# Net-Zero America - south carolina state report v2

Larson et al. 2020

February 2021

### Reading guide

IN DRAFT

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Table 1: *E- scenario - PILLAR 1: Efficiency/Electrification - Residential*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Residential HVAC investment in 2020s vs. REF - Cumulative 5-yr | 0 | 3.765 | 3.563 | 0 | 0 | 0 | 0 |
| Sale of space heating units by type - Electric Heat Pump | 0.361 | 0.579 | 0.586 | 0.598 | 0.609 | 0.624 | 0.646 |
| Sale of space heating units by type - Electric Resistance | 0.264 | 0.224 | 0.222 | 0.214 | 0.205 | 0.192 | 0.169 |
| Sale of space heating units by type - Fossil | 0.062 | 0.064 | 0.055 | 0.051 | 0.051 | 0.05 | 0.051 |
| Sale of space heating units by type - Gas | 0.313 | 0.133 | 0.137 | 0.136 | 0.135 | 0.134 | 0.134 |
| Sales of cooking units - Electric Resistance | 0.825 | 0.825 | 0.825 | 0.825 | 0.825 | 0.825 | 0.825 |
| Sales of cooking units - Gas | 0.175 | 0.175 | 0.175 | 0.175 | 0.175 | 0.175 | 0.175 |
| Sales of water heating units by type - Electric Heat Pump | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sales of water heating units by type - Electric Resistance | 0.677 | 0.798 | 0.798 | 0.796 | 0.795 | 0.795 | 0.794 |
| Sales of water heating units by type - Gas Furnace | 0.282 | 0.175 | 0.175 | 0.177 | 0.178 | 0.178 | 0.179 |
| Sales of water heating units by type - Other | 0.041 | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 |

Table 2: *E- scenario - PILLAR 1: Efficiency/Electrification - Transportation*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| End-use technology sales by technology - HDV - diesel | 0.981 | 0.982 | 0.979 | 0.97 | 0.956 | 0.935 | 0.916 |
| End-use technology sales by technology - HDV - EV | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| End-use technology sales by technology - HDV - gasoline | 0.002 | 0.002 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 |
| End-use technology sales by technology - HDV - hybrid | 0.001 | 0.001 | 0.001 | 0.001 | 0.002 | 0.002 | 0.002 |
| End-use technology sales by technology - HDV - hydrogen FC | 0.001 | 0.001 | 0.002 | 0.002 | 0.002 | 0.002 | 0.003 |
| End-use technology sales by technology - HDV - other | 0.015 | 0.013 | 0.016 | 0.024 | 0.037 | 0.057 | 0.076 |
| End-use technology sales by technology - LDV - diesel | 0.015 | 0.019 | 0.022 | 0.02 | 0.018 | 0.017 | 0.016 |
| End-use technology sales by technology - LDV - EV | 0.038 | 0.059 | 0.067 | 0.083 | 0.101 | 0.116 | 0.128 |
| End-use technology sales by technology - LDV - gasoline | 0.898 | 0.862 | 0.839 | 0.82 | 0.798 | 0.779 | 0.764 |
| End-use technology sales by technology - LDV - hybrid | 0.047 | 0.055 | 0.068 | 0.073 | 0.079 | 0.084 | 0.088 |
| End-use technology sales by technology - LDV - hydrogen FC | 0.001 | 0.004 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 |
| End-use technology sales by technology - LDV - other | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| End-use technology sales by technology - MDV - diesel | 0.652 | 0.635 | 0.616 | 0.596 | 0.58 | 0.565 | 0.552 |
| End-use technology sales by technology - MDV - EV | 0 | 0.001 | 0.003 | 0.007 | 0.009 | 0.01 | 0.01 |
| End-use technology sales by technology - MDV - gasoline | 0.34 | 0.355 | 0.37 | 0.385 | 0.397 | 0.408 | 0.417 |
| End-use technology sales by technology - MDV - hybrid | 0.004 | 0.004 | 0.005 | 0.006 | 0.007 | 0.008 | 0.009 |
| End-use technology sales by technology - MDV - hydrogen FC | 0.002 | 0.002 | 0.002 | 0.003 | 0.003 | 0.004 | 0.005 |
| End-use technology sales by technology - MDV - other | 0.003 | 0.003 | 0.003 | 0.003 | 0.004 | 0.005 | 0.007 |

Table 3: *E- scenario - PILLAR 6: Land carbon sinks - Agriculture*

| variable_name | 2020 | 2030 | 2050 |
|---|---|---|---|
| Carbon sink enhancement potential - Accelerate regeneration | 0 | 0 | 550.669 |
| Carbon sink enhancement potential - All (not counting overlap) | 0 | 0 | 60516.4 |
| Carbon sink enhancement potential - Avoid deforestation | 0 | 0 | 2606.646 |
| Carbon sink enhancement potential - Extend rotation length | 0 | 0 | 12368.4 |
| Carbon sink enhancement potential - Improve plantations | 0 | 0 | 4872.5 |
| Carbon sink enhancement potential - Increase retention of HWP | 0 | 0 | 29512.5 |
| Carbon sink enhancement potential - Increase trees outside forests | 0 | 0 | 893.663 |
| Carbon sink enhancement potential - Reforest cropland | 0 | 0 | 1423.14 |
| Carbon sink enhancement potential - Reforest pasture | 0 | 0 | 3724.5 |
| Carbon sink enhancement potential - Restore productivity | 0 | 0 | 4564.3 |
| Land impacted for carbon sink enhancement - Accelerate regeneration | 0 | 0 | 221.94 |
| Land impacted for carbon sink enhancement - All (not counting overlap) | 0 | 0 | 12261.2 |
| Land impacted for carbon sink enhancement - Avoid deforestation | 0 | 0 | 699.72 |
| Land impacted for carbon sink enhancement - Extend rotation length | 0 | 0 | 6813.4 |
| Land impacted for carbon sink enhancement - Improve plantations | 0 | 0 | 2708.024 |
| Land impacted for carbon sink enhancement - Increase retention of HWP | 0 | 0 | 5902.5 |
| Land impacted for carbon sink enhancement - Increase trees outside forests | 0 | 0 | 252.094 |
| Land impacted for carbon sink enhancement - Natural uptake | -9.71 | -9.949 | -8.063 |
| Land impacted for carbon sink enhancement - Reforest cropland | 0 | 0 | 473.819 |
| Land impacted for carbon sink enhancement - Reforest pasture | 0 | 0 | 281.63 |
| Land impacted for carbon sink enhancement - Restore productivity | 0 | 0 | 2575.738 |
| Land impacted for carbon sink enhancement - Retained in Hardwood Products | -4.818 | -8.036 | -8.459 |
| Land impacted for carbon sink enhancement - Total | -14.528 | -17.985 | -16.522 |
| Land impacted for carbon sink enhancement - Total impacted (over 30 years) | 0 | 0 | 7667.8 |

Table 4: *E- scenario - PILLAR 6: Land carbon sinks - Forests*

| variable_name | 2050 |
|---|---|
| Business-as-usual carbon sink - Accelerate regeneration | 51.464 |
| Business-as-usual carbon sink - Avoid deforestation | 222.898 |
| Business-as-usual carbon sink - Extend rotation length | 3727.4 |
| Business-as-usual carbon sink - Improve plantations | 1028.4 |

