28	0.655	0.028	0	0	0
Sales of space heating units - Gas Furnace	85.2	70.1	32.1	5.37	1.07	0.82	0.817
(%)							
Sales of water heating units - Electric	0.385	7.96	43.3	59.2	61.2	61.3	61.3
Heat Pump (%)							
Sales of water heating units - Electric	3.8	7.16	24	35.7	37.5	37.6	37.6
Resistance (%)							
Sales of water heating units - Gas Furnace	94.1	83.3	31.5	4.03	0.235	0.003	0
(%)							

#### Table 49: E+RE- scenario - PILLAR 1: Efficiency/Electrification - Commercial (continued)

The state of the s	-	-		•	-		
Item	2020	2025	2030	2035	2040	2045	2050
Sales of water heating units - Other (%)	1.66	1.59	1.2	1.1	1.1	1.11	1.11

## Table 50: E+RE- scenario - PILLAR 1: Efficiency/Electrification - Electricity demand

Item	2020	2025	2030	2035	2040	2045	2050
Electricity distribution capital invested -		182	187	336	359	314	329
Cumulative 5-yr (billion \$2018)							

#### Table 51: E+RE- scenario - PILLAR 1: Efficiency/Electrification - Overview

Item	2020	2025	2030	2035	2040	2045	2050
Final energy use - Commercial (PJ)	9,015	8,942	8,619	8,103	7,608	7,344	7,297
Final energy use - Industry (PJ)	25,107	26,056	26,110	25,372	25,108	24,870	24,572
Final energy use - Residential (PJ)	11,788	11,090	10,221	8,966	7,776	6,967	6,512
Final energy use - Transportation (PJ)	27,996	26,390	23,464	19,872	16,608	14,565	13,649

#### Table 52: E+RE- scenario - PILLAR 1: Efficiency/Electrification - Residential

Item	2020	2025	2030	2035	2040	2045	2050
Residential HVAC investment in 2020s vs.	0	254	307	0	0	0	0
REF - Cumulative 5-yr (billion \$2018)							
Sales of cooking units - Electric	61.3	69.6	94.8	99.7	100	100	100
Resistance (%)							
Sales of cooking units - Gas (%)	38.7	30.4	5.2	0.262	0	0	0
Sales of space heating units - Electric	14.6	27.2	64.4	85	88	88.1	88.1
Heat Pump (%)							
Sales of space heating units - Electric	20.3	22.6	12.3	8.07	7.57	7.66	7.68
Resistance (%)							
Sales of space heating units - Fossil (%)	9.95	13.2	6.18	3.41	3.02	2.91	2.9
Sales of space heating units - Gas (%)	55.2	36.9	17.1	3.52	1.45	1.32	1.3
Sales of water heating units - Electric	0	7.44	41.8	56.2	58.5	59.2	59
Heat Pump (%)							
Sales of water heating units - Electric	38.4	49.2	38.5	39.8	39.9	39.3	39.5
Resistance (%)							
Sales of water heating units - Gas Furnace	58	40.9	18	2.56	0.155	0.003	0
(%)							
Sales of water heating units - Other (%)	3.58	2.47	1.63	1.47	1.51	1.54	1.53

## Table 53: E+RE- scenario - PILLAR 1: Efficiency/Electrification - Transportation

Item	2020	2025	2030	2035	2040	2045	2050
Light-duty vehicle capital costs -	0	51,477	133,974	213,805	325,180	352,492	336,852
Cumulative 5-yr (million \$2018)							
Public EV charging plugs - DC Fast (1000	14.4	0	93.9	0	391	0	628
units)							
Public EV charging plugs - L2 (1000 units)	66.2	0	2,256	0	9,394	0	15,098
Vehicle sales - Heavy-duty - diesel (%)	97.2	92.1	67	23.3	4.22	0.628	0
Vehicle sales - Heavy-duty - EV (%)	0.588	3.81	19	45.6	57.4	59.6	60
Vehicle sales - Heavy-duty - gasoline (%)	0.227	0.227	0.176	0.066	0.013	0.002	0
Vehicle sales - Heavy-duty - hybrid (%)	0.082	0.09	0.077	0.031	0.007	0.001	0
Vehicle sales - Heavy-duty - hydrogen FC	0.392	2.54	12.7	30.4	38.2	39.7	40
(%)							
Vehicle sales - Heavy-duty - other (%)	1.5	1.23	1.07	0.568	0.163	0.038	0
Vehicle sales - Light-duty - diesel (%)	1.4	1.68	1.2	0.382	0.072	0.013	0
Vehicle sales - Light-duty - EV (%)	4.41	16.7	48.7	82.7	96.4	99.3	100
Vehicle sales - Light-duty - gasoline (%)	89.1	76.3	46.4	15.6	3.17	0.586	0
Vehicle sales - Light-duty - hybrid (%)	4.91	4.89	3.38	1.24	0.304	0.067	0
Vehicle sales - Light-duty - hydrogen FC	0.11	0.331	0.191	0.059	0.012	0.002	0
(%)							
Vehicle sales - Light-duty - other (%)	0.095	0.091	0.058	0.02	0.004	0.001	0

Table 53: E+RE- scenario - PILLAR 1: Efficiency/Electrification - Transportation (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Vehicle sales - Medium-duty - diesel (%)	64.7	59.7	42.3	14.4	2.59	0.384	0
Vehicle sales - Medium-duty - EV (%)	0.784	5.07	25.3	60.8	76.5	79.5	80
Vehicle sales - Medium-duty - gasoline (%)	33.7	33.3	25.5	9.32	1.77	0.277	0
Vehicle sales - Medium-duty - hybrid (%)	0.363	0.402	0.341	0.14	0.03	0.005	0
Vehicle sales - Medium-duty - hydrogen	0.196	1.27	6.33	15.2	19.1	19.9	20
FC (%)							
Vehicle sales - Medium-duty - other (%)	0.253	0.255	0.205	0.083	0.019	0.004	0

## Table 54: E+RE- scenario - PILLAR 2: Clean Electricity - Generating capacity

Item	2020	2025	2030	2035	2040	2045	2050
Capital invested - Biomass power plant	0	0.001	0.245	0	0	0	0
(billion \$2018)							
Capital invested - Biomass w/ccu allam	0	0	0	0.523	0.171	0.171	0.881
power plant (billion \$2018)							
Capital invested - Biomass w/ccu power	0	0	66.3	5.89	5.65	48.6	73.9
plant (billion \$2018)							
Installed - Biomass (MW)	10,015	9,155	8,012	6,276	4,837	3,506	2,590
Installed - Biomass w cc (MW)	0	0	9,991	10,948	11,823	19,170	30,427
Installed - Ccgt & gas steam (MW)	337,190	357,350	444,963	472,429	417,657	342,550	265,745
Installed - Ccgt w cc (MW)	0	0	8.75	25,157	76,333	162,793	230,887
Installed - Coal (MW)	215,985	44,884	62.3	136	148	147	33.9
Installed - Ct (MW)	143,739	129,695	94,911	100,127	170,549	157,934	130,899
Installed - Geothermal (MW)	2,397	2,403	24,727	24,718	24,710	24,702	24,666
Installed - Grid battery storage (MW)	0	819	1,328	3,062	13,842	44,320	52,980
Installed - Hydro (MW)	78,608	78,608	78,608	78,608	78,608	78,608	78,608
Installed - Nuclear (MW)	98,486	95,135	95,008	99,119	130,574	191,067	310,836
Installed - Offshore wind (MW)	29.3	5,029	10,029	15,029	20,029	25,000	30,000
Installed - Onshore wind (MW)	92,786	165,010	230,880	275,200	372,928	467,805	527,977
Installed - Other (MW)	68,074	57,101	54,650	53,942	52,322	51,237	44,539
Installed - Pumped hydro storage (MW)	0	19,418	19,418	19,418	19,418	19,418	19,418
Installed - Solar (MW)	67,717	161,887	253,526	348,562	449,562	545,918	635,890

## Table 55: E+RE- scenario - PILLAR 2: Clean Electricity - Generation

Item	2020	2025	2030	2035	2040	2045	2050
Biomass (TWh)	18.2	19.6	43.4	25.4	19.4	14.6	0.174
Biomass power plant (GWh)	3,616	794	14,160	5,310	4,477	2,155	48
Biomass w cc (TWh)	0	0	74.4	81.5	87.9	143	226
Biomass w/ccu allam power plant (GWh)	0	0	0	484	576	725	1,609
Biomass w/ccu power plant (GWh)	0	0	74,392	80,983	87,310	141,852	224,713
Coal (TWh)	982	225	0.218	0.476	0.52	0.515	0.119
Gas (TWh)	1,518	1,881	1,802	1,967	1,561	643	112
Gas w cc (TWh)	0	0	0.046	198	585	1,189	1,415
Geothermal (TWh)	14.6	14.6	151	151	151	151	150
Hydro (TWh)	300	312	295	296	304	294	296
Nuclear (TWh)	802	775	775	812	1,075	1,580	2,578
Offshore wind (TWh)	0.092	20.3	42.4	76.3	90.7	109	133
Onshore wind (TWh)	390	686	974	1,157	1,585	1,984	2,223
Solar pv (TWh)	140	360	557	762	992	1,211	1,369

## Table 56: E+RE- scenario - PILLAR 2: Clean Electricity - Transmission

Item	2020	2025	2030	2035	2040	2045	2050
Total HV transmission (for wind and solar)	0	13.9	24.4	35.9	55.4	75.6	89.4
- Base all (%)							

Table 57: E+RE- scenario - PILLAR 3: Clean fuels - Bioenergy

Item	2020	2025	2030	2035	2040	2045	2050
Biomass input - BECCS-H2 (1000 tonnes)	0	0	0	181,112	265,263	317,346	406,847
Biomass input - Bio-FT w/ CC (1000	0	0	0	139	152	169	172
tonnes)							
Biomass input - Bio-SNG w/ CC (1000	0	0	92.7	70.2	47	24.8	5.58
tonnes)							
Biomass input - Biopower (1000 tonnes)	10,321	20,110	59,104	41,822	35,169	28,144	186
Biomass input - Biopower w/ cc (1000	0	0	44,936	49,136	52,999	86,012	136,463
tonnes)							
Biomass input - Ethanol (1000 tonnes)	129,506	129,506	129,537	125,006	67,634	10,261	905
Biomass input - FT diesel (1000 tonnes)	0	0	0	94.3	105	111	67.2
Biomass input - Pyrolysis liquids (1000	0	0	0	205	227	232	9,595
tonnes)							
Biomass input - Pyrolysis liquids w/ cc	0	0	0	178	195	225	30,115
(1000 tonnes)							
Biomass input - SNG (1000 tonnes)	0	11.2	45.8	16.6	9.09	8.18	2.31

## Table 58: E+RE- scenario - PILLAR 4: CCUS - CO2 storage

Item	2020	2025	2030	2035	2040	2045	2050
CO2 storage (MMT)	0	2.77	197	576	889	1,266	1,649

## Table 59: E+RE- scenario - PILLAR 6: Land sinks - Agriculture

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - Aggressive deployment - Corn-ethanol to energy grasses (1000 tCO2e/y)							-23,286
Carbon sink potential - Aggressive							-203,503
deployment - Cropland measures (1000 tCO2e/y)							
Carbon sink potential - Aggressive							-7,39 <sup>-</sup>
deployment - Permanent conservation cover (1000 tCO2e/y)							
Carbon sink potential - Aggressive deployment - Total (1000 tC02e/y)							-234,180
Carbon sink potential - Moderate							-23,286
deployment - Corn-ethanol to energy grasses (1000 tC02e/y)							20,200
Carbon sink potential - Moderate							-106,430
deployment - Cropland measures (1000 tCO2e/y)							
Carbon sink potential - Moderate deployment - Permanent conservation cover (1000 tCO2e/y)							-3,696
Carbon sink potential - Moderate deployment - Total (1000 tCO2e/y)							-133,412
Land impacted for carbon sink - Aggressive deployment - Corn-ethanol to							11,287
energy grasses (1000 hectares)							10 ( ) 0
Land impacted for carbon sink - Aggressive deployment - Cropland measures (1000 hectares)							136,405
Land impacted for carbon sink - Aggressive deployment - Permanent							12,749
conservation cover (1000 hectares)							
Land impacted for carbon sink -							160,442
Aggressive deployment - Total (1000 hectares)							
Land impacted for carbon sink - Moderate deployment - Corn-ethanol to energy grasses (1000 hectares)							11,287

Table 59: E+RE- scenario - PILLAR 6: Land sinks - Agriculture (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink - Moderate deployment - Cropland measures (1000 hectares)							71,390
Land impacted for carbon sink - Moderate deployment - Permanent conservation cover (1000 hectares)							6,375
Land impacted for carbon sink - Moderate deployment - Total (1000 hectares)							89,052

## Table 60: E+RE- scenario - PILLAR 6: Land sinks - Forests

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - High - Accelerate							-48,900
regeneration (1000 tCO2e/y)							
Carbon sink potential - High - All (not							-
counting overlap) (1000 tCO2e/y)							1,535,900
Carbon sink potential - High - Avoid							-84,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - High - Extend							-302,000
rotation length (1000 tCO2e/y)							
Carbon sink potential - High - Improve							-57,000
plantations (1000 tCO2e/y)							
Carbon sink potential - High - Increase							-
retention of HWP (1000 tCO2e/y)							300,000
Carbon sink potential - High - Increase							-60,000
trees outside forests (1000 tCO2e/y)							
Carbon sink potential - High - Reforest							-242,000
cropland (1000 tCO2e/y)							
Carbon sink potential - High - Reforest							-
pasture (1000 tCO2e/y)							264,000
Carbon sink potential - High - Restore							-178,000
productivity (1000 tCO2e/y)							
Carbon sink potential - Low - Accelerate							-24,500
regeneration (1000 tCO2e/y)							
Carbon sink potential - Low - All (not							-
counting overlap) (1000 tCO2e/y)							505,500
Carbon sink potential - Low - Avoid							-14,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - Low - Extend							-116,000
rotation length (1000 tCO2e/y)							
Carbon sink potential - Low - Improve							-29,000
plantations (1000 tCO2e/y)							
Carbon sink potential - Low - Increase							-100,000
retention of HWP (1000 tCO2e/y)							
Carbon sink potential - Low - Increase							-21,000
trees outside forests (1000 tCO2e/y)							
Carbon sink potential - Low - Reforest							-121,000
cropland (1000 tCO2e/y)							
Carbon sink potential - Low - Reforest							-20,000
pasture (1000 tCO2e/y)							
Carbon sink potential - Low - Restore							-60,000
productivity (1000 tCO2e/y)							
Carbon sink potential - Mid - Accelerate							-36,700
regeneration (1000 tCO2e/y)							
Carbon sink potential - Mid - All (not							-
counting overlap) (1000 tCO2e/y)							1,020,200
Carbon sink potential - Mid - Avoid							-49,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - Mid - Extend							-209,000
rotation length (1000 tCO2e/y)							

Table 60: E+RE- scenario - PILLAR 6: Land sinks - Forests (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - Mid - Improve							-42,500
plantations (1000 tCO2e/y)							
Carbon sink potential - Mid - Increase							-
retention of HWP (1000 tCO2e/y)							200,000
Carbon sink potential - Mid - Increase							-40,500
trees outside forests (1000 tCO2e/y)							
Carbon sink potential - Mid - Reforest							-181,500
cropland (1000 tCO2e/y)							
Carbon sink potential - Mid - Reforest							-142,000
pasture (1000 tCO2e/y)							
Carbon sink potential - Mid - Restore							-119,000
productivity (1000 tCO2e/y)							
Land impacted for carbon sink potential -							8,000
High - Accelerate regeneration (1000							
hectares)							
Land impacted for carbon sink potential -							11,373
High - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							154,000
High - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							21,000
High - Improve plantations (1000							
hectares)							
Land impacted for carbon sink potential -							0
High - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							5,700
High - Increase trees outside forests							
(1000 hectares)							
Land impacted for carbon sink potential -							16,000
High - Reforest cropland (1000 hectares)							
Land impacted for carbon sink potential -							7,500
High - Reforest pasture (1000 hectares)							-
Land impacted for carbon sink potential -							59,000
High - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							282,573
High - Total impacted (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							4,000
Low - Accelerate regeneration (1000							
hectares)							
Land impacted for carbon sink potential -							10,677
Low - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							59,000
Low - Extend rotation length (1000							,
hectares)							
Land impacted for carbon sink potential -							10,500
Low - Improve plantations (1000							
hectares)							
Land impacted for carbon sink potential -		+					0
Low - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -		+					3,000
Low - Increase trees outside forests							5,550
(1000 hectares)							
Land impacted for carbon sink potential -		+	+				8,000
Low - Reforest cropland (1000 hectares)							3,000

Table 60: E+RE- scenario - PILLAR 6: Land sinks - Forests (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink potential -							1,300
Low - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							35,700
Low - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							132,177
Low - Total impacted (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							6,000
Mid - Accelerate regeneration (1000							
hectares)							11.005
Land impacted for carbon sink potential -							11,025
Mid - Avoid deforestation (over 30 years) (1000 hectares)							
Land impacted for carbon sink potential -							106,500
·							106,500
Mid - Extend rotation length (1000 hectares)							
Land impacted for carbon sink potential -							15,800
Mid - Improve plantations (1000 hectares)							13,000
Land impacted for carbon sink potential -			+				0
Mid - Increase retention of HWP (1000							U
hectares)							
Land impacted for carbon sink potential -			+				4,350
Mid - Increase trees outside forests (1000							4,000
hectares)							
Land impacted for carbon sink potential -							12,000
Mid - Reforest cropland (1000 hectares)							,
Land impacted for carbon sink potential -							9,400
Mid - Reforest pasture (1000 hectares)							,
Land impacted for carbon sink potential -							71,900
Mid - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							236,975
Mid - Total impacted (over 30 years) (1000							
hectares)							

#### Table 61: E+RE- scenario - PILLAR 6: Land sinks - Total assumed land sink

Item	2020	2025	2030	2035	2040	2045	2050
Total assumed land sink (Gt CO2e/y)	-0.7	-0.73	-0.75	-0.78	-0.8	-0.83	-0.85

## Table 62: E+RE- scenario - IMPACTS - Fossil fuel industries

Item	2020	2025	2030	2035	2040	2045	2050
Natural gas consumption - Annual (tcf)		24,131	21,291	20,400	18,525	15,159	12,531
Natural gas consumption - Cumulative		0	0	0	0	0	604,218
(tcf)							
Natural gas production - Annual (tcf)		37,107	36,554	35,527	33,060	29,484	24,832
Natural gas production - Cumulative (tcf)		0	0	0	0	0	1,031,902
Oil consumption - Annual (million bbls)		5,922	5,196	4,119	3,106	2,384	1,930
Oil consumption - Cumulative (million		0	0	0	0	0	128,050
bbls)							
Oil production - Annual (million bbls)		5,198	5,216	5,209	4,127	3,429	2,512
Oil production - Cumulative (million bbls)		0	0	0	0	0	137,850

## Table 63: E+RE- scenario - IMPACTS - Health

Item	2020	2025	2030	2035	2040	2045	2050
Monetary damages from air pollution -		22,661	29.5	28.3	24.2	16.6	1.24
Coal (million 2019\$)							

Table 63: E+RE- scenario - IMPACTS - Health (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Monetary damages from air pollution -		13,081	8,360	9,347	8,269	3,897	985
Natural Gas (million 2019\$)							
Monetary damages from air pollution -		102,386	96,814	74,557	43,657	20,044	7,790
Transportation (million 2019\$)							
Premature deaths from air pollution -		2,559	3.33	3.2	2.73	1.88	0.14
Coal (deaths)							
Premature deaths from air pollution -		1,477	944	1,055	933	440	111
Natural Gas (deaths)							
Premature deaths from air pollution -		11,515	10,889	8,385	4,910	2,254	876
Transportation (deaths)							

## Table 64: E+RE- scenario - IMPACTS - Jobs

Table 64: E+RE- scenario - IMPACTS - Jobs							
Item	2020	2025	2030	2035	2040	2045	2050
By economic sector - Agriculture (jobs)		32,312	43,254	55,699	47,806	40,069	47,266
By economic sector - Construction (jobs)		564,240	617,991	685,586	719,730	743,266	850,372
By economic sector - Manufacturing		588,096	542,489	535,843	511,626	442,548	427,854
(jobs)							
By economic sector - Mining (jobs)		462,328	364,057	291,916	202,222	144,611	95,196
By economic sector - Other (jobs)		53,014	58,064	71,028	84,820	95,569	129,975
By economic sector - Pipeline (jobs)		47,529	56,650	51,074	38,386	34,708	36,901
By economic sector - Professional (jobs)		319,609	332,341	387,337	432,164	465,444	539,068
By economic sector - Trade (jobs)		292,298	275,926	286,155	286,444	289,100	322,851
By economic sector - Utilities (jobs)		476,510	542,229	654,430	753,103	848,724	1,023,980
By education level - All sectors -		852,749	861,209	922,936	952,528	966,808	1,085,013
Associates degree or some college (jobs)							
By education level - All sectors -		628,739	613,529	644,107	651,344	659,923	737,730
Bachelors degree (jobs)							
By education level - All sectors - Doctoral		20,890	20,613	22,291	23,272	24,429	28,105
degree (jobs)							
By education level - All sectors - High		1,184,963	1,191,502	1,273,949	1,289,116	1,287,990	1,435,786
school diploma or less (jobs)							
By education level - All sectors - Masters		148,595	146,148	155,786	160,040	164,889	186,829
or professional degree (jobs)							
By education level - Biomass sector -		15,585	19,605	32,904	34,187	35,394	45,925
Associates degree or some college (jobs)							
By education level - Biomass sector -		14,089	17,574	30,605	33,633	36,161	46,832
Bachelors degree (jobs)							
By education level - Biomass sector -		682	913	1,736	2,038	2,297	2,992
Doctoral degree (jobs)							
By education level - Biomass sector - High		47,821	60,096	85,822	79,460	73,172	91,357
school diploma or less (jobs)							
By education level - Biomass sector -		3,878	4,982	8,752	9,750	10,586	13,711
Masters or professional degree (jobs)							
By education level - CO2 sector -		2,815	43,524	37,197	17,230	26,131	50,333
Associates degree or some college (jobs)							
By education level - CO2 sector -		1,395	20,717	18,544	9,251	13,901	24,619
Bachelors degree (jobs)							
By education level - CO2 sector - Doctoral		27.8	380	378	217	322	491
degree (jobs)							
By education level - CO2 sector - High		3,476	53,796	46,155	21,475	32,628	62,868
school diploma or less (jobs)							
By education level - CO2 sector - Masters		311	4,559	4,139	2,109	3,160	5,456
or professional degree (jobs)							
By education level - Coal sector -		20,558	5,466	2,968	2,579	2,324	1,926
Associates degree or some college (jobs)							
By education level - Coal sector -		13,402	3,303	1,688	1,517	1,413	1,203
Bachelors degree (jobs)							
By education level - Coal sector - Doctoral		496	118	51.4	47.9	46.1	40.8
degree (jobs)							

Table 64: E+RE- scenario - IMPACTS - Jobs (continued)

Table 64: E+RE- scenario - IMPACTS - Jobs						22/-	
Item	2020	2025	2030	2035	2040	2045	2050
By education level - Coal sector - High		28,741	8,731	5,749	4,896	4,322	3,507
school diploma or less (jobs)		0.017	0.01	0.40	007	010	070
By education level - Coal sector - Masters		3,317	801	369	334	313	270
or professional degree (jobs)		175 000	107.000	075 077	000 701	050 507	0007/0
By education level - Grid sector -		175,299	197,833	275,867	328,791	350,586	380,763
Associates degree or some college (jobs)		100 ( = (	110 (00	1=1.011	101.00=	107.000	
By education level - Grid sector -		100,456	112,629	156,046	184,807	195,830	211,382
Bachelors degree (jobs)		0.007	0.400	, , , , ,	5010	F 075	
By education level - Grid sector - Doctoral		2,896	3,193	4,349	5,063	5,275	5,598
degree (jobs)		00/4/4	05/ 050	05/000	101007	, 57.0.77	100001
By education level - Grid sector - High		224,161	254,252	356,322	426,807	457,367	499,201
school diploma or less (jobs)		05.070	00.050	00.000		10 (77	50.000
By education level - Grid sector - Masters		25,278	28,252	39,023	46,075	48,677	52,388
or professional degree (jobs)		40 ( 044	1(0.00)	44 ( 074	1/0.000	101 / (0	101100
By education level - Natural gas sector -		186,211	163,836	146,374	143,998	121,468	101,198
Associates degree or some college (jobs)		100 -00	111.000	07.010			(1000
By education level - Natural gas sector -		129,532	111,273	97,318	92,498	76,385	61,909
Bachelors degree (jobs)							
By education level - Natural gas sector -		4,301	3,664	3,163	2,968	2,424	1,927
Doctoral degree (jobs)							
By education level - Natural gas sector -		227,718	199,738	178,905	173,713	145,948	120,878
High school diploma or less (jobs)							
By education level - Natural gas sector -		31,729	27,137	23,572	22,376	18,417	14,876
Masters or professional degree (jobs)							
By education level - Nuclear sector -		13,716	16,539	25,707	38,158	63,147	103,282
Associates degree or some college (jobs)							
By education level - Nuclear sector -		14,826	17,835	27,656	40,956	67,621	110,347
Bachelors degree (jobs)							
By education level - Nuclear sector -		650	777	1,197	1,763	2,893	4,693
Doctoral degree (jobs)							
By education level - Nuclear sector - High		17,026	20,585	32,080	47,740	79,201	129,855
school diploma or less (jobs)							
By education level - Nuclear sector -		4,013	4,819	7,460	11,030	18,180	29,620
Masters or professional degree (jobs)							
By education level - Oil sector - Associates		205,502	181,086	156,218	113,373	86,209	60,753
degree or some college (jobs)		·			•		
By education level - Oil sector - Bachelors		211,973	183,998	156,433	111,469	83,191	57,319
degree (jobs)		,	·		ŕ	,	•
By education level - Oil sector - Doctoral		6,848	5,981	5,123	3,669	2,753	1,903
degree (jobs)		5,5 15			2,221	_,,	.,
By education level - Oil sector - High		317,630	281,307	243,628	178,020	136,250	96,881
school diploma or less (jobs)		0,000	20.,00.	2 .0,020		.00,200	70,00
By education level - Oil sector - Masters or		48,075	41,558	35,208	24,944	18,510	12,658
professional degree (jobs)		40,010	41,000	00,200	2-1,7-1-1	10,010	12,000
By education level - Solar PV sector -		152,002	142,267	149,092	155,875	160,624	222,683
Associates degree or some college (jobs)		102,002	142,201	147,072	100,010	100,024	222,000
By education level - Solar PV sector -		88,302	83,195	87,771	92,558	96,333	134,924
Bachelors degree (jobs)		00,302	00,170	01,111	72,550	70,555	154,724
By education level - Solar PV sector -		2,857	2,848	3,206	3,564	3,865	5,638
Doctoral degree (jobs)		2,001	2,040	3,200	3,304	3,003	3,030
By education level - Solar PV sector - High		213,421	197,918	205,192	212,005	215,748	295,066
		213,421	191,916	205,192	212,005	215,746	295,066
school diploma or less (jobs)		10.17.0	10 505	00 100	01 707	00.107	00.0/0
By education level - Solar PV sector -		19,142	18,505	20,120	21,787	23,194	33,243
Masters or professional degree (jobs)		01.070	01.050	04.400	110.007	100.005	110.151
By education level - Wind sector -		81,062	91,053	96,609	118,336	120,925	118,151
Associates degree or some college (jobs)		E,	(0.00)	(0.01)	0.4.5	00.000	00407
By education level - Wind sector -		54,764	63,004	68,046	84,657	89,089	89,196
Bachelors degree (jobs)		0.404	0.700	0.000	0.016	, == .	/ 004
By education level - Wind sector -		2,131	2,738	3,088	3,943	4,554	4,821
Doctoral degree (jobs)							

