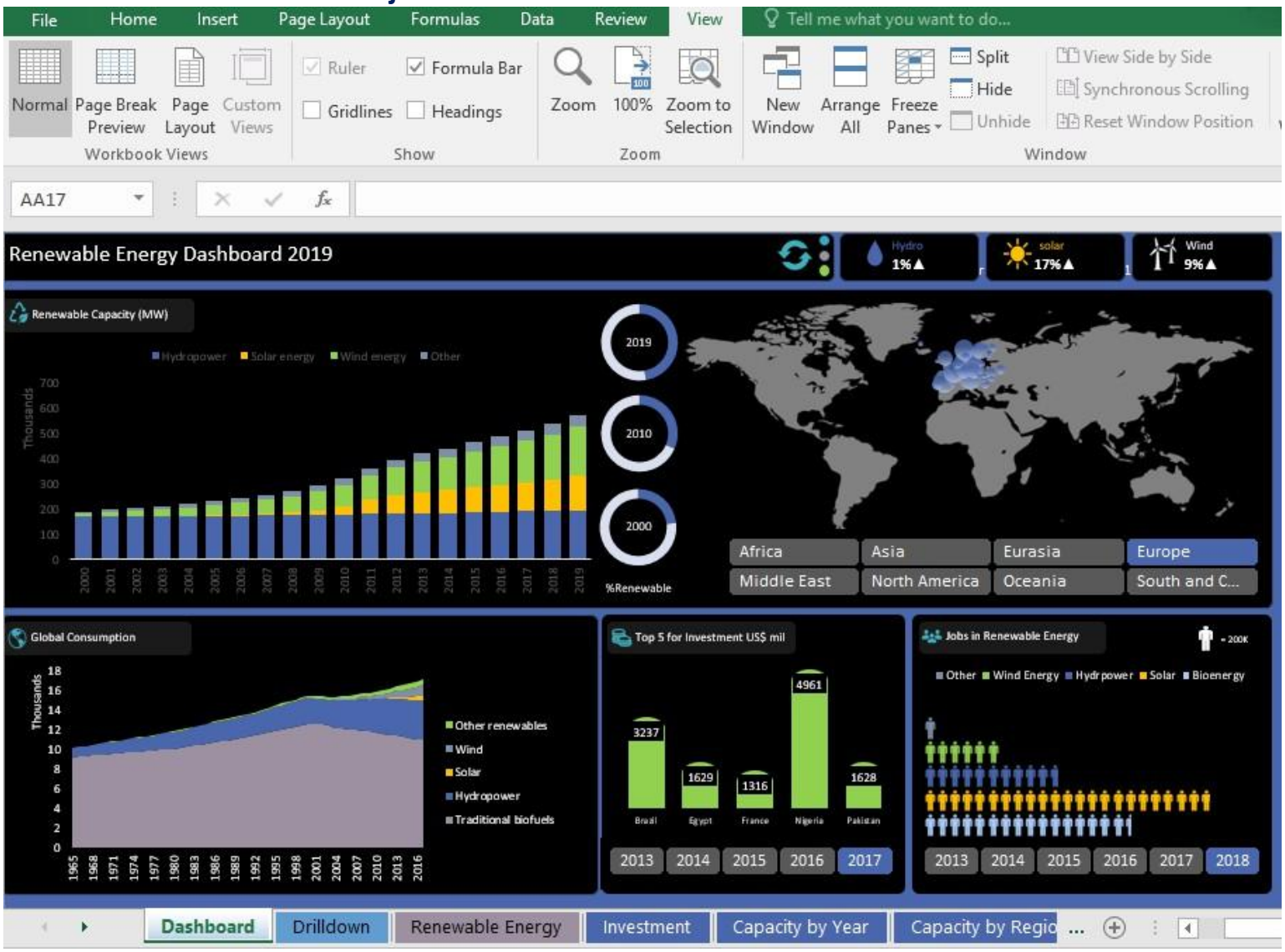
Project-2: Renewable Energy Dashboard

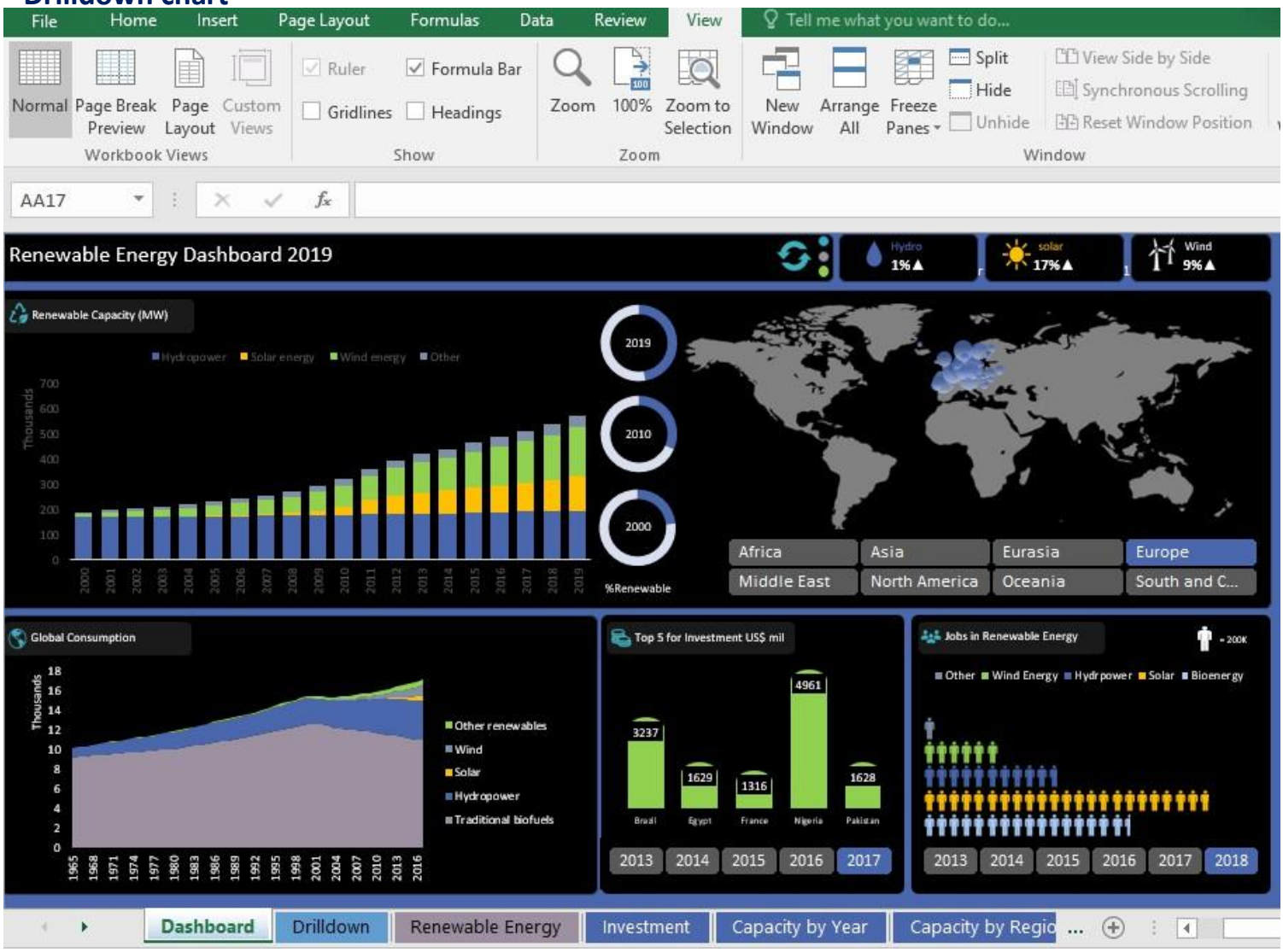
Dashboard

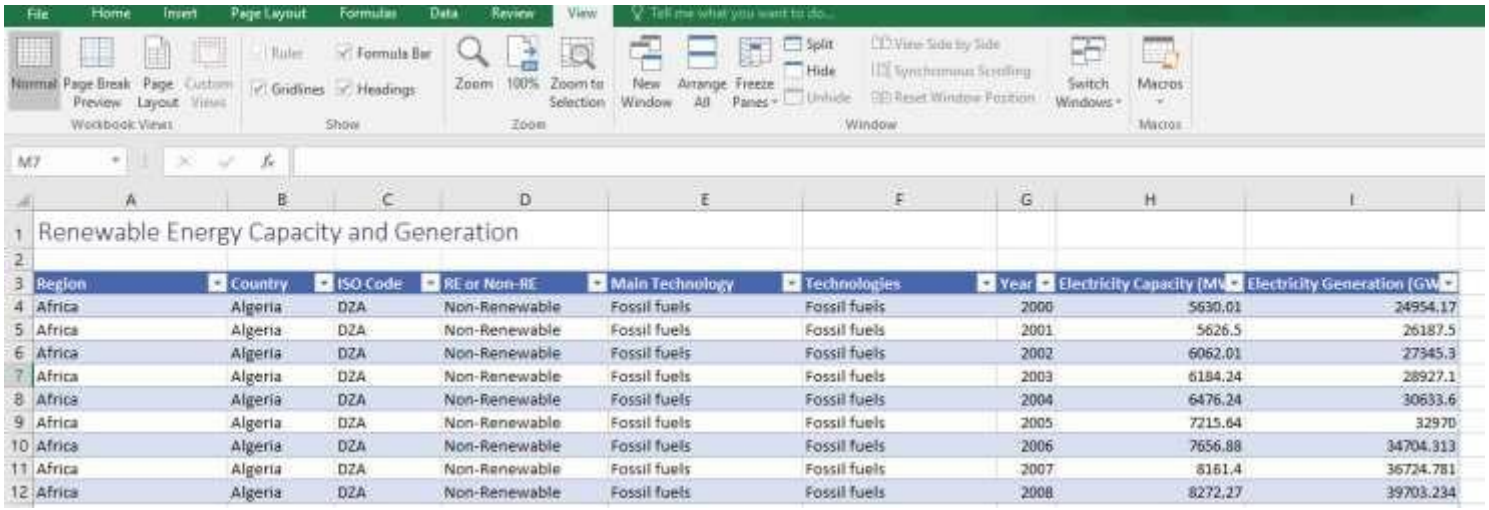
- ✓ his Dashboard contain visualization about...
- ✓ Renewable capacity(MW) by different Region
- ✓ Global Consumption of Renewable Energy
- ✓ Top 5 Country for investment in different year
- ✓ Jobs in Renewable Energy in different year
- ✓ % of Renewable and noon-renewable energy
- ✓ Capacity Trends by Top 5 Country in Region
- ✓ Energy generation of Renewable & Non-Renewable Energy Region-wise.