Table 4: *E- scenario - PILLAR 6: Land carbon sinks - Forests (continued)*

| variable_name | 2050 |
|---|---|
| Business-as-usual carbon sink - Increase retention of HWP | 0 |
| Business-as-usual carbon sink - Increase trees outside forests | 50.685 |
| Business-as-usual carbon sink - Reforest cropland | 53.767 |
| Business-as-usual carbon sink - Reforest pasture | 68.802 |
| Business-as-usual carbon sink - Restore productivity | 906.725 |
| Business-as-usual carbon sink - Total impacted (over 30 years) | 53.767 |

Table 5: *E- scenario - PILLAR 1: Efficiency/Electrification - Overview*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Final energy demand by sector - commercial | 0.114 | 0.116 | 0.117 | 0.119 | 0.121 | 0.125 | 0.132 |
| Final energy demand by sector - industry | 0.358 | 0.383 | 0.402 | 0.413 | 0.428 | 0.438 | 0.452 |
| Final energy demand by sector - residential | 0.158 | 0.152 | 0.151 | 0.152 | 0.156 | 0.16 | 0.165 |
| Final energy demand by sector - transportation | 0.463 | 0.441 | 0.406 | 0.385 | 0.385 | 0.396 | 0.41 |

Table 6: *E- scenario - PILLAR 1: Efficiency/Electrification - Commercial*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Commercial HVAC investment in 2020s - Cumulative 5-yr | 0 | 15522274138 | 16120751447 | 0 | 0 | 0 | 0 |
| Sales of cooking units - Electric Resistance | 0.32 | 0.343 | 0.343 | 0.343 | 0.344 | 0.343 | 0.343 |
| Sales of cooking units - Gas | 0.68 | 0.657 | 0.657 | 0.657 | 0.656 | 0.657 | 0.657 |
| Sales of space heating units - Electric Heat Pump | 0.101 | 0.298 | 0.651 | 0.72 | 0.723 | 0.723 | 0.724 |
| Sales of space heating units - Electric Resistance | 0.093 | 0.096 | 0.149 | 0.203 | 0.25 | 0.257 | 0.257 |
| Sales of space heating units - Fossil | 0.021 | 0.041 | 0.025 | 0.012 | 0.002 | 0 | 0 |
| Sales of space heating units - Gas Furnace | 0.785 | 0.565 | 0.175 | 0.064 | 0.025 | 0.02 | 0.019 |
| Sales of water heating units - Electric Heat Pump | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 |
| Sales of water heating units - Electric Resistance | 0.078 | 0.069 | 0.068 | 0.068 | 0.068 | 0.068 | 0.068 |
| Sales of water heating units - Gas Furnace | 0.88 | 0.885 | 0.885 | 0.886 | 0.885 | 0.885 | 0.885 |
| Sales of water heating units - Other | 0.039 | 0.043 | 0.044 | 0.043 | 0.044 | 0.044 | 0.044 |

Table 7: *E- scenario - PILLAR 1: Efficiency/Electrification - Electricity demand*

| variable_name | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Electricity distribution peak load (capital invested) - Cumulative 5-yr | 3.936 | 4.059 | 5.787 | 6.101 | 5.262 | 5.439 |

Table 8: *RE- scenario - PILLAR 1: Efficiency/Electrification - Residential*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Residential HVAC investment in 2020s vs. REF - Cumulative 5-yr | 0 | 3.826 | 4.206 | 0 | 0 | 0 | 0 |
| Sale of space heating units by type - Electric Heat Pump | 0.375 | 0.519 | 0.807 | 0.872 | 0.875 | 0.874 | 0.874 |
| Sale of space heating units by type - Electric Resistance | 0.258 | 0.253 | 0.107 | 0.073 | 0.071 | 0.073 | 0.073 |
| Sale of space heating units by type - Fossil | 0.061 | 0.078 | 0.044 | 0.037 | 0.037 | 0.036 | 0.036 |
| Sale of space heating units by type - Gas | 0.305 | 0.15 | 0.042 | 0.018 | 0.017 | 0.017 | 0.017 |
| Sales of cooking units - Electric Resistance | 0.827 | 0.864 | 0.977 | 0.999 | 1 | 1 | 1 |
| Sales of cooking units - Gas | 0.173 | 0.136 | 0.023 | 0.001 | 0 | 0 | 0 |
| Sales of water heating units by type - Electric Heat Pump | 0 | 0.121 | 0.641 | 0.757 | 0.762 | 0.762 | 0.761 |
| Sales of water heating units by type - Electric Resistance | 0.677 | 0.705 | 0.306 | 0.217 | 0.213 | 0.213 | 0.213 |
| Sales of water heating units by type - Gas Furnace | 0.282 | 0.147 | 0.028 | 0.001 | 0 | 0 | 0 |
| Sales of water heating units by type - Other | 0.041 | 0.026 | 0.025 | 0.025 | 0.026 | 0.026 | 0.026 |

Table 9: *RE- scenario - PILLAR 1: Efficiency/Electrification - Transportation*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| End-use technology sales by technology - HDV - diesel | 0.972 | 0.921 | 0.67 | 0.233 | 0.042 | 0.006 | 0 |
| End-use technology sales by technology - HDV - EV | 0.006 | 0.038 | 0.19 | 0.456 | 0.574 | 0.596 | 0.6 |
| End-use technology sales by technology - HDV - gasoline | 0.002 | 0.002 | 0.002 | 0.001 | 0 | 0 | 0 |
| End-use technology sales by technology - HDV - hybrid | 0.001 | 0.001 | 0.001 | 0 | 0 | 0 | 0 |
| End-use technology sales by technology - HDV - hydrogen FC | 0.004 | 0.025 | 0.127 | 0.304 | 0.382 | 0.397 | 0.4 |
| End-use technology sales by technology - HDV - other | 0.015 | 0.012 | 0.011 | 0.006 | 0.002 | 0 | 0 |
| End-use technology sales by technology - LDV - diesel | 0.015 | 0.017 | 0.012 | 0.004 | 0.001 | 0 | 0 |
| End-use technology sales by technology - LDV - EV | 0.042 | 0.16 | 0.477 | 0.823 | 0.964 | 0.993 | 1 |
| End-use technology sales by technology - LDV - gasoline | 0.895 | 0.771 | 0.475 | 0.16 | 0.032 | 0.006 | 0 |
| End-use technology sales by technology - LDV - hybrid | 0.047 | 0.047 | 0.033 | 0.012 | 0.003 | 0.001 | 0 |
| End-use technology sales by technology - LDV - hydrogen FC | 0.001 | 0.003 | 0.002 | 0.001 | 0 | 0 | 0 |
| End-use technology sales by technology - LDV - other | 0.001 | 0.001 | 0.001 | 0 | 0 | 0 | 0 |
| End-use technology sales by technology - MDV - diesel | 0.647 | 0.597 | 0.423 | 0.144 | 0.026 | 0.004 | 0 |
| End-use technology sales by technology - MDV - EV | 0.008 | 0.051 | 0.253 | 0.608 | 0.765 | 0.795 | 0.8 |
| End-use technology sales by technology - MDV - gasoline | 0.337 | 0.333 | 0.255 | 0.093 | 0.018 | 0.003 | 0 |
| End-use technology sales by technology - MDV - hybrid | 0.004 | 0.004 | 0.003 | 0.001 | 0 | 0 | 0 |
| End-use technology sales by technology - MDV - hydrogen FC | 0.002 | 0.013 | 0.063 | 0.152 | 0.191 | 0.199 | 0.2 |
| End-use technology sales by technology - MDV - other | 0.003 | 0.003 | 0.002 | 0.001 | 0 | 0 | 0 |
| Light-duty vehicle capital costs - Cumulative 5-yr | 0 | 856316017 | 2191395285 | 3556635131 | 5385408445 | 5863693400 | 5589403440 |
| Number of public EV charging plugs - DC Fast Charging | 100 | 0 | 1626.8 | 0 | 7188.5 | 0 | 11632.9 |
| Number of public EV charging plugs - L2 Charging | 476 | 0 | 39087.4 | 0 | 172719.3 | 0 | 279505.5 |