Table 64: E+RE- scenario - IMPACTS - Jobs (continued)

Separation   Sep	Table 64: E+RE- scenario - IMPACTS - Jobs							
school diploma or less [jubs]         by education level - Wind sector - Masters         12,853         15,534         17,144         21,636         23,851         24,609           by Peadured sector - Biomass (jobs)         82,054         103,170         159,818         19,067         157,610         200,816           By resource sector - Cold (jobs)         8,025         122,978         106,444         50,282         76,142         143,768           By resource sector - Grid (jobs)         5528,090         596,159         831,606         991,543         1,057,735         1,149,332         83,46         6,947           By resource sector - Nutrian Gas (jobs)         579,479         505,649         449,332         43,453         346,64         30,788         83,1606         991,543         1,057,735         1,149,332         28,455         38,4606         991,543         1,057,735         1,149,332         28,455         38,4606         991,543         1,057,735         1,149,332         34,355         38,460         991,543         1,057,735         1,149,332         34,445         326,910         379,747         48,463         48,455         38,462         397,754         48,742         48,742         48,743         48,432         48,443         48,443         48,443         48,443		2020	2025	2030	2035	2040	2045	2050
Syeducation level - Wind sector - Musters or professional degree (jobs)   82,054   103,170   159,818   159,067   157,610   200,816   59 resource sector - 602 (jobs)   82,054   103,170   159,818   159,067   157,610   200,816   59 resource sector - Cold (jobs)   82,054   103,170   159,818   159,067   157,610   200,816   103,769   103,769   103,769   104,746   108,259   103,769   104,746   108,259   103,769   103,	By education level - Wind sector - High		104,968	115,077	120,097	145,001	143,354	136,172
or professional degree (jobs) By resource sector - Biomass (jobs) By resource sector - Cot2 (jobs) By resource sector - Note (jobs) By resource sector - Violation (jobs								
By resource sector - Biomass (Jobe)   82,054   103,170   159,818   159,067   157,610   200,816	By education level - Wind sector - Masters		12,853	15,534	17,144	21,636	23,851	24,608
By resource sector - CO2 (jobs)	or professional degree (jobs)							
By resource sector - CO2 (jobs)	By resource sector - Biomass (jobs)		82,054	103,170	159,818	159,067	157,610	200,816
Byresource sector - Goal (jobs)   66,513   18,419   10,825   9,372   8,418   6,947							76.142	
Syresource sector - Natural (Ga (pbs)   528,099   596,159   831,006   991,543   10,57735   14,93.32								
Syresource sector - Natural Gas (jobs)   579,492   505,649   449,332   435,553   346,642   307,789   Syresource sector - Nuclear (jobs)   50,231   60,555   94,101   319,647   321,042   377,797   Syresource sector - Stolic (jobs)   790,028   693,931   596,610   431,475   326,913   229,914   237,947   237								
By resource sector - Nuclear (jobs)   50,231   60,555   54,101   339,447   231,042   317,797								
By resource sector - Oil (jobs)   790,028   693,931   596,610   431,475   336,913   229,914   By resource sector - Wind (jobs)   745,723   444,743   465,330   485,789   499,764   691,554   By resource sector - Wind (jobs)   255,779   287,406   304,995   373,573   381,772   372,947   Median wages - Annual - Biomass (\$2019   51,666   53,532   56,879   59,868   62,772   64,193   Median wages - Annual - CO2 (\$2019 per job)   62,403   62,811   64,256   66,235   67,173   66,956   Median wages - Annual - Coal (\$2019 per job)   60,717   58,966   55,632   56,538   57,489   58,483   Median wages - Annual - Coal (\$2019 per job)   60,717   58,966   55,632   56,538   57,489   58,483   Median wages - Annual - Reid (\$2019 per job)   71,486   73,188   74,974   76,846   78,808   80,864   Median wages - Annual - Nuclear (\$2019 per job)   71,486   73,188   74,974   76,846   78,808   80,864   Median wages - Annual - Oil (\$2019 per job)   74,486   73,188   74,974   76,846   78,808   80,864   Median wages - Annual - Solar (\$2019 per job)   74,486   73,188   74,974   76,846   78,808   80,864   Median wages - Annual - Solar (\$2019 per job)   74,486   73,188   74,974   76,846   78,808   80,864   Median wages - Annual - Wind (\$2019 per job)   74,486   73,188   74,974   76,846   78,808   80,864   Median wages - Annual - Solar (\$2019 per job)   74,486   73,188   74,974   76,846   78,808   80,864   Median wages - Annual - Solar (\$2019 per job)   74,486   73,188   74,974   76,846   78,808   80,864   Median wages - Annual - Solar (\$2019 per job)   74,486								
By resource sector - Nind (jobs)								
By resource sector - Wind [jobs]   255,779   287,406   304,985   373,573   381,772   372,947								
Median wages - Annual - Biomass (\$2019 per per pib)								
Median wages - Annual - CO2 (\$2019 per   62,403   62,811   64,256   66,235   67,173   66,956   67,001   67,102   67,100   67,10								
Median wages - Annual - CO2 (\$2019 per job)   62,403   62,811   64,256   66,235   67,173   66,956 job)   Median wages - Annual - Coal (\$2019 per job)   60,717   58,966   55,632   56,538   57,489   58,483 job)   66,236   67,055   67,908   68,519   66,110   67,102 job)   66,236   67,055   67,908   68,519   69,331   70,036   62,039   67,055   67,908   68,519   69,331   70,036   62,039   67,055   67,908   68,519   69,331   70,036   62,039   67,055   67,908   68,519   69,331   70,036   62,039   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   67,650   68,456   69,271   69,967   6	-		31,000	53,532	36,679	39,868	62,112	64,193
Median wages - Annual - Coal (\$2019 per   60,717   58,966   55,632   56,538   57,489   58,483   job   Median wages - Annual - Grid (\$2019 per   62,539   63,375   64,248   65,159   66,110   67,102   job   Median wages - Annual - Natural Gas   66,236   67,055   67,908   68,519   69,331   70,036   (\$2019 per job )   Median wages - Annual - Nuclear (\$2019 per   65,834   66,725   67,908   68,519   69,331   70,036   (\$2019 per job )   Median wages - Annual - Nuclear (\$2019 per job )   Median wages - Annual - Oil (\$2019 per job )   Median wages - Annual - Oil (\$2019 per job )   65,834   66,720   67,650   68,456   69,271   69,967   job )   Median wages - Annual - Solar (\$2019 per job )   55,458   56,359   57,373   58,436   59,544   60,749   job )   Median wages - Annual - Wind (\$2019 per job )   58,266   59,962   61,252   62,475   64,619   66,554   job )   66,554   job )   60,781   60,78			(0 / 00	/O 011	// 05/	// 005	/7170	// 05/
Median wages - Annual - Coal (\$2019 per job)   Median wages - Annual - Grid (\$2019 per job)   Median wages - Annual - Natural Gas   62,539   63,375   64,248   65,159   66,110   67,102   67,002   67,005   67,008   68,519   69,331   70,036   68,009 per job)   Median wages - Annual - Natural Gas   66,236   67,055   67,908   68,519   69,331   70,036   68,009 per job)   Median wages - Annual - Nuclear (\$2019 per job)   Median wages - Annual - Nuclear (\$2019 per job)   Median wages - Annual - Oil (\$2019 per job)   Median wages - Annual - Oil (\$2019 per job)   Median wages - Annual - Oil (\$2019 per job)   Median wages - Annual - Oil (\$2019 per job)   Median wages - Annual - Wind			62,403	62,811	64,256	66,235	67,173	66,956
			(0.717	500//	FF (00	F / F00	F7 / 00	
Median wages - Annual - Grid (\$2019 per job)   Median wages - Annual - Natural Gas (\$2019 per job)   Median wages - Annual - Natural Gas (\$2019 per job)   Median wages - Annual - Nuclear (\$2019 per job)   T1,486   73,188   74,974   76,846   78,808   80,864   per job)   Median wages - Annual - Nuclear (\$2019 per job)   Median wages - Annual - Oil (\$2019 per job)   Median wages - Annual - Oil (\$2019 per job)   Median wages - Annual - Oil (\$2019 per job)   Median wages - Annual - Solar (\$2019 per job)   Median wages - Annual - Solar (\$2019 per job)   Median wages - Annual - Wind (\$20			60,717	58,966	55,632	56,538	57,489	58,483
			(0.500					
Median wages - Annual - Natural Gas (\$2019 per job)   71,486   73,188   74,974   76,846   78,808   80,864   79,000   71,486   73,188   74,974   76,846   78,808   80,864   76,900   71,486   73,188   74,974   76,846   78,808   80,864   76,900   71,486   73,188   74,974   76,846   78,808   80,864   76,900   71,486   78,188   74,974   76,846   78,808   80,864   76,900   74,800   7	-		62,539	63,375	64,248	65,159	66,110	67,102
Section   Sect								
Median wages - Annual - Nuclear (\$2019 per job)         71,486         73,188         74,974         76,846         78,808         80,864           Median wages - Annual - Oil (\$2019 per job)         65,834         66,720         67,650         68,456         69,271         69,967           Job)         Median wages - Annual - Solar (\$2019 per job)         55,458         56,359         57,373         58,436         59,544         60,749           Job)         Median wages - Annual - Wind (\$2019 per job)         58,266         59,962         61,252         62,475         64,619         66,554           Job)         Median wages - Annual - Wind (\$2019 per job)         58,266         59,962         61,252         62,475         64,619         66,554           Job)         Median wages - Annual - Wind (\$2019 per job)         58,266         59,962         61,252         62,475         64,619         66,554           Job)         Median wages - Annual - Wind (\$2019 per job)         58,266         59,962         61,252         62,475         64,619         66,554           Job			66,236	67,055	67,908	68,519	69,331	70,036
Median wages - Annual - Oil (\$2019 per job)   Median wages - Annual - Solar (\$2019 per job)   S5,458   S6,359   S7,373   S8,436   S9,544   60,749 job)   Median wages - Annual - Wind (\$2019 per job)   S8,266   S9,962   61,252   62,475   64,619   66,554 job)   On-Site or In-Plant Training - Biomass   S,266   S9,962   61,252   62,475   64,619   66,554 job)   On-Site or In-Plant Training - Biomass   S,269   10,558   17,339   17,726   18,126   23,389   Sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - Biomass   S,258   S,232   S,758   6,103   6,468   8,510   Sector - 4 to 10 years (jobs)   On-Site or In-Plant Training - Biomass   S,258   S,232   S,758   6,103   6,468   8,510   S,258   S,259								
Median wages - Annual - Oil (\$2019 per job)   65,834   66,720   67,650   68,456   69,271   69,667   job)   Median wages - Annual - Solar (\$2019 per job)   55,458   56,359   57,373   58,436   59,544   60,749   job)   Median wages - Annual - Wind (\$2019 per job)   58,266   59,962   61,252   62,475   64,619   66,554   job)	Median wages - Annual - Nuclear (\$2019		71,486	73,188	74,974	76,846	78,808	80,864
Median wages - Annual - Solar (\$2019 per job)   S5,458   S6,359   S7,373   S8,436   S9,544   60,749   job)   Median wages - Annual - Wind (\$2019 per job)   S8,266   S9,962   61,252   62,475   64,619   66,554   job)   On-Site or In-Plant Training - Biomass   8,269   10,558   17,339   17,726   18,126   23,389   sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - Biomass   2,558   3,232   5,758   6,103   6,468   8,510   Sector - 1 to 1 years (jobs)   On-Site or In-Plant Training - Biomass   Sector - 1 to 1 years (jobs)   On-Site or In-Plant Training - Biomass   S72   670   1,022   990   957   1,250   Sector - 0 years (jobs)   On-Site or In-Plant Training - Biomass   S7,434   71,657   108,430   106,373   103,753   131,625   Sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO3 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO3 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO3 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO3 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO3 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO3 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO3 sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - CO3 sector - 1 to 4 years (jobs)   On-Site or In-Plant								
Median wages - Annual - Solar (\$2019 per job)	Median wages - Annual - Oil (\$2019 per		65,834	66,720	67,650	68,456	69,271	69,967
Median wages - Annual - Wind (\$2019 per job)   S8,266   59,962   61,252   62,475   64,619   66,554   job)   On-Site or In-Plant Training - Biomass   8,269   10,558   17,339   17,726   18,126   23,389   sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - Biomass   2,558   3,232   5,758   6,103   6,468   8,510   sector - 4 to 10 years (jobs)   On-Site or In-Plant Training - Biomass   13,221   17,052   27,270   27,875   28,306   36,043   sector - None (jobs)   On-Site or In-Plant Training - Biomass   572   670   1,022   990   957   1,250   sector - Over 10 years (jobs)   On-Site or In-Plant Training - Biomass   57,434   71,657   108,430   106,373   103,753   131,625   sector - Up to 1 year (jobs)   On-Site or In-Plant Training - C02 sector - 1,483   22,923   19,621   9,107   13,819   26,600   110 4 years (jobs)   On-Site or In-Plant Training - C02 sector - 731   11,419   9,664   4,399   6,691   13,161   4 to 10 years (jobs)   On-Site or In-Plant Training - C02 sector - 1,228   18,743   16,306   7,771   11,762   22,020   Non-Site or In-Plant Training - C02 sector - 86.9   1,358   1,145   518   788   1,555   Over 10 years (jobs)   On-Site or In-Plant Training - C02 sector - 4,497   68,533   59,677   28,487   43,083   80,432   Up to 1 year (jobs)   On-Site or In-Plant Training - Coal sector - 4,032   975   427   368   328   269   4 to 10 years (jobs)   On-Site or In-Plant Training - Coal sector - 4,032   975   427   368   328   269   4 to 10 years (jobs)   On-Site or In-Plant Training - Coal sector - 9,841   2,576   1,407   1,243   1,140   959   None (jobs)   On-Site or In-Plant Training - Coal sector - 9,841   2,576   1,407   1,243   1,140   959   None (jobs)   On-Site or In-Plant Training - Coal sector - 9,841   2,576   1,407   1,243   1,140   959   None (jobs)   On-Site or In-Plant Training - Coal sector - 9,841   2,576   1,407   1,243   1,140   959   None (jobs)   On-Site or In-Plant Training - Coal sector - 9,841   2,576   1,407   1,243   1,400   959   None (jobs)   On-Site or In-Plant Training - Coa								
Median wages - Annual - Wind (\$2019 per job)   S8,266   59,962   61,252   62,475   64,619   66,554   job)   On-Site or In-Plant Training - Biomass   8,269   10,558   17,339   17,726   18,126   23,389   sector - 1 to 4 years (jobs)   Sector - 1 to 10 years (jobs)   Sector - 1 to 10 years (jobs)   Sector - None (jobs)	Median wages - Annual - Solar (\$2019 per		55,458	56,359	57,373	58,436	59,544	60,749
District or In-Plant Training - Biomass   8,269   10,558   17,339   17,726   18,126   23,389   17,726   18,126   23,389   17,726   18,126   23,389   17,726   18,126   23,389   17,726   18,126   23,389   17,726   18,126   23,389   17,726   18,126   23,389   17,726   18,126   23,389   17,726   18,126   23,389   17,726   18,126   23,389   17,726   18,12	job)							
Job   On-Site or In-Plant Training - Biomass   Sector - Var 10 years (jobs)   On-Site or In-Plant Training - Biomass   Sector - Var 10 years (jobs)   On-Site or In-Plant Training - Biomass   Sector - Var 10 years (jobs)   On-Site or In-Plant Training - Biomass   Sector - Var 10 years (jobs)   On-Site or In-Plant Training - Biomass   Sector - Var 10 years (jobs)   On-Site or In-Plant Training - Biomass   Sector - Var 10 years (jobs)   On-Site or In-Plant Training - Biomass   Sector - Up to 1 year (jobs)   On-Site or In-Plant Training - Biomass   Sector - Up to 1 year (jobs)   On-Site or In-Plant Training - Biomass   Sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-S	Median wages - Annual - Wind (\$2019 per		58,266	59,962	61,252	62,475	64,619	66,554
On-Site or In-Plant Training - Biomass   S,269   10,558   17,339   17,726   18,126   23,389   sector - 1 to 4 years (jobs)	-							
Sector - 1 to 4 years (jobs)   On-Site or In-Plant Training - Biomass   Sector - 4 to 10 years (jobs)   On-Site or In-Plant Training - Biomass   Sector - None (jobs)   On-Site or In-Plant Training - Biomass   Sector - None (jobs)   On-Site or In-Plant Training - Biomass   Sector - None (jobs)   On-Site or In-Plant Training - Biomass   Sector - Over 10 years (jobs)   On-Site or In-Plant Training - Biomass   Sector - Over 10 years (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)   On-Site or In-Plant Training - CO2 sector - Up year (jobs)   On-Site or In-Plant Training - CO2 sector - Up year (jobs)   On-Site or In-Plant Training - CO2 sector - Up year (jobs)   On-Site or In-Plant Training - CO2 sector - Up year (jobs)   On-Site or In-Plant Training - CO2 sector - Up year (jobs)   On-Site or In-Plant Training - CO2 sector - Up year (jobs)   On-Site or In-Plant Training - Coal sector - Up year (jobs)   On-Site or In-Plant Training - Coal sector - Up year (jobs)   On-Site or In-Plant Training - Coal sector - Up year (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Training - Coal sector - Up years (jobs)   On-Site or In-Plant Trainin	On-Site or In-Plant Training - Biomass		8,269	10,558	17,339	17,726	18,126	23,389
On-Site or In-Plant Training - Biomass sector - 4 to 10 years (jobs)         2,558         3,232         5,758         6,103         6,468         8,510           On-Site or In-Plant Training - Biomass sector - None (jobs)         13,221         17,052         27,270         27,875         28,306         36,043           On-Site or In-Plant Training - Biomass sector - Over 10 years (jobs)         572         670         1,022         990         957         1,250           Sector - Over 10 years (jobs)         0n-Site or In-Plant Training - Biomass         57,434         71,657         108,430         106,373         103,753         131,625           sector - Up to 1 year (jobs)         0n-Site or In-Plant Training - Biomass         57,434         71,657         108,430         106,373         103,753         131,625           sector - Up to 1 year (jobs)         0n-Site or In-Plant Training - C02 sector - 1,483         22,923         19,621         9,107         13,819         26,600           1 to 4 years (jobs)         0n-Site or In-Plant Training - C02 sector - 7,731         11,419         9,664         4,399         6,691         13,161           4 to 10 years (jobs)         0n-Site or In-Plant Training - C02 sector - 86.9         1,358         1,145         518         788         1,555           On-Site or In-Plant Training - Coal secto								
Sector - 4 to 10 years (jobs)   Site or In-Plant Training - Biomass   13,221   17,052   27,270   27,875   28,306   36,043   36,			2,558	3,232	5,758	6.103	6,468	8,510
On-Site or In-Plant Training - Biomass sector - None (jobs)         13,221         17,052         27,270         27,875         28,306         36,043           Sector - None (jobs)         On-Site or In-Plant Training - Biomass sector - Over 10 years (jobs)         572         670         1,022         990         957         1,250           On-Site or In-Plant Training - Biomass sector - Up to 1 year (jobs)         57,434         71,657         108,430         106,373         103,753         131,625           Sector - Up to 1 year (jobs)         On-Site or In-Plant Training - C02 sector - 10,483         1,483         22,923         19,621         9,107         13,819         26,600           On-Site or In-Plant Training - C02 sector - 10,483         11,419         9,664         4,399         6,691         13,161           4 to 10 years (jobs)         10-Site or In-Plant Training - C02 sector - 12,228         18,743         16,306         7,771         11,762         22,020           On-Site or In-Plant Training - C02 sector - 12,228         18,743         16,306         7,771         11,762         22,020           On-Site or In-Plant Training - C02 sector - 12,228         18,743         1,556         1,555         1,483         1,555           On-Site or In-Plant Training - C02 sector - 12,228         4,497         4,68,533         59,677 <td></td> <td></td> <td>,  </td> <td>-, -</td> <td></td> <td>-,</td> <td>.,</td> <td>-,-</td>			,	-, -		-,	.,	-,-
Sector - None (jobs)			13.221	17.052	27.270	27.875	28.306	36.043
On-Site or In-Plant Training - Biomass sector - Over 10 years (jobs)         572         670         1,022         990         957         1,250           Sector - Over 10 years (jobs)         57,434         71,657         108,430         106,373         103,753         131,625           On-Site or In-Plant Training - Clossector - 10 years (jobs)         1,483         22,923         19,621         9,107         13,819         26,600           1 to 4 years (jobs)         731         11,419         9,664         4,399         6,691         13,161           4 to 10 years (jobs)         4         10,228         18,743         16,306         7,771         11,762         22,020           Non-Site or In-Plant Training - CO2 sector - 10,228         11,228         18,743         16,306         7,771         11,762         22,020           Non-Site or In-Plant Training - CO2 sector - 20,000         86.9         1,358         1,145         518         788         1,555           Over 10 years (jobs)         0n-Site or In-Plant Training - CO2 sector - 20,000         4,497         68,533         59,677         28,487         43,083         80,432           Up to 1 years (jobs)         0n-Site or In-Plant Training - Coal sector - 30,000         4,032         975         427         368         328	5		-,	,	, -	, -	_,	,-
Sector - Over 10 years (jobs)   S7,434   71,657   108,430   106,373   103,753   131,625			572	670	1 022	990	957	1 250
On-Site or In-Plant Training - Biomass sector - Up to 1 year (jobs)         57,434         71,657         108,430         106,373         103,753         131,625           On-Site or In-Plant Training - C02 sector - 1 to 4 years (jobs)         1,483         22,923         19,621         9,107         13,819         26,600           On-Site or In-Plant Training - C02 sector - 4 to 10 years (jobs)         731         11,419         9,664         4,399         6,691         13,161           On-Site or In-Plant Training - C02 sector - None (jobs)         1,228         18,743         16,306         7,771         11,762         22,020           None (jobs)         1,228         18,743         16,306         7,771         11,762         22,020           None (jobs)         1,358         1,145         518         788         1,555           Over 10 years (jobs)         4,497         68,533         59,677         28,487         43,083         80,432           On-Site or In-Plant Training - Coal sector - 10 years (jobs)         10,419         2,840         1,585         1,367         1,223         1,007           On-Site or In-Plant Training - Coal sector - 4 to 10 years (jobs)         9,841         2,576         1,407         1,243         1,140         959           On-Site or In-Plant Training - Co			0.2	0.0	.,022	,,,	, , ,	1,200
Sector - Up to 1 year (jobs)   Con-Site or In-Plant Training - Co2 sector - 1,483   22,923   19,621   9,107   13,819   26,600   1 to 4 years (jobs)   Con-Site or In-Plant Training - Co2 sector - 4 to 10 years (jobs)   Con-Site or In-Plant Training - Co2 sector - 4,001   1,228   18,743   16,306   7,771   11,762   22,020   11,762   11			57 434	71 657	108 430	106 373	103 753	131 625
On-Site or In-Plant Training - CO2 sector - 1to 4 years (jobs)         1,483         22,923         19,621         9,107         13,819         26,600           On-Site or In-Plant Training - CO2 sector - 4 to 10 years (jobs)         731         11,419         9,664         4,399         6,691         13,161           On-Site or In-Plant Training - CO2 sector - None (jobs)         1,228         18,743         16,306         7,771         11,762         22,020           On-Site or In-Plant Training - CO2 sector - Over 10 years (jobs)         86.9         1,358         1,145         518         788         1,555           On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)         4,497         68,533         59,677         28,487         43,083         80,432           On-Site or In-Plant Training - Coal sector - 10,419         2,840         1,585         1,367         1,223         1,007           1 to 4 years (jobs)         4,032         975         427         368         328         269           4 to 10 years (jobs)         9,841         2,576         1,407         1,243         1,140         959           On-Site or In-Plant Training - Coal sector - None (jobs)         9,841         2,576         1,407         1,243         1,140         959           Over 10 years (jobs) <td></td> <td></td> <td>01,404</td> <td>11,001</td> <td>100,400</td> <td>100,010</td> <td>100,100</td> <td>101,020</td>			01,404	11,001	100,400	100,010	100,100	101,020
1 to 4 years (jobs)			1 / 23	22 923	19 621	9107	13 210	26 600
On-Site or In-Plant Training - CO2 sector - 4 to 10 years (jobs)         731         11,419         9,664         4,399         6,691         13,161           On-Site or In-Plant Training - CO2 sector - None (jobs)         1,228         18,743         16,306         7,771         11,762         22,020           None (jobs)         86.9         1,358         1,145         518         788         1,555           Over 10 years (jobs)         0n-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)         4,497         68,533         59,677         28,487         43,083         80,432           Up to 1 year (jobs)         10,419         2,840         1,585         1,367         1,223         1,007           1 to 4 years (jobs)         10,419         2,840         1,585         1,367         1,223         1,007           1 to 4 years (jobs)         4,032         975         427         368         328         269           4 to 10 years (jobs)         9,841         2,576         1,407         1,243         1,140         959           None (jobs)         0n-Site or In-Plant Training - Coal sector - 487         487         114         47         41.6         38.2         32.3           Over 10 years (jobs)         0n-Site or In-Plant Training - Coal secto			1,400	22,720	17,021	2,101	13,017	20,000
A to 10 years (jobs)			721	11 /.10	0.667	/. 200	4 401	19 141
On-Site or In-Plant Training - CO2 sector - None (jobs)         1,228         18,743         16,306         7,771         11,762         22,020           On-Site or In-Plant Training - CO2 sector - Over 10 years (jobs)         86.9         1,358         1,145         518         788         1,555           On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)         4,497         68,533         59,677         28,487         43,083         80,432           On-Site or In-Plant Training - Coal sector - 1 to 4 years (jobs)         10,419         2,840         1,585         1,367         1,223         1,007           On-Site or In-Plant Training - Coal sector - 4 to 10 years (jobs)         4,032         975         427         368         328         269           On-Site or In-Plant Training - Coal sector - None (jobs)         9,841         2,576         1,407         1,243         1,140         959           Over 10 years (jobs)         487         114         47         41.6         38.2         32.3           On-Site or In-Plant Training - Coal sector - 4         41,734         11,915         7,358         6,353         5,689         4,680	=		131	11,417	9,004	4,377	0,071	13,101
None (jobs)         86.9         1,358         1,145         518         788         1,555           Over 10 years (jobs)         0n-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)         4,497         68,533         59,677         28,487         43,083         80,432           Up to 1 year (jobs)         0n-Site or In-Plant Training - Coal sector - 10,419         2,840         1,585         1,367         1,223         1,007           1 to 4 years (jobs)         0n-Site or In-Plant Training - Coal sector - 4,032         975         427         368         328         269           4 to 10 years (jobs)         0n-Site or In-Plant Training - Coal sector - None (jobs)         9,841         2,576         1,407         1,243         1,140         959           On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)         487         114         47         41.6         38.2         32.3           On-Site or In-Plant Training - Coal sector - 44,734         11,915         7,358         6,353         5,689         4,680			1 000	10 7/.2	16 206	7771	11.74.0	22.020
On-Site or In-Plant Training - CO2 sector - Over 10 years (jobs)         86.9         1,358         1,145         518         788         1,555           Over 10 years (jobs)         4,497         68,533         59,677         28,487         43,083         80,432           Up to 1 year (jobs)         10,419         2,840         1,585         1,367         1,223         1,007           1 to 4 years (jobs)         10,419         2,840         1,585         1,367         1,223         1,007           1 to 4 years (jobs)         4,032         975         427         368         328         269           4 to 10 years (jobs)         9,841         2,576         1,407         1,243         1,140         959           On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)         487         114         47         41.6         38.2         32.3           On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)         41,734         11,915         7,358         6,353         5,689         4,680			1,220	10,143	10,300	1,111	11,102	22,020
Over 10 years (jobs)         4,497         68,533         59,677         28,487         43,083         80,432           Up to 1 year (jobs)         0n-Site or In-Plant Training - Coal sector - 10,419         2,840         1,585         1,367         1,223         1,007           1 to 4 years (jobs)         0n-Site or In-Plant Training - Coal sector - 4 to 10 years (jobs)         4,032         975         427         368         328         269           On-Site or In-Plant Training - Coal sector - None (jobs)         9,841         2,576         1,407         1,243         1,140         959           On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)         487         114         47         41.6         38.2         32.3           On-Site or In-Plant Training - Coal sector - 41,734         11,915         7,358         6,353         5,689         4,680			0/0	1 250	11/E	F10	700	1 555
On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)         4,497         68,533         59,677         28,487         43,083         80,432           On-Site or In-Plant Training - Coal sector - 1 to 4 years (jobs)         10,419         2,840         1,585         1,367         1,223         1,007           On-Site or In-Plant Training - Coal sector - 4 to 10 years (jobs)         4,032         975         427         368         328         269           On-Site or In-Plant Training - Coal sector - None (jobs)         9,841         2,576         1,407         1,243         1,140         959           On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)         487         114         47         41.6         38.2         32.3           On-Site or In-Plant Training - Coal sector - 41,734         11,915         7,358         6,353         5,689         4,680	=		00.9	1,556	1,145	310	100	1,555
Up to 1 year (jobs)       10,419       2,840       1,585       1,367       1,223       1,007         1 to 4 years (jobs)       10,419       2,840       1,585       1,367       1,223       1,007         1 to 4 years (jobs)       4,032       975       427       368       328       269         4 to 10 years (jobs)       9,841       2,576       1,407       1,243       1,140       959         On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)       487       114       47       41.6       38.2       32.3         On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)       41,734       11,915       7,358       6,353       5,689       4,680			, , , 0.7	/O FOO	FO /77	00 / 07	40.000	00 / 00
On-Site or In-Plant Training - Coal sector - 1 to 4 years (jobs)         10,419         2,840         1,585         1,367         1,223         1,007           On-Site or In-Plant Training - Coal sector - 4 to 10 years (jobs)         4,032         975         427         368         328         269           On-Site or In-Plant Training - Coal sector - None (jobs)         9,841         2,576         1,407         1,243         1,140         959           On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)         487         114         47         41.6         38.2         32.3           On-Site or In-Plant Training - Coal sector - 41,734         11,915         7,358         6,353         5,689         4,680			4,497	68,533	59,677	28,487	43,083	80,432
1 to 4 years (jobs)       4,032       975       427       368       328       269         4 to 10 years (jobs)       9,841       2,576       1,407       1,243       1,140       959         None (jobs)       9,841       47       41.6       38.2       32.3         Over 10 years (jobs)       487       114       47       41.6       38.2       32.3         On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)       41,734       11,915       7,358       6,353       5,689       4,680							1.000	
On-Site or In-Plant Training - Coal sector - 4 to 10 years (jobs)       4,032       975       427       368       328       269         On-Site or In-Plant Training - Coal sector - None (jobs)       9,841       2,576       1,407       1,243       1,140       959         On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)       487       114       47       41.6       38.2       32.3         On-Site or In-Plant Training - Coal sector - 41,734       11,915       7,358       6,353       5,689       4,680			10,419	2,840	1,585	1,367	1,223	1,007
4 to 10 years (jobs)       9,841       2,576       1,407       1,243       1,140       959         None (jobs)       0n-Site or In-Plant Training - Coal sector - Over 10 years (jobs)       487       114       47       41.6       38.2       32.3         0n-Site or In-Plant Training - Coal sector - Over 10 years (jobs)       41,734       11,915       7,358       6,353       5,689       4,680								
On-Site or In-Plant Training - Coal sector - None (jobs)       9,841       2,576       1,407       1,243       1,140       959         On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)       487       114       47       41.6       38.2       32.3         On-Site or In-Plant Training - Coal sector - Value       41,734       11,915       7,358       6,353       5,689       4,680			4,032	975	427	368	328	269
None (jobs)         487         114         47         41.6         38.2         32.3           Over 10 years (jobs)         0n-Site or In-Plant Training - Coal sector -         41,734         11,915         7,358         6,353         5,689         4,680								
On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)         487         114         47         41.6         38.2         32.3           On-Site or In-Plant Training - Coal sector - On-Site or In-Plant Training - On-Site or In-			9,841	2,576	1,407	1,243	1,140	959
Over 10 years (jobs)         41,734         11,915         7,358         6,353         5,689         4,680		_						
On-Site or In-Plant Training - Coal sector -         41,734         11,915         7,358         6,353         5,689         4,680			487	114	47	41.6	38.2	32.3
Up to 1 year (jobs)			41,734	11,915	7,358	6,353	5,689	4,680
	Up to 1 year (jobs)							