Screenshots of Project - 2



Drilldown chart

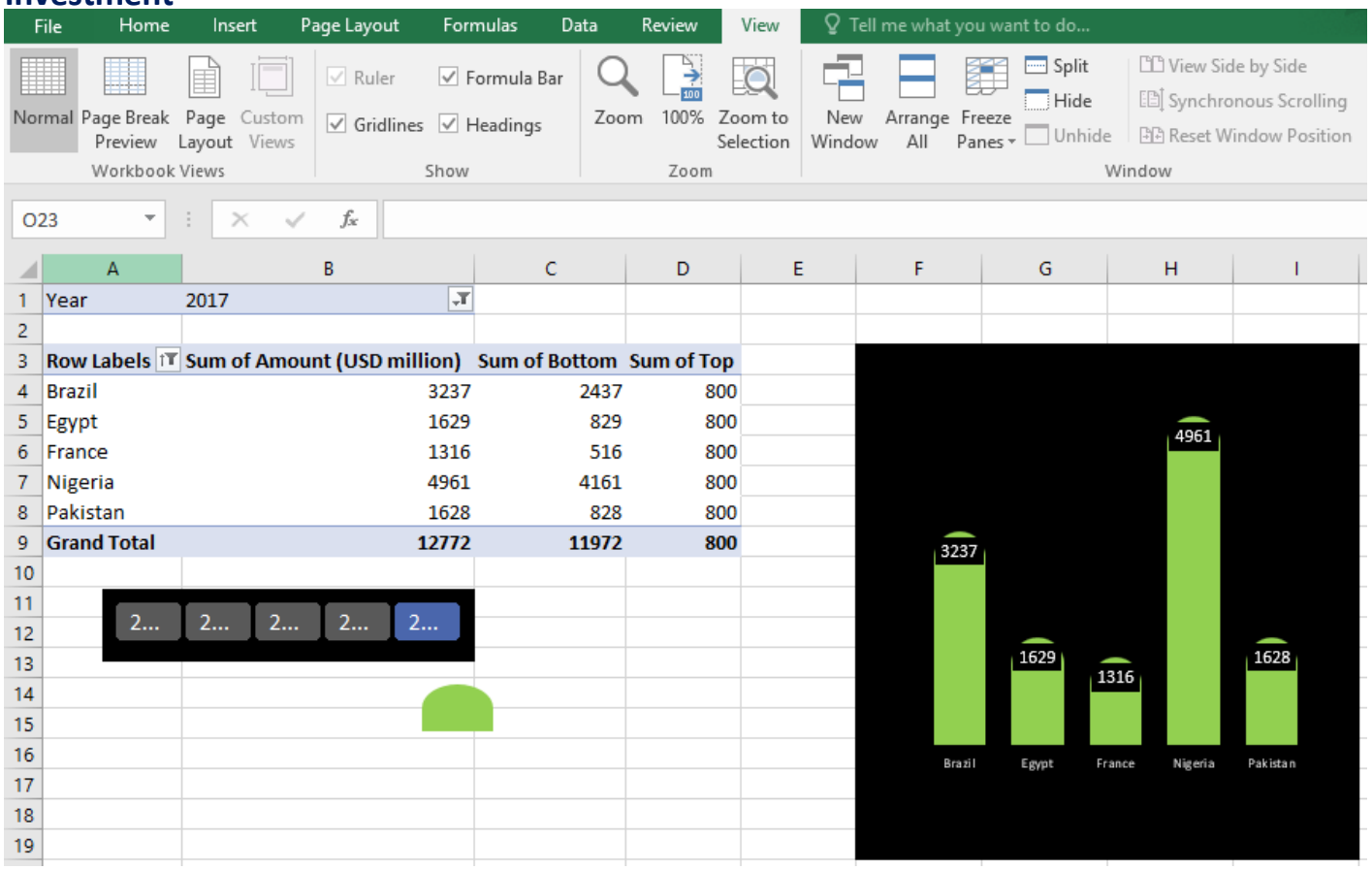




Renewable Energy Capacity and Generation

Region	Country	ISO Code	RE or Non-RE	Main Technology	Technologies	Year	Electricity Capacity (MW	Electricity Generation (GW
Africa	Algeria	DZA	Non-Renewable	Fossil fuels	Fossil fuels	2000	5630.01	24954.17
Africa	Algeria	DZA	Non-Renewable	Fossil fuels	Fossil fuels	2001	5626.5	26187.5
Africa	Algeria	DZA	Non-Renewable	Fossil fuels	Fossil fuels	2002	6062.01	27345.3
Africa	Algeria	DZA	Non-Renewable	Fossil fuels	Fossil fuels	2003	6184.24	28927.1
Africa	Algeria	DZA	Non-Renewable	Fossil fuels	Fossil fuels	2004	6476.24	30633.6
Africa	Algeria	DZA	Non-Renewable	Fossil fuels	Fossil fuels	2005	7215.64	32970
Africa	Algeria	DZA	Non-Renewable	Fossil fuels	Fossil fuels	2006	7656.88	34704.313
Africa	Algeria	DZA	Non-Renewable	Fossil fuels	Fossil fuels	2007	8161.4	36724.781
Africa	Algeria	DZA	Non-Renewable	Fossil fuels	Fossil fuels	2008	8272.27	39703.234