Table 10: *RE- scenario - PILLAR 2: Clean Electricity - Generating capacity*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Power generation capital investment - biomass power plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Power generation capital investment - biomass w/ccu allam power plant | 0 | 0 | 0 | 0 | 0 | 0.01 | 0 |
| Power generation capital investment - biomass w/ccu power plant | 0 | 0 | 0 | 0 | 4.356 | 5.168 | 0 |
| Power generation capital investment - Offshore Wind - Base | 0 | 0 | 0 | 0 | 3.684 | 14.233 | 0 |
| Power generation capital investment - Offshore Wind - Constrained | 0 | 0 | 0 | 0 | 4.396 | 14.748 | 0 |
| Power generation capital investment - Solar PV - Base | 0 | 0 | 35.5 | 14.176 | 14.291 | 9.909 | 10.032 |
| Power generation capital investment - Solar PV - Constrained | 0 | 2.3 | 37.398 | 16.22 | 10.536 | 9.494 | 9.418 |

Table 11: *RE- scenario - PILLAR 2: Clean Electricity - Generation*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Power generation by technology - biomass power plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Power generation by technology - biomass w/ccu allam power plant | 0 | 0 | 0 | 0 | 0 | 10.421 | 10.421 |
| Power generation by technology - biomass w/ccu power plant | 0 | 0 | 0 | 0 | 4888.7 | 10688.5 | 10688.5 |

Table 12: *RE- scenario - PILLAR 2: Clean Electricity - Transmission*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| HV transmission for wind and solar - base all | 0 | 211.602 | 2892.1 | 4833.8 | 8499 | 17945.8 | 20238.8 |
| HV transmission for wind and solar - base other intra-state | 0 | 83.94 | 565.137 | 969.899 | 2426.4 | 6763.4 | 7221.2 |
| HV transmission for wind and solar - base spur intra-state | 0 | 119.004 | 2283.2 | 3588.4 | 5421.9 | 9894.9 | 11213.1 |
| HV transmission for wind and solar - constrained all | 0 | 178.872 | 2621.9 | 4943.2 | 8366.9 | 18444.7 | 20059.7 |
| HV transmission for wind and solar - constrained other intra-state | 0 | 68.223 | 363.765 | 865.159 | 2300.1 | 6833.1 | 7201.8 |
| HV transmission for wind and solar - constrained spur intra-state | 0 | 104.159 | 2044.7 | 3558.9 | 5136.5 | 10210.3 | 11083.9 |

Table 13: *RE- scenario - PILLAR 3: Bioenergy and Hydrogen - Bioconversion*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Biomass purchases | 0 | 0 | 0 | 0 | 0.165 | 0.524 | 0.762 |
| Capital investment | 0 | 0 | 0 | 0 | 3.765 | 0 | 12.384 |
| Number of facilities - allam power w ccu | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Number of facilities - beccs hydrogen | 0 | 0 | 0 | 0 | 0 | 4 | 9 |
| Number of facilities - diesel | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of facilities - diesel ccu | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Number of facilities - power | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of facilities - power ccu | 0 | 0 | 0 | 0 | 4 | 8 | 8 |
| Number of facilities - pyrolysis | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of facilities - pyrolysis ccu | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of facilities - sng | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of facilities - sng ccu | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 14: *RE- scenario - PILLAR 4: CO2 capture, use, storage - CO2 capture*

| variable_name | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Annual - All | 0 | 0 | 1.72 | 9.44 | 19.89 | 26.38 |
| Annual - BECCS | 0 | 0 | 0 | 4.67 | 15.36 | 21.73 |
| Annual - Cement | 0 | 0 | 0 | 3.32 | 3.42 | 3.53 |
| Annual - NGCC | 0 | 0 | 1.72 | 1.45 | 1.11 | 1.12 |
| Cumulative - All | 0 | 0 | 1.72 | 11.16 | 31.05 | 57.43 |
| Cumulative - BECCS | 0 | 0 | 0 | 4.67 | 20.03 | 41.76 |
| Cumulative - Cement | 0 | 0 | 0 | 3.32 | 6.74 | 10.27 |
| Cumulative - NGCC | 0 | 0 | 1.72 | 3.17 | 4.28 | 5.4 |

Table 15: *RE- scenario - PILLAR 4: CO2 capture, use, storage - CO2 storage*

| variable_name | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Annual | 0 | 0 | 0 | 0 | 0 | 0 |
| Injection wells | 0 | 0 | 0 | 0 | 2 | 2 |
| Resource characterization, appraisal and permitting costs cumulative | 3.29 | 7.9 | 10.53 | 10.53 | 10.53 | 10.53 |
| Wells and facilities construction costs cumulative | 0 | 4.11 | 16.01 | 28.53 | 47.7 | 59.22 |

Table 16: *RE- scenario - PILLAR 4: CO2 capture, use, storage - CO2 transportation*

| variable_name | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| CO2 pipelines - All | 0 | 0 | 962262.338 | 1719082.114 | 2259543.4 | 2608018.9 |
| CO2 pipelines - Spur | 0 | 0 | 11352.392 | 768171.769 | 1308633.9 | 1657108.5 |
| CO2 pipelines - Trunk | 0 | 0 | 950909.846 | 950909.846 | 950909.846 | 950909.846 |

Table 17: *RE- scenario - IMPACTS - Jobs*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Jobs by economic sector - agriculture | 158.001 | 182.154 | 369.837 | 141.361 | 433.178 | 923.936 | 1073.7 |
| Jobs by economic sector - construction | 6362.4 | 5030 | 30328.7 | 22797 | 26148.2 | 29404 | 31012 |