Table 64: E+RE- scenario - IMPACTS - Jobs (continued)

Table 64: E+RE- scenario - IMPACTS - Jobs	•						
Item	2020	2025	2030	2035	2040	2045	2050
On-Site or In-Plant Training - Grid sector -		91,211	103,099	143,993	171,889	183,573	199,689
1 to 4 years (jobs)							
On-Site or In-Plant Training - Grid sector -		40,059	45,270	63,211	75,438	80,546	87,593
4 to 10 years (jobs)							
On-Site or In-Plant Training - Grid sector -		80,419	90,582	126,078	150,001	159,675	173,139
None (jobs)							
On-Site or In-Plant Training - Grid sector -		5,193	5,865	8,184	9,761	10,416	11,320
Over 10 years (jobs)							
On-Site or In-Plant Training - Grid sector -		311,208	351,344	490,140	584,453	623,527	677,591
Up to 1 year (jobs)							
On-Site or In-Plant Training - Natural gas		97,694	85,725	76,562	74,851	62,980	52,317
sector - 1 to 4 years (jobs)							-
On-Site or In-Plant Training - Natural gas		43,400	38,428	34,575	34,233	29,007	24,312
sector - 4 to 10 years (jobs)					-		
On-Site or In-Plant Training - Natural gas		92,260	80,124	70,811	68,462	57,144	47,024
sector - None (jobs)		,		,	55,15=		,
On-Site or In-Plant Training - Natural gas		5,150	4,603	4,165	4,173	3,558	2,999
sector - Over 10 years (jobs)		37.55	.,000	.,	.,	0,000	_,,,,
On-Site or In-Plant Training - Natural gas		340,988	296,769	263,218	253,834	211,953	174,136
sector - Up to 1 year (jobs)		0.0,700	2,0,10,	200,210	200,00 1	211,700	11 1,100
On-Site or In-Plant Training - Nuclear		7,412	8,946	13,919	20,679	34,252	56,071
sector - 1 to 4 years (jobs)		1,-12	0,740	10,717	20,017	04,202	00,011
On-Site or In-Plant Training - Nuclear		2,683	3,237	5,035	7,479	12,385	20,271
sector - 4 to 10 years (jobs)		2,000	3,231	3,033	1,417	12,303	20,211
On-Site or In-Plant Training - Nuclear		8,991	10,828	16,811	24,924	41,197	67,304
sector - None (jobs)		0,771	10,020	10,011	24,724	41,171	01,304
On-Site or In-Plant Training - Nuclear		252	303	471	699	1,156	1,890
sector - Over 10 years (jobs)		252	303	471	077	1,156	1,090
On-Site or In-Plant Training - Nuclear		30,893	37,240	57,866	85,866	142,052	232,261
<u> </u>		30,893	31,240	37,866	83,866	142,052	232,261
sector - Up to 1 year (jobs) On-Site or In-Plant Training - Oil sector - 1		11//17	100 / / 0	00 (0)	( / 00 /	/ 0.000	0/ / 50
<u> </u>		116,417	102,660	88,636	64,334	48,922	34,459
to 4 years (jobs)		/10/0	07.750	01 (0)	00.107	17770	10 (00
On-Site or In-Plant Training - Oil sector -		41,049	36,459	31,686	23,186	17,772	12,638
4 to 10 years (jobs)		107.000	110.000	21.722		=1.010	
On-Site or In-Plant Training - Oil sector -		127,208	110,889	94,599	67,871	51,013	35,531
None (jobs)				2 (22			
On-Site or In-Plant Training - Oil sector -		4,546	4,112	3,638	2,706	2,107	1,519
Over 10 years (jobs)							
On-Site or In-Plant Training - Oil sector -		500,808	439,812	378,051	273,378	207,099	145,367
Up to 1 year (jobs)							
On-Site or In-Plant Training - Solar PV		76,624	71,589	74,897	78,070	80,117	110,572
sector - 1 to 4 years (jobs)							
On-Site or In-Plant Training - Solar PV		27,856	26,568	28,545	30,343	31,547	44,146
sector - 4 to 10 years (jobs)							
On-Site or In-Plant Training - Solar PV		81,278	76,117	79,805	83,485	86,082	119,399
sector - None (jobs)							
On-Site or In-Plant Training - Solar PV		3,831	3,594	3,780	3,957	4,075	5,646
sector - Over 10 years (jobs)							
On-Site or In-Plant Training - Solar PV		286,134	266,866	278,352	289,934	297,943	411,791
sector - Up to 1 year (jobs)							
On-Site or In-Plant Training - Total jobs - 1		449,799	453,679	484,557	496,638	502,936	562,542
to 4 years (jobs)		•	·		•		
On-Site or In-Plant Training - Total jobs - 4		176,731	182,836	197,509	204,440	209,626	236,051
to 10 years (jobs)		-, -	,	,		,	
On-Site or In-Plant Training - Total jobs -		458,863	457,024	486,427	497,141	503,608	567,435
None (jobs)		.00,000	101,02-4	100,421	121,171	555,555	55.,455
On-Site or In-Plant Training - Total jobs -		22,179	22,977	24,963	25,925	26,295	29,367
Over 10 years (jobs)		22,117		24,703	20,720	20,270	27,001
On-Site or In-Plant Training - Total jobs -		1,728,364	1,716,485	1,825,613	1,852,158	1,861,573	2,078,069
Up to 1 year (jobs)		1,120,304	1,110,400	1,023,013	1,002,100	1,001,013	2,010,009
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Table 64: E+RE- scenario - IMPACTS - Jobs (continued)

Table 64: E+RE- scenario - IMPACTS - Jobs	•	-					
Item	2020	2025	2030	2035	2040	2045	2050
On-Site or In-Plant Training - Wind sector		40,269	45,338	48,004	58,613	59,924	58,439
-1 to 4 years (jobs)		1/ 0/0	470/0	10 (00	00.000	01.000	054/0
On-Site or In-Plant Training - Wind sector		14,363	17,249	18,609	22,892	24,883	25,149
- 4 to 10 years (jobs) On-Site or In-Plant Training - Wind sector		44,417	50,112	53,339	65,509	67,290	66,017
- None (jobs)		44,417	30,112	33,339	03,309	01,290	00,017
On-Site or In-Plant Training - Wind sector		2,062	2,357	2,511	3,078	3,200	3,156
- Over 10 years (jobs)		2,002	2,001	2,011	0,010	0,200	0,100
On-Site or In-Plant Training - Wind sector		154,667	172,350	182,521	223,481	226,476	220,186
- Up to 1 year (jobs)				,	,		
On-the-Job Training - All sectors - 1 to 4		574,310	580,810	620,936	638,394	648,454	726,654
years (jobs)							
On-the-Job Training - All sectors - 4 to 10		166,229	173,803	189,273	197,680	203,748	230,602
years (jobs)							
On-the-Job Training - All sectors - None		157,241	154,903	164,033	166,565	168,895	191,403
(jobs)		00.010	07010	00100	22.222	00.001	
On-the-Job Training - All sectors - Over 10		28,219	27,919	29,123	29,330	29,281	32,777
years (jobs) On-the-Job Training - All sectors - Up to 1		1000007	1,005,577	0.015.705	0.077.000	0.050.771	2,292,028
		1,909,937	1,895,566	2,015,705	2,044,332	2,053,661	2,292,028
year (jobs) On-the-Job Training - Biomass sector - 1		9,019	11,632	19,857	20,755	21,679	28,149
to 4 years (jobs)		9,019	11,032	17,001	20,133	21,019	20,149
On-the-Job Training - Biomass sector - 4		2,062	2,704	4,989	5,335	5,720	7,539
to 10 years (jobs)		2,002	2,104	4,707	0,000	0,120	1,007
On-the-Job Training - Biomass sector -		5,063	6,073	9,513	9,580	9,548	12,238
None (jobs)		.,		,	,	,-	,
On-the-Job Training - Biomass sector -		586	690	1,086	1,071	1,057	1,386
Over 10 years (jobs)							
On-the-Job Training - Biomass sector - Up		65,325	82,070	124,373	122,328	119,606	151,505
to 1 year (jobs)							
On-the-Job Training - CO2 sector - 1 to 4		1,973	30,531	26,093	12,082	18,335	35,372
years (jobs)							
On-the-Job Training - CO2 sector - 4 to 10		736	11,550	9,721	4,383	6,676	13,273
years (jobs)		07/	F (0)	F 01/	0 / 0 /	0.400	(7//
On-the-Job Training - CO2 sector - None (jobs)		376	5,694	5,014	2,434	3,680	6,766
On-the-Job Training - CO2 sector - Over		80.3	1,238	1,072	505	768	1,466
10 years (jobs)		00.5	1,230	1,012	303	100	1,400
On-the-Job Training - CO2 sector - Up to 1		4,860	73,964	64,514	30,878	46,684	86,891
year (jobs)		.,555	10,701	0 1,01 1	00,010	10,00 1	00,071
On-the-Job Training - Coal sector - 1 to 4		13,265	3,547	1,899	1,641	1,470	1,214
years (jobs)			-		-		-
On-the-Job Training - Coal sector - 4 to 10		3,950	962	419	359	318	259
years (jobs)							
On-the-Job Training - Coal sector - None		3,285	870	503	442	403	337
(jobs)							
On-the-Job Training - Coal sector - Over		450	123	70.1	62.6	58.1	49.7
10 years (jobs)		, , , , , ,	10.017	7000	, 0, 0	(4/0	
On-the-Job Training - Coal sector - Up to 1		45,563	12,917	7,933	6,868	6,168	5,088
year (jobs) On-the-Job Training - Grid sector - 1 to 4		110 / 07	127, 000	107.000	000 000	000 075	259,062
years (jobs)		118,627	134,022	187,088	223,222	238,275	239,062
On-the-Job Training - Grid sector - 4 to 10		40,317	45,590	63,698	76,067	81,267	88,432
=		40,311	43,390	03,070	10,001	01,201	00,432
		25.845	29136	40 589	48 334	51 500	55.896
_			27,100	10,007	70,004	31,000	30,070
		4,232	4,787	6,689	7,991	8,540	9,296
10 years (jobs)		,	,	,	,	,	, ,
On-the-Job Training - Grid sector - Up to 1		339,069	382,625	533,541	635,929	678,155	736,646
year (jobs)		I	I	I			I
years (jobs) On-the-Job Training - Grid sector - None (jobs) On-the-Job Training - Grid sector - Over 10 years (jobs) On-the-Job Training - Grid sector - Up to 1		25,845 4,232	29,136 4,787	40,589 6,689	48,334 7,991	51,500 8,540	55,896 9,296

Table 64: E+RE- scenario - IMPACTS - Jobs (continued)

Table 64: E+RE- scenario - IMPACTS - Job							
Item	2020	2025	2030	2035	2040	2045	2050
On-the-Job Training - Natural gas sector -		128,500	112,783	100,700	98,631	83,035	69,060
1 to 4 years (jobs)							
On-the-Job Training - Natural gas sector -		41,324	36,725	33,119	33,043	28,098	23,679
4 to 10 years (jobs)							
On-the-Job Training - Natural gas sector -		30,220	25,985	22,796	21,727	17,984	14,663
None (jobs)							
On-the-Job Training - Natural gas sector -		5,503	4,776	4,243	4,069	3,392	2,789
Over 10 years (jobs)							
On-the-Job Training - Natural gas sector -		373,945	325,379	288,474	278,083	232,133	190,597
Up to 1 year (jobs)					·		
On-the-Job Training - Nuclear sector - 1 to		9,725	11,736	18,257	27,122	44,918	73,522
4 years (jobs)		.,	,	,	,	,	,
On-the-Job Training - Nuclear sector - 4		2,345	2,831	4,404	6,544	10,839	17,746
to 10 years (jobs)		2,040	2,001	7,404	0,044	10,007	11,140
On-the-Job Training - Nuclear sector -		3,374	4,065	6,315	9,367	15,492	25,322
None (jobs)		3,314	4,000	0,313	7,301	13,472	25,322
On-the-Job Training - Nuclear sector -		523	/ 01	983	1 / /1	2,422	3,967
<u> </u>		523	631	983	1,461	2,422	3,967
Over 10 years (jobs)		01.011	// 000	( ) ( ) ( )	05.450	457.074	0570/0
On-the-Job Training - Nuclear sector - Up		34,264	41,292	64,142	95,153	157,371	257,240
to 1 year (jobs)							
On-the-Job Training - Oil sector - 1 to 4		143,995	126,810	109,358	79,262	60,197	42,346
years (jobs)							
On-the-Job Training - Oil sector - 4 to 10		34,009	30,239	26,292	19,275	14,800	10,561
years (jobs)							
On-the-Job Training - Oil sector - None		48,067	41,572	35,155	25,043	18,687	12,944
(jobs)							
On-the-Job Training - Oil sector - Over 10		7,713	6,796	5,864	4,255	3,235	2,281
years (jobs)		,	,		•	,	
On-the-Job Training - Oil sector - Up to 1		556,244	488,514	419,941	303,640	229,994	161,382
year (jobs)			,	,	222,212		,
On-the-Job Training - Solar PV sector - 1		97,447	91,143	95,492	99,644	102,327	141,330
to 4 years (jobs)		71,441	71,140	70,472	77,044	102,021	141,000
On-the-Job Training - Solar PV sector - 4		27,633	26,443	28,531	30,422	31,696	44,455
to 10 years (jobs)		21,000	20,443	20,331	30,422	31,070	44,433
On-the-Job Training - Solar PV sector -		26,952	25,479	27,024	28,564	29,719	41,620
		20,932	25,419	21,024	20,304	29,119	41,620
None (jobs)		( 0 / /	F F00	F / F F	F 7FF	F 770	77/5
On-the-Job Training - Solar PV sector -		6,044	5,538	5,655	5,755	5,772	7,765
Over 10 years (jobs)							
On-the-Job Training - Solar PV sector - Up		317,648	296,131	308,678	321,405	330,249	456,384
to 1 year (jobs)							
On-the-Job Training - Wind sector - 1 to 4		51,759	58,606	62,191	76,037	78,220	76,599
years (jobs)							
On-the-Job Training - Wind sector - 4 to		13,853	16,760	18,099	22,254	24,333	24,657
10 years (jobs)							
On-the-Job Training - Wind sector - None		14,059	16,028	17,124	21,074	21,882	21,617
(jobs)							
On-the-Job Training - Wind sector - Over		3,088	3,338	3,462	4,161	4,037	3,779
10 years (jobs)		-,	,,,,,		.,	,,,,,,	
On-the-Job Training - Wind sector - Up to		173,019	192,674	204,109	250,048	253,300	246,295
1 year (jobs)		110,017	1,2,011	20 1,10 7	200,010	200,000	2 10,270
Related work experience - All sectors - 1		1,032,181	1,028,146	1,093,272	1,113,061	1,124,392	1,255,295
		1,032,101	1,020,140	1,073,212	1,113,001	1,124,372	1,200,270
to 4 years (jobs)		(50.0/0	/F0.0/1	/007FF	715 (0)	705 / / 0	011 007
Related work experience - All sectors - 4		658,043	658,041	699,755	715,684	725,442	811,304
to 10 years (jobs)							
Related work experience - All sectors -		401,506	405,041	433,875	442,516	445,997	499,667
None (jobs)							
Related work experience - All sectors -		182,370	179,985	189,873	192,939	194,433	216,579
Over 10 years (jobs)							
Related work experience - All sectors - Up		561,837	561,788	602,295	612,102	613,776	690,620
to 1 year (jobs)							
			•	•			•——

Table 64: E+RE- scenario - IMPACTS - Jobs (continued)