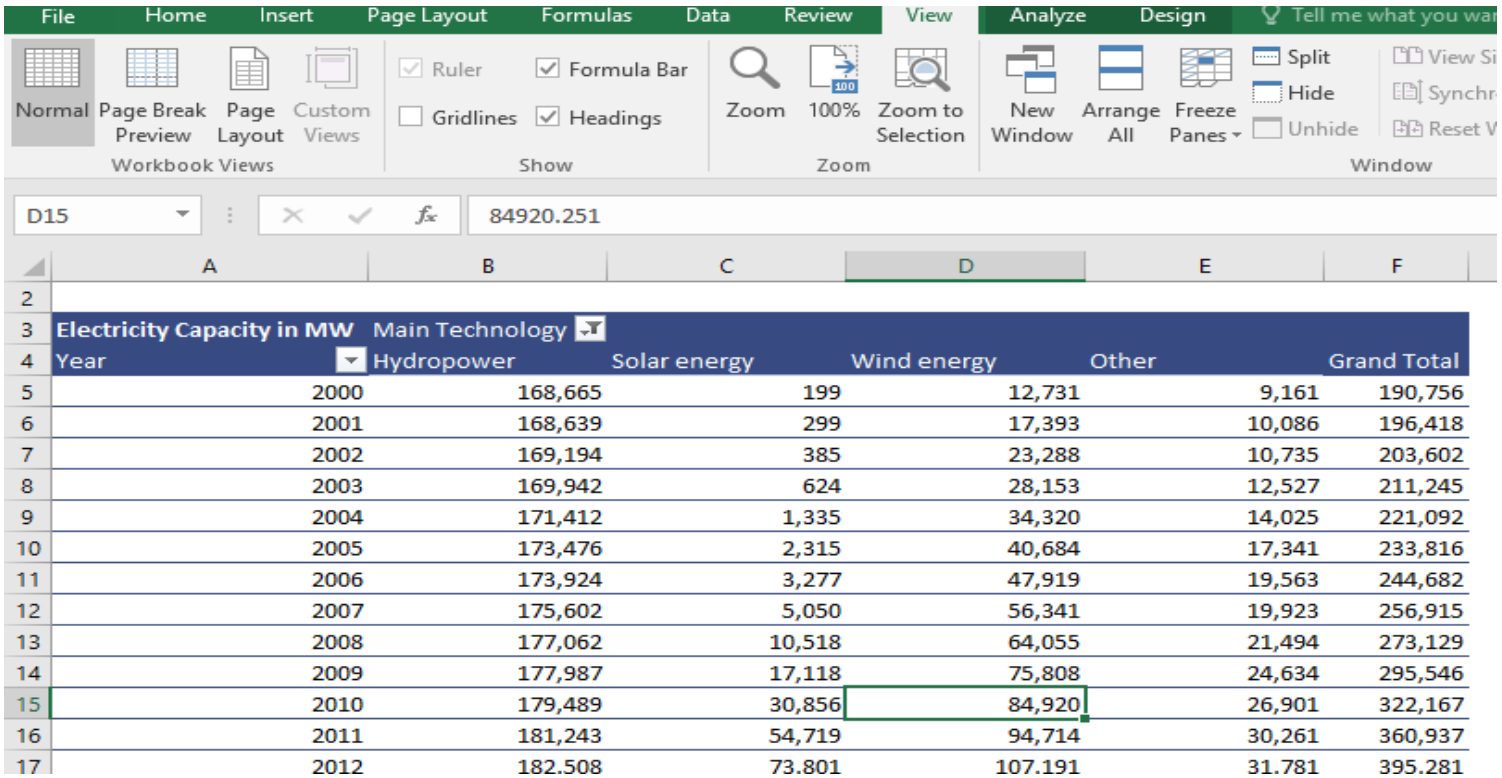
Investment



Year	2017

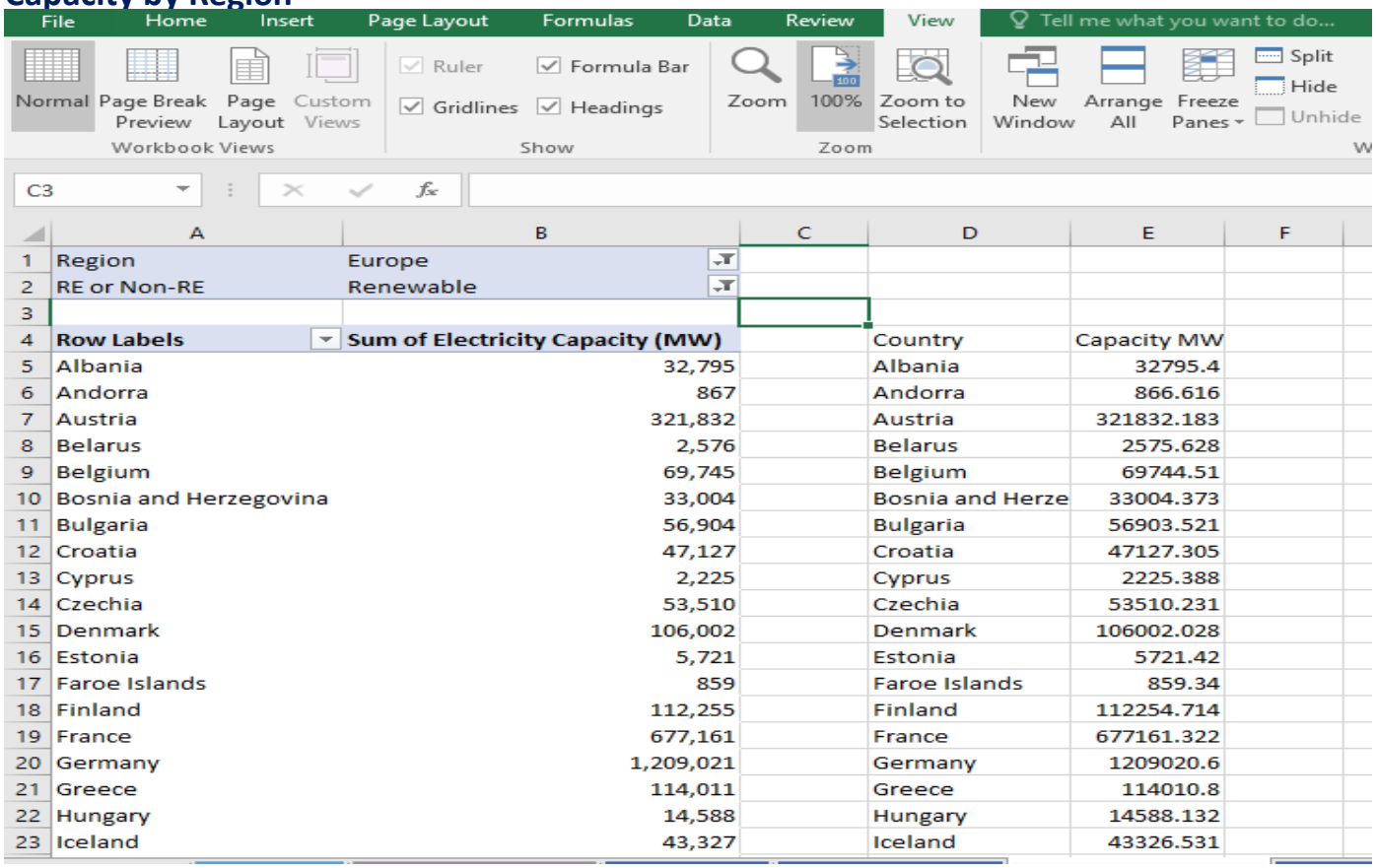
Row Labels	Sum of Amount (USD million)	Sum of Bottom	Sum of Top
Brazil	3237	2437	800
Egypt	1629	829	800
France	1316	516	800
Nigeria	4961	4161	800
Pakistan	1628	828	800
Grand Total	**12772**	**11972**	**800**