Table 17: *RE- scenario - IMPACTS - Jobs (continued)*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Jobs by economic sector - manufacturing | 5657.2 | 10125.2 | 19973.1 | 20075.9 | 16400.1 | 19359.9 | 15876.9 |
| Jobs by economic sector - mining | 2531.2 | 1727.1 | 1235.1 | 795.333 | 478.404 | 270.341 | 148.124 |
| Jobs by economic sector - other | 649.31 | 444.713 | 5892.8 | 4191.1 | 5229.6 | 5633.6 | 6865.7 |
| Jobs by economic sector - pipeline | 375.742 | 367.385 | 311.578 | 360.048 | 237.848 | 227.388 | 223.627 |
| Jobs by economic sector - professional | 3635.2 | 2923.4 | 12013.7 | 9195.4 | 11479.8 | 14942.9 | 16704.4 |
| Jobs by economic sector - trade | 2864.7 | 2036.2 | 8034 | 6164.7 | 7568.3 | 9281 | 10721.9 |
| Jobs by economic sector - utilities | 8545.7 | 7556.5 | 14744.6 | 16840.8 | 19130.4 | 23760.2 | 22905.8 |
| Jobs by resource sector - Biomass | 654.954 | 781.781 | 1019.7 | 402.615 | 1304 | 3369.7 | 4585.2 |
| Jobs by resource sector - CO2 | 0 | 1.583 | 3.486 | 961.429 | 497.245 | 937.4 | 1235 |
| Jobs by resource sector - Coal | 2324.5 | 743.97 | 0 | 0 | 0 | 0 | 0 |
| Jobs by resource sector - Grid | 8260.9 | 7711.9 | 22626.3 | 27709.3 | 34046 | 44991.1 | 44340.4 |
| Jobs by resource sector - Natural Gas | 3532.7 | 3626 | 3404 | 2868.5 | 2984.5 | 2133.7 | 1132.6 |
| Jobs by resource sector - Nuclear | 3178.2 | 2634.6 | 2592.6 | 2194.3 | 1213.6 | 336.511 | 0.097 |
| Jobs by resource sector - Oil | 5030.8 | 4310.9 | 3403.4 | 2396.9 | 1583.3 | 1006.5 | 604.73 |
| Jobs by resource sector - Solar | 7792.1 | 10555.6 | 59129.8 | 43469.8 | 42438.1 | 39611.1 | 42263.3 |
| Jobs by resource sector - Wind | 5.224 | 26.204 | 724.254 | 558.859 | 3039 | 11417.3 | 11370.8 |
| Median wages - All | 55262.8 | 55437.4 | 53264.3 | 54499.9 | 55315.6 | 56410 | 57209.2 |
| Required Level of Education - Associates degree or some college | 9481.4 | 9440.3 | 29655.7 | 25934.2 | 28118.5 | 33444.6 | 33958.1 |
| Required Level of Education - Bachelors degree | 6686.6 | 6532 | 17905.3 | 15600.1 | 16776.5 | 20227.2 | 20632.2 |
| Required Level of Education - Doctoral degree | 221.627 | 190.831 | 631.439 | 496.495 | 574.478 | 709.433 | 769.729 |
| Required Level of Education - High school diploma or less | 12795.4 | 12743.4 | 40456.1 | 34878.3 | 37573.9 | 44456.7 | 44997.4 |
| Required Level of Education - Masters or professional degree | 1594.5 | 1486.1 | 4255 | 3652.6 | 4062.4 | 4965.3 | 5174.7 |
| Wage income - All | 1701068886 | 1684963587 | 4949252673 | 4391197236 | 4819062966 | 5856387217 | 6038448118 |

Table 18: *RE- scenario - PILLAR 6: Land carbon sinks - Agriculture*

| variable_name | 2050 |
|---|---|
| Carbon sink enhancement potential - Accelerate regeneration | 550.669 |
| Carbon sink enhancement potential - All (not counting overlap) | 60516.4 |
| Carbon sink enhancement potential - Avoid deforestation | 2606.646 |
| Carbon sink enhancement potential - corn-ethanol to energy grasses | -163.664 |
| Carbon sink enhancement potential - cropland measures | -1967.825 |
| Carbon sink enhancement potential - Extend rotation length | 12368.4 |
| Carbon sink enhancement potential - Improve plantations | 4872.5 |
| Carbon sink enhancement potential - Increase retention of HWP | 29512.5 |
| Carbon sink enhancement potential - Increase trees outside forests | 893.663 |
| Carbon sink enhancement potential - permanent conservation cover | -58.081 |
| Carbon sink enhancement potential - Reforest cropland | 1423.14 |
| Carbon sink enhancement potential - Reforest pasture | 3724.5 |
| Carbon sink enhancement potential - Restore productivity | 4564.3 |
| Carbon sink enhancement potential - total | -2189.569 |
| Land impacted for carbon sink enhancement - Accelerate regeneration | 221.94 |
| Land impacted for carbon sink enhancement - All (not counting overlap) | 12261.2 |
| Land impacted for carbon sink enhancement - Avoid deforestation | 699.72 |
| Land impacted for carbon sink enhancement - corn-ethanol to energy grasses | 93.646 |
| Land impacted for carbon sink enhancement - cropland measures | 1078.195 |
| Land impacted for carbon sink enhancement - Extend rotation length | 6813.4 |
| Land impacted for carbon sink enhancement - Improve plantations | 2708.024 |
| Land impacted for carbon sink enhancement - Increase retention of HWP | 5902.5 |
| Land impacted for carbon sink enhancement - Increase trees outside forests | 252.094 |
| Land impacted for carbon sink enhancement - permanent conservation cover | 105.639 |
| Land impacted for carbon sink enhancement - Reforest cropland | 473.819 |
| Land impacted for carbon sink enhancement - Reforest pasture | 281.63 |
| Land impacted for carbon sink enhancement - Restore productivity | 2575.738 |
| Land impacted for carbon sink enhancement - total | 1277.48 |
| Land impacted for carbon sink enhancement - Total impacted (over 30 years) | 7667.8 |

Table 19: *RE- scenario - PILLAR 6: Land carbon sinks - Forests*

| variable_name | 2050 |
|---|---|
| Business-as-usual carbon sink - Accelerate regeneration | 51.464 |
| Business-as-usual carbon sink - Avoid deforestation | 222.898 |
| Business-as-usual carbon sink - Extend rotation length | 3727.4 |
| Business-as-usual carbon sink - Improve plantations | 1028.4 |
| Business-as-usual carbon sink - Increase retention of HWP | 0 |
| Business-as-usual carbon sink - Increase trees outside forests | 50.685 |
| Business-as-usual carbon sink - Reforest cropland | 53.767 |
| Business-as-usual carbon sink - Reforest pasture | 68.802 |
| Business-as-usual carbon sink - Restore productivity | 906.725 |

Table 19: *RE- scenario - PILLAR 6: Land carbon sinks - Forests (continued)*

| variable_name | 2050 |
|---|---|
| Business-as-usual carbon sink - Total impacted (over 30 years) | 53.767 |

Table 20: *RE- scenario - IMPACTS - Fossil fuel industries*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Natural gas consumption | 250387.1 | 254105.7 | 214196.7 | 171794.6 | 129324.4 | 81366.6 | 56433.7 |
| Oil consumption | 103205.2 | 96967.5 | 83426.4 | 63639.1 | 45261.9 | 30800.7 | 19700.4 |