Related work experience - Biomass sector	able 64: E+RE- scenario - IMPACTS - Jobs (	•	-					
-1 to 4 years (jobs) Related work experience - Biomass sector		2020	2025	2030	2035	2040	2045	2050
Related work experience - Biomass sector			24,432	31,802	51,686	53,347	54,747	69,875
Related work experience - Biomass sector			10 (00	15.000	07100	00.010	00 (50	00 / 00
Related work experience - Biomass sector   13,956   17,458   25,959   24,936   23,845   30   Related work experience - Biomass sector   3,473   4,247   7,104   7,467   7,776   1   7,000   10   7,467   7,776   1   7,000   10   7,467   7,776   1   7,000   10   7,467   7,776   1   7,000   10   7,467   7,776   1   7,000   10   7,467   7,776   1   7,000   10   7,467   7,776   1   7,000   10   7,000   10   7,000   10   7,000   10   7,000   10   10   10   10   10   10   10			12,623	15,902	27,189	28,912	30,450	39,488
Related work experience - Biomass sector   3,473   4,247   7,104   7,467   7,776   1			12.054	17 /. E O	25.050	27, 024	22.07.5	30,064
Related work experience - Biomass sector - 0.00			13,956	17,456	25,959	24,936	23,845	30,064
Related work experience - Biomass sector			2 /,72	/, 2/,7	710/	7 / 67	7776	10,138
Related work experience - Biomass sector - Up to 1 year (jobs) Related work experience - CO2 sector - 1 to 4 years (jobs) Related work experience - CO2 sector - 4 to 10 years (jobs) Related work experience - CO2 sector - 4 to 10 years (jobs) Related work experience - CO2 sector - 4 to 10 years (jobs) Related work experience - CO2 sector - 1,242 19,156 Related work experience - CO2 sector - 1,242 19,156 Related work experience - CO2 sector - 4 None (jobs) Related work experience - CO2 sector - 1,441 22,184 19,195 Related work experience - CO2 sector - 1,441 22,184 19,195 Related work experience - CO2 sector - 1,441 22,184 19,195 Related work experience - CO3 sector - 1 25,218 Related work experience - CO3 sector - 1 25,218 Related work experience - CO3 sector - 1 25,218 Related work experience - CO3 sector - 1 25,218 Related work experience - CO3 sector - 1 25,218 Related work experience - CO3 sector - 9,056 2,422 1,346 1,166 1,047 None (jobs) Related work experience - CO3 sector - 9,056 2,422 1,346 1,166 1,047 None (jobs) Related work experience - CO3 sector - 1 25,218 Related work experience - CO3 sector - 1 25,218 1,346 1,661 1,047 None (jobs) Related work experience - CO3 sector - 1 25,218 13,581 4,133 2,742 2,352 2,093  Related work experience - CO3 sector - 1 25,218 141,060 196,473 233,905 249,141 270 10 years (jobs) Related work experience - Grid sector - 1 25,143 141,060 196,473 233,905 249,141 270 170 170 170 170 170 170 170 170 170 1			3,413	4,241	1,104	1,401	1,110	10,130
Color   Colo			27.570	33.760	47.881	44.406	40.793	51,252
Related work experience - CO2 sector - 1 to 4 years (jobs) Related work experience - CO2 sector - 4 to 10 years (jobs) Related work experience - CO2 sector - 4 to 10 years (jobs) Related work experience - CO2 sector - 1,242 Related work experience - CO2 sector - 1,242 Related work experience - CO2 sector - 1,242 Related work experience - CO2 sector - 2,386 Related work experience - CO2 sector - 2,386 Related work experience - CO2 sector - 2,488 Related work experience - CO2 sector - 2,488 Related work experience - CO2 sector - 2,441 Related work experience - CO2 sector - 2,441 Related work experience - CO3 sector - 1,441 Related work experience - CO3 sector - 2,5218 Related work experience - CO3 sector - 3,750 Related work experience - CO3 sector - 3,759 Related work experience - CO3 sector - 1,5581 Related work experience - Grid sector - 4 Related work experience - Grid sector - 4 Related work experience - Grid sector - 3,759 Related work experience - Grid sector - 4 Related work experience - Grid sector - 4 Related work experience - Grid sector - 3,759 Related work experience - Grid sector - 3,759 Related work experience - Grid sector - 3,759 Related work experience - Grid sector - 4 Related work experience - Grid sector - 3,759 Related work exp	•		,,	55,155	,	,	,	,
Related work experience - CO2 sector - 4 to 10 years (jobs)  Related work experience - CO2 sector - 4 to 10 years (jobs)  Related work experience - CO2 sector - 1,242 19,156 16,427 7,651 11,598 2  Related work experience - CO2 sector - 1,242 19,156 16,427 7,651 11,598 2  Related work experience - CO2 sector - 1,242 19,156 16,427 7,651 11,598 2  Related work experience - CO2 sector - 1,441 22,184 19,195 9,051 13,744 2  Up to 1 year (jobs)  Related work experience - Coal sector - 1,441 22,184 19,195 9,051 13,744 2  Up to 1 year (jobs)  Related work experience - Coal sector - 1,441 25,218 7,000 4,140 3,577 3,205 2  Related work experience - Coal sector - 4 14,899 3,852 2,035 1,784 1,622 10 years (jobs)  Related work experience - Coal sector - 9,056 2,422 1,346 1,166 1,047			2,869	43,804	38,025	18,068	27,328	51,225
To 10 years (jobs)   Related work experience - CO2 sector - None (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   To 1 year (jobs)								
Related work experience - CO2 sector - None (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Over 10 years (jobs)   Over 10 y	Related work experience - CO2 sector - 4		1,986	30,448	26,294	12,390	18,757	35,478
None (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - CO2 sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Natural gas   Over 10 years (jobs)   Over 10 ye								
Related work experience - CO2 sector - Over 10 years (jobs)  Related work experience - CO2 sector - Up to 1 year (jobs)  Related work experience - CO2 sector - Up to 1 year (jobs)  Related work experience - Coal sector - 1			1,242	19,156	16,427	7,651	11,598	22,218
Related work experience - Co2 sector - Up to 1 years (jobs)   Related work experience - Coal sector - 1								
Related work experience - CO2 sector - Up to 1 year (jobs)	·		488	7,386	6,473	3,122	4,715	8,696
Up to 1 year (jobs)   Related work experience - Coal sector - 1 to 4 years (jobs)   Related work experience - Coal sector - 4 to 10 years (jobs)   Related work experience - Coal sector - 4 to 10 years (jobs)   Related work experience - Coal sector - 4 to 10 years (jobs)   Related work experience - Coal sector - 9,056								
Related work experience - Coal sector - 1 to 4 years (jobs)  Related work experience - Coal sector - 4 to 10 years (jobs)  Related work experience - Coal sector - 4 to 10 years (jobs)  Related work experience - Coal sector - 9,056 Related work experience - Coal sector - 9,056 Related work experience - Coal sector - 9,056 Related work experience - Coal sector - 3,759 Related work experience - Coal sector - 13,581 Related work experience - Grid sector - 14 to 4 years (jobs)  Related work experience - Grid sector - 15,143 Related work experience - Grid sector - 14 to 4 years (jobs)  Related work experience - Grid sector - 4 to 10 years (jobs)  Related work experience - Grid sector - 4 round (jobs)  Related work experience - Grid sector - 78,437 None (jobs)  Related work experience - Grid sector - 32,437 Over 10 years (jobs)  Related work experience - Grid sector - 1011,114 114,496 160,205 191,606 205,031 223 Related work experience - Natural gas sector - 1 to 4 years (jobs)  Related work experience - Natural gas sector - 1 to 4 years (jobs)			1,441	22,184	19,195	9,051	13,744	26,151
To 4 years (jobs)   Related work experience - Coal sector - 4 to 10 years (jobs)   Related work experience - Coal sector - 4 to 10 years (jobs)   Related work experience - Coal sector - 5 years (jobs)   Years (jobs			05.010	7000	, 1, 0	0.533	0.005	0.400
Related work experience - Coal sector - 4 to 10 years (jobs)         14,899         3,852         2,035         1,784         1,622           Related work experience - Coal sector - None (jobs)         9,056         2,422         1,346         1,166         1,047           Related work experience - Coal sector - Over 10 years (jobs)         3,759         1,011         561         494         452           Related work experience - Coal sector - Up to 1 year (jobs)         13,581         4,133         2,742         2,352         2,093           Related work experience - Grid sector - 1 to 4 years (jobs)         190,960         215,406         300,246         357,715         381,302         414           Related work experience - Grid sector - 4 to 10 years (jobs)         125,143         141,060         196,473         233,905         249,141         270           Related work experience - Grid sector - 70 years (jobs)         78,437         88,614         123,699         147,587         157,537         17           None (jobs)         70 years (j			25,218	7,000	4,140	3,577	3,205	2,638
To 10 years (jobs)   Related work experience - Coal sector - None (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Over 10 y			1/ 000	0.050	0.005	170/	1 / 00	1.057
Related work experience - Coal sector - None (jobs)       9,056       2,422       1,346       1,166       1,047         Related work experience - Coal sector - Over 10 years (jobs)       3,759       1,011       561       494       452         Related work experience - Coal sector - Up to 1 year (jobs)       13,581       4,133       2,742       2,352       2,093         Related work experience - Grid sector - 1 to 4 years (jobs)       190,960       215,406       300,246       357,715       381,302       414         to 10 years (jobs)       125,143       141,060       196,473       233,905       249,141       270         to 10 years (jobs)       125,143       141,060       196,473       233,905       249,141       270         None (jobs)       125,143       141,060       196,473       233,905       249,141       270         None (jobs)       125,143       141,060       196,473       233,905       249,141       270         Related work experience - Grid sector - Over 10 years (jobs)       76,000       76,000       76,000       76,000       77,000       77,000       77,000       77,000       77,000       77,000       77,000       77,000       77,000       77,000       77,000       77,000       77,000       77,000	•		14,899	3,852	2,035	1,784	1,622	1,354
None (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 years (jobs)   Related work experience - Coal sector - Over 10 year (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Grid sector - Over 10 years (jobs)   Related work experience - Over 10 years (jobs)   Related work experience - Over 10 years (jobs)   Related work experience - Natural gas   Sover 10 years (jobs)   Sov			0.054	0 /.00	1 2/.4	1144	1.07.7	864
Related work experience - Coal sector - Over 10 years (jobs)       3,759       1,011       561       494       452         Related work experience - Coal sector - Over 10 years (jobs)       13,581       4,133       2,742       2,352       2,093         Related work experience - Grid sector - 1 to 4 years (jobs)       190,960       215,406       300,246       357,715       381,302       414         Related work experience - Grid sector - 4 to 10 years (jobs)       125,143       141,060       196,473       233,905       249,141       270         Related work experience - Grid sector - None (jobs)       78,437       88,614       123,699       147,587       157,537       17         None (jobs)       32,437       36,583       50,982       60,730       64,724       70         Over 10 years (jobs)       101,114       114,496       160,205       191,606       205,031       223         Up to 1 year (jobs)       Related work experience - Natural gas       213,832       186,439       165,531       160,160       133,948       110         sector - 1 to 4 years (jobs)       452       4,144       4,144       4,144       4,144       4,144       4,144       4,144       4,144       4,144       4,144       4,144       4,144       4,144       4,144<			9,006	2,422	1,346	1,100	1,041	004
Over 10 years (jobs)       Related work experience - Coal sector - Up to 1 year (jobs)       13,581       4,133       2,742       2,352       2,093         Related work experience - Grid sector - 1 to 4 years (jobs)       190,960       215,406       300,246       357,715       381,302       414         Related work experience - Grid sector - 4 to 10 years (jobs)       125,143       141,060       196,473       233,905       249,141       270         Related work experience - Grid sector - None (jobs)       78,437       88,614       123,699       147,587       157,537       17         Related work experience - Grid sector - Over 10 years (jobs)       32,437       36,583       50,982       60,730       64,724       70         Related work experience - Grid sector - Up to 1 year (jobs)       101,114       114,496       160,205       191,606       205,031       223         Related work experience - Natural gas sector - 1 to 4 years (jobs)       213,832       186,439       165,531       160,160       133,948       116			3 750	1 011	561	/,Q/,	/,52	380
Related work experience - Coal sector - Up to 1 year (jobs)       13,581       4,133       2,742       2,352       2,093         Related work experience - Grid sector - 1 to 4 years (jobs)       190,960       215,406       300,246       357,715       381,302       414         Related work experience - Grid sector - 4 to 10 years (jobs)       125,143       141,060       196,473       233,905       249,141       270         Related work experience - Grid sector - None (jobs)       78,437       88,614       123,699       147,587       157,537       17         Related work experience - Grid sector - Over 10 years (jobs)       32,437       36,583       50,982       60,730       64,724       70         Related work experience - Grid sector - Up to 1 year (jobs)       101,114       114,496       160,205       191,606       205,031       223         Related work experience - Natural gas sector - 1 to 4 years (jobs)       213,832       186,439       165,531       160,160       133,948       110			3,137	1,011	301	474	432	300
Up to 1 year (jobs)   Related work experience - Grid sector - 1 to 4 years (jobs)   To 4 years (jobs)   To 4 years (jobs)   Related work experience - Grid sector - 4 to 10 years (jobs)   To 10 yea			13 581	4 133	2 742	2 352	2 093	1,712
Related work experience - Grid sector - 1 to 4 years (jobs)       190,960       215,406       300,246       357,715       381,302       414 to 4 years (jobs)         Related work experience - Grid sector - 4 to 10 years (jobs)       125,143       141,060       196,473       233,905       249,141       270 to 10 years (jobs)         Related work experience - Grid sector - None (jobs)       78,437       88,614       123,699       147,587       157,537       17 to 17			10,001	1,100		2,002	2,070	.,
to 4 years (jobs)  Related work experience - Grid sector - 4 to 10 years (jobs)  Related work experience - Grid sector - 78,437 88,614 123,699 147,587 157,537 17 None (jobs)  Related work experience - Grid sector - 32,437 36,583 50,982 60,730 64,724 70 Over 10 years (jobs)  Related work experience - Grid sector - 101,114 114,496 160,205 191,606 205,031 223 186,439 165,531 160,160 133,948 110 sector - 1 to 4 years (jobs)			190.960	215.406	300.246	357.715	381.302	414,005
Related work experience - Grid sector - 4 to 10 years (jobs)       125,143       141,060       196,473       233,905       249,141       270 to 10 years (jobs)         Related work experience - Grid sector - None (jobs)       78,437       88,614       123,699       147,587       157,537       17 to 17,537			.,,,,,,,	2.0, .00	000,210	00.7.10	00.,002	,000
to 10 years (jobs)  Related work experience - Grid sector - 78,437 88,614 123,699 147,587 157,537 17  None (jobs)  Related work experience - Grid sector - 32,437 36,583 50,982 60,730 64,724 70  Over 10 years (jobs)  Related work experience - Grid sector - 101,114 114,496 160,205 191,606 205,031 223  Related work experience - Natural gas sector - 1 to 4 years (jobs)			125,143	141,060	196,473	233,905	249,141	270,305
None (jobs)       32,437       36,583       50,982       60,730       64,724       70         Over 10 years (jobs)       Related work experience - Grid sector - Up to 1 year (jobs)       101,114       114,496       160,205       191,606       205,031       223         Related work experience - Natural gas sector - 1 to 4 years (jobs)       213,832       186,439       165,531       160,160       133,948       110								
Related work experience - Grid sector - Over 10 years (jobs)       32,437       36,583       50,982       60,730       64,724       70         Related work experience - Grid sector - Up to 1 year (jobs)       101,114       114,496       160,205       191,606       205,031       223         Related work experience - Natural gas sector - 1 to 4 years (jobs)       213,832       186,439       165,531       160,160       133,948       110	Related work experience - Grid sector -		78,437	88,614	123,699	147,587	157,537	171,276
Over 10 years (jobs)         101,114         114,496         160,205         191,606         205,031         223           Up to 1 year (jobs)         Related work experience - Natural gas sector - 1 to 4 years (jobs)         213,832         186,439         165,531         160,160         133,948         110								
Related work experience - Grid sector - Up to 1 year (jobs)       101,114       114,496       160,205       191,606       205,031       223         Related work experience - Natural gas sector - 1 to 4 years (jobs)       213,832       186,439       165,531       160,160       133,948       110			32,437	36,583	50,982	60,730	64,724	70,264
Up to 1 year (jobs)         213,832         186,439         165,531         160,160         133,948         110           sector - 1 to 4 years (jobs)         213,832         186,439         165,531         160,160         133,948         110								
Related work experience - Natural gas 213,832 186,439 165,531 160,160 133,948 110 sector - 1 to 4 years (jobs)			101,114	114,496	160,205	191,606	205,031	223,482
sector - 1 to 4 years (jobs)								
	-		213,832	186,439	165,531	160,160	133,948	110,276
Related work experience - Natural gas   142,303   124,309   110,468   107,416   90.030   74				101.000	112 / / 2	10=111	22.222	
			142,303	124,309	110,468	107,416	90,030	74,386
sector - 4 to 10 years (jobs)			00.007	70 / / 7	/ F 770	// 007	F/ 100	/ / 010
	•		83,936	73,667	65,770	64,307	54,109	44,918
sector - None (jobs)			20.717	00 / / 0	00.550	00.000	00.500	10.000
Related work experience - Natural gas 38,614 33,442 29,553 28,288 23,520 19 sector - Over 10 years (jobs)			38,614	33,442	29,553	28,288	23,520	19,223
			100 904	07701	79 010	75 201	42 N25	51,984
sector - Up to 1 year (jobs)			100,000	01,1 71	10,010	13,301	03,033	31,904
			18 7/.9	22 595	35 100	52 071	86 122	140,779
-1 to 4 years (jobs)			10,147	22,070	55,100	02,011	00,122	170,117
			12,163	14,655	22,761	33.760	55.826	91,239
- 4 to 10 years (jobs)			,.00	,555	22,101	30,.00	33,320	, 1,20
			6.331	7.641	11.886	17.657	29.243	47,865
- None (jobs)			-,	,	, , , , ,	,,,,,	,	,,,,,
			3,744	4,514	7,016	10,413	17,231	28,179
- Over 10 years (jobs)				•		•		•
			9,244	11,150	17,338	25,745	42,621	69,734
- Up to 1 year (jobs)	- Up to 1 year (jobs)							

Table 64: E+RE- scenario - IMPACTS - Jobs (continued)

The area	0000	0005	0000	0005	0070	00/5	0050
Item	2020	2025	2030	2035	2040	2045	2050
Related work experience - Oil sector - 1 to		301,062	264,533	227,572	164,527	124,608	87,357
4 years (jobs)							
Related work experience - Oil sector - 4 to		182,677	160,250	137,651	99,336	75,102	52,553
10 years (jobs)							
Related work experience - Oil sector -		106,461	93,826	80,890	58,777	44,741	31,613
None (jobs)							
Related work experience - Oil sector -		52,538	46,027	39,527	28,482	21,514	15,025
Over 10 years (jobs)							
Related work experience - Oil sector - Up		147,290	129,295	110,970	80,353	60,948	42,966
to 1 year (jobs)							
Related work experience - Solar PV sector		164,836	154,553	162,287	170,021	175,560	243,899
- 1 to 4 years (jobs)							
Related work experience - Solar PV sector		106,595	99,779	104,579	109,298	112,535	155,848
- 4 to 10 years (jobs)							
Related work experience - Solar PV sector		67,326	63,205	66,491	69,756	72,100	100,288
- None (jobs)							
Related work experience - Solar PV sector		30,190	27,879	28,713	29,563	30,069	41,092
- Over 10 years (jobs)				,	•	,	•
Related work experience - Solar PV sector		106,777	99,317	103,309	107,150	109,500	150,428
- Up to 1 year (jobs)		,	, -	,	. ,	,	,
Related work experience - Wind sector - 1		90,223	102,014	108,686	133,575	137,572	135,240
to 4 years (jobs)		, -,	, , ,	,	,-	- ,-	,
Related work experience - Wind sector - 4		59,654	67,786	72,306	88,884	91,979	90,653
to 10 years (jobs)		0,,00	0.7.00	. =,000	00,00.	7.,7	, 0,000
Related work experience - Wind sector -		34,760	39,050	41,406	50,677	51,776	50,561
None (jobs)		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	.,,,,,,,,	,	20,211	3.7.13	
Related work experience - Wind sector -		17,128	18,895	19,943	24,379	24,433	23,583
Over 10 years (jobs)		,0	1.57575	.,,,	,	,	20,000
Related work experience - Wind sector -		54,014	59,662	62,644	76,057	76,012	72,910
Up to 1 year (jobs)		0 .,0	07,002	02,0	.0,00.	. 5,5.1	,,
Wage income - Biomass (million \$2019)		4,239	5,523	9,090	9,523	9,894	12,891
Wage income - CO2 (million \$2019)		501	7,724	6,838	3,330	5,115	9,626
Wage income - Coal (million \$2019)		4,038	1,086	602	530	484	406
Wage income - Grid (million \$2019)		33,026	37,781	53,429	64,608	69,927	77,122
Wage income - Natural Gas (million \$2019)		38,383	33,906	30,513	29,843	25,281	21,066
Wage income - Nuclear (million \$2019)		36,363	4,432	7,055	10,731	18,208	30,550
Wage income - Nuclear (million \$2017)  Wage income - Oil (million \$2019)		52,011	46,299	40,361	29,537	22,646	16,058
Wage income - Oil (million \$2019) Wage income - Solar (million \$2019)				26,700	29,537	22,646	42,011
		26,383	25,065				
Wage income - Wind (million \$2019)		14,903	17,233	18,681	23,339	24,670	24,821

Table 65: E-B+ scenario - PILLAR 1: Efficiency/Electrification - Commercial

Item	2020	2025	2030	2035	2040	2045	2050
Commercial HVAC investment in 2020s -	0	1,046,837	1,158,815	0	0	0	0
Cumulative 5-yr (million \$2018)							
Sales of cooking units - Electric	32.5	36.5	41.3	53.8	71.2	81.9	85.6
Resistance (%)							
Sales of cooking units - Gas (%)	67.5	63.5	58.7	46.2	28.8	18.1	14.4
Sales of space heating units - Electric	2.95	11.9	15.9	27.6	48.1	65.9	74.2
Heat Pump (%)							
Sales of space heating units - Electric	7.91	8.18	8.72	10.5	13.8	16.4	17.6
Resistance (%)							
Sales of space heating units - Fossil (%)	3.94	3.79	3.71	2.91	1.53	0.589	0.302
Sales of space heating units - Gas Furnace	85.2	76.1	71.7	59	36.6	17.1	7.89
(%)							
Sales of water heating units - Electric	0.385	1.8	5.78	17.4	36.6	51.2	57.3
Heat Pump (%)							
Sales of water heating units - Electric	3.8	4.53	6.39	12	21.9	30.4	34.4
Resistance (%)							
Sales of water heating units - Gas Furnace	94.1	92	86.2	69	40.2	17.2	7.13
(%)							

## Table 65: E-B+ scenario - PILLAR 1: Efficiency/Electrification - Commercial (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Sales of water heating units - Other (%)	1.66	1.67	1.66	1.51	1.31	1.18	1.14

## Table 66: E-B+ scenario - PILLAR 1: Efficiency/Electrification - Electricity demand

Item	2020	2025	2030	2035	2040	2045	2050
Electricity distribution capital invested -		149	150	201	208	298	315
Cumulative 5-yr (billion \$2018)							

#### Table 67: E-B+ scenario - PILLAR 1: Efficiency/Electrification - Overview

Item	2020	2025	2030	2035	2040	2045	2050
Final energy use - Commercial (PJ)	9,015	8,958	8,853	8,731	8,513	8,263	8,058
Final energy use - Industry (PJ)	25,084	26,117	26,456	26,354	26,498	26,178	25,748
Final energy use - Residential (PJ)	11,788	11,126	10,656	10,151	9,457	8,609	7,786
Final energy use - Transportation (PJ)	28,030	26,603	24,463	22,703	21,315	19,677	17,739

## Table 68: E-B+ scenario - PILLAR 1: Efficiency/Electrification - Residential

Item	2020	2025	2030	2035	2040	2045	2050
Residential HVAC investment in 2020s vs.	0	252	303	0	0	0	0
REF - Cumulative 5-yr (billion \$2018)							
Sales of cooking units - Electric	61.2	62.2	65.8	75.1	88.1	96.2	99
Resistance (%)							
Sales of cooking units - Gas (%)	38.8	37.8	34.2	24.9	11.9	3.83	1.03
Sales of space heating units - Electric	14.6	21	25.3	37.6	58.4	75.1	82.4
Heat Pump (%)							
Sales of space heating units - Electric	20.3	24.4	23.2	19.9	14.3	10.3	8.67
Resistance (%)							
Sales of space heating units - Fossil (%)	9.95	14.5	13.8	11.4	7.66	5.01	4.02
Sales of space heating units - Gas (%)	55.2	40	37.7	31.1	19.6	9.59	4.95
Sales of water heating units - Electric	0	1.36	5.25	16.7	35.2	49.3	55.3
Heat Pump (%)							
Sales of water heating units - Electric	38.4	51.5	50.3	47	42.1	39.6	38.9
Resistance (%)							
Sales of water heating units - Gas Furnace	58	44.5	41.9	34	20.8	9.45	4.17
(%)							
Sales of water heating units - Other (%)	3.58	2.63	2.51	2.27	1.91	1.68	1.62

#### Table 69: E-B+ scenario - PILLAR 1: Efficiency/Electrification - Transportation

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Item	2020	2025	2030	2035	2040	2045	2050
Light-duty vehicle capital costs -	0	0	8,683	17,455	59,707	185,491	271,068
Cumulative 5-yr (million \$2018)							
Public EV charging plugs - DC Fast (1000	14.4	0	31.9	0	147	0	402
units)							
Public EV charging plugs - L2 (1000 units)	66.2	0	766	0	3,537	0	9,670
Vehicle sales - Heavy-duty - diesel (%)	97.4	96	91.3	79.8	58.2	32.1	13.7
Vehicle sales - Heavy-duty - EV (%)	0.498	1.45	4.11	10.8	23.6	39.5	51
Vehicle sales - Heavy-duty - gasoline (%)	0.228	0.236	0.239	0.225	0.179	0.109	0.051
Vehicle sales - Heavy-duty - hybrid (%)	0.083	0.094	0.104	0.107	0.092	0.06	0.03
Vehicle sales - Heavy-duty - hydrogen FC	0.332	0.969	2.74	7.17	15.7	26.3	34
(%)							
Vehicle sales - Heavy-duty - other (%)	1.5	1.28	1.46	1.95	2.25	1.96	1.14
Vehicle sales - Light-duty - diesel (%)	1.39	1.82	2.03	1.61	1.02	0.519	0.223
Vehicle sales - Light-duty - EV (%)	4.05	6.4	12.6	27.1	49.7	72.9	87.9
Vehicle sales - Light-duty - gasoline (%)	89.4	85.5	78.4	65.1	44.7	23.9	10.6
Vehicle sales - Light-duty - hybrid (%)	4.99	5.79	6.54	5.88	4.34	2.52	1.21
Vehicle sales - Light-duty - hydrogen FC	0.11	0.371	0.317	0.239	0.168	0.092	0.043
(%)							
Vehicle sales - Light-duty - other (%)	0.095	0.098	0.09	0.078	0.056	0.03	0.014

Table 69: E-B+ scenario - PILLAR 1: Efficiency/Electrification - Transportation (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Vehicle sales - Medium-duty - diesel (%)	64.8	62.2	57.7	49.4	35.6	19.6	8.37
Vehicle sales - Medium-duty - EV (%)	0.664	1.94	5.49	14.3	31.4	52.6	68
Vehicle sales - Medium-duty - gasoline (%)	33.8	34.7	34.7	31.9	24.4	14.2	6.33
Vehicle sales - Medium-duty - hybrid (%)	0.363	0.418	0.464	0.478	0.414	0.275	0.141
Vehicle sales - Medium-duty - hydrogen	0.166	0.485	1.37	3.58	7.86	13.2	17
FC (%)							
Vehicle sales - Medium-duty - other (%)	0.253	0.266	0.279	0.286	0.258	0.184	0.102

## Table 70: E-B+ scenario - PILLAR 2: Clean Electricity - Generating capacity

Item	2020	2025	2030	2035	2040	2045	2050
Capital invested - Biomass power plant	0	0.001	0.009	0	0.004	0	0.001
(billion \$2018)							
Capital invested - Biomass w/ccu allam	0	0	0	0.472	0.167	0.105	0.397
power plant (billion \$2018)							
Capital invested - Biomass w/ccu power	0	0	66	88.9	162	87	36
plant (billion \$2018)							
Installed - Biomass (MW)	10,005	9,140	7,852	6,129	4,704	3,387	2,483
Installed - Biomass w cc (MW)	0	0	9,955	23,417	47,848	60,968	66,453
Installed - Ccgt & gas steam (MW)	334,478	316,742	319,849	311,404	252,180	173,113	145,943
Installed - Ccgt w cc (MW)	0	0	45.2	4,211	7,837	13,514	25,116
Installed - Coal (MW)	215,959	52,040	132	129	105	90.8	47.3
Installed - Ct (MW)	146,590	139,058	120,032	114,037	120,046	165,945	194,030
Installed - Geothermal (MW)	2,392	2,395	2,420	2,417	2,420	2,426	2,446
Installed - Grid battery storage (MW)	0	890	1,834	10,282	32,471	86,943	123,183
Installed - Hydro (MW)	78,608	78,608	78,608	78,608	78,608	78,608	78,608
Installed - Nuclear (MW)	98,481	95,135	90,008	76,069	68,456	56,274	56,682
Installed - Offshore wind (MW)	29.3	1,005	4,962	13,173	33,174	90,306	207,350
Installed - Onshore wind (MW)	97,778	194,426	370,380	515,269	613,437	779,748	1,020,520
Installed - Other (MW)	68,061	57,088	55,241	53,843	52,087	51,085	49,630
Installed - Pumped hydro storage (MW)	0	19,418	19,418	19,418	19,418	19,418	19,418
Installed - Solar (MW)	70,675	179,815	366,335	537,546	692,444	901,187	1,239,800

# Table 71: E-B+ scenario - PILLAR 2: Clean Electricity - Generation

Item	2020	2025	2030	2035	2040	2045	2050
Biomass (TWh)	18.1	21.4	39.6	23.5	15.6	6.71	0.45
Biomass power plant (GWh)	3,557	827	10,411	3,819	2,256	1,124	63.6
Biomass w cc (TWh)	0	0	74.1	174	356	454	493
Biomass w/ccu allam power plant (GWh)	0	0	0	394	483	569	955
Biomass w/ccu power plant (GWh)	0	0	74,108	173,715	355,539	453,084	491,647
Coal (TWh)	980	280	0.461	0.452	0.368	0.318	0.166
Gas (TWh)	1,492	1,655	1,062	582	369	195	94.1
Gas w cc (TWh)	0	0	0.221	26.2	35.4	50.5	83
Geothermal (TWh)	14.5	14.5	14.3	14.2	13.6	13.6	13.5
Hydro (TWh)	300	312	295	294	301	292	293
Nuclear (TWh)	802	775	733	620	558	458	463
Offshore wind (TWh)	0.092	3.73	20.2	63.9	146	394	885
Onshore wind (TWh)	412	794	1,536	2,051	2,391	3,054	3,994
Solar pv (TWh)	146	389	786	1,140	1,453	1,902	2,546

