

**Don't Mess with Texas**  
Getting the Lone Star State to Net-Zero by 2050

# **Appendix C**

## **Policy Package Overviews**

**April 2022**





## Appendix C: Policy Package Overviews

This section contains the full policy package settings from the TX-EPS for the Electrification and Hydrogen and Carriers scenarios. Note that DACS, CCS, electrolysis for hydrogen production, transmission growth, storage growth, and extent/range of grid decarbonization were determined within the WIS:dom model and not included in the policy packages below. We do not include a policy table for the BAU scenario because this scenario assumes no new policies. We do not include a policy table for the Extensive Capture scenario because this scenario assumes no new policies, but that all emissions are abated using capture technologies. We do not include a policy table for the Electrification: Accelerated Clean Power scenario because this scenario has the same settings as the Electrification scenario, except that the electric grid fully decarbonizes by 2035, which was modeled using WIS:dom-P. Also note that these values do not reflect the percent of emissions captured, but the percent of maximum policy potential achieved. For more detail on the maximum potentials, please see the TX-EPS simulator, available online.

**Table C1: Policy Lever Settings for the Electrification Scenario**

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Electric Vehicle Charger Deployment	2020	0	2050	255/kpop
Electric Vehicle Sales Target: Passenger LDVs	2020	0%	2035	100%
Electric Vehicle Sales Target: Freight LDVs	2020	0%	2035	100%
Electric Vehicle Sales Target: Passenger HDVs	2020	0%	2050	100%
Electric Vehicle Sales Target: Freight HDVs	2020	0%	2050	100%
Electric Vehicle Sales Target: Passenger Aircraft	2020	0%	2050	25%
Electric Vehicle Sales Target: Freight Aircraft	2020	0%	2050	25%
Electric Vehicle Sales Target: Passenger Rail	2020	0%	2035	100%
Electric Vehicle Sales Target: Freight Rail	2020	0%	2035	100%
Electric Vehicle Sales Target: Passenger Ships	2020	0%	2035	50%
Electric Vehicle Sales Target: Freight Ships	2020	0%	2035	50%
Electric Vehicle Sales Target: Passenger Motorbikes	2020	0%	2050	100%
Hydrogen Vehicle Sales Target: Passenger Ships	2020	0%	2050	50%
Hydrogen Vehicle Sales Target: Freight Ships	2020	0%	2050	50%
Mode Shifting: Passenger LDVs	2020	0%	2050	26%
Mode Shifting: Passenger Aircraft	2020	0%	2050	30%
Mode Shifting: Freight HDVs	2020	0%	2050	22%

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Building Component Electrification: Urban Residential Heating	2020	0%	2030	100%
Building Component Electrification: Urban Residential Appliances	2020	0%	2030	100%
Building Component Electrification: Urban Residential Other Components	2020	0%	2030	100%
Building Component Electrification: Rural Residential Heating	2020	0%	2030	100%
Building Component Electrification: Rural Residential Appliances	2020	0%	2030	100%
Building Component Electrification: Rural Residential Other Components	2020	0%	2030	100%
Building Component Electrification: Commercial Heating	2020	0%	2030	100%
Building Component Electrification: Commercial Appliances	2020	0%	2030	100%
Building Component Electrification: Commercial Other Components	2020	0%	2030	100%
Building Energy Efficiency Standards: Urban Residential Heating	2020	0%	2050	22%
Building Energy Efficiency Standards: Urban Residential Cooling and Ventilation	2020	0%	2050	38%
Building Energy Efficiency Standards: Urban Residential Envelope	2020	0%	2050	38%
Building Energy Efficiency Standards: Urban Residential Lighting	2020	0%	2050	40%
Building Energy Efficiency Standards: Urban Residential Appliances	2020	0%	2050	38%
Building Energy Efficiency Standards: Urban Residential Other Components	2020	0%	2050	11%
Building Energy Efficiency Standards: Rural Residential Heating	2020	0%	2050	22%
Building Energy Efficiency Standards: Rural Residential Cooling and Ventilation	2020	0%	2050	38%
Building Energy Efficiency Standards: Rural Residential Envelope	2020	0%	2050	38%
Building Energy Efficiency Standards: Rural Residential Lighting	2020	0%	2050	40%

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Building Energy Efficiency Standards: Rural Residential Appliances	2020	0%	2050	38%
Building Energy Efficiency Standards: Rural Residential Other Components	2020	0%	2050	11%
Building Energy Efficiency Standards: Commercial Heating	2020	0%	2050	22%
Building Energy Efficiency Standards: Commercial Cooling and Ventilation	2020	0%	2050	38%
Building Energy Efficiency Standards: Commercial Envelope	2020	0%	2050	38%
Building Energy Efficiency Standards: Commercial Lighting	2020	0%	2050	40%
Building Energy Efficiency Standards: Commercial Appliances	2020	0%	2050	38%
Building Energy Efficiency Standards: Commercial Other Components	2020	0%	2050	11%
Retrofit Existing Buildings: Urban Residential	2020	0%	2050	37%
Retrofit Existing Buildings: Rural Residential	2020	0%	2050	37%
Retrofit Existing Buildings: Commercial	2020	0%	2050	37%
Early Retirement of Industrial Facilities	2020	0%	2050	100%
Industry Energy Efficiency Standards: Cement Industry Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry Biomass Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry LPG Propane or Butane Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Natural Gas and Petroleum Industry Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Natural Gas and Petroleum Industry Coal Use	2020	0%	2050	25%