Table 21: *RE- scenario - PILLAR 1: Efficiency/Electrification - Overview*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Final energy demand by sector - commercial | 0.114 | 0.114 | 0.111 | 0.106 | 0.101 | 0.1 | 0.102 |
| Final energy demand by sector - industry | 0.358 | 0.374 | 0.38 | 0.387 | 0.398 | 0.399 | 0.404 |
| Final energy demand by sector - residential | 0.158 | 0.15 | 0.141 | 0.129 | 0.119 | 0.115 | 0.113 |
| Final energy demand by sector - transportation | 0.463 | 0.438 | 0.386 | 0.323 | 0.267 | 0.233 | 0.218 |

Table 22: *RE- scenario - PILLAR 1: Efficiency/Electrification - Commercial*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Commercial HVAC investment in 2020s - Cumulative 5-yr | 0 | 15755461874 | 17550451307 | 0 | 0 | 0 | 0 |
| Sales of cooking units - Electric Resistance | 0.32 | 0.46 | 0.799 | 0.865 | 0.869 | 0.869 | 0.869 |
| Sales of cooking units - Gas | 0.68 | 0.54 | 0.201 | 0.135 | 0.131 | 0.131 | 0.131 |
| Sales of space heating units - Electric Heat Pump | 0.101 | 0.275 | 0.706 | 0.839 | 0.852 | 0.852 | 0.852 |
| Sales of space heating units - Electric Resistance | 0.093 | 0.083 | 0.103 | 0.124 | 0.129 | 0.128 | 0.128 |
| Sales of space heating units - Fossil | 0.021 | 0.039 | 0.007 | 0 | 0 | 0 | 0 |
| Sales of space heating units - Gas Furnace | 0.785 | 0.603 | 0.183 | 0.037 | 0.02 | 0.019 | 0.019 |
| Sales of water heating units - Electric Heat Pump | 0.003 | 0.105 | 0.545 | 0.643 | 0.647 | 0.648 | 0.648 |
| Sales of water heating units - Electric Resistance | 0.078 | 0.11 | 0.284 | 0.323 | 0.325 | 0.325 | 0.325 |
| Sales of water heating units - Gas Furnace | 0.88 | 0.745 | 0.141 | 0.006 | 0 | 0 | 0 |
| Sales of water heating units - Other | 0.039 | 0.04 | 0.03 | 0.027 | 0.027 | 0.027 | 0.027 |

Table 23: *RE- scenario - PILLAR 1: Efficiency/Electrification - Electricity demand*

| variable_name | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Electricity distribution peak load (capital invested) - Cumulative 5-yr | 3.554 | 3.632 | 5.666 | 5.976 | 4.966 | 5.119 |

Table 24: *REF scenario - PILLAR 1: Efficiency/Electrification - Residential*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Residential HVAC investment in 2020s vs. REF - Cumulative 5-yr | 0 | 3.782 | 4.052 | 0 | 0 | 0 | 0 |
| Sale of space heating units by type - Electric Heat Pump | 0.375 | 0.463 | 0.496 | 0.591 | 0.737 | 0.83 | 0.863 |
| Sale of space heating units by type - Electric Resistance | 0.258 | 0.281 | 0.265 | 0.215 | 0.14 | 0.094 | 0.078 |
| Sale of space heating units by type - Fossil | 0.061 | 0.085 | 0.081 | 0.07 | 0.053 | 0.042 | 0.038 |
| Sale of space heating units by type - Gas | 0.305 | 0.171 | 0.158 | 0.124 | 0.07 | 0.034 | 0.021 |
| Sales of cooking units - Electric Resistance | 0.826 | 0.831 | 0.847 | 0.889 | 0.947 | 0.983 | 0.995 |
| Sales of cooking units - Gas | 0.174 | 0.169 | 0.153 | 0.111 | 0.053 | 0.017 | 0.005 |
| Sales of water heating units by type - Electric Heat Pump | 0 | 0.021 | 0.08 | 0.25 | 0.511 | 0.682 | 0.741 |
| Sales of water heating units by type - Electric Resistance | 0.677 | 0.782 | 0.737 | 0.605 | 0.404 | 0.274 | 0.229 |
| Sales of water heating units by type - Gas Furnace | 0.282 | 0.17 | 0.157 | 0.119 | 0.058 | 0.019 | 0.005 |
| Sales of water heating units by type - Other | 0.041 | 0.027 | 0.026 | 0.026 | 0.026 | 0.026 | 0.026 |

Table 25: *REF scenario - PILLAR 1: Efficiency/Electrification - Transportation*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| End-use technology sales by technology - HDV - diesel | 0.974 | 0.96 | 0.913 | 0.798 | 0.582 | 0.321 | 0.137 |
| End-use technology sales by technology - HDV - EV | 0.005 | 0.015 | 0.041 | 0.108 | 0.236 | 0.394 | 0.51 |
| End-use technology sales by technology - HDV - gasoline | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.001 | 0.001 |
| End-use technology sales by technology - HDV - hybrid | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0 |
| End-use technology sales by technology - HDV - hydrogen FC | 0.003 | 0.01 | 0.027 | 0.072 | 0.157 | 0.263 | 0.34 |
| End-use technology sales by technology - HDV - other | 0.015 | 0.013 | 0.015 | 0.019 | 0.022 | 0.02 | 0.011 |
| End-use technology sales by technology - LDV - diesel | 0.015 | 0.019 | 0.02 | 0.016 | 0.01 | 0.005 | 0.002 |
| End-use technology sales by technology - LDV - EV | 0.02 | 0.049 | 0.123 | 0.265 | 0.491 | 0.725 | 0.878 |
| End-use technology sales by technology - LDV - gasoline | 0.915 | 0.871 | 0.79 | 0.658 | 0.454 | 0.244 | 0.108 |
| End-use technology sales by technology - LDV - hybrid | 0.049 | 0.056 | 0.063 | 0.057 | 0.042 | 0.025 | 0.012 |
| End-use technology sales by technology - LDV - hydrogen FC | 0.001 | 0.004 | 0.003 | 0.002 | 0.002 | 0.001 | 0 |
| End-use technology sales by technology - LDV - other | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0 | 0 |
| End-use technology sales by technology - MDV - diesel | 0.648 | 0.622 | 0.577 | 0.494 | 0.356 | 0.196 | 0.084 |
| End-use technology sales by technology - MDV - EV | 0.007 | 0.019 | 0.055 | 0.143 | 0.314 | 0.526 | 0.68 |
| End-use technology sales by technology - MDV - gasoline | 0.338 | 0.347 | 0.347 | 0.319 | 0.244 | 0.142 | 0.063 |
| End-use technology sales by technology - MDV - hybrid | 0.004 | 0.004 | 0.005 | 0.005 | 0.004 | 0.003 | 0.001 |
| End-use technology sales by technology - MDV - hydrogen FC | 0.002 | 0.005 | 0.014 | 0.036 | 0.079 | 0.132 | 0.17 |
| End-use technology sales by technology - MDV - other | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.002 | 0.001 |
| Light-duty vehicle capital costs - Cumulative 5-yr | 0 | 0 | 137915469 | 291149130 | 981900323 | 3093964423 | 4506148194 |
| Number of public EV charging plugs - DC Fast Charging | 100 | 0 | 496.429 | 0 | 2660.8 | 0 | 7450.9 |
| Number of public EV charging plugs - L2 Charging | 476 | 0 | 11927.8 | 0 | 63931 | 0 | 179023.1 |