## Table 72: E-B+ scenario - PILLAR 3: Clean fuels - Bioenergy

	•	0,					
Item	2020	2025	2030	2035	2040	2045	2050
Biomass input - BECCS-H2 (1000 tonnes)	0	0	0	161,322	336,108	552,980	641,173
Biomass input - Bio-FT w/ CC (1000	0	0	0	151	192	227	279
tonnes)							
Biomass input - Bio-SNG w/ CC (1000	0	0	38.5	22.5	15.4	14.5	11.9
tonnes)							
Biomass input - Biopower (1000 tonnes)	10,249	24,177	56,258	40,450	30,444	12,725	636

Table 72: E-B+ scenario - PILLAR 3: Clean fuels - Bioenergy (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Biomass input - Biopower w/ cc (1000	0	0	44,765	105,109	214,980	273,940	297,408
tonnes)							
Biomass input - Ethanol (1000 tonnes)	129,506	129,506	129,537	125,006	67,634	10,261	905
Biomass input - FT diesel (1000 tonnes)	0	0	0	107	122	124	99.1
Biomass input - Pyrolysis liquids (1000	0	0	0	212	316	1,714	123,715
tonnes)							
Biomass input - Pyrolysis liquids w/ cc	0	0	0	158	219	299	56,876
(1000 tonnes)							
Biomass input - SNG (1000 tonnes)	0	9.94	18.5	8.41	8.23	7.31	3.45
Number of facilities - Allam power w ccu	0	0	0	14	24	33	42
(quantity)							
Number of facilities - Beccs hydrogen	0	0	0	217	453	742	858
(quantity)							
Number of facilities - Diesel (quantity)	0	0	0	14	16	18	20
Number of facilities - Diesel ccu (quantity)	0	0	0	14	24	35	39
Number of facilities - Power (quantity)	0	12	16	16	17	17	17
Number of facilities - Power ccu	0	0	67	148	296	379	413
(quantity)							
Number of facilities - Pyrolysis (quantity)	0	0	0	14	16	19	178
Number of facilities - Pyrolysis ccu	0	0	0	14	24	35	119
(quantity)							
Number of facilities - Sng (quantity)	0	14	15	15	15	16	17
Number of facilities - Sng ccu (quantity)	0	0	14	14	14	16	19

#### Table 73: E-B+ scenario - PILLAR 4: CCUS - CO2 pipelines

Item	2020	2025	2030	2035	2040	2045	2050
All (km)		708	20,162	46,849	70,569	94,360	111,162
Cumulative investment - All (million \$2018)		3,706	73,928	133,899	180,805	209,109	224,560
Cumulative investment - Spur (million \$2018)		0	5,264	24,259	46,256	73,186	88,637
Cumulative investment - Trunk (million \$2018)		3,706	68,664	109,640	134,549	135,923	135,923
Spur (km)		0	5,992	25,136	45,143	68,934	85,735
Trunk (km)		708	14,170	21,713	25,426	25,426	25,426

## Table 74: E-B+ scenario - PILLAR 4: CCUS - CO2 storage

Item	2020	2025	2030	2035	2040	2045	2050
CO2 storage (MMT)	0	1.77	98.8	477	941	1,281	1,361
Injection wells (wells)	0	0	124	553	966	1,582	1,993
Resource characterization, appraisal, permitting costs (million \$2020)	0	1,500	12,421	19,310	19,310	19,310	19,310
Wells and facilities construction costs (million \$2020)	0	0	3,766	16,623	29,044	47,564	59,759

## Table 75: E-B+ scenario - PILLAR 6: Land sinks - Agriculture

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - Aggressive							-38,876
deployment - Corn-ethanol to energy							
grasses (1000 tCO2e/y)							
Carbon sink potential - Aggressive							-188,807
deployment - Cropland measures (1000							
tCO2e/y)							
Carbon sink potential - Aggressive							0
deployment - Cropland to woody energy							
crops (1000 tCO2e/y)							

Table 75: E-B+ scenario - PILLAR 6: Land sinks - Agriculture (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - Aggressive							0
deployment - Pasture to energy crops							
(1000 tC02e/y)							/ 70/
Carbon sink potential - Aggressive							-6,794
deployment - Permanent conservation							
cover (1000 tC02e/y)							-234,477
Carbon sink potential - Aggressive deployment - Total (1000 tC02e/y)							-234,411
Carbon sink potential - Moderate							-38,876
deployment - Corn-ethanol to energy							-30,010
grasses (1000 tC02e/y)  Carbon sink potential - Moderate							-98,674
deployment - Cropland measures (1000							-90,014
tCO2e/y)							
**							0
Carbon sink potential - Moderate							U
deployment - Cropland to woody energy							
crops (1000 tC02e/y)  Carbon sink potential - Moderate							0
							U
deployment - Pasture to energy crops (1000 tCO2e/y)							
Carbon sink potential - Moderate							-3,397
•							-3,391
deployment - Permanent conservation							
cover (1000 tC02e/y)  Carbon sink potential - Moderate							1/.0.0/.7
•							-140,947
deployment - Total (1000 tCO2e/y)							01 10 0
Land impacted for carbon sink -							21,138
Aggressive deployment - Corn-ethanol to							
energy grasses (1000 hectares)							010 710
Land impacted for carbon sink -							313,710
Aggressive deployment - Cropland							
measures (1000 hectares)							/ 007
Land impacted for carbon sink -							4,087
Aggressive deployment - Cropland to							
woody energy crops (1000 hectares)							47.777
Land impacted for carbon sink -							14,777
Aggressive deployment - Pasture to							
energy crops (1000 hectares)							44.740
Land impacted for carbon sink -							11,710
Aggressive deployment - Permanent							
conservation cover (1000 hectares)							
Land impacted for carbon sink -							365,421
Aggressive deployment - Total (1000							
hectares)							
Land impacted for carbon sink - Moderate							21,138
deployment - Corn-ethanol to energy							
grasses (1000 hectares)							
Land impacted for carbon sink - Moderate							66,454
deployment - Cropland measures (1000							
hectares)							
Land impacted for carbon sink - Moderate							4,087
deployment - Cropland to woody energy							
crops (1000 hectares)							
Land impacted for carbon sink - Moderate							14,777
deployment - Pasture to energy crops							
(1000 hectares)							
Land impacted for carbon sink - Moderate							5,855
deployment - Permanent conservation							
cover (1000 hectares)							
Land impacted for carbon sink - Moderate							112,310
deployment - Total (1000 hectares)						I	

Table 76: E-B+ scenario - PILLAR 6: Land sinks - Forests

Table 76: E-B+ scenario - PILLAR 6: Land s			0000	0005	00/0	00/5	0050
Item	2020	2025	2030	2035	2040	2045	2050
Carbon sink potential - High - Accelerate							-48,900
regeneration (1000 tCO2e/y)							
Carbon sink potential - High - All (not							1 505 000
counting overlap) (1000 tCO2e/y)							1,535,900
Carbon sink potential - High - Avoid							-84,000
deforestation (1000 tC02e/y)							
Carbon sink potential - High - Extend							-302,000
rotation length (1000 tCO2e/y)							
Carbon sink potential - High - Improve							-57,000
plantations (1000 tCO2e/y)							
Carbon sink potential - High - Increase							-
retention of HWP (1000 tCO2e/y)							300,000
Carbon sink potential - High - Increase							-60,000
trees outside forests (1000 tCO2e/y)							
Carbon sink potential - High - Reforest							-242,000
cropland (1000 tCO2e/y)							
Carbon sink potential - High - Reforest							-
pasture (1000 tCO2e/y)							264,000
Carbon sink potential - High - Restore							-178,000
productivity (1000 tCO2e/y)							
Carbon sink potential - Low - Accelerate							-24,500
regeneration (1000 tCO2e/y)							
Carbon sink potential - Low - All (not							_
counting overlap) (1000 tCO2e/y)							505,500
Carbon sink potential - Low - Avoid							-14,000
deforestation (1000 tC02e/y)							. 1,000
Carbon sink potential - Low - Extend							-116,000
rotation length (1000 tC02e/y)							110,000
Carbon sink potential - Low - Improve							-29,000
plantations (1000 tCO2e/y)							-27,000
Carbon sink potential - Low - Increase							-100,000
retention of HWP (1000 tCO2e/y)							-100,000
Carbon sink potential - Low - Increase							-21,000
							-21,000
trees outside forests (1000 tC02e/y)							101 000
Carbon sink potential - Low - Reforest							-121,000
cropland (1000 tCO2e/y)							00.000
Carbon sink potential - Low - Reforest							-20,000
pasture (1000 tC02e/y)							
Carbon sink potential - Low - Restore							-60,000
productivity (1000 tCO2e/y)							
Carbon sink potential - Mid - Accelerate							-36,700
regeneration (1000 tCO2e/y)							
Carbon sink potential - Mid - All (not							-
counting overlap) (1000 tCO2e/y)							1,020,200
Carbon sink potential - Mid - Avoid							-49,000
deforestation (1000 tCO2e/y)							
Carbon sink potential - Mid - Extend							-209,000
rotation length (1000 tCO2e/y)							
Carbon sink potential - Mid - Improve							-42,500
plantations (1000 tCO2e/y)							
Carbon sink potential - Mid - Increase							-
retention of HWP (1000 tCO2e/y)							200,000
Carbon sink potential - Mid - Increase							-40,500
trees outside forests (1000 tCO2e/y)							
Carbon sink potential - Mid - Reforest							-181,500
cropland (1000 tCO2e/y)							
Carbon sink potential - Mid - Reforest	+	+					-142,000
pasture (1000 tCO2e/y)							,
Carbon sink potential - Mid - Restore	+	-					-119,000
productivity (1000 tCO2e/y)							,000
p. 555501111 (1555 15520/ y)							

Table 76: E-B+ scenario - PILLAR 6: Land sinks - Forests (continued)

Item   Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink potential -							8,000
High - Accelerate regeneration (1000							
hectares)							
Land impacted for carbon sink potential -							11,373
High - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							154,000
High - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							21,000
High - Improve plantations (1000							
hectares)							
Land impacted for carbon sink potential -							0
High - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							5,700
High - Increase trees outside forests							
(1000 hectares)							
Land impacted for carbon sink potential -							16,000
High - Reforest cropland (1000 hectares)							7500
Land impacted for carbon sink potential -							7,500
High - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							59,000
High - Restore productivity (1000							
hectares)							000 570
Land impacted for carbon sink potential -							282,573
High - Total impacted (over 30 years)							
(1000 hectares)  Land impacted for carbon sink potential -							4,000
Low - Accelerate regeneration (1000							4,000
hectares)							
Land impacted for carbon sink potential -							10,677
Low - Avoid deforestation (over 30 years)							10,011
(1000 hectares)							
Land impacted for carbon sink potential -							59,000
Low - Extend rotation length (1000							37,000
hectares)							
Land impacted for carbon sink potential -							10,500
Low - Improve plantations (1000							10,000
hectares)							
Land impacted for carbon sink potential -							0
Low - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							3,000
Low - Increase trees outside forests							•
(1000 hectares)							
Land impacted for carbon sink potential -							8,000
Low - Reforest cropland (1000 hectares)							
Land impacted for carbon sink potential -							1,300
Low - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							35,700
Low - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							132,177
Low - Total impacted (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							6,000
Mid - Accelerate regeneration (1000							
hectares)		1			1		

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Table 76	6' F-K+ SCP	narın - PII	1 AK 6' 1 (	ına sınks -	Forests I	continued)

Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink potential -							11,025
Mid - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							106,500
Mid - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							15,800
Mid - Improve plantations (1000 hectares)							
Land impacted for carbon sink potential -							0
Mid - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							4,350
Mid - Increase trees outside forests (1000							
hectares)							
Land impacted for carbon sink potential -							12,000
Mid - Reforest cropland (1000 hectares)							
Land impacted for carbon sink potential -							9,400
Mid - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							71,900
Mid - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							236,975
Mid - Total impacted (over 30 years) (1000							
hectares)							

#### Table 77: E-B+ scenario - PILLAR 6: Land sinks - Total assumed land sink

Item	2020	2025	2030	2035	2040	2045	2050
Total assumed land sink (Gt CO2e/y)	-0.7	-0.73	-0.75	-0.78	-0.8	-0.83	-0.85

#### Table 78: E-B+ scenario - IMPACTS - Fossil fuel industries

Item	2020	2025	2030	2035	2040	2045	2050
Natural gas consumption - Annual (tcf)		22,870	18,067	14,168	11,671	9,024	6,935
Natural gas consumption - Cumulative (tcf)		0	0	0	0	0	468,505
Natural gas production - Annual (tcf)		35,855	32,336	26,667	22,472	19,164	16,450
Natural gas production - Cumulative (tcf)		0	0	0	0	0	830,136
Oil consumption - Annual (million bbls)		5,987	5,545	5,112	4,688	3,810	2,612
Oil consumption - Cumulative (million bbls)		0	0	0	0	0	152,170
Oil production - Annual (million bbls)		5,198	5,216	5,209	5,074	4,856	3,195
Oil production - Cumulative (million bbls)		0	0	0	0	0	151,760

## Table 79: E-B+ scenario - IMPACTS - Health

Item	2020	2025	2030	2035	2040	2045	2050
Monetary damages from air pollution - Coal (million 2019\$)		22,661	29.5	28.3	24.2	16.6	1.24
Monetary damages from air pollution - Natural Gas (million 2019\$)		12,872	7,230	4,270	3,134	1,787	737
Monetary damages from air pollution - Transportation (million 2019\$)		104,258	107,043	105,711	96,553	77,882	54,050
Premature deaths from air pollution - Coal (deaths)		2,559	3.33	3.2	2.73	1.88	0.14
Premature deaths from air pollution - Natural Gas (deaths)		1,453	816	482	354	202	83.2
Premature deaths from air pollution - Transportation (deaths)		11,726	12,039	11,890	10,859	8,759	6,079

Table 80: E-B+ scenario - IMPACTS - Jobs

Table 80: E-B+ scenario - IMPACTS - Jobs							
Item	2020	2025	2030	2035	2040	2045	2050
By economic sector - Agriculture (jobs)		32,174	42,288	59,071	62,967	64,464	78,944
By economic sector - Construction (jobs)		581,252	743,826	811,795	829,966	994,703	1,303,457
By economic sector - Manufacturing (jobs)		645,629	844,956	761,043	623,121	736,461	965,790
By economic sector - Mining (jobs)		457,822	349,136	269,459	206,374	156,952	92,010
By economic sector - Other (jobs)		56,622	81,960	98,073	110,779	143,437	220,993
By economic sector - Pipeline (jobs)		46,238	52,377	44,732	34,806	32,366	31,958
By economic sector - Professional (jobs)		330,225	397,849	470,432	536,936	663,638	863,741
By economic sector - Trade (jobs)		298,942	314,042	335,172	352,941	407,909	513,328
By economic sector - Utilities (jobs)		468,318	554,761	621,122	646,604	823,091	1,082,332
By education level - All sectors -		877,870	1,035,603	1,065,286	1,046,053	1,250,728	1,623,219
Associates degree or some college (jobs)		011,010	1,000,000	1,000,200	1,040,000	1,200,120	1,020,217
By education level - All sectors -		644,751	720,709	732,434	720,161	841,870	1,058,087
Bachelors degree (jobs)		044,131	120,107	102,404	120,101	041,010	1,000,001
By education level - All sectors - Doctoral		21,373	23,773	25,558	26,898	31,776	40,088
degree (jobs)		21,010	20,110	20,000	20,070	01,110	40,000
By education level - All sectors - High		1,221,443	1,432,217	1,472,040	1,434,199	1,689,837	2,167,284
school diploma or less (jobs)		1,221,440	1,402,211	1,412,040	1,404,177	1,007,001	2,101,204
By education level - All sectors - Masters		151,786	168,894	175,582	177,183	208,810	263,874
or professional degree (jobs)		131,700	100,074	113,362	111,103	200,010	203,014
By education level - Biomass sector -		16,090	19,588	35,004	52,412	68,012	86,972
Associates degree or some college (jobs)		10,090	19,500	35,004	52,412	00,012	00,912
By education level - Biomass sector -		14,783	17,693	32,769	53,142	71,318	90,755
Bachelors degree (jobs)		14,103	11,093	32,109	55,142	11,310	90,755
By education level - Biomass sector -		726	921	1 070	2 070	/ FEO	F 010
		726	921	1,873	3,279	4,550	5,818
Doctoral degree (jobs)		10111	F0 / F /	00.001	11/ 000	100.010	1// / 50
By education level - Biomass sector - High		48,466	59,456	90,901	114,020	132,819	166,652
school diploma or less (jobs)		/ 070	F 000	0.007	15.070	00.750	07.77
By education level - Biomass sector -		4,070	5,008	9,386	15,369	20,750	26,476
Masters or professional degree (jobs)		0.575	00 001	00.700	15.070	00.07.0	/ 5 50/
By education level - CO2 sector -		2,575	39,321	33,632	15,862	23,943	45,506
Associates degree or some college (jobs)		1.007	10 (0)	1/ /00	0 (1)	10.007	00117
By education level - CO2 sector -		1,286	18,604	16,689	8,614	12,834	22,147
Bachelors degree (jobs)		0/	007	007	005	0.01	/ 07
By education level - CO2 sector - Doctoral		26	337	337	205	301	437
degree (jobs)		0.101	/ 0 501	/170/	10.777	00000	54.004
By education level - CO2 sector - High		3,181	48,591	41,726	19,777	29,903	56,834
school diploma or less (jobs)		207		0.740	4.070	0.007	, , , , ,
By education level - CO2 sector - Masters		287	4,086	3,719	1,970	2,924	4,900
or professional degree (jobs)							
By education level - Coal sector -		21,668	5,811	2,994	2,616	2,352	2,073
Associates degree or some college (jobs)							
By education level - Coal sector -		14,117	3,542	1,704	1,540	1,431	1,302
Bachelors degree (jobs)							
By education level - Coal sector - Doctoral		517	128	51.8	48.5	46.6	43.7
degree (jobs)							
By education level - Coal sector - High		30,641	9,079	5,799	4,970	4,379	3,778
school diploma or less (jobs)							
By education level - Coal sector - Masters		3,469	866	372	338	317	290
or professional degree (jobs)							
By education level - Grid sector -		174,294	229,691	295,982	334,579	458,099	617,313
Associates degree or some college (jobs)							
By education level - Grid sector -		99,880	130,767	167,424	188,060	255,884	342,705
Bachelors degree (jobs)							
By education level - Grid sector - Doctoral		2,880	3,707	4,666	5,153	6,893	9,076
degree (jobs)							
By education level - Grid sector - High		222,876	295,197	382,304	434,320	597,625	809,331
school diploma or less (jobs)				,	,- ,	,	,
By education level - Grid sector - Masters		25,133	32,802	41,868	46,886	63,605	84,934
or professional degree (jobs)					-		
. 5 0,		I	1			1	1

Table 80: E-B+ scenario - IMPACTS - Jobs (continued)

Item Idble 80: E-B+ scenario - IMPACIS - Jobs (d	2020	2025	2030	2035	2040	2045	2050
By education level - Natural gas sector -		176,526	133,696	100,826	88,327	70,666	53,110
Associates degree or some college (jobs)		,			,	,	
By education level - Natural gas sector -		122,977	91,161	66,596	55,978	43,583	31,999
Bachelors degree (jobs)							
By education level - Natural gas sector -		4,086	2,999	2,155	1,778	1,363	982
Doctoral degree (jobs)							
By education level - Natural gas sector -		216,010	163,684	122,940	106,082	84,259	63,187
High school diploma or less (jobs)							
By education level - Natural gas sector -		30,123	22,202	16,129	13,537	10,512	7,683
Masters or professional degree (jobs)							
By education level - Nuclear sector -		13,672	13,246	13,299	10,140	9,242	12,046
Associates degree or some college (jobs)		47.	11.001		10.00		40.000
By education level - Nuclear sector -		14,779	14,284	14,307	10,884	9,897	12,870
Bachelors degree (jobs)			(00	(10		100	
By education level - Nuclear sector -		648	622	619	468	423	547
Doctoral degree (jobs)		17.070	1/ / 07	1/ 505	10 / 0 /	11 500	151/5
By education level - Nuclear sector - High		16,972	16,487	16,595	12,686	11,592	15,145
school diploma or less (jobs)		, , , , , ,	0.040	0.050	0.001	0.771	0 / 55
By education level - Nuclear sector -		4,000	3,860	3,859	2,931	2,661	3,455
Masters or professional degree (jobs)		007.07	10 / 707	1// 011	1/7070	105.000	70.57.0
By education level - Oil sector - Associates		206,247	184,787	166,011	147,370	125,808	78,548
degree or some college (jobs)		010 707	187,569	1/5//0	144,398	121,155	7/, 001
By education level - Oil sector - Bachelors		212,707	187,569	165,669	144,398	121,155	74,021
degree (jobs)  By education level - Oil sector - Doctoral		6,871	6,092	5,410	4,741	4,004	2,456
degree (jobs)		0,011	0,092	5,410	4,741	4,004	2,436
By education level - Oil sector - High		318,839	287,355	259,740	232,096	199,165	125,368
school diploma or less (jobs)		310,039	201,333	259,740	232,096	199,165	125,366
By education level - Oil sector - Masters or		48,235	42,333	37,202	32,247	26,927	16,337
professional degree (jobs)		40,233	42,333	31,202	32,241	20,721	10,551
By education level - Solar PV sector -		169,748	242,412	231,753	219,532	266,559	420,666
Associates degree or some college (jobs)		107,140	242,412	231,133	217,002	200,339	420,000
By education level - Solar PV sector -		98,823	142,974	137,113	130,627	160,501	256,096
Bachelors degree (jobs)		70,020	172,717	101,110	100,021	100,001	200,070
By education level - Solar PV sector -		3,138	4,497	4,741	4,899	6,051	9,716
Doctoral degree (jobs)		0,100	7,771	7,171	4,077	0,001	7,110
By education level - Solar PV sector - High		238,365	337,753	319,518	298,959	359,451	561,710
school diploma or less (jobs)		200,000	33.7.33	0.770.0	270,707	007, 101	00.,
By education level - Solar PV sector -		21,281	30,826	30,763	30,417	37,639	60,506
Masters or professional degree (jobs)		,	00,020	337.33	33,	0.7007	00,000
By education level - Wind sector -		97,050	167,051	185,786	175,213	226,046	306,985
Associates degree or some college (jobs)		,	, , , ,		-,	.,.	,
By education level - Wind sector -		65,399	114,114	130,163	126,918	165,267	226,191
Bachelors degree (jobs)		,	,	•	,		,
By education level - Wind sector -		2,481	4,470	5,703	6,327	8,146	11,013
Doctoral degree (jobs)					-		
By education level - Wind sector - High		126,093	214,615	232,517	211,290	270,645	365,280
school diploma or less (jobs)				,	•	,	,
By education level - Wind sector - Masters		15,188	26,911	32,282	33,487	43,476	59,293
or professional degree (jobs)							
By resource sector - Biomass (jobs)		84,135	102,666	169,933	238,222	297,448	376,673
By resource sector - CO2 (jobs)		7,356	110,939	96,104	46,428	69,905	129,825
By resource sector - Coal (jobs)		70,411	19,426	10,921	9,514	8,525	7,486
By resource sector - Grid (jobs)		525,062	692,164	892,244	1,008,997	1,382,106	1,863,359
By resource sector - Natural Gas (jobs)		549,721	413,742	308,646	265,702	210,383	156,961
By resource sector - Nuclear (jobs)		50,072	48,499	48,680	37,109	33,816	44,064
By resource sector - Oil (jobs)		792,899	708,136	634,032	560,853	477,059	296,731
By resource sector - Solar (jobs)		531,355	758,462	723,888	684,434	830,201	1,308,693
By resource sector - Wind (jobs)		306,212	527,160	586,451	553,235	713,579	968,761
Median wages - Annual - Biomass (\$2019		51,941	53,608	57,044	60,729	63,277	64,544

Table 80: E-B+ scenario - IMPACTS - Jobs (continued)

Table 80: E-B+ scenario - IMPACTS - Jobs (			0000	0005	00/0	00/5	0050
Item Median wages - Annual - CO2 (\$2019 per	2020	2025 62,479	2030 62,742	2035 64,197	2040 66,395	2045 67,287	2050 66,879
job)							
Median wages - Annual - Coal (\$2019 per job)		60,506	59,389	55,630	56,524	57,468	58,461
Median wages - Annual - Grid (\$2019 per job)		62,539	63,375	64,248	65,159	66,110	67,102
Median wages - Annual - Natural Gas (\$2019 per job)		66,255	67,115	67,811	68,308	69,006	69,777
Median wages - Annual - Nuclear (\$2019 per job)		71,486	73,188	74,974	76,846	78,808	80,864
Median wages - Annual - Oil (\$2019 per job)		65,828	66,678	67,513	68,322	69,194	69,924
Median wages - Annual - Solar (\$2019 per job)		55,404	56,085	57,168	58,323	59,248	60,236
Median wages - Annual - Wind (\$2019 per iob)		58,080	59,100	60,914	63,241	64,158	65,104
On-Site or In-Plant Training - Biomass sector - 1 to 4 years (jobs)		8,490	10,509	18,437	26,783	34,224	43,693
On-Site or In-Plant Training - Biomass sector - 4 to 10 years (jobs)		2,644	3,234	6,114	9,424	12,463	16,088
On-Site or In-Plant Training - Biomass sector - None (jobs)		13,603	16,961	29,104	42,115	53,377	67,470
On-Site or In-Plant Training - Biomass sector - Over 10 years (jobs)		586	671	1,075	1,486	1,863	2,403
On-Site or In-Plant Training - Biomass sector - Up to 1 year (jobs)		58,813	71,291	115,204	158,414	195,521	247,019
On-Site or In-Plant Training - CO2 sector - 1 to 4 years (jobs)		1,357	20,707	17,740	8,386	12,664	24,047
On-Site or In-Plant Training - CO2 sector - 4 to 10 years (jobs)		668	10,330	8,747	4,038	6,119	11,913
On-Site or In-Plant Training - CO2 sector - None (jobs)		1,126	16,898	14,719	7,184	10,807	19,874
On-Site or In-Plant Training - CO2 sector - Over 10 years (jobs)		79.4	1,229	1,037	475	720	1,408
On-Site or In-Plant Training - CO2 sector - Up to 1 year (jobs)		4,125	61,774	53,861	26,345	39,594	72,583
On-Site or In-Plant Training - Coal sector - 1 to 4 years (jobs)		10,991	3,009	1,599	1,387	1,238	1,082
On-Site or In-Plant Training - Coal sector - 4 to 10 years (jobs)		4,217	1,054	430	373	332	289
On-Site or In-Plant Training - Coal sector - None (jobs)		10,380	2,741	1,420	1,262	1,154	1,034
On-Site or In-Plant Training - Coal sector - Over 10 years (jobs)		508	124	47.4	42.2	38.6	34.7
On-Site or In-Plant Training - Coal sector - Up to 1 year (jobs)		44,315	12,498	7,424	6,450	5,763	5,046
On-Site or In-Plant Training - Grid sector - 1 to 4 years (jobs)		90,688	119,702	154,493	174,915	239,868	323,746
On-Site or In-Plant Training - Grid sector -		39,829	52,560	67,820	76,766	105,246	142,011
4 to 10 years (jobs) On-Site or In-Plant Training - Grid sector -		79,958	105,169	135,271	152,642	208,641	280,703
None (jobs) On-Site or In-Plant Training - Grid sector -		5,163	6,809	8,781	9,933	13,610	18,352
Over 10 years (jobs) On-Site or In-Plant Training - Grid sector -		309,424	407,925	525,879	594,741	814,741	1,098,547
Up to 1 year (jobs) On-Site or In-Plant Training - Natural gas		92,637	70,073	52,690	45,840	36,543	27,423
sector - 1 to 4 years (jobs)  On-Site or In-Plant Training - Natural gas sector - 4 to 10 years (jobs)		41,127	31,357	23,855	21,069	16,949	12,811