Capacity by years



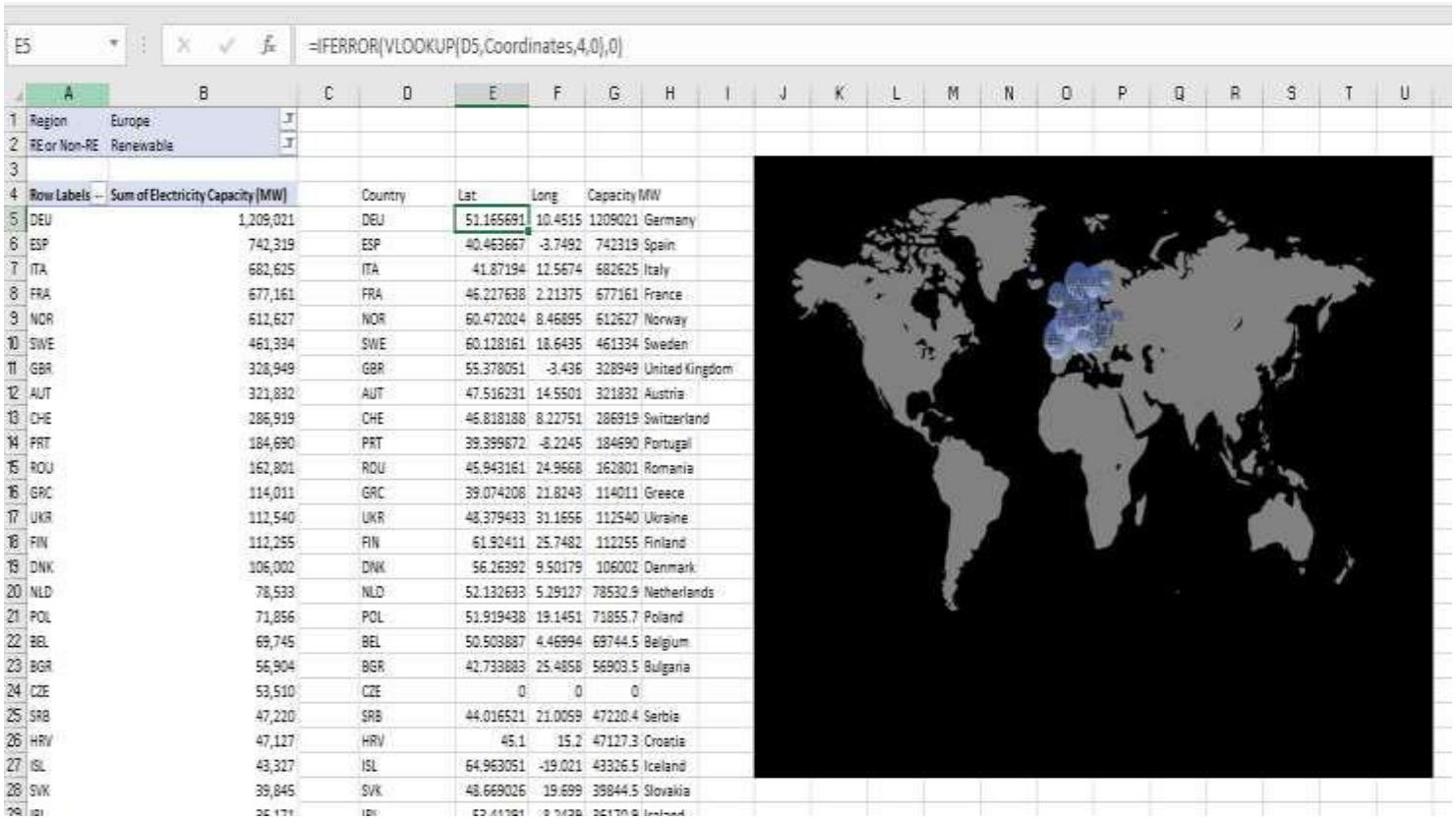
Electricity Capacity in MW	Main Technology				
Year	Hydropower	Solar energy	Wind energy	Other	Grand Total
2000	168,665	199	12,731	9,161	190,756
2001	168,639	299	17,393	10,086	196,418
2002	169,194	385	23,288	10,735	203,602
2003	169,942	624	28,153	12,527	211,245
2004	171,412	1,335	34,320	14,025	221,092
2005	173,476	2,315	40,684	17,341	233,816
2006	173,924	3,277	47,919	19,563	244,682
2007	175,602	5,050	56,341	19,923	256,915
2008	177,062	10,518	64,055	21,494	273,129
2009	177,987	17,118	75,808	24,634	295,546
2010	179,489	30,856	84,920	26,901	322,167
2011	181,243	54,719	94,714	30,261	360,937
2012	182.508	73.801	107.191	31.781	395.281

Capacity by Region



	A	B	C	D	E	F
1	Region	Europe				
2	RE or Non-RE	Renewable				
3						
4	Row Labels	Sum of Electricity Capacity (MW)		Country	Capacity MW	
5	Albania	32,795		Albania	32795.4	
6	Andorra	867		Andorra	866.616	
7	Austria	321,832		Austria	321832.183	
8	Belarus	2,576		Belarus	2575.628	
9	Belgium	69,745		Belgium	69744.51	
10	Bosnia and Herzegovina	33,004		Bosnia and Herze	33004.373	
11	Bulgaria	56,904		Bulgaria	56903.521	
12	Croatia	47,127		Croatia	47127.305	
13	Cyprus	2,225		Cyprus	2225.388	
14	Czechia	53,510		Czechia	53510.231	
15	Denmark	106,002		Denmark	106002.028	
16	Estonia	5,721		Estonia	5721.42	
17	Faroe Islands	859		Faroe Islands	859.34	
18	Finland	112,255		Finland	112254.714	
19	France	677,161		France	677161.322	
20	Germany	1,209,021		Germany	1209020.6	
21	Greece	114,011		Greece	114010.8	
22	Hungary	14,588		Hungary	14588.132	
23	Iceland	43,327		Iceland	43326.531	