<b>Policy</b>	<b>Start Year</b>	<b>Percent of Policy Potential Achieved in 2020</b>	<b>Year</b>	<b>Percent of Policy Potential Achieved in 2050</b>
Industry Energy Efficiency Standards: Natural Gas and Petroleum Industry Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Natural Gas and Petroleum Industry Biomass Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Natural Gas and Petroleum Industry Crude Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry LPG Propane or Butane Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry LPG Propane or Butane Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Coal Mining Industry Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Coal Mining Industry Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Coal Mining Industry Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Coal Mining Industry Petroleum Use	2020	0%	2050	25%

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Industry Energy Efficiency Standards: Coal Mining Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Water & Waste Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Agriculture Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Agriculture Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Agriculture Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Agriculture Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Agriculture LPG Propane or Butane Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries LPG Propane or Butane Use	2020	0%	2050	25%
Improved System Design	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry Biomass Use	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry LPG Propane or Butane Use	2020	0%	2050	100%

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Electrification + Hydrogen: Natural Gas and Petroleum Industry Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Natural Gas and Petroleum Industry Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Natural Gas and Petroleum Industry Biomass Use	2020	0%	2050	100%
Electrification + Hydrogen: Natural Gas and Petroleum Industry Crude Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Iron and Steel Industry Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Iron and Steel Industry Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Iron and Steel Industry Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Iron and Steel Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Iron and Steel Industry LPG Propane or Butane Use	2020	0%	2050	100%
Electrification + Hydrogen: Chemicals Industry Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Chemicals Industry Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Chemicals Industry Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Chemicals Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Chemicals Industry LPG Propane or Butane Use	2020	0%	2050	100%
Electrification + Hydrogen: Coal Mining Industry Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Coal Mining Industry Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Coal Mining Industry Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Coal Mining Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Agriculture Natural Gas Use	2020	0%	2050	100%

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Electrification + Hydrogen: Agriculture Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Agriculture Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Agriculture LPG Propane or Butane Use	2020	0%	2050	100%
Electrification + Hydrogen: Other Industries Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Other Industries Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Other Industries Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Other Industries Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Other Industries LPG Propane or Butane Use	2020	0%	2050	100%
F-Gas Substitution	2020	0%	2050	100%
F-Gas Recovery	2020	0%	2050	100%
Material Efficiency, Longevity, & Re-Use: Cement Industry	2020	0%	2050	35%
Material Efficiency, Longevity, & Re-Use: Iron and Steel Industry	2020	0%	2050	60%
Material Efficiency, Longevity, & Re-Use: Water & Waste	2020	0%	2050	30%
Methane Capture: Natural Gas and Petroleum Industry	2020	0%	2050	100%
Methane Capture: Coal Mining Industry	2020	0%	2050	100%
Methane Capture: Water & Waste	2020	0%	2050	100%
Methane Destruction: Natural Gas and Petroleum Industry	2020	0%	2050	100%
Methane Destruction: Coal Mining Industry	2020	0%	2050	100%
Afforestation and Reforestation	2020	0%	2050	100%
Livestock Measures	2020	0%	2050	100%
Fuel Use Reduction: Industry: Cement	2020	0%	2050	10%
Fuel Use Reduction: Industry: Natural Gas and Petroleum	2020	0%	2050	10%
Fuel Use Reduction: Industry: Iron and Steel	2020	0%	2050	10%



Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Fuel Use Reduction: Industry: Chemicals	2020	0%	2050	10%
Fuel Use Reduction: Industry: Mining	2020	0%	2050	10%
Fuel Use Reduction: Industry: Water & Waste	2020	0%	2050	10%
Fuel Use Reduction: Industry: Agriculture	2020	0%	2050	10%
Fuel Use Reduction: Industry: Other Industries	2020	0%	2050	10%

Table C2: Policy Lever Settings for the Hydrogen and Carriers Scenario

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Electric Vehicle Charger Deployment	2020	0	2050	255/kpop
Electric Vehicle Sales Mandate: Passenger LDVs	2020	0%	2035	90%
Electric Vehicle Sales Mandate: Freight LDVs	2020	0%	2035	90%
Electric Vehicle Sales Mandate: Passenger Ships	2020	0%	2050	50%
Electric Vehicle Sales Mandate: Passenger Motorbikes	2020	0%	2050	100%
Hydrogen Vehicle Sales Mandate: Passenger LDVs	2020	0%	2050	10%
Hydrogen Vehicle Sales Mandate: Freight LDVs	2020	0%	2050	10%
Hydrogen Vehicle Sales Mandate: Passenger HDVs	2020	0%	2050	100%
Hydrogen Vehicle Sales Mandate: Freight HDVs	2020	0%	2050	100%
Hydrogen Vehicle Sales Mandate: Passenger Aircraft	2020	0%	2050	25%
Hydrogen Vehicle Sales Mandate: Freight Aircraft	2020	0%	2050	25%
Hydrogen Vehicle Sales Mandate: Passenger Rail	2020	0%	2050	100%
Hydrogen Vehicle Sales Mandate: Freight Rail	2020	0%	2050	100%
Hydrogen Vehicle Sales Mandate