Table 80: E-B+ scenario - IMPACTS - Jobs (continued)

Table 80: E-B+ scenario - IMPACTS - Jobs	(continued	•					
Item	2020	2025	2030	2035	2040	2045	2050
On-Site or In-Plant Training - Natural gas		87,524	65,527	48,636	41,762	32,988	24,543
sector - None (jobs)							
On-Site or In-Plant Training - Natural gas		4,878	3,747	2,877	2,572	2,083	1,580
sector - Over 10 years (jobs)							
On-Site or In-Plant Training - Natural gas		323,555	243,038	180,589	154,459	121,820	90,603
sector - Up to 1 year (jobs)							
On-Site or In-Plant Training - Nuclear		7,389	7,165	7,200	5,495	5,013	6,540
sector - 1 to 4 years (jobs)		,	,	,	-,	.,	.,-
On-Site or In-Plant Training - Nuclear		2,674	2,593	2,605	1,987	1,813	2,364
sector - 4 to 10 years (jobs)		_,-,-	_,	_,,,,,	.,	.,	_,
On-Site or In-Plant Training - Nuclear		8,963	8,673	8,697	6,623	6,030	7,850
sector - None (jobs)		0,700	0,0.0	0,071	0,020	0,000	.,000
On-Site or In-Plant Training - Nuclear		251	243	244	186	169	220
sector - Over 10 years (jobs)		201	240	244	100	107	220
On-Site or In-Plant Training - Nuclear		30,796	29,826	29,935	22,818	20,791	27,089
sector - Up to 1 year (jobs)		30,170	27,020	27,733	22,010	20,171	21,007
On-Site or In-Plant Training - Oil sector - 1		116,834	104,736	94,131	83,578	71,372	44,546
_		110,034	104,736	94,131	63,576	11,312	44,546
to 4 years (jobs)		/1100	07.015	00.700	00.17/	05.055	1/ 0/7
On-Site or In-Plant Training - Oil sector -		41,199	37,215	33,709	30,174	25,955	16,347
4 to 10 years (jobs)		107 ( (0	440.457	100 500	00.017	7/ //0	45000
On-Site or In-Plant Training - Oil sector -		127,669	113,154	100,523	88,217	74,442	45,938
None (jobs)							
On-Site or In-Plant Training - Oil sector -		4,563	4,197	3,868	3,520	3,075	1,964
Over 10 years (jobs)							
On-Site or In-Plant Training - Oil sector -		502,634	448,835	401,801	355,364	302,214	187,936
Up to 1 year (jobs)							
On-Site or In-Plant Training - Solar PV		85,449	121,254	115,992	109,769	132,480	207,850
sector - 1 to 4 years (jobs)							
On-Site or In-Plant Training - Solar PV		30,692	42,579	42,649	41,929	50,048	77,768
sector - 4 to 10 years (jobs)							
On-Site or In-Plant Training - Solar PV		90,794	129,859	124,146	117,619	142,962	225,796
sector - None (jobs)		•			•	,	•
On-Site or In-Plant Training - Solar PV		4,264	6,037	5,821	5,548	6,693	10,498
sector - Over 10 years (jobs)		, -	-,		.,.	-,-	-, -
On-Site or In-Plant Training - Solar PV		320,155	458,733	435,280	409,568	498,019	786,781
sector - Up to 1 year (jobs)		0207.00	.00,.00	.00,200	.07,000	.,,,,,,,	. 557. 5.
On-Site or In-Plant Training - Total jobs - 1		461,970	539,816	554,403	543,290	645,189	829,946
to 4 years (jobs)		101,710	007,010	001,100	0 10,270	0 10/107	027,710
On-Site or In-Plant Training - Total jobs - 4		179,918	210,123	220,728	221,617	264,025	339,327
to 10 years (jobs)		11 2,710	210,120	220,120	221,011	204,020	007,021
On-Site or In-Plant Training - Total jobs -		473,170	550,697	564,986	554,651	656,003	843,945
None (jobs)		413,110	330,071	304,700	334,031	030,003	043,743
On-Site or In-Plant Training - Total jobs -		22,749	27,290	28,542	28,393	34,180	44,452
Over 10 years (jobs)		22,147	21,290	20,542	20,373	34,160	44,452
On-Site or In-Plant Training - Total jobs -		1,779,416	2,053,268	2,102,239	2,056,543	2,423,624	3,094,883
-		1,119,410	2,055,266	2,102,239	2,006,043	2,423,024	3,094,003
Up to 1 year (jobs) On-Site or In-Plant Training - Wind sector		/ 0 10 /	00.770	00 100	07107	111 707	151 010
		48,136	82,662	92,122	87,136	111,787	151,018
- 1 to 4 years (jobs)		1/ 0//	00.000	07.700	05.057	/ F 100	F0.707
On-Site or In-Plant Training - Wind sector		16,866	29,202	34,798	35,857	45,100	59,736
- 4 to 10 years (jobs)		50.450	04 745	400 / 74	07.007	105 (00	170 700
On-Site or In-Plant Training - Wind sector		53,152	91,715	102,471	97,226	125,603	170,738
- None (jobs)							
On-Site or In-Plant Training - Wind sector		2,457	4,233	4,792	4,631	5,928	7,992
- Over 10 years (jobs)							
On-Site or In-Plant Training - Wind sector		185,600	319,348	352,268	328,385	425,161	579,277
- Up to 1 year (jobs)							
On-the-Job Training - All sectors - 1 to 4		589,423	689,612	708,945	695,721	827,749	1,066,650
years (jobs)							
On-the-Job Training - All sectors - 4 to 10		169,241	200,282	212,181	214,269	257,137	333,548
years (jobs)							

Table 80: E-B+ scenario - IMPACTS - Jobs (continued)

2020						2050
						280,333
	29,331	34,763	34,648	32,822	38,443	49,510
	1,967,372	2,271,676	2,325,707	2,275,223	2,680,656	3,422,512
	9,286	11,590	21,134	31,640	41,117	52,685
	2,125	2,696	5,302	8,200	10,872	14,064
	5,236	6,088	10,105	14,671	18,626	23,562
	600	692	1,143	1,614	2,049	2,648
	66,889	81,601	132,250	182,098	224,785	283,714
	1,805	27,584	23,594	11,121	16,798	31,982
	672	10,456	8,805	4,017	6,099	12,021
	346	5,127	4,521	2,256	3,387	6,100
	73.6	1,117	968	466	705	1,324
	4,460	66,655	58,216	28,568	42,915	78,399
	13,959	3,773	1,915	1,664	1,488	1,303
	4,129	1,040	423	364	321	278
	3,482	920	508	449	409	364
	473	131	70.7	63.5	58.8	53.4
	48.368	13.561	8.004	6.974		5,487
						420,005
						143,370
						90,622
						15,072
						1,194,291
	121,834	92,143	69,337	60,467		36,243
	39,144	29,923	22,892	20,410	16,507	12,526
	28,684	21,298	15,625	13,203	10,325	7,627
	5,223	3,920	2,912	2,479	1,953	1,456
	354,836	266,458	197,880	169,143	133,336	99,109
	9,694	9,400	9,445	7,207	6,574	8,575
	2,338	2,267	2,278	1,739	1,586	2,070
	2020 2020	2020 2025 161,856 29,331 1,967,372 9,286 2,125 5,236 600 66,889 1,805 672 346 73.6 4,460 13,959 4,129 3,482 473 48,368 117,947 40,085 25,697 4,208 337,124 121,834 39,144 28,684 5,223 354,836	2020         2025         2030           161,856         184,861           29,331         34,763           1,967,372         2,271,676           9,286         11,590           2,125         2,696           5,236         6,088           600         692           66,889         81,601           1,805         27,584           672         10,456           346         5,127           73.6         1,117           4,460         66,655           13,959         3,773           4,129         1,040           3,482         920           473         131           48,368         13,561           117,947         155,605           40,085         52,932           25,697         33,828           4,208         5,558           337,124         444,243           121,834         92,143           39,144         29,923           28,684         21,298           5,223         3,920           354,836         266,458           9,694         9,400	2020         2025         2030         2035           161,856         184,861         189,418           29,331         34,763         34,648           1,967,372         2,271,676         2,325,707           9,286         11,590         21,134           2,125         2,696         5,302           5,236         6,088         10,105           600         692         1,143           66,889         81,601         132,250           1,805         27,584         23,594           672         10,456         8,805           346         5,127         4,521           73.6         1,117         968           4,460         66,655         58,216           13,959         3,773         1,915           4,129         1,040         423           3,482         920         508           473         131         70.7           48,368         13,561         8,004           117,947         155,605         200,730           40,085         52,932         68,343           25,697         33,828         43,548           4,208         5,558	161,856         184,861         189,418         186,460           29,331         34,763         34,648         32,822           1,967,372         2,271,676         2,325,707         2,275,223           9,286         11,590         21,134         31,640           2,125         2,696         5,302         8,200           5,236         6,088         10,105         14,671           600         692         1,143         1,614           66,889         81,601         132,250         182,098           1,805         27,584         23,594         11,121           672         10,456         8,805         4,017           346         5,127         4,521         2,256           73.6         1,117         968         466           4,460         66,655         58,216         28,568           13,959         3,773         1,915         1,664           4,129         1,040         423         364           3,482         920         508         449           473         131         70.7         63.5           48,368         13,561         8,004         6,974           117,9	2020         2025         2030         2035         2040         2045           161,856         184,861         189,418         186,460         219,037           29,331         34,763         34,648         32,822         38,443           1,967,372         2,271,676         2,325,707         2,275,223         2,680,656           9,286         11,590         21,134         31,640         41,117           2,125         2,696         5,302         8,200         10,872           5,236         6,088         10,105         14,671         18,626           600         692         1,143         1,614         2,049           66,889         81,601         132,250         182,098         224,785           1,805         27,584         23,594         11,121         16,798           672         10,456         8,805         4,017         6,099           346         5,127         4,521         2,256         3,387           73.6         1,117         968         466         705           4,460         66,655         58,216         28,568         42,915           13,959         3,773         1,915         1,664

Table 80: E-B+ scenario - IMPACTS - Jobs (continued)

Table 80: E-B+ scenario - IMPACTS - Jobs	•	-					
Item	2020	2025	2030	2035	2040	2045	2050
On-the-Job Training - Nuclear sector -		3,363	3,256	3,267	2,489	2,267	2,953
None (jobs)		501	50/	500	000	05/	
On-the-Job Training - Nuclear sector - Over 10 years (jobs)		521	506	508	388	354	463
On-the-Job Training - Nuclear sector - Up		34,156	33,071	33,182	25,286	23,033	30,003
to 1 year (jobs)		34,130	33,071	33,162	25,200	23,033	30,003
On-the-Job Training - Oil sector - 1 to 4		144,508	129,357	116,100	102,947	87,812	54,740
years (jobs)		144,500	127,001	110,100	102,741	01,012	04,140
On-the-Job Training - Oil sector - 4 to 10		34,136	30,881	28,017	25,127	21,637	13,669
years (jobs)					•		
On-the-Job Training - Oil sector - None		48,246	42,447	37,430	32,611	27,298	16,745
(jobs)							
On-the-Job Training - Oil sector - Over 10		7,740	6,934	6,229	5,530	4,722	2,949
years (jobs)							
On-the-Job Training - Oil sector - Up to 1		558,269	498,517	446,256	394,637	335,590	208,628
year (jobs)		100 (01	150.007	1/7500	100.077	1/0.01/	0// 70/
On-the-Job Training - Solar PV sector - 1		108,601	153,926	147,599	139,966	168,816	264,706
to 4 years (jobs) On-the-Job Training - Solar PV sector - 4		30,386	42,000	42,390	41,928	49,971	77,550
to 10 years (jobs)		30,360	42,000	42,370	41,720	47,711	11,550
On-the-Job Training - Solar PV sector -		30,022	42,886	41,648	40,051	48,782	77,239
None (jobs)		00,022	12,000	11,010	10,001	10,102	11,20
On-the-Job Training - Solar PV sector -		6,771	9,591	8,900	8,163	9,762	15,163
Over 10 years (jobs)		·			•	,	,
On-the-Job Training - Solar PV sector - Up		355,575	510,059	483,351	454,325	552,869	874,034
to 1 year (jobs)							
On-the-Job Training - Wind sector - 1 to 4		61,790	106,235	119,093	113,557	145,537	196,411
years (jobs)							
On-the-Job Training - Wind sector - 4 to		16,225	28,087	33,731	35,078	43,954	57,999
10 years (jobs)		17701	00.010	007//	01.577	10.150	FF 100
On-the-Job Training - Wind sector - None		16,781	29,012	32,766	31,544	40,650	55,122
(jobs) On-the-Job Training - Wind sector - Over		3,721	6,314	6,739	5,986	7,681	10,383
10 years (jobs)		3,121	0,314	0,139	5,700	1,001	10,363
On-the-Job Training - Wind sector - Up to		207,695	357,511	394,123	367,069	475,758	648,847
1 year (jobs)		201,070	001,011	074,120	001,007	410,100	040,041
Related work experience - All sectors - 1		1,060,057	1,218,725	1,250,089	1,228,283	1,448,962	1,846,594
to 4 years (jobs)							
Related work experience - All sectors - 4		675,711	780,852	800,254	786,233	930,754	1,190,427
to 10 years (jobs)							
Related work experience - All sectors -		412,411	480,978	496,642	488,883	578,837	743,989
None (jobs)							
Related work experience - All sectors -		187,857	216,469	218,450	211,126	249,017	317,722
Over 10 years (jobs)		F01107	(0/170	705 / / 5	(00.0/0	015 / 50	1.050.000
Related work experience - All sectors - Up		581,186	684,172	705,465	689,969	815,452	1,053,820
to 1 year (jobs)  Related work experience - Biomass sector		25,157	31,622	EE 01E	80,869	103,220	130,658
- 1 to 4 years (jobs)		25,151	31,022	55,215	00,009	103,220	130,636
Related work experience - Biomass sector		13,109	15,926	29,001	44,841	59,014	75,329
- 4 to 10 years (jobs)		10,107	10,720	27,001	1 1,0 11	37,011	10,027
Related work experience - Biomass sector		14,242	17,332	27,557	36,705	44,377	55,834
- None (jobs)		,	,	,		,-	,
Related work experience - Biomass sector		3,603	4,264	7,554	11,581	15,231	19,534
- Over 10 years (jobs)							
Related work experience - Biomass sector		28,024	33,522	50,606	64,227	75,606	95,317
- Up to 1 year (jobs)						_	
Related work experience - CO2 sector - 1		2,631	39,497	34,328	16,699	25,105	46,239
to 4 years (jobs)		4.000	07 / 70	00.7/0	44 / 0 /	47.04 /	00.010
Related work experience - CO2 sector - 4		1,820	27,472	23,749	11,436	17,216	32,042
to 10 years (jobs)							

Table 80: E-B+ scenario - IMPACTS - Jobs (continued)

Table 80: E-B+ scenario - IMPACTS - Jobs (	2020	2025	2030	2035	2040	2045	2050
Related work experience - CO2 sector -	2020	1,137	17,299	14,848	7,050	10,633	20,081
None (jobs)		1,131	11,277	14,046	1,000	10,633	20,001
Related work experience - CO2 sector -		448	6,652	5,838	2,892	4,338	7,842
Over 10 years (jobs)		440	0,032	3,030	2,072	4,550	1,042
Related work experience - CO2 sector -		1,320	20,019	17,339	8,351	12,612	23,622
Up to 1 year (jobs)		1,020	20,017	11,007	0,001	12,012	20,022
Related work experience - Coal sector - 1		26,712	7,377	4,177	3,631	3,246	2,843
to 4 years (jobs)		20,1.12	.,6	.,	0,001	0,2 10	2,0 .0
Related work experience - Coal sector - 4		15,695	4,109	2,053	1,810	1,642	1,460
to 10 years (jobs)		-,-	, -	,	,	, -	,
Related work experience - Coal sector -		9,564	2,569	1,358	1,183	1,060	931
None (jobs)					·		
Related work experience - Coal sector -		3,962	1,074	566	501	457	409
Over 10 years (jobs)							
Related work experience - Coal sector -		14,478	4,297	2,767	2,388	2,120	1,844
Up to 1 year (jobs)							
Related work experience - Grid sector - 1		189,865	250,095	322,139	364,012	498,234	671,208
to 4 years (jobs)							
Related work experience - Grid sector - 4		124,425	163,776	210,799	238,022	325,544	438,233
to 10 years (jobs)							
Related work experience - Grid sector -		77,987	102,885	132,719	150,185	205,848	277,682
None (jobs)							
Related work experience - Grid sector -		32,251	42,474	54,700	61,799	84,572	113,915
Over 10 years (jobs)							
Related work experience - Grid sector -		100,534	132,934	171,886	194,979	267,907	362,321
Up to 1 year (jobs)							
Related work experience - Natural gas		202,869	152,582	113,636	97,575	77,128	57,447
sector - 1 to 4 years (jobs)							
Related work experience - Natural gas		134,972	101,628	75,927	65,604	52,043	38,861
sector - 4 to 10 years (jobs)							
Related work experience - Natural gas		79,594	60,206	45,249	39,353	31,361	23,517
sector - None (jobs)							
Related work experience - Natural gas		36,650	27,418	20,251	17,172	13,470	9,977
sector - Over 10 years (jobs)							
Related work experience - Natural gas		95,636	71,908	53,583	45,998	36,381	27,158
sector - Up to 1 year (jobs)		10 (00	10.001	10.150		10 (0.7	
Related work experience - Nuclear sector		18,689	18,096	18,158	13,837	12,605	16,420
- 1 to 4 years (jobs)		10.10=	44.505				10.110
Related work experience - Nuclear sector		12,125	11,737	11,775	8,971	8,171	10,642
- 4 to 10 years (jobs)		( 011	( 100	(1/0	/ /00	, ,,,,,,	F 500
Related work experience - Nuclear sector		6,311	6,120	6,149	4,692	4,280	5,583
- None (jobs)		0.700	0 (1(	0.400	0.7/7	0.500	0.007
Related work experience - Nuclear sector		3,732	3,616	3,630	2,767	2,522	3,287
- Over 10 years (jobs)  Related work experience - Nuclear sector		9,215	8,931	8,969	/ 0/1	7 000	8,133
- Up to 1 year (jobs)		9,215	0,931	0,909	6,841	6,238	0,133
Related work experience - Oil sector - 1 to		302,142	269,872	241,615	010 657	181,735	112,904
4 years (jobs)		302,142	209,812	241,615	213,657	161,735	112,904
Related work experience - Oil sector - 4 to		183,328	163,462	146,092	128,961	109,518	67,918
10 years (jobs)		103,320	103,402	140,072	120,701	107,516	01,710
Related work experience - Oil sector -		106,860	95,809	86,142	76,551	65,362	40,896
None (jobs)		100,000	93,609	60,142	10,551	05,302	40,670
Related work experience - Oil sector -		52,719	46,922	41,873	36,913	31,344	19,408
Over 10 years (jobs)		32,117	40,722	41,013	30,713	31,344	17,400
Related work experience - Oil sector - Up		147,849	132,071	118,310	104,771	89,100	55,605
to 1 year (jobs)		171,047	102,011	110,010	104,111	37,100	55,505
Related work experience - Solar PV sector		184,079	263,287	252,193	239,405	291,159	460,181
-1 to 4 years (jobs)		107,017	200,201	202,170	207,700	2/1,10/	-00,101
Related work experience - Solar PV sector		118,988	169,691	162,361	153,845	186,516	293,875
- 4 to 10 years (jobs)		1.0,700	107,071	.02,001	100,040	100,010	2,5,510
				I			

Table 80: E-B+ scenario - IMPACTS - Jobs (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Related work experience - Solar PV sector - None (jobs)		75,112	107,194	103,020	98,080	119,161	188,200
Related work experience - Solar PV sector		33,887	48,648	45,388	42,000	50,978	80,348
- Over 10 years (jobs)		33,861	46,646	45,366	42,000	50,976	80,348
Related work experience - Solar PV sector		119,290	169,643	160,927	151,104	182,387	286,090
- Up to 1 year (jobs)		119,290	107,043	100,921	131,104	102,301	200,090
Related work experience - Wind sector - 1		107,913	186,297	208,628	198,598	256,530	348,695
to 4 years (jobs)							
Related work experience - Wind sector - 4		71,249	123,049	138,497	132,743	171,090	232,069
to 10 years (jobs)							
Related work experience - Wind sector -		41,605	71,565	79,599	75,084	96,755	131,265
None (jobs)							
Related work experience - Wind sector -		20,605	35,402	38,651	35,500	46,104	63,003
Over 10 years (jobs)							
Related work experience - Wind sector -		64,840	110,847	121,077	111,310	143,100	193,730
Up to 1 year (jobs)							
Wage income - Biomass (million \$2019)		4,370	5,504	9,694	14,467	18,822	24,312
Wage income - CO2 (million \$2019)		460	6,961	6,170	3,083	4,704	8,683
Wage income - Coal (million \$2019)		4,260	1,154	608	538	490	438
Wage income - Grid (million \$2019)		32,837	43,866	57,324	65,745	91,371	125,035
Wage income - Natural Gas (million \$2019)		36,422	27,768	20,930	18,149	14,518	10,952
Wage income - Nuclear (million \$2019)		3,579	3,550	3,650	2,852	2,665	3,563
Wage income - Oil (million \$2019)		52,195	47,217	42,805	38,319	33,009	20,749
Wage income - Solar (million \$2019)		29,439	42,538	41,384	39,918	49,188	78,830
Wage income - Wind (million \$2019)		17,785	31,155	35,723	34,987	45,782	63,070

## Table 81: REF scenario - PILLAR 1: Efficiency/Electrification - Commercial

Item	2020	2025	2030	2035	2040	2045	2050
Commercial HVAC investment in 2020s -	0	1,033,244	1,071,458	0	0	0	0
Cumulative 5-yr (million \$2018)							
Sales of cooking units - Electric	32.5	34.7	34.8	34.8	34.8	34.9	34.9
Resistance (%)							
Sales of cooking units - Gas (%)	67.5	65.3	65.2	65.2	65.2	65.1	65.1
Sales of space heating units - Electric	2.95	20.2	53	69	71.2	71.5	71.4
Heat Pump (%)							
Sales of space heating units - Electric	7.91	9.57	15.3	22	26.9	27.7	27.7
Resistance (%)							
Sales of space heating units - Fossil (%)	3.94	3.64	2.67	1.11	0.16	0.012	0
Sales of space heating units - Gas Furnace	85.2	66.6	29.1	7.95	1.72	0.875	0.814
(%)							
Sales of water heating units - Electric	0.385	0.401	0.397	0.398	0.398	0.397	0.397
Heat Pump (%)							
Sales of water heating units - Electric	3.8	3.86	3.84	3.85	3.86	3.85	3.86
Resistance (%)							
Sales of water heating units - Gas Furnace	94.1	94.1	94	94	94	94	94
(%)							
Sales of water heating units - Other (%)	1.66	1.69	1.73	1.71	1.73	1.74	1.73

## Table 82: REF scenario - PILLAR 1: Efficiency/Electrification - Electricity demand

Item	2020	2025	2030	2035	2040	2045	2050
Electricity distribution capital invested -		174	178	262	276	263	274
Cumulative 5-yr (billion \$2018)							

# Table 83: REF scenario - PILLAR 1: Efficiency/Electrification - Overview

Item	2020	2025	2030	2035	2040	2045	2050
Final energy use - Commercial (PJ)	9,013	9,089	9,161	9,159	9,215	9,479	9,955
Final energy use - Industry (PJ)	25,111	26,559	27,315	27,857	28,763	29,709	30,835

# Table 83: REF scenario - PILLAR 1: Efficiency/Electrification - Overview (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Final energy use - Residential (PJ)	11,787	11,149	10,849	10,682	10,653	10,714	10,787
Final energy use - Transportation (PJ)	28,007	26,732	24,918	23,878	24,004	24,746	25,679

## Table 84: REF scenario - PILLAR 1: Efficiency/Electrification - Residential

Item	2020	2025	2030	2035	2040	2045	2050
Residential HVAC investment in 2020s vs. REF - Cumulative 5-yr (billion \$2018)	0	244	252	0	0	0	0
Sales of cooking units - Electric Resistance (%)	60.9	60.9	60.9	60.9	60.9	60.9	60.9
Sales of cooking units - Gas (%)	39.1	39.1	39.1	39.1	39.1	39.1	39.1
Sales of space heating units - Electric Heat Pump (%)	13	31.3	32.2	33.6	35.1	36.7	38.4
Sales of space heating units - Electric Resistance (%)	20.8	20.7	20.5	20.1	19.6	18.5	16.6
Sales of space heating units - Fossil (%)	10.1	11.9	8.72	6.7	6.35	6.23	6.31
Sales of space heating units - Gas (%)	56.2	36.1	38.6	39.6	39	38.5	38.6
Sales of water heating units - Electric Heat Pump (%)	0	0	0	0	0	0	0
Sales of water heating units - Electric Resistance (%)	38.4	51.9	52	52.3	52.2	52.3	52.3
Sales of water heating units - Gas Furnace (%)	58	45.4	45.4	45.1	45.2	45.1	45.1
Sales of water heating units - Other (%)	3.58	2.66	2.63	2.62	2.62	2.6	2.59