Capacity by Region with Latitude and Longitude



	A	B	C	D	E	F	G	H
1	Region	Europe						
2	RE or Non-RE	Renewable						
3								
4	Row Labels	Sum of Electricity Capacity (MW)		Country	Lat	Long	Capacity MW	
5	DEU	1,209,021		DEU	51.165691	10.4515	1209021	Germany
6	ESP	742,319		ESP	40.463667	-3.7492	742319	Spain
7	ITA	682,625		ITA	41.87194	12.5674	682625	Italy
8	FRA	677,161		FRA	46.227638	2.21375	677161	France
9	NOR	612,627		NOR	60.472024	8.46895	612627	Norway
10	SWE	461,334		SWE	60.128161	18.6435	461334	Sweden
11	GBR	328,949		GBR	55.378051	-3.436	328949	United Kingdom
12	AUT	321,832		AUT	47.516231	14.5501	321832	Austria
13	CHE	286,919		CHE	46.818188	8.22751	286919	Switzerland
14	PRT	184,690		PRT	39.399872	-8.2245	184690	Portugal
15	ROU	162,801		ROU	45.943161	24.9668	162801	Romania
16	GRC	114,011		GRC	39.074208	21.8243	114011	Greece
17	UKR	112,540		UKR	48.379433	31.1656	112540	Ukraine
18	FIN	112,255		FIN	61.92411	25.7482	112255	Finland
19	DNK	106,002		DNK	56.26392	9.50179	106002	Denmark
20	NLD	78,533		NLD	52.132633	5.29127	78532.9	Netherlands
21	POL	71,856		POL	51.919438	19.1451	71855.7	Poland
22	BEL	69,745		BEL	50.503887	4.46994	69744.5	Belgium
23	BGR	56,904		BGR	42.733883	25.4858	56903.5	Bulgaria
24	CZE	53,510		CZE	0	0	0	
25	SRB	47,220		SRB	44.016521	21.0059	47220.4	Serbia
26	HRV	47,127		HRV	45.1	15.2	47127.3	Croatia
27	ISL	43,327		ISL	64.963051	-19.021	43326.5	Iceland
28	SVK	39,845		SVK	48.669026	19.699	39844.5	Slovakia

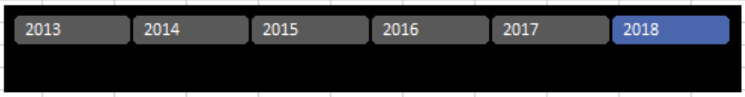
Year Wise

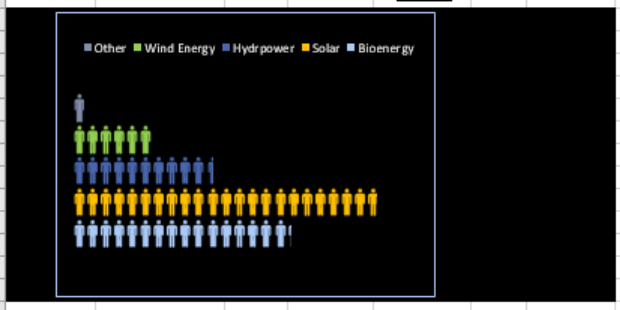
Year	2000		23%
Row Labels	Sum of Electricity Capacity (MW)		
Renewable	23%		
Non-Renewable	77%		
Grand Total	100%		

Year	2010
Row Labels	Sum of Electricity Capacity (MW)
Renewable	32%
Non-Renewable	68%
Grand Total	100%

Jobs

Year	2018
	Column Labels
	Bioenergy	Solar	Hydrpower	Wind Energy	Other
Sum of Jobs	3184000	4E+06	2053000	1160000	2E+05

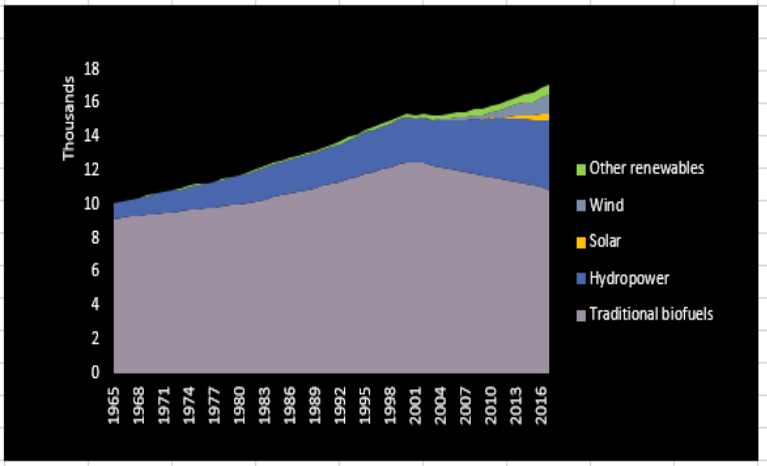




Consumption

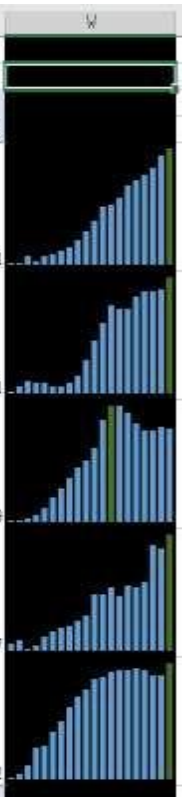
F20 | 49.3853638496203

Hydropower	Solar	Wind	Other renewables	Grand Total
919.7702757	0	0	17.9852321	10100.21245
986.2858717	0	0	19.8060069	10224.26459
1009.244569	0	0	19.98657074	10303.45842
1059.06286	0	0	22.1200451	10411.80561
1122.442526	0	0	23.25796438	10533.06156
1174.560348	0	0	25.69319599	10644.69799
1221.63273	0	0	27.87916846	10748.09386
1276.766396	0	0	29.87710082	10859.67331
1292.752251	0	0	32.08492382	10932.62694
1419.046721	0	0	33.95881358	11115.86915
1440.451903	0	0	34.48367863	11193.18874
1435.228335	0	0	38.46095587	11247.6495
1472.559263	0	0	40.56255723	11343.1084