Table 26: *REF scenario - PILLAR 6: Land carbon sinks - Agriculture*

| variable_name | 2050 |
|---|---|
| Carbon sink enhancement potential - Accelerate regeneration | 550.669 |
| Carbon sink enhancement potential - All (not counting overlap) | 60516.4 |
| Carbon sink enhancement potential - Avoid deforestation | 2606.646 |
| Carbon sink enhancement potential - corn-ethanol to energy grasses | -163.664 |
| Carbon sink enhancement potential - cropland measures | -1967.825 |
| Carbon sink enhancement potential - Extend rotation length | 12368.4 |
| Carbon sink enhancement potential - Improve plantations | 4872.5 |
| Carbon sink enhancement potential - Increase retention of HWP | 29512.5 |
| Carbon sink enhancement potential - Increase trees outside forests | 893.663 |
| Carbon sink enhancement potential - permanent conservation cover | -58.081 |
| Carbon sink enhancement potential - Reforest cropland | 1423.14 |
| Carbon sink enhancement potential - Reforest pasture | 3724.5 |
| Carbon sink enhancement potential - Restore productivity | 4564.3 |
| Carbon sink enhancement potential - total | -2189.569 |
| Land impacted for carbon sink enhancement - Accelerate regeneration | 221.94 |
| Land impacted for carbon sink enhancement - All (not counting overlap) | 12261.2 |
| Land impacted for carbon sink enhancement - Avoid deforestation | 699.72 |
| Land impacted for carbon sink enhancement - corn-ethanol to energy grasses | 93.646 |
| Land impacted for carbon sink enhancement - cropland measures | 1078.195 |
| Land impacted for carbon sink enhancement - Extend rotation length | 6813.4 |
| Land impacted for carbon sink enhancement - Improve plantations | 2708.024 |
| Land impacted for carbon sink enhancement - Increase retention of HWP | 5902.5 |
| Land impacted for carbon sink enhancement - Increase trees outside forests | 252.094 |
| Land impacted for carbon sink enhancement - permanent conservation cover | 105.639 |
| Land impacted for carbon sink enhancement - Reforest cropland | 473.819 |
| Land impacted for carbon sink enhancement - Reforest pasture | 281.63 |
| Land impacted for carbon sink enhancement - Restore productivity | 2575.738 |
| Land impacted for carbon sink enhancement - total | 1277.48 |
| Land impacted for carbon sink enhancement - Total impacted (over 30 years) | 7667.8 |

Table 27: *REF scenario - PILLAR 6: Land carbon sinks - Forests*

| variable_name | 2050 |
|---|---|
| Business-as-usual carbon sink - Accelerate regeneration | 51.464 |
| Business-as-usual carbon sink - Avoid deforestation | 222.898 |
| Business-as-usual carbon sink - Extend rotation length | 3727.4 |
| Business-as-usual carbon sink - Improve plantations | 1028.4 |
| Business-as-usual carbon sink - Increase retention of HWP | 0 |
| Business-as-usual carbon sink - Increase trees outside forests | 50.685 |
| Business-as-usual carbon sink - Reforest cropland | 53.767 |
| Business-as-usual carbon sink - Reforest pasture | 68.802 |
| Business-as-usual carbon sink - Restore productivity | 906.725 |
| Business-as-usual carbon sink - Total impacted (over 30 years) | 53.767 |

Table 28: *REF scenario - PILLAR 1: Efficiency/Electrification - Overview*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Final energy demand by sector - commercial | 0.114 | 0.115 | 0.113 | 0.112 | 0.109 | 0.107 | 0.107 |
| Final energy demand by sector - industry | 0.358 | 0.374 | 0.381 | 0.391 | 0.402 | 0.403 | 0.407 |
| Final energy demand by sector - residential | 0.158 | 0.151 | 0.147 | 0.142 | 0.135 | 0.128 | 0.122 |
| Final energy demand by sector - transportation | 0.464 | 0.441 | 0.404 | 0.373 | 0.35 | 0.323 | 0.29 |

Table 29: *REF scenario - PILLAR 1: Efficiency/Electrification - Commercial*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Commercial HVAC investment in 2020s - Cumulative 5-yr | 0 | 15746445836 | 17554333234 | 0 | 0 | 0 | 0 |
| Sales of cooking units - Electric Resistance | 0.32 | 0.362 | 0.409 | 0.534 | 0.71 | 0.817 | 0.855 |
| Sales of cooking units - Gas | 0.68 | 0.638 | 0.591 | 0.466 | 0.29 | 0.183 | 0.145 |
| Sales of space heating units - Electric Heat Pump | 0.101 | 0.193 | 0.243 | 0.385 | 0.609 | 0.768 | 0.829 |
| Sales of space heating units - Electric Resistance | 0.093 | 0.08 | 0.082 | 0.09 | 0.104 | 0.118 | 0.125 |
| Sales of space heating units - Fossil | 0.021 | 0.045 | 0.042 | 0.032 | 0.016 | 0.005 | 0.001 |
| Sales of space heating units - Gas Furnace | 0.785 | 0.681 | 0.633 | 0.494 | 0.271 | 0.109 | 0.044 |
| Sales of water heating units - Electric Heat Pump | 0.003 | 0.02 | 0.07 | 0.215 | 0.436 | 0.58 | 0.63 |
| Sales of water heating units - Electric Resistance | 0.078 | 0.076 | 0.095 | 0.153 | 0.241 | 0.298 | 0.318 |
| Sales of water heating units - Gas Furnace | 0.88 | 0.861 | 0.792 | 0.595 | 0.291 | 0.093 | 0.024 |
| Sales of water heating units - Other | 0.039 | 0.042 | 0.042 | 0.038 | 0.033 | 0.029 | 0.028 |

Table 30: *REF scenario - PILLAR 1: Efficiency/Electrification - Electricity demand*

| variable_name | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Electricity distribution peak load (capital invested) - Cumulative 5-yr | 2.925 | 2.927 | 3.933 | 4.055 | 5.118 | 5.352 |

Table 31: *E+ scenario - PILLAR 2: Clean Electricity - Generating capacity*

| variable_name | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Power generation capital investment - Offshore Wind - Base | 0 | 0 | 14.959 | 12.739 | 8.104 | 8.192 |
| Power generation capital investment - Solar PV - Base | 20.262 | 23.421 | 23.954 | 11.305 | 11.709 | 2.768 |

Table 32: *E+ scenario - PILLAR 2: Clean Electricity - Transmission*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| HV transmission for wind and solar - base all | 0 | 1404.3 | 3677 | 12391.2 | 20979.4 | 30189.5 | 40140.7 |
| HV transmission for wind and solar - base other intra-state | 0 | 250.74 | 744.692 | 4427.7 | 8229 | 12202.3 | 14841.8 |
| HV transmission for wind and solar - base spur intra-state | 0 | 1096.3 | 2547.3 | 6909.9 | 11122.4 | 15405 | 19859.4 |