## Table 85: REF scenario - PILLAR 1: Efficiency/Electrification - Transportation

Item	2020	2025	2030	2035	2040	2045	2050
Vehicle sales - Heavy-duty - diesel (%)	98.1	98.2	97.9	97	95.6	93.5	91.6
Vehicle sales - Heavy-duty - EV (%)	0	0	0	0	0	0	0
Vehicle sales - Heavy-duty - gasoline (%)	0.229	0.242	0.257	0.274	0.294	0.317	0.343
Vehicle sales - Heavy-duty - hybrid (%)	0.083	0.096	0.112	0.13	0.15	0.174	0.202
Vehicle sales - Heavy-duty - hydrogen FC	0.119	0.138	0.16	0.186	0.216	0.25	0.29
(%)							
Vehicle sales - Heavy-duty - other (%)	1.51	1.31	1.57	2.37	3.69	5.71	7.57
Vehicle sales - Light-duty - diesel (%)	1.4	1.84	2.16	2.01	1.81	1.68	1.6
Vehicle sales - Light-duty - EV (%)	4.05	6.24	7.05	8.71	10.6	12.1	13.3
Vehicle sales - Light-duty - gasoline (%)	89.4	85.7	83.4	81.3	79.2	77.3	75.7
Vehicle sales - Light-duty - hybrid (%)	4.93	5.75	7	7.55	8.08	8.59	8.95
Vehicle sales - Light-duty - hydrogen FC	0.11	0.371	0.337	0.298	0.293	0.293	0.303
(%)							
Vehicle sales - Light-duty - other (%)	0.095	0.099	0.095	0.096	0.095	0.094	0.096
Vehicle sales - Medium-duty - diesel (%)	65.2	63.5	61.6	59.6	58	56.5	55.2
Vehicle sales - Medium-duty - EV (%)	0.027	0.105	0.329	0.671	0.895	0.973	0.993
Vehicle sales - Medium-duty - gasoline (%)	34	35.5	37	38.5	39.7	40.8	41.7
Vehicle sales - Medium-duty - hybrid (%)	0.365	0.427	0.496	0.577	0.674	0.793	0.929
Vehicle sales - Medium-duty - hydrogen	0.175	0.208	0.242	0.285	0.339	0.409	0.487
FC (%)							
Vehicle sales - Medium-duty - other (%)	0.255	0.271	0.298	0.345	0.42	0.528	0.671

## Table 86: REF scenario - PILLAR 2: Clean Electricity - Generating capacity

Item	2020	2025	2030	2035	2040	2045	2050
Capital invested - Biomass power plant (billion \$2018)	0	0	0.002	0.002	0.002	0.002	0.014
Capital invested - Biomass w/ccu allam power plant (billion \$2018)	0	0	0	0	0	0	0
Capital invested - Biomass w/ccu power plant (billion \$2018)	0	0	0.187	0.051	0.04	0.043	0.037
Installed - Biomass (MW)	10,004	9,138	7,833	6,120	4,703	3,396	2,509

Table 86: REF scenario - PILLAR 2: Clean Electricity - Generating capacity (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Installed - Biomass w cc (MW)	0	0	28.2	35.9	41.9	48.4	53.9
Installed - Ccgt & gas steam (MW)	335,091	336,429	372,171	418,875	420,609	411,216	402,211
Installed - Ccgt w cc (MW)	0	0	75.1	123	155	183	198
Installed - Coal (MW)	215,803	136,252	87,021	67,927	65,539	63,529	58,003
Installed - Ct (MW)	147,318	141,836	138,659	133,493	148,035	248,004	303,871
Installed - Geothermal (MW)	2,394	2,396	2,400	2,405	2,409	2,415	2,421
Installed - Grid battery storage (MW)	0	1,001	1,423	2,713	3,240	4,835	5,590
Installed - Hydro (MW)	78,608	78,608	78,608	78,608	78,608	78,608	78,608
Installed - Nuclear (MW)	98,458	95,132	90,001	76,069	68,465	56,021	48,338
Installed - Offshore wind (MW)	29.3	997	2,991	5,028	7,082	9,651	38,635
Installed - Onshore wind (MW)	97,749	99,521	121,386	144,651	220,515	277,590	307,422
Installed - Other (MW)	67,926	57,451	55,131	53,826	51,918	50,896	49,542
Installed - Pumped hydro storage (MW)	0	19,418	19,418	19,418	19,418	19,418	19,418
Installed - Solar (MW)	53,331	74,306	98,959	141,818	186,285	223,714	287,248

Table 87: REF scenario - PILLAR 2: Clean Electricity - Generation

Item	2020	2025	2030	2035	2040	2045	2050
Biomass (TWh)	16.8	20.1	14	8.93	3.82	4.42	5.62
Biomass power plant (GWh)	3,585	4,154	1,171	1,248	847	681	301
Biomass w cc (TWh)	0	0	0.088	0.099	0.108	0.12	0.13
Biomass w/ccu allam power plant (GWh)	0	0	0	0	0	0	0
Biomass w/ccu power plant (GWh)	0	0	88.1	99	108	120	130
Coal (TWh)	965	844	534	394	366	342	310
Gas (TWh)	1,547	1,791	2,184	2,446	2,263	2,338	2,245
Gas w cc (TWh)	0	0	0.252	0.351	0.376	0.416	0.441
Geothermal (TWh)	14.6	14.5	14.6	14.6	14.2	14.2	13.9
Hydro (TWh)	300	312	295	296	304	294	295
Nuclear (TWh)	802	775	733	620	558	456	394
Offshore wind (TWh)	0.096	3.67	11.1	23.4	28.7	38.7	173
Onshore wind (TWh)	411	413	510	613	942	1,177	1,300
Solar pv (TWh)	104	139	179	261	356	420	525

Table 88: REF scenario - PILLAR 3: Clean fuels - Bioenergy

Item	2020	2025	2030	2035	2040	2045	2050
Biomass input - BECCS-H2 (1000 tonnes)	0	0	0	0	0	0	0
Biomass input - Bio-FT w/ CC (1000	0	0	0	0	0	0	0
tonnes)							
Biomass input - Bio-SNG w/ CC (1000	0	0	5.9	6.22	5.52	5.33	5.34
tonnes)							
Biomass input - Biopower (1000 tonnes)	7,104	16,068	14,149	12,723	6,554	8,191	11,637
Biomass input - Biopower w/ cc (1000	0	0	53.2	59.8	65.2	72.5	78.2
tonnes)							
Biomass input - Ethanol (1000 tonnes)	129,536	129,536	129,529	129,529	129,536	129,536	129,536
Biomass input - FT diesel (1000 tonnes)	0	0	0	0	0	0	0
Biomass input - Pyrolysis liquids (1000	0	0	0	0	0	0	0
tonnes)							
Biomass input - Pyrolysis liquids w/ cc	0	0	0	0	0	0	0
(1000 tonnes)							
Biomass input - SNG (1000 tonnes)	0	0	0	0	0	0	0

Table 89: REF scenario - PILLAR 4: CCUS - CO2 storage

		J -					
Item	2020	2025	2030	2035	2040	2045	2050
CO2 storage (MMT)	0	0	0.18	0.23	0.25	0.28	0.29

Table 90: REF scenario - PILLAR 6: Land sinks - Forests

Item 2020 2025 2030 2035  Carbon sink potential - High - Accelerate regeneration (1000 tC02e/y)  Carbon sink potential - High - All (not counting overlap) (1000 tC02e/y)  Carbon sink potential - High - Avoid deforestation (1000 tC02e/y)  Carbon sink potential - High - Extend rotation length (1000 tC02e/y)  Carbon sink potential - High - Improve plantations (1000 tC02e/y)  Carbon sink potential - High - Increase	2040 2045	2050 -48,900 - 1,535,900 -84,000
regeneration (1000 tC02e/y)  Carbon sink potential - High - All (not counting overlap) (1000 tC02e/y)  Carbon sink potential - High - Avoid deforestation (1000 tC02e/y)  Carbon sink potential - High - Extend rotation length (1000 tC02e/y)  Carbon sink potential - High - Improve plantations (1000 tC02e/y)		- 1,535,900 -84,000
Carbon sink potential - High - All (not counting overlap) (1000 tC02e/y)  Carbon sink potential - High - Avoid deforestation (1000 tC02e/y)  Carbon sink potential - High - Extend rotation length (1000 tC02e/y)  Carbon sink potential - High - Improve plantations (1000 tC02e/y)		-84,000
counting overlap) (1000 tCO2e/y)  Carbon sink potential - High - Avoid deforestation (1000 tCO2e/y)  Carbon sink potential - High - Extend rotation length (1000 tCO2e/y)  Carbon sink potential - High - Improve plantations (1000 tCO2e/y)		-84,000
Carbon sink potential - High - Avoid deforestation (1000 tCO2e/y)  Carbon sink potential - High - Extend rotation length (1000 tCO2e/y)  Carbon sink potential - High - Improve plantations (1000 tCO2e/y)		-84,000
deforestation (1000 tC02e/y)  Carbon sink potential - High - Extend rotation length (1000 tC02e/y)  Carbon sink potential - High - Improve plantations (1000 tC02e/y)		
Carbon sink potential - High - Extend rotation length (1000 tCO2e/y) Carbon sink potential - High - Improve plantations (1000 tCO2e/y)		-302,000
rotation length (1000 tCO2e/y)  Carbon sink potential - High - Improve plantations (1000 tCO2e/y)		-302,000
Carbon sink potential - High - Improve plantations (1000 tCO2e/y)		
plantations (1000 tCO2e/y)		
		-57,000
Carbon sink potential - High - Increase		
· · · · · · · · · · · · · · · · · · ·		-
retention of HWP (1000 tCO2e/y)		300,000
Carbon sink potential - High - Increase		-60,000
trees outside forests (1000 tC02e/y)		
Carbon sink potential - High - Reforest		-242,000
cropland (1000 tCO2e/y)		
Carbon sink potential - High - Reforest		-
pasture (1000 tC02e/y)		264,000
Carbon sink potential - High - Restore		-178,000
productivity (1000 tC02e/y)		,
Carbon sink potential - Low - Accelerate		-24,500
regeneration (1000 tC02e/y)		,000
Carbon sink potential - Low - All (not		_
counting overlap) (1000 tC02e/y)		505,500
Carbon sink potential - Low - Avoid		-14,000
deforestation (1000 tC02e/y)		-14,000
Carbon sink potential - Low - Extend		-116,000
		-116,000
rotation length (1000 tC02e/y)		00.000
Carbon sink potential - Low - Improve		-29,000
plantations (1000 tC02e/y)		100.000
Carbon sink potential - Low - Increase		-100,000
retention of HWP (1000 tC02e/y)		
Carbon sink potential - Low - Increase		-21,000
trees outside forests (1000 tC02e/y)		
Carbon sink potential - Low - Reforest		-121,000
cropland (1000 tCO2e/y)		
Carbon sink potential - Low - Reforest		-20,000
pasture (1000 tC02e/y)		
Carbon sink potential - Low - Restore		-60,000
productivity (1000 tCO2e/y)		
Carbon sink potential - Mid - Accelerate		-36,700
regeneration (1000 tCO2e/y)		
Carbon sink potential - Mid - All (not		-
counting overlap) (1000 tCO2e/y)		1,020,200
Carbon sink potential - Mid - Avoid		-49,000
deforestation (1000 tCO2e/y)		,,,,,
Carbon sink potential - Mid - Extend		-209,000
rotation length (1000 tC02e/y)		207,000
Carbon sink potential - Mid - Improve		-42,500
plantations (1000 tC02e/y)		-42,500
Carbon sink potential - Mid - Increase		
		200,000
retention of HWP (1000 tC02e/y)		1
Carbon sink potential - Mid - Increase		-40,500
trees outside forests (1000 tC02e/y)		101 -01
Carbon sink potential - Mid - Reforest		-181,500
cropland (1000 tCO2e/y)		
Carbon sink potential - Mid - Reforest		-142,000
pasture (1000 tC02e/y)		
Carbon sink potential - Mid - Restore		-119,000
productivity (1000 tCO2e/y)		

Table 90: REF scenario - PILLAR 6: Land sinks - Forests (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Land impacted for carbon sink potential -							8,000
High - Accelerate regeneration (1000							
hectares)							
Land impacted for carbon sink potential -							11,373
High - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							154,000
High - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							21,000
High - Improve plantations (1000							
hectares)							
Land impacted for carbon sink potential -							0
High - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							5,700
High - Increase trees outside forests							
(1000 hectares)							
Land impacted for carbon sink potential -							16,000
High - Reforest cropland (1000 hectares)							
Land impacted for carbon sink potential -							7,500
High - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							59,000
High - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							282,573
High - Total impacted (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							4,000
Low - Accelerate regeneration (1000							
hectares)							
Land impacted for carbon sink potential -							10,677
Low - Avoid deforestation (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -							59,000
Low - Extend rotation length (1000							
hectares)							
Land impacted for carbon sink potential -							10,500
Low - Improve plantations (1000							
hectares)							
Land impacted for carbon sink potential -							0
Low - Increase retention of HWP (1000							
hectares)							
Land impacted for carbon sink potential -							3,000
Low - Increase trees outside forests							
(1000 hectares)							
Land impacted for carbon sink potential -							8,000
Low - Reforest cropland (1000 hectares)							
Land impacted for carbon sink potential -							1,300
Low - Reforest pasture (1000 hectares)							
Land impacted for carbon sink potential -							35,700
Low - Restore productivity (1000							
hectares)							
Land impacted for carbon sink potential -							132,177
Low - Total impacted (over 30 years)							
(1000 hectares)							
Land impacted for carbon sink potential -		T				T	6,000
Mid - Accelerate regeneration (1000							
hectares)							

Table 90.	RFFsc	enario .	DTII AR A	: Land sinks	- Forests	(continued)
Table 70.	KEF SU	enun 10 -	- PILLAK O	. Luiiu siiiks	- FUI ESLS I	CUITLIITUEUT

2020	2025	2030	2035	2040	2045	2050
						11,025
						106,500
						15,800
						0
						4,350
						12,000
						9,400
						71,900
						236,975
	2020	2020 2025	2020 2025 2030	2020 2025 2030 2035	2020 2025 2030 2035 2040	2020 2025 2030 2035 2040 2045

## Table 91: REF scenario - PILLAR 6: Land sinks - Forests - REF only

Item	2020	2025	2030	2035	2040	2045	2050
Business-as-usual carbon sink - Natural	-575		-367				-325
uptake (Mt CO2e/y)							
Business-as-usual carbon sink - Retained	-81.6		-139				-146
in Hardwood Products (Mt CO2e/y)							
Business-as-usual carbon sink - Total (Mt	-657		-507				-472
CO2e/y)							

#### Table 92: REF scenario - PILLAR 6: Land sinks - Total assumed land sink

Item	2020	2025	2030	2035	2040	2045	2050
Total assumed land sink (Gt CO2e/y)	-0.7	-0.73	-0.75	-0.78	-0.8	-0.83	-0.85

## Table 93: REF scenario - IMPACTS - Fossil fuel industries

Item	2020	2025	2030	2035	2040	2045	2050
Natural gas consumption - Annual (tcf)		23,809	26,243	27,450	25,560	25,988	25,610
Natural gas consumption - Cumulative		0	0	0	0	0	792,006
(tcf)							
Natural gas production - Annual (tcf)		36,910	41,028	42,444	40,854	41,386	41,138
Natural gas production - Cumulative (tcf)		0	0	0	0	0	1,236,087
Oil consumption - Annual (million bbls)		6,043	5,699	5,491	5,512	5,642	5,820
Oil consumption - Cumulative (million		0	0	0	0	0	178,024
bbls)							
Oil production - Annual (million bbls)		5,198	5,216	5,209	5,074	4,957	4,365
Oil production - Cumulative (million bbls)		0	0	0	0	0	155,778

## Table 94: REF scenario - IMPACTS - Health

Item	2020	2025	2030	2035	2040	2045	2050
Monetary damages from air pollution - Coal (million 2019\$)		71,041	43,563	34,738	31,383	29,937	28,118
Monetary damages from air pollution - Natural Gas (million 2019\$)		11,837	11,639	13,941	13,774	13,915	13,437

Table 94: REF scenario - IMPACTS - Health (continued)

Item	2020	2025	2030	2035	2040	2045	2050
Monetary damages from air pollution - Transportation (million 2019\$)		104,043	108,301	112,532	117,351	122,191	127,101
Premature deaths from air pollution - Coal (deaths)		8,024	4,920	3,923	3,545	3,381	3,176
Premature deaths from air pollution - Natural Gas (deaths)		1,336	1,314	1,574	1,555	1,571	1,517
Premature deaths from air pollution - Transportation (deaths)		11,702	12,181	12,657	13,199	13,743	14,295

Table 95: REF scenario - IMPACTS - Jobs

2020	2025	2030	2035	2040	2045	2050
	31,901	31,368	31,313	30,472	30,467	30,778
	442,887	446,175	501,228	540,788	564,183	654,706
	331,815	365,578	421,785	429,120	380,807	428,603
	481,485	400,603	333,553	269,133	224,097	177,285
	34,546	35,104	44,813	53,531	60,257	95,104
	46,537	48,395	49,114	46,834	47,106	45,678
	271,996	263,680	280,141	302,074	314,668	358,272
	277,149	253,538	251,171	253,853	255,559	283,423
	424,258	422,267	473,464	510,552	530,968	547,052
	691,975	675,530	721,855	745,571	741,637	816,287
	532,142	507,651	521,097	522,808	511,244	544,237
	18,196	17,228	17,499	17,734	17,716	19,186
	972,467	944,804	1,001,726	1,024,854	1,013,719	1,108,871
	127,793	121,496	124,406	125,391	123,794	132,320
	15,721	15,116	14,471	13,823	13,632	13,402
	14,337	13,667	12,869	12,186	12,012	11,712
	698	670	631	598	598	587
	47,731	46,172	44,960	43,255	42,721	42,422
	3,946	3,803	3,617	3,454	3,441	3,386
	0	0.287	0.366	0.393	0.435	0.463
	0	0.287	0.365	0.393	0.435	0.464
	0	0.012	0.015	0.016	0.018	0.019
	0	0.368	0.468	0.503	0.555	0.591
	0	0.074	0.094	0.101	0.112	0.119
	34,993	21,604	15,196	12,828	11,588	10,214
	22,698	14,077	9,948	8,484	7,744	6,882
<u> </u>	760	478	338	289	268	242
	53,521	32,643	22,951	19,159	16,860	14,468
	2020	31,901 442,887 331,815 481,485 34,546 46,537 271,996 277,149 424,258 691,975 532,142 18,196 972,467 127,793 15,721 14,337 698 47,731 3,946 0	31,901       31,368         442,887       446,175         331,815       365,578         481,485       400,603         34,546       35,104         46,537       48,395         271,996       263,680         277,149       253,538         424,258       422,267         691,975       675,530         532,142       507,651         18,196       17,228         972,467       944,804         127,793       121,496         15,721       15,116         14,337       13,667         698       670         47,731       46,172         3,946       3,803         0       0.287         0       0.287         0       0.368         0       0.074         34,993       21,604         22,698       14,077         760       478	31,901         31,368         31,313           442,887         446,175         501,228           331,815         365,578         421,785           481,485         400,603         333,553           34,546         35,104         44,813           46,537         48,395         49,114           271,996         263,680         280,141           277,149         253,538         251,171           424,258         422,267         473,464           691,975         675,530         721,855           532,142         507,651         521,097           18,196         17,228         17,499           972,467         944,804         1,001,726           127,793         121,496         124,406           15,721         15,116         14,471           14,337         13,667         12,869           698         670         631           47,731         46,172         44,960           3,946         3,803         3,617           0         0,287         0,365           0         0,287         0,365           0         0,268         0,468           0         0,0	31,901         31,368         31,313         30,472           442,887         446,175         501,228         540,788           331,815         365,578         421,785         429,120           481,485         400,603         333,553         269,133           34,546         35,104         44,813         53,531           46,537         48,395         49,114         46,834           271,996         263,680         280,141         302,074           277,149         253,538         251,171         253,853           424,258         422,267         473,464         510,552           691,975         675,530         721,855         745,571           532,142         507,651         521,097         522,808           18,196         17,228         17,499         17,734           972,467         944,804         1,001,726         1,024,854           127,793         121,496         124,406         125,391           15,721         15,116         14,471         13,823           14,337         13,667         12,869         12,186           698         670         631         598           47,731         46,172	31,901         31,368         31,313         30,472         30,467           442,887         446,175         501,228         540,788         564,183           331,815         365,578         421,785         429,120         380,807           481,485         400,603         333,553         269,133         224,097           34,546         35,104         44,813         53,531         60,257           46,537         48,395         49,114         46,834         47,106           271,996         263,680         280,141         302,074         314,668           277,149         253,538         251,171         253,853         255,559           424,258         422,267         473,464         510,552         530,968           691,975         675,530         721,855         745,571         741,637           532,142         507,651         521,097         522,808         511,244           18,196         17,228         17,499         17,734         17,716           972,467         944,804         1,001,726         1,024,854         1,013,719           127,793         121,496         124,406         125,391         123,794           15,721         <

Table 95: REF scenario - IMPACTS - Jobs (continued)

Table 95: REF scenario - IMPACTS - Jobs (	-	2005	2222	2005	00/0	2015	0050
Item	2020	2025	2030	2035	2040	2045	2050
By education level - Coal sector - Masters		5,292	3,300	2,326	1,983	1,825	1,635
or professional degree (jobs)		1/0 570	450.000	10 ( 000	000 (45	000 / /0	0/0/51
By education level - Grid sector -		143,570	150,908	186,088	208,415	220,469	243,651
Associates degree or some college (jobs)		00.07/	05.047	105.070	4474.	100.11.0	105.077
By education level - Grid sector -		82,274	85,914	105,262	117,146	123,149	135,264
Bachelors degree (jobs)							
By education level - Grid sector - Doctoral		2,372	2,435	2,933	3,210	3,317	3,582
degree (jobs)							
By education level - Grid sector - High		183,588	193,946	240,360	270,545	287,619	319,440
school diploma or less (jobs)							
By education level - Grid sector - Masters		20,702	21,551	26,323	29,206	30,611	33,523
or professional degree (jobs)							
By education level - Natural gas sector -		183,106	181,431	182,804	180,503	179,358	167,676
Associates degree or some college (jobs)							
By education level - Natural gas sector -		127,562	123,827	121,511	116,438	113,191	103,983
Bachelors degree (jobs)							
By education level - Natural gas sector -		4,238	4,055	3,927	3,724	3,570	3,234
Doctoral degree (jobs)							
By education level - Natural gas sector -		224,113	223,226	224,560	219,540	217,980	204,472
High school diploma or less (jobs)							
By education level - Natural gas sector -		31,242	30,086	29,351	28,067	27,139	24,764
Masters or professional degree (jobs)							
By education level - Nuclear sector -		13,714	13,235	12,589	10,073	9,844	6,917
Associates degree or some college (jobs)							
By education level - Nuclear sector -		14,824	14,272	13,544	10,811	10,542	7,390
Bachelors degree (jobs)							
By education level - Nuclear sector -		650	622	586	465	451	314
Doctoral degree (jobs)							
By education level - Nuclear sector - High		17,023	16,472	15,710	12,602	12,347	8,697
school diploma or less (jobs)		,	-,	-, -	,	,-	-,-
By education level - Nuclear sector -		4,013	3,856	3,653	2,911	2,834	1,984
Masters or professional degree (jobs)		.,0.0	3,333	3,333	_,,	2,00 .	.,,, .
By education level - Oil sector - Associates		206,894	186,432	169,741	154,947	143,556	125,658
degree or some college (jobs)		200,074	100,402	107,141	104,741	1-10,000	120,000
By education level - Oil sector - Bachelors		213,345	189,156	169,188	151,377	137,271	117,201
degree (jobs)		210,040	107,130	107,100	101,011	101,211	111,201
By education level - Oil sector - Doctoral		6,891	6,141	5,520	4,959	4,515	3,865
degree (jobs)		0,071	0,141	3,320	4,737	4,515	3,003
. ,		319,890	290,042	265,879	244,649	228,550	202,090
By education level - Oil sector - High school diploma or less (jobs)		317,070	290,042	203,619	244,049	220,000	202,090
By education level - Oil sector - Masters or		48,374	42,677	37,962	33,746	30,392	25,735
professional degree (jobs)		40,314	42,011	31,902	33,140	30,392	25,735
		/ F 0/1	(0.5(0	00.077	00.0/1	00 000	1/0700
By education level - Solar PV sector -		65,241	62,569	83,946	88,241	92,303	168,703
Associates degree or some college (jobs)		04.044	05.075	(0.110	50.407	FF 1F0	1001/0
By education level - Solar PV sector -		36,864	35,965	49,119	52,126	55,152	102,163
Bachelors degree (jobs)		1 / 00	1.00	1.010	0.100	0.000	
By education level - Solar PV sector -		1,480	1,436	1,912	2,138	2,339	4,314
Doctoral degree (jobs)		21.1		44= 00=	110 / / 0	100 -00	
By education level - Solar PV sector - High		91,471	86,780	115,285	119,640	123,522	223,347
school diploma or less (jobs)							
By education level - Solar PV sector -		8,682	8,500	11,555	12,603	13,605	25,287
Masters or professional degree (jobs)							
By education level - Wind sector -		28,737	44,236	57,021	76,741	70,886	80,065
Associates degree or some college (jobs)							
By education level - Wind sector -		20,238	30,772	39,656	54,239	52,183	59,640
Bachelors degree (jobs)							
By education level - Wind sector -		1,107	1,391	1,651	2,352	2,658	3,048
Doctoral degree (jobs)							
Doctor at degree (Jobs)							
By education level - Wind sector - High		35,130	55,523	72,021	95,464	84,120	93,934

Table 95: REF scenario - IMPACTS - Jobs (continued)