Small Multiples

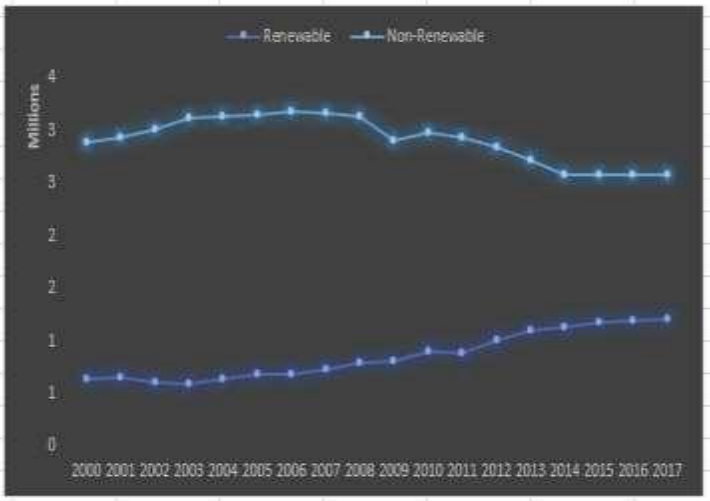
Region	Europe																				
Sum of Electricity Capacity (MW)	Column Labels																				
Row Labels	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Grand Total
Germany	118884	120118	126345	120784	126013	128485	131968	136169	142435	151716	162872	176423	178404	185308	197506	203257	208217	215326	229197	235863	3295391
France	114518	115509	116625	116395	116172	115730	115719	116410	117574	120522	124138	127337	130643	130052	130097	132219	133150	133089	133457	135816	2475171
Italy	75510	76093	76507	78313	81336	85498	89486	93622	98677	101569	106615	118806	124604	124520	121753	116970	114168	114247	115227	115207	2028725
United Kingdom	78393	79865	76822	78347	80753	82379	83633	84295	85767	87465	93685	93827	96047	93620	96622	96395	97739	109286	108279	112529	1815747
Spain	53922	55876	60494	68901	69571	76566	81205	88474	93648	96511	101740	102737	105094	105907	106334	106753	105945	103863	103737	109642	1796922



Generation Chart – Non Renewable

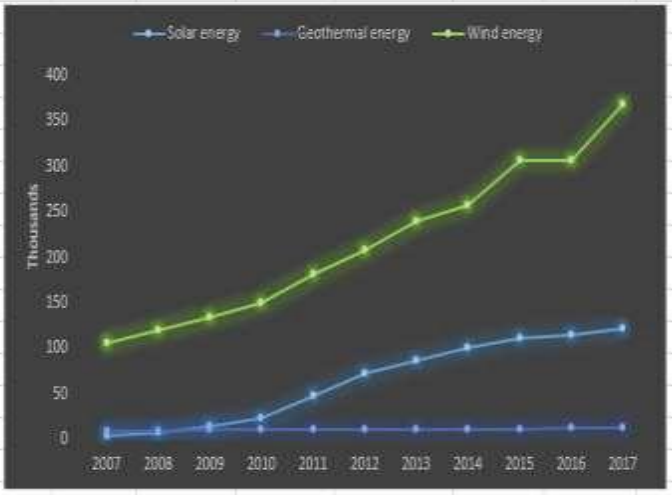
M23

Sum of Electricity Generation (GWh)	Column Labels		
Row Labels	Renewable	Non-Renewable	Grand Total
2000	638643	2886086	3524729
2001	650511	2942996	3593507
2002	606729	3018127	3624856
2003	588355	3114358	3702713
2004	643358	3130564	3773922
2005	677624	3146660	3824284
2006	686953	3181102	3868054
2007	729525	3170684	3900209
2008	790116	3129136	3919252
2009	814713	2909147	3723859
2010	898824	2985939	3884762
2011	885055	2941070	3826125
2012	1004267	2841798	3846065
2013	1093726	2717614	3811340
2014	1135191	2588166	3723357
2015	1171930	2582072	3754002
2016	1194890	2586423	3781313
2017	1211118	2586790	3797908
Grand Total	15421525	52458732	67880257



Generation Chart – Renewable

RE or Non-RE	Renewable
Sum of Electricity Generation (GWh)	Column Labels
Row Labels	Geothermal energy	Solar energy	Wind energy	Grand Total
2007	9351	3829	105362	118543
2008	9769	7504	120535	137808
2009	10099	14193	134117	158409
2010	10067	23383	150371	183821
2011	10648	47756	181498	239903
2012	11030	72195	208046	291271
2013	11271	87227	239466	337964
2014	11542	99998	256987	368527
2015	11618	110514	306054	428185
2016	11800	113851	306528	432179
2017	11970	122499	367646	502115
Grand Total	119166	702948	2376610	3198724