Table 33: *E+ scenario - PILLAR 6: Land carbon sinks - Agriculture*

| variable_name | 2050 |
|---|---|
| Carbon sink enhancement potential - Accelerate regeneration | 550.669 |
| Carbon sink enhancement potential - All (not counting overlap) | 60516.4 |
| Carbon sink enhancement potential - Avoid deforestation | 2606.646 |
| Carbon sink enhancement potential - corn-ethanol to energy grasses | -163.664 |
| Carbon sink enhancement potential - cropland measures | -1967.825 |
| Carbon sink enhancement potential - Extend rotation length | 12368.4 |
| Carbon sink enhancement potential - Improve plantations | 4872.5 |
| Carbon sink enhancement potential - Increase retention of HWP | 29512.5 |
| Carbon sink enhancement potential - Increase trees outside forests | 893.663 |
| Carbon sink enhancement potential - permanent conservation cover | -58.081 |
| Carbon sink enhancement potential - Reforest cropland | 1423.14 |
| Carbon sink enhancement potential - Reforest pasture | 3724.5 |
| Carbon sink enhancement potential - Restore productivity | 4564.3 |
| Carbon sink enhancement potential - total | -2189.569 |
| Land impacted for carbon sink enhancement - Accelerate regeneration | 221.94 |
| Land impacted for carbon sink enhancement - All (not counting overlap) | 12261.2 |
| Land impacted for carbon sink enhancement - Avoid deforestation | 699.72 |
| Land impacted for carbon sink enhancement - corn-ethanol to energy grasses | 93.646 |
| Land impacted for carbon sink enhancement - cropland measures | 1078.195 |
| Land impacted for carbon sink enhancement - Extend rotation length | 6813.4 |
| Land impacted for carbon sink enhancement - Improve plantations | 2708.024 |
| Land impacted for carbon sink enhancement - Increase retention of HWP | 5902.5 |
| Land impacted for carbon sink enhancement - Increase trees outside forests | 252.094 |
| Land impacted for carbon sink enhancement - permanent conservation cover | 105.639 |
| Land impacted for carbon sink enhancement - Reforest cropland | 473.819 |
| Land impacted for carbon sink enhancement - Reforest pasture | 281.63 |
| Land impacted for carbon sink enhancement - Restore productivity | 2575.738 |
| Land impacted for carbon sink enhancement - total | 1277.48 |
| Land impacted for carbon sink enhancement - Total impacted (over 30 years) | 7667.8 |

Table 34: *E+ scenario - PILLAR 6: Land carbon sinks - Forests*

| variable_name | 2050 |
|---|---|
| Business-as-usual carbon sink - Accelerate regeneration | 51.464 |
| Business-as-usual carbon sink - Avoid deforestation | 222.898 |
| Business-as-usual carbon sink - Extend rotation length | 3727.4 |
| Business-as-usual carbon sink - Improve plantations | 1028.4 |
| Business-as-usual carbon sink - Increase retention of HWP | 0 |
| Business-as-usual carbon sink - Increase trees outside forests | 50.685 |
| Business-as-usual carbon sink - Reforest cropland | 53.767 |
| Business-as-usual carbon sink - Reforest pasture | 68.802 |
| Business-as-usual carbon sink - Restore productivity | 906.725 |
| Business-as-usual carbon sink - Total impacted (over 30 years) | 53.767 |

Table 35: *RE+ scenario - PILLAR 2: Clean Electricity - Generating capacity*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Power generation capital investment - biomass power plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Power generation capital investment - biomass w/ccu allam power plant | 0 | 0 | 0 | 0 | 0.008 | 0 | 0.047 |
| Power generation capital investment - biomass w/ccu power plant | 0 | 0 | 0 | 0 | 7.261 | 0 | 0 |

Table 36: *RE+ scenario - PILLAR 2: Clean Electricity - Generation*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Power generation by technology - biomass power plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Power generation by technology - biomass w/ccu allam power plant | 0 | 0 | 0 | 0 | 7.931 | 7.931 | 55.177 |
| Power generation by technology - biomass w/ccu power plant | 0 | 0 | 0 | 0 | 8149 | 8149 | 8149 |

Table 37: *RE+ scenario - PILLAR 3: Bioenergy and Hydrogen - Bioconversion*

| variable_name | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|
| Biomass purchases | 0 | 0 | 0 | 0 | 0.436 | 0.775 | 1.296 |
| Capital investment | 0 | 0 | 0 | 0 | 6.289 | 0 | 10.798 |
| Number of facilities - allam power w ccu | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Number of facilities - beccs hydrogen | 0 | 0 | 0 | 0 | 0 | 5 | 12 |
| Number of facilities - diesel | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of facilities - diesel ccu | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Number of facilities - power | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of facilities - power ccu | 0 | 0 | 0 | 0 | 7 | 7 | 7 |
| Number of facilities - pyrolysis | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of facilities - pyrolysis ccu | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Number of facilities - sng | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of facilities - sng ccu | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 38: *RE+ scenario - PILLAR 4: CO2 capture, use, storage - CO2 capture*

| variable_name | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Annual - All | 0 | 0 | 0 | 11.39 | 17.24 | 27.02 |
| Annual - BECCS | 0 | 0 | 0 | 8.07 | 13.82 | 23.48 |
| Annual - Cement | 0 | 0 | 0 | 3.32 | 3.42 | 3.53 |
| Annual - NGCC | 0 | 0 | 0 | 0 | 0 | 0 |
| Cumulative - All | 0 | 0 | 0 | 11.39 | 28.63 | 55.65 |
| Cumulative - BECCS | 0 | 0 | 0 | 8.07 | 21.89 | 45.37 |
| Cumulative - Cement | 0 | 0 | 0 | 3.32 | 6.74 | 10.27 |
| Cumulative - NGCC | 0 | 0 | 0 | 0 | 0 | 0 |

Table 39: *RE+ scenario - PILLAR 4: CO2 capture, use, storage - CO2 storage*

| variable_name | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Annual | 0 | 0 | 0 | 0 | 0 | 0 |
| Injection wells | 0 | 0 | 0 | 0 | 2 | 2 |
| Resource characterization, appraisal and permitting costs cumulative | 3.29 | 7.9 | 10.53 | 10.53 | 10.53 | 10.53 |
| Wells and facilities construction costs cumulative | 0 | 4.11 | 16.01 | 28.53 | 47.7 | 59.22 |

Table 40: *RE+ scenario - PILLAR 4: CO2 capture, use, storage - CO2 transportation*

| variable_name | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| CO2 pipelines - All | 0 | 0 | 950909.846 | 1944417.013 | 2150487 | 2707572.7 |
| CO2 pipelines - Spur | 0 | 0 | 0 | 993507.668 | 1199576.6 | 1756662.2 |
| CO2 pipelines - Trunk | 0 | 0 | 950909.846 | 950909.846 | 950909.846 | 950909.846 |