Table 95: REF scenario - IMPACTS - Jobs (d	continued)						
Item	2020	2025	2030	2035	2040	2045	2050
By education level - Wind sector - Masters		5,543	7,722	9,618	13,420	13,946	16,005
or professional degree (jobs)							
By resource sector - Biomass (jobs)		82,434	79,427	76,547	73,317	72,403	71,509
By resource sector - CO2 (jobs)		0	1.03	1.31	1.41	1.55	1.66
By resource sector - Coal (jobs)		117,264	72,102	50,758	42,743	38,286	33,441
By resource sector - Grid (jobs)		432,506	454,755	560,966	628,522	665,166	735,461
By resource sector - Natural Gas (jobs)		570,260	562,626	562,154	548,271	541,238	504,129
By resource sector - Nuclear (jobs)		50,224	48,457	46,083	36,862	36,018	25,302
By resource sector - Oil (jobs)		795,394	714,448	648,289	589,677	544,285	474,550
By resource sector - Solar (jobs)		203,737	195,250	261,817	274,748	286,921	523,815
By resource sector - Wind (jobs)		90,755	139,643	179,967	242,216	223,793	252,692
Median wages - Annual - Biomass (\$2019		51,794	52,681	53,506	54,475	55,717	56,907
per job)		0.,. 7.	02,001	00,000	0 1, 110	00,	00,701
Median wages - Annual - CO2 (\$2019 per		0	72,624	74,331	76,115	77,980	79,929
job)			12,024	14,001	10,110	11,700	17,727
Median wages - Annual - Coal (\$2019 per		59,050	59,933	60,616	61,537	62,818	64,176
job)		37,000	07,700	00,010	01,001	02,010	04,110
Median wages - Annual - Grid (\$2019 per		62,539	63,375	64,248	65,159	66,110	67,102
job)		02,007	03,313	04,240	03,139	00,110	01,102
Median wages - Annual - Natural Gas		66,256	67,137	67,918	68,605	69,423	70,327
(\$2019 per job)		00,230	01,131	01,710	00,003	09,423	10,521
Median wages - Annual - Nuclear (\$2019		71,486	73,188	74,974	76,846	78,808	80,864
per job)		11,400	13,100	14,714	10,040	10,000	00,004
Median wages - Annual - Oil (\$2019 per		65,822	66,660	67,465	68,209	68,927	69,545
job)		03,022	00,000	01,403	00,209	00,921	07,343
Median wages - Annual - Solar (\$2019 per		56,157	56,905	57,622	58,717	59,823	60,806
iob)		36,131	30,703	31,022	30,111	37,023	00,000
Median wages - Annual - Wind (\$2019 per		61,364	60,320	60,451	61,739	64,572	65,751
job)		01,304	00,320	60,431	01,137	04,512	03,131
On-Site or In-Plant Training - Biomass		8,314	8,010	7,705	7,367	7,270	7,168
sector - 1 to 4 years (jobs)		0,314	6,010	1,105	1,301	1,210	1,100
On-Site or In-Plant Training - Biomass		2,584	2,495	2,393	2,293	2,266	2,228
sector - 4 to 10 years (jobs)		2,504	2,470	2,070	2,270	2,200	2,220
On-Site or In-Plant Training - Biomass		13,295	12,752	12,228	11,645	11,488	11,329
sector - None (jobs)		13,293	12,132	12,220	11,043	11,400	11,527
On-Site or In-Plant Training - Biomass		576	564	550	536	533	529
sector - Over 10 years (jobs)		310	304	330	330	333	327
On-Site or In-Plant Training - Biomass		57,665	55,606	53,672	51,476	50,846	50,255
sector - Up to 1 year (jobs)		31,003	33,000	33,012	31,410	30,040	30,233
On-Site or In-Plant Training - CO2 sector -		0	0.154	0.196	0.211	0.233	0.249
1 to 4 years (jobs)			0.154	0.170	0.211	0.233	0.249
On-Site or In-Plant Training - CO2 sector -		0	0.057	0.073	0.078	0.086	0.092
4 to 10 years (jobs)			0.031	0.013	0.010	0.000	0.072
On-Site or In-Plant Training - CO2 sector -		0	0.171	0.217	0.234	0.259	0.276
None (jobs)			0.111	0.211	0.234	0.237	0.210
On-Site or In-Plant Training - CO2 sector -		0	0.006	0.008	0.009	0.009	0.01
Over 10 years (jobs)			0.000	0.000	0.007	0.007	0.01
On-Site or In-Plant Training - CO2 sector -		0	0.639	0.813	0.875	0.966	1.03
Up to 1 year (jobs)			0.007	0.010	0.010	0.700	1.00
On-Site or In-Plant Training - Coal sector -		17,859	11,003	7,730	6,504	5,849	5,134
1 to 4 years (jobs)		11,007	11,000	1,130	0,304	3,047	3,134
On-Site or In-Plant Training - Coal sector -		6,442	3,981	2,774	2,336	2,131	1,898
4 to 10 years (jobs)		0,442	3,701	2,114	2,330	2,131	1,070
On-Site or In-Plant Training - Coal sector -		16,850	10,437	7,376	6,265	5,686	5,029
None (jobs)		10,030	10,431	1,510	0,203	3,000	3,029
On-Site or In-Plant Training - Coal sector -		761	475	333	283	262	236
Over 10 years (jobs)		101	410	333	200	202	230
On-Site or In-Plant Training - Coal sector -		75,351	46,205	32,545	27,355	24,357	21,143
Up to 1 year (jobs)		10,001	40,200	32,343	۷۱٫۵۵۵	24,331	۷1,143
On-Site or In-Plant Training - Grid sector -		74,702	78,645	97,132	108,958	115,441	127,781
1 to 4 years (jobs)		14,104	10,040	71,132	100,730	110,441	121,101
i to 4 years (Jons)							

Table 95: REF scenario - IMPACTS - Jobs (continued)

Table 95: REF scenario - IMPACTS - Jobs (	-						
Item	2020	2025	2030	2035	2040	2045	2050
On-Site or In-Plant Training - Grid sector -		32,808	34,532	42,639	47,819	50,652	56,051
4 to 10 years (jobs)							
On-Site or In-Plant Training - Grid sector -		65,863	69,096	85,047	95,083	100,413	110,792
None (jobs)							
On-Site or In-Plant Training - Grid sector -		4,253	4,474	5,521	6,187	6,550	7,243
Over 10 years (jobs)							
On-Site or In-Plant Training - Grid sector -		254,880	268,008	330,627	370,475	392,110	433,592
Up to 1 year (jobs)		, , , , , ,	,		,	, -	,-
On-Site or In-Plant Training - Natural gas		96,099	95,281	95,809	94,122	93,397	87,337
sector - 1 to 4 years (jobs)			,	10,000	,	,	
On-Site or In-Plant Training - Natural gas		42,664	42,609	43,259	42,963	42,940	40,366
sector - 4 to 10 years (jobs)		,00 .	,00,	10,207	,, 00	,,	.0,000
On-Site or In-Plant Training - Natural gas		90,790	89,018	88,485	86,038	84,592	78,439
sector - None (jobs)		70,170	07,010	00,400	00,000	04,072	10,407
On-Site or In-Plant Training - Natural gas		5,060	5,079	5,198	5,218	5,244	4,946
sector - Over 10 years (jobs)		3,000	3,019	3,170	3,210	3,244	4,940
On-Site or In-Plant Training - Natural gas		335,648	330,639	329,404	319,930	315,066	293,042
= = =		333,646	330,039	329,404	317,730	313,000	293,042
sector - Up to 1 year (jobs) On-Site or In-Plant Training - Nuclear		7 / 11	7150	6,816	F / F0	F 2/ 0	0.755
•		7,411	7,159	6,816	5,459	5,340	3,755
sector - 1 to 4 years (jobs)		0.400	0.500	0.777	1.07/	1.001	1.050
On-Site or In-Plant Training - Nuclear		2,682	2,590	2,466	1,974	1,931	1,358
sector - 4 to 10 years (jobs)		0.000	0.445	0.000		( ( ( ) ( )	
On-Site or In-Plant Training - Nuclear		8,990	8,665	8,233	6,579	6,422	4,508
sector - None (jobs)							
On-Site or In-Plant Training - Nuclear		252	243	231	184	180	127
sector - Over 10 years (jobs)							
On-Site or In-Plant Training - Nuclear		30,889	29,800	28,338	22,666	22,145	15,555
sector - Up to 1 year (jobs)							
On-Site or In-Plant Training - Oil sector - 1		117,197	105,658	96,224	87,832	81,356	71,167
to 4 years (jobs)							
On-Site or In-Plant Training - Oil sector -		41,330	37,551	34,480	31,757	29,692	26,252
4 to 10 years (jobs)							
On-Site or In-Plant Training - Oil sector -		128,070	114,160	102,780	92,748	84,932	73,475
None (jobs)							
On-Site or In-Plant Training - Oil sector -		4,577	4,235	3,956	3,702	3,512	3,145
Over 10 years (jobs)							
On-Site or In-Plant Training - Oil sector -		504,220	452,845	410,849	373,639	344,793	300,510
Up to 1 year (jobs)							
On-Site or In-Plant Training - Solar PV		33,478	31,858	42,362	44,381	46,194	83,815
sector - 1 to 4 years (jobs)			,	,	,	-,	,-
On-Site or In-Plant Training - Solar PV		13,994	13,066	16,835	17,985	18,877	33,697
sector - 4 to 10 years (jobs)		,	,,,,,	,	,	,	,
On-Site or In-Plant Training - Solar PV		34,753	33,394	44,893	47,221	49,433	90,445
sector - None (jobs)		0 1,100	00,071	1 1,070	,	17,100	70,110
On-Site or In-Plant Training - Solar PV		1,711	1,625	2,152	2,265	2,365	4,285
sector - Over 10 years (jobs)		.,	.,626	2,.02	2,200	2,000	1,200
On-Site or In-Plant Training - Solar PV		119,801	115,306	155,575	162,897	170,053	311,573
sector - Up to 1 year (jobs)		117,001	110,000	100,010	102,071	110,000	011,010
On-Site or In-Plant Training - Total jobs - 1		369,708	359,698	381,970	392,484	389,968	425,641
to 4 years (jobs)		307,100	337,070	301,710	372,404	307,700	425,041
		1/.0.007	1/.5 /.7/.	1EE 110	1/11/0	1/2 020	170 000
On-Site or In-Plant Training - Total jobs - 4		149,227	145,474	155,110	161,149	163,029	178,083
to 10 years (jobs)		07/ / 00	0/1.000	000 / / 0	007044	000 / 0 /	/10 /00
On-Site or In-Plant Training - Total jobs -		374,482	361,893	380,448	387,964	382,406	418,639
None (jobs)				1 2 2 2			
On-Site or In-Plant Training - Total jobs -		17,983	17,849	19,396	20,342	20,520	22,619
Over 10 years (jobs)							
On-Site or In-Plant Training - Total jobs -		1,431,174	1,381,795	1,449,660	1,474,419	1,452,188	1,575,918
Up to 1 year (jobs)							
On-Site or In-Plant Training - Wind sector		14,647	22,083	28,192	37,862	35,120	39,483
- 1 to 4 years (jobs)							

Table 95: REF scenario - IMPACTS - Jobs (continued)

Table 95: REF scenario - IMPACTS - Jobs (							
Item	2020	2025	2030	2035	2040	2045	2050
On-Site or In-Plant Training - Wind sector - 4 to 10 years (jobs)		6,722	8,649	10,264	14,021	14,541	16,232
On-Site or In-Plant Training - Wind sector - None (jobs)		15,871	24,370	31,406	42,385	39,440	44,622
On-Site or In-Plant Training - Wind sector - Over 10 years (jobs)		793	1,155	1,455	1,965	1,874	2,109
On-Site or In-Plant Training - Wind sector		52,721	83,385	108,650	145,982	132,818	150,247
- Up to 1 year (jobs) On-the-Job Training - All sectors - 1 to 4		471,733	459,268	488,315	502,574	500,124	546,086
years (jobs) On-the-Job Training - All sectors - 4 to 10		139,425	136,348	146,668	153,603	156,299	172,344
years (jobs) On-the-Job Training - All sectors - None		130,848	125,108	129,874	131,332	129,182	141,119
(jobs) On-the-Job Training - All sectors - Over 10		21,989	21,517	22,834	23,230	22,657	24,956
years (jobs) On-the-Job Training - All sectors - Up to 1		1,578,579	1,524,468	1,598,893	1,625,620	1,599,850	1,736,396
year (jobs) On-the-Job Training - Biomass sector - 1		9,082	8,752	8,404	8,030	7,931	7,814
to 4 years (jobs) On-the-Job Training - Biomass sector - 4		2,078	2,011	1,934	1,853	1,834	1,809
to 10 years (jobs) On-the-Job Training - Biomass sector -		5,115	4,898	4,671	4,461	4,387	4,302
None (jobs) On-the-Job Training - Biomass sector -		590	578	562	548	545	540
Over 10 years (jobs) On-the-Job Training - Biomass sector - Up		65,569	63,189	60,975	58,425	57,706	57,044
to 1 year (jobs) On-the-Job Training - CO2 sector - 1 to 4		0	0.199	0.253	0.273	0.301	0.321
years (jobs) On-the-Job Training - CO2 sector - 4 to 10		0	0.048	0.061	0.066	0.073	0.078
years (jobs) On-the-Job Training - CO2 sector - 4 to 10		0	0.048	0.078	0.084	0.073	0.078
(jobs)							
On-the-Job Training - CO2 sector - Over 10 years (jobs)		0	0.01	0.012	0.013	0.015	0.016
On-the-Job Training - CO2 sector - Up to 1 year (jobs)		0	0.709	0.902	0.97	1.07	1.14
On-the-Job Training - Coal sector - 1 to 4 years (jobs)		22,287	13,762	9,662	8,139	7,352	6,483
On-the-Job Training - Coal sector - 4 to 10 years (jobs)		6,269	3,873	2,694	2,263	2,063	1,837
On-the-Job Training - Coal sector - None (jobs)		5,855	3,604	2,545	2,156	1,940	1,701
On-the-Job Training - Coal sector - Over 10 years (jobs)		759	476	340	292	268	239
On-the-Job Training - Coal sector - Up to 1 year (jobs)		82,094	50,386	35,517	29,893	26,663	23,181
On-the-Job Training - Grid sector - 1 to 4 years (jobs)		97,156	102,233	126,202	141,496	149,841	165,774
On-the-Job Training - Grid sector - 4 to 10 years (jobs)		33,019	34,776	42,968	48,218	51,105	56,588
On-the-Job Training - Grid sector - None (jobs)		21,167	22,225	27,379	30,638	32,386	35,768
On-the-Job Training - Grid sector - Over		3,466	3,651	4,512	5,065	5,370	5,949
10 years (jobs) On-the-Job Training - Grid sector - Up to 1		277,698	291,869	359,904	403,104	426,463	471,382
year (jobs) On-the-Job Training - Natural gas sector -		126,385	125,235	125,961	123,905	122,978	114,961

Table 95: REF scenario - IMPACTS - Jobs (continued)

Table 95: REF scenario - IMPACTS - Jobs (	(continued)						
Item	2020	2025	2030	2035	2040	2045	2050
On-the-Job Training - Natural gas sector -		40,605	40,624	41,408	41,379	41,485	39,059
4 to 10 years (jobs)							
On-the-Job Training - Natural gas sector -		29,757	28,985	28,529	27,393	26,723	24,643
None (jobs)							
On-the-Job Training - Natural gas sector -		5,419	5,354	5,332	5,154	5,079	4,737
Over 10 years (jobs)							
On-the-Job Training - Natural gas sector -		368,095	362,428	360,924	350,441	344,973	320,729
Up to 1 year (jobs)							
On-the-Job Training - Nuclear sector - 1 to		9,723	9,391	8,941	7,159	7,002	4,924
4 years (jobs)							
On-the-Job Training - Nuclear sector - 4		2,345	2,265	2,157	1,727	1,690	1,188
to 10 years (jobs)		0.070	0.050	0.000	0.470	0.45	
On-the-Job Training - Nuclear sector -		3,373	3,253	3,093	2,473	2,415	1,696
None (jobs)							
On-the-Job Training - Nuclear sector -		523	505	481	386	378	266
Over 10 years (jobs)		01.010	00.010	04 /40	05.447	07.500	47.000
On-the-Job Training - Nuclear sector - Up		34,260	33,042	31,412	25,117	24,533	17,228
to 1 year (jobs)		4// 05/	100 / 00	110 ( ( 0	1001//	100.010	
On-the-Job Training - Oil sector - 1 to 4		144,954	130,489	118,668	108,164	100,062	87,426
years (jobs)		01.01.1	011//	00 (75	0,,,00	01.000	
On-the-Job Training - Oil sector - 4 to 10		34,246	31,166	28,675	26,483	24,839	22,064
years (jobs)		10101	10.001	00.007	01.010	04.050	0 ( 010
On-the-Job Training - Oil sector - None		48,401	42,836	38,296	34,340	31,258	26,919
(jobs)		77//			F 04/	5.000	
On-the-Job Training - Oil sector - Over 10		7,764	6,995	6,369	5,814	5,389	4,722
years (jobs)							
On-the-Job Training - Oil sector - Up to 1		560,028	502,962	456,281	414,875	382,737	333,419
year (jobs)		/ 0.010		F / 400	E ( 704	50407	407470
On-the-Job Training - Solar PV sector - 1		42,913	40,790	54,138	56,781	59,127	107,173
to 4 years (jobs)		47.470	10.100	44,000	10.110	10.0.0	
On-the-Job Training - Solar PV sector - 4		14,173	13,199	16,932	18,142	19,068	33,968
to 10 years (jobs)		11.0/.5	44 / 77	15.07/	1/ 0/ 0	17.050	01 500
On-the-Job Training - Solar PV sector -		11,945	11,477	15,374	16,348	17,253	31,593
None (jobs)		0.701	0.057	0.105	0.000	0.057	
On-the-Job Training - Solar PV sector -		2,491	2,357	3,135	3,200	3,257	5,860
Over 10 years (jobs)		100.015	107 / 07	170.000	100.070	100.017	0/5 001
On-the-Job Training - Solar PV sector - Up		132,215	127,427	172,238	180,278	188,216	345,221
to 1 year (jobs) On-the-Job Training - Wind sector - 1 to 4		10.000	00 (1)	36,338	/ 0.000	/ F 001	51,530
<u> </u>		19,232	28,614	36,338	48,900	45,831	51,530
years (jobs) On-the-Job Training - Wind sector - 4 to		/ / 00	0 / 25	0,000	10 507	1/, 015	15,833
=		6,689	8,435	9,900	13,537	14,215	15,633
10 years (jobs) On-the-Job Training - Wind sector - None		E 00/	7020	0.007	10 E00	10.010	14,498
=		5,236	7,830	9,986	13,522	12,819	14,498
(jobs) On-the-Job Training - Wind sector - Over		976	1,601	2,103	2,772	2,371	2,642
10 years (jobs)		710	1,001	2,103	2,112	2,311	2,042
On-the-Job Training - Wind sector - Up to		58,622	93,163	121,640	163,485	148,558	168,190
1 year (jobs)		30,022	93,103	121,040	165,465	140,550	100,170
Related work experience - All sectors - 1		861,171	830,675	870,754	886,691	876,022	948,768
to 4 years (jobs)		001,171	630,613	610,134	000,071	010,022	740,100
Related work experience - All sectors - 4		544,572	527,263	554,940	567,124	561,354	608,672
to 10 years (jobs)		344,312	321,203	334,740	301,124	301,334	000,012
Related work experience - All sectors -		331,642	322,363	341,441	350,311	348,001	380,402
None (jobs)		331,042	322,303	341,441	330,311	340,001	300,402
Related work experience - All sectors -		148,813	144,302	151,477	153,599	150,486	162,318
Over 10 years (jobs)		140,013	144,302	151,411	100,077	130,400	102,310
Related work experience - All sectors - Up		456,377	442,106	467,972	478,632	472,248	520,741
to 1 year (jobs)		400,011	442,100	401,712	410,032	412,240	320,141
Related work experience - Biomass sector		24,570	23,497	22,459	21,305	20,969	20,627
- 1 to 4 years (jobs)		24,310	23,471	22,407	21,303	20,707	20,021
- 1 to 4 year a (Jona)							

Table 95: REF scenario - IMPACTS - Jobs (continued)

Table 95: REF scenario - IMPACTS - Jobs (	-						
Item	2020	2025	2030	2035	2040	2045	2050
Related work experience - Biomass sector		12,773	12,232	11,633	11,065	10,904	10,683
- 4 to 10 years (jobs)							
Related work experience - Biomass sector		13,981	13,454	12,993	12,440	12,256	12,113
- None (jobs)				2.21.2			
Related work experience - Biomass sector		3,517	3,394	3,249	3,117	3,085	3,032
- Over 10 years (jobs)							
Related work experience - Biomass sector		27,594	26,850	26,215	25,390	25,189	25,054
- Up to 1 year (jobs)		_					
Related work experience - CO2 sector - 1		0	0.391	0.497	0.535	0.591	0.629
to 4 years (jobs)							
Related work experience - CO2 sector - 4		0	0.248	0.315	0.339	0.375	0.4
to 10 years (jobs)							
Related work experience - CO2 sector -		0	0.136	0.173	0.186	0.205	0.218
None (jobs)							
Related work experience - CO2 sector -		0	0.076	0.097	0.105	0.116	0.123
Over 10 years (jobs)							
Related work experience - CO2 sector -		0	0.177	0.225	0.242	0.268	0.285
Up to 1 year (jobs)							
Related work experience - Coal sector - 1		44,669	27,422	19,283	16,215	14,491	12,628
to 4 years (jobs)							
Related work experience - Coal sector - 4		25,249	15,610	10,989	9,304	8,436	7,458
to 10 years (jobs)							
Related work experience - Coal sector -		15,674	9,651	6,784	5,718	5,147	4,519
None (jobs)							
Related work experience - Coal sector -		6,389	3,965	2,805	2,382	2,162	1,914
Over 10 years (jobs)							
Related work experience - Coal sector -		25,283	15,455	10,897	9,125	8,050	6,923
Up to 1 year (jobs)							
Related work experience - Grid sector - 1		156,396	164,314	202,533	226,749	239,785	264,923
to 4 years (jobs)							
Related work experience - Grid sector - 4		102,492	107,602	132,532	148,268	156,675	172,969
to 10 years (jobs)			,	,	·		•
Related work experience - Grid sector -		64,240	67,596	83,442	93,553	99,068	109,600
None (jobs)				,	•		•
Related work experience - Grid sector -		26,566	27,906	34,391	38,496	40,702	44,962
Over 10 years (jobs)		-,	,	- ,-		, -	, -
Related work experience - Grid sector -		82,812	87,338	108,067	121,456	128,936	143,007
Up to 1 year (jobs)		- ,-	- ,	,	,	.,	-,
Related work experience - Natural gas		210,446	207,459	207,046	201,646	198,838	185,049
sector - 1 to 4 years (jobs)		,				,	,.
Related work experience - Natural gas		140,009	138,076	138,085	135,005	133,351	124,173
sector - 4 to 10 years (jobs)			.00,0.0	.55,555	.00,000	.00,001	, 0
Related work experience - Natural gas		82,567	81,821	82,254	80,821	80,174	74,939
sector - None (jobs)		02,001	01,021	02,204	00,021	00,114	14,707
Related work experience - Natural gas		38,021	37,332	37,008	35,713	35,028	32,487
sector - Over 10 years (jobs)		00,021	01,002	31,000	00,110	00,020	02,401
Related work experience - Natural gas		99,217	97,937	97,761	95,087	93,846	87,481
sector - Up to 1 year (jobs)		77,211	71,701	71,101	73,001	75,040	01,401
Related work experience - Nuclear sector		18,746	18,080	17,189	13,745	13,426	9,428
- 1 to 4 years (jobs)		10,140	10,000	11,107	13,143	13,420	7,420
Related work experience - Nuclear sector		12,161	11,727	11,147	8,912	8,703	6,111
		12,101	11,727	11,147	0,912	8,703	0,111
- 4 to 10 years (jobs)		/ 001	/ 11/	E 0.01	/ //1	/ 550	2.007
Related work experience - Nuclear sector		6,331	6,114	5,821	4,661	4,559	3,206
- None (jobs)		0.7//	0.440	0.404	0.7/0	0 (0)	4.007
Related work experience - Nuclear sector		3,744	3,613	3,436	2,749	2,686	1,887
- Over 10 years (jobs)		0.010	0.000	0 / 51	, == ,		, ,
Related work experience - Nuclear sector		9,242	8,923	8,491	6,796	6,644	4,670
- Up to 1 year (jobs)							
		0.0		- · · -			
Related work experience - Oil sector - 1 to 4 years (jobs)		303,081	272,244	246,965	224,455	206,940	180,054

Table 95: REF scenario - IMPACTS - Jobs (continued)

Table 75. KEF SCETTUTTO - IMPACTS - JUDS (C	onunueuj						
Item	2020	2025	2030	2035	2040	2045	2050
Related work experience - Oil sector - 4 to		183,894	164,890	149,308	135,444	124,649	108,255
10 years (jobs)							
Related work experience - Oil sector -		107,206	96,690	88,143	80,619	74,855	65,744
None (jobs)							
Related work experience - Oil sector -		52,877	47,319	42,767	38,712	35,557	30,796
Over 10 years (jobs)							
Related work experience - Oil sector - Up		148,335	133,305	121,106	110,446	102,284	89,701
to 1 year (jobs)							
Related work experience - Solar PV sector		70,756	68,003	91,408	96,299	100,947	184,802
- 1 to 4 years (jobs)							
Related work experience - Solar PV sector		46,005	44,050	58,972	61,963	64,746	118,093
- 4 to 10 years (jobs)							
Related work experience - Solar PV sector		29,264	28,056	37,586	39,654	41,591	76,034
- None (jobs)							
Related work experience - Solar PV sector		12,117	11,674	15,833	16,370	16,929	31,009
- Over 10 years (jobs)							
Related work experience - Solar PV sector		45,596	43,466	58,018	60,462	62,708	113,878
- Up to 1 year (jobs)							
Related work experience - Wind sector - 1		32,506	49,656	63,870	86,278	80,625	91,257
to 4 years (jobs)							
Related work experience - Wind sector - 4		21,989	33,076	42,274	57,163	53,891	60,930
to 10 years (jobs)							
Related work experience - Wind sector -		12,381	18,980	24,418	32,844	30,350	34,247
None (jobs)							
Related work experience - Wind sector -		5,582	9,099	11,988	16,060	14,336	16,231
Over 10 years (jobs)							
Related work experience - Wind sector -		18,297	28,832	37,417	49,870	44,591	50,028
Up to 1 year (jobs)					0.001		
Wage income - Biomass (million \$2019)		4,270	4,184	4,096	3,994	4,034	4,069
Wage income - CO2 (million \$2019)		0	0.075	0.097	0.107	0.121	0.132
Wage income - Coal (million \$2019)		6,924	4,321	3,077	2,630	2,405	2,146
Wage income - Grid (million \$2019)		27,049	28,820	36,041	40,954	43,974	49,351
Wage income - Natural Gas (million \$2019)		37,783	37,773	38,180	37,614	37,575	35,454
Wage income - Nuclear (million \$2019)		3,590	3,546	3,455	2,833	2,838	2,046
Wage income - Oil (million \$2019)		52,354	47,625	43,737	40,221	37,516	33,003
Wage income - Solar (million \$2019)		11,441	11,111	15,087	16,132	17,164	31,851
Wage income - Wind (million \$2019)		5,569	8,423	10,879	14,954	14,451	16,615