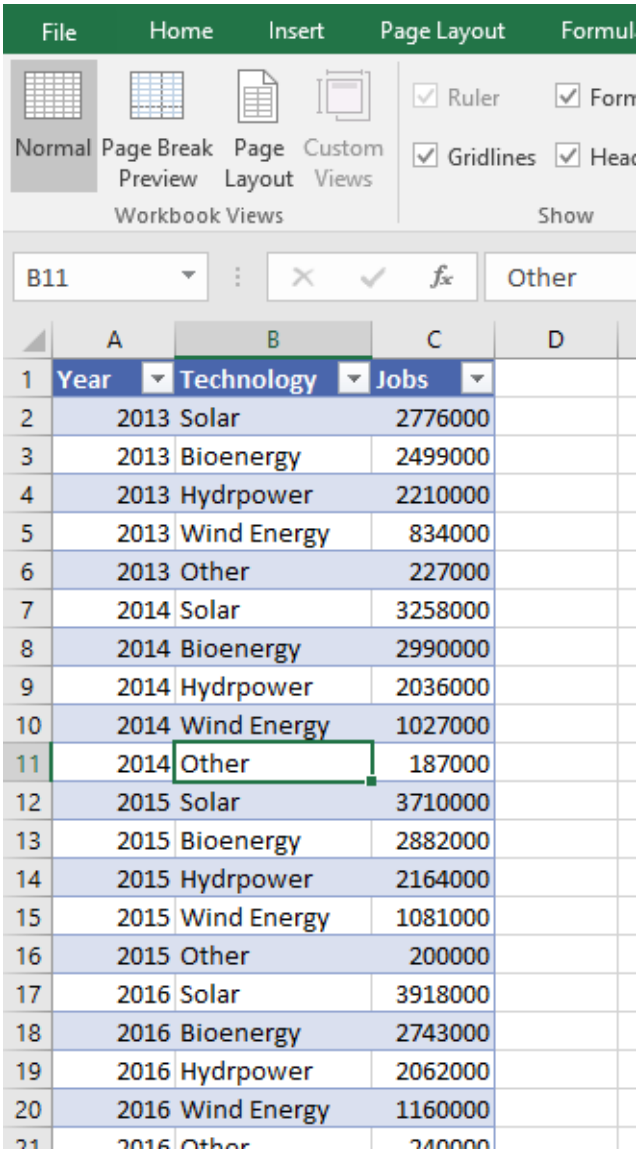


Renewable Data

Investment in Renewable Energy

Recipient Country/Ar	ISO-cod	Region	Project	Date	Investo	Technology	Asset Clas	Amount (USD millio	Source
Afghanistan	AFG	Asia	Decentralized Power Supply through Renewable Energies	1/01/2013	Others	Multiple renewab	Grant	20.94393394	2013 OECD Crec
Chile	CHL	South Am	Renewable Energy and Energy Efficiency Programme in Chile (AM)	1/01/2013	Others	Multiple renewab	Grant	1.846094985	2013 OECD Crec
Palestine	PSE	Middle Ea	Assistance to Social and Development Projects in Palestine - Essahaba C	1/01/2013	Others	Solar energy	Grant	0.045061927	2013 OECD Crec
Romania	ROU	Europe	Smardan Wind Project	1/01/2013	EBRD	Wind energy	Loan	68.32739934	http://www.eb
Brazil	BRA	South Am	Dos Arcas Wind Project	2/01/2013	BNDES	Wind energy	Loan	23.23537661	Online databas
Nepal	NPL	Asia	PROJECT PREPARATORY FACILITY FOR ENERGY	2/01/2013	AsDB	Renewable Hydro	Grant	14.19450689	2013 OECD Crec
Other Cent Am Carib	XCC	Central Ar	Development of a Clean and Sustainable Electric Grid in Latin America	2/01/2013	IADB	Multiple renewab	Grant	0.720990826	2013 OECD Crec
Senegal	SEN	Africa	SOLAR ENERGY AT THE SERVICE OF EDUCATION. A PHOTOVOLTAIC POWE	2/01/2013	Others	Solar energy	Grant	0.00138199	2013 OECD Crec
Other Africa	XAF	Africa	Employment through development of renewable energy	3/01/2013	Others	Multiple renewab	Grant	5.817765269	2013 OECD Crec
Thailand	THA	Asia	TC AGGREGATED ACTIVITIES	3/01/2013	JICA	Multiple renewab	Grant	1.052247116	2013 OECD Crec
Brazil	BRA	South Am	Faisa IV Wind Project	4/01/2013	BNDES	Wind energy	Loan	6.301203807	Online databas
Bosnia Herzg	BIH	Europe	Energy Sector Program III	5/01/2013	KFW	Multiple renewab	Loan	11.63554807	2013 OECD Crec
Brazil	BRA	South Am	Corredor do Senandes IV Wind Project	5/01/2013	BNDES	Wind energy	Loan	25.88641507	Online databas
Other Africa	XAF	Africa	CEDEAO/ECOWAS 2013. Recruitment of technical assistance ECREEE (Rej	5/01/2013	Others	Multiple renewab	Grant	0.09131202	2013 OECD Crec
Romania	ROU	Europe	Crucea North Wind Farm	5/01/2013	EBRD	Wind energy	Loan	81.44672866	http://www.eb
Brazil	BRA	South Am	Bagasse Pre-Treatment Equipment	6/01/2013	BNDES	Bioenergy	Loan	6.777308448	Online databas

Jobs Data and World Consumption



	A	B	C	D
1	Year	Technology	Jobs	
2	2013	Solar	2776000	
3	2013	Bioenergy	2499000	
4	2013	Hydrpower	2210000	
5	2013	Wind Energy	834000	
6	2013	Other	227000	
7	2014	Solar	3258000	
8	2014	Bioenergy	2990000	
9	2014	Hydrpower	2036000	
10	2014	Wind Energy	1027000	
11	2014	Other	187000	
12	2015	Solar	3710000	
13	2015	Bioenergy	2882000	
14	2015	Hydrpower	2164000	
15	2015	Wind Energy	1081000	
16	2015	Other	200000	
17	2016	Solar	3918000	
18	2016	Bioenergy	2743000	
19	2016	Hydrpower	2062000	
20	2016	Wind Energy	1160000	
21	2016	Other	240000	

	A	B	C	D	E
1	Region	Year	Type	Value	Date
2	World	1965	Traditiona	9162.457	1/01/1965
3	World	1965	Hydropow	919.7703	1/01/1965
4	World	1965	Solar	0	1/01/1965
5	World	1965	Wind	0	1/01/1965
6	World	1965	Other ren	17.98523	1/01/1965
7	World	1966	Traditiona	9218.173	1/01/1966
8	World	1966	Hydropow	986.2859	1/01/1966
9	World	1966	Solar	0	1/01/1966
10	World	1966	Wind	0	1/01/1966
11	World	1966	Other ren	19.80601	1/01/1966
12	World	1967	Traditiona	9274.227	1/01/1967
13	World	1967	Hydropow	1009.245	1/01/1967
14	World	1967	Solar	0	1/01/1967
15	World	1967	Wind	0	1/01/1967
16	World	1967	Other ren	19.98657	1/01/1967
17	World	1968	Traditiona	9330.623	1/01/1968
18	World	1968	Hydropow	1059.063	1/01/1968
19	World	1968	Solar	0	1/01/1968
20	World	1968	Wind	0	1/01/1968
21	World	1968	Other ren	22.12005	1/01/1968