Table 41: *RE+ scenario - PILLAR 6: Land carbon sinks - Agriculture*

| variable_name | 2050 |
|---|---|
| Carbon sink enhancement potential - Accelerate regeneration | 550.669 |
| Carbon sink enhancement potential - All (not counting overlap) | 60516.4 |
| Carbon sink enhancement potential - Avoid deforestation | 2606.646 |
| Carbon sink enhancement potential - corn-ethanol to energy grasses | -435.39 |
| Carbon sink enhancement potential - cropland measures | -1742.75 |
| Carbon sink enhancement potential - Cropland to woody energy crops | 0 |
| Carbon sink enhancement potential - Extend rotation length | 12368.4 |
| Carbon sink enhancement potential - Improve plantations | 4872.5 |
| Carbon sink enhancement potential - Increase retention of HWP | 29512.5 |
| Carbon sink enhancement potential - Increase trees outside forests | 893.663 |
| Carbon sink enhancement potential - pasture to energy crops | 0 |
| Carbon sink enhancement potential - permanent conservation cover | -50.648 |
| Carbon sink enhancement potential - Reforest cropland | 1423.14 |
| Carbon sink enhancement potential - Reforest pasture | 3724.5 |
| Carbon sink enhancement potential - Restore productivity | 4564.3 |

Table 41: *RE+ scenario - PILLAR 6: Land carbon sinks - Agriculture (continued)*

| variable_name | 2050 |
|---|---|
| Carbon sink enhancement potential - total | -2228.787 |
| Land impacted for carbon sink enhancement - Accelerate regeneration | 221.94 |
| Land impacted for carbon sink enhancement - All (not counting overlap) | 12261.2 |
| Land impacted for carbon sink enhancement - Avoid deforestation | 699.72 |
| Land impacted for carbon sink enhancement - corn-ethanol to energy grasses | 264.846 |
| Land impacted for carbon sink enhancement - cropland measures | 1873.825 |
| Land impacted for carbon sink enhancement - Cropland to woody energy crops | 91.894 |
| Land impacted for carbon sink enhancement - Extend rotation length | 6813.4 |
| Land impacted for carbon sink enhancement - Improve plantations | 2708.024 |
| Land impacted for carbon sink enhancement - Increase retention of HWP | 5902.5 |
| Land impacted for carbon sink enhancement - Increase trees outside forests | 252.094 |
| Land impacted for carbon sink enhancement - pasture to energy crops | 170.774 |
| Land impacted for carbon sink enhancement - permanent conservation cover | 92.119 |
| Land impacted for carbon sink enhancement - Reforest cropland | 473.819 |
| Land impacted for carbon sink enhancement - Reforest pasture | 281.63 |
| Land impacted for carbon sink enhancement - Restore productivity | 2575.738 |
| Land impacted for carbon sink enhancement - total | 2493.489 |
| Land impacted for carbon sink enhancement - Total impacted (over 30 years) | 7667.8 |

Table 42: *RE+ scenario - PILLAR 6: Land carbon sinks - Forests*

| variable_name | 2050 |
|---|---|
| Business-as-usual carbon sink - Accelerate regeneration | 51.464 |
| Business-as-usual carbon sink - Avoid deforestation | 222.898 |
| Business-as-usual carbon sink - Extend rotation length | 3727.4 |
| Business-as-usual carbon sink - Improve plantations | 1028.4 |
| Business-as-usual carbon sink - Increase retention of HWP | 0 |
| Business-as-usual carbon sink - Increase trees outside forests | 50.685 |
| Business-as-usual carbon sink - Reforest cropland | 53.767 |
| Business-as-usual carbon sink - Reforest pasture | 68.802 |
| Business-as-usual carbon sink - Restore productivity | 906.725 |
| Business-as-usual carbon sink - Total impacted (over 30 years) | 53.767 |

Table 43: *B+ scenario - PILLAR 6: Land carbon sinks - Agriculture*

| variable_name | 2050 |
|---|---|
| Carbon sink enhancement potential - Accelerate regeneration | 550.669 |
| Carbon sink enhancement potential - All (not counting overlap) | 60516.4 |
| Carbon sink enhancement potential - Avoid deforestation | 2606.646 |
| Carbon sink enhancement potential - corn-ethanol to energy grasses | -163.664 |
| Carbon sink enhancement potential - cropland measures | -1967.825 |
| Carbon sink enhancement potential - Extend rotation length | 12368.4 |
| Carbon sink enhancement potential - Improve plantations | 4872.5 |
| Carbon sink enhancement potential - Increase retention of HWP | 29512.5 |
| Carbon sink enhancement potential - Increase trees outside forests | 893.663 |
| Carbon sink enhancement potential - permanent conservation cover | -58.081 |
| Carbon sink enhancement potential - Reforest cropland | 1423.14 |
| Carbon sink enhancement potential - Reforest pasture | 3724.5 |
| Carbon sink enhancement potential - Restore productivity | 4564.3 |
| Carbon sink enhancement potential - total | -2189.569 |
| Land impacted for carbon sink enhancement - Accelerate regeneration | 221.94 |
| Land impacted for carbon sink enhancement - All (not counting overlap) | 12261.2 |
| Land impacted for carbon sink enhancement - Avoid deforestation | 699.72 |
| Land impacted for carbon sink enhancement - corn-ethanol to energy grasses | 93.646 |
| Land impacted for carbon sink enhancement - cropland measures | 1078.195 |
| Land impacted for carbon sink enhancement - Extend rotation length | 6813.4 |
| Land impacted for carbon sink enhancement - Improve plantations | 2708.024 |
| Land impacted for carbon sink enhancement - Increase retention of HWP | 5902.5 |
| Land impacted for carbon sink enhancement - Increase trees outside forests | 252.094 |
| Land impacted for carbon sink enhancement - permanent conservation cover | 105.639 |

Table 43: *B+ scenario - PILLAR 6: Land carbon sinks - Agriculture (continued)*

| variable_name | 2050 |
|---|---|
| Land impacted for carbon sink enhancement - Reforest cropland | 473.819 |
| Land impacted for carbon sink enhancement - Reforest pasture | 281.63 |
| Land impacted for carbon sink enhancement - Restore productivity | 2575.738 |
| Land impacted for carbon sink enhancement - total | 1277.48 |
| Land impacted for carbon sink enhancement - Total impacted (over 30 years) | 7667.8 |

Table 44: *B+ scenario - PILLAR 6: Land carbon sinks - Forests*

| variable_name | 2050 |
|---|---|
| Business-as-usual carbon sink - Accelerate regeneration | 51.464 |
| Business-as-usual carbon sink - Avoid deforestation | 222.898 |
| Business-as-usual carbon sink - Extend rotation length | 3727.4 |
| Business-as-usual carbon sink - Improve plantations | 1028.4 |
| Business-as-usual carbon sink - Increase retention of HWP | 0 |
| Business-as-usual carbon sink - Increase trees outside forests | 50.685 |
| Business-as-usual carbon sink - Reforest cropland | 53.767 |
| Business-as-usual carbon sink - Reforest pasture | 68.802 |
| Business-as-usual carbon sink - Restore productivity | 906.725 |
| Business-as-usual carbon sink - Total impacted (over 30 years) | 53.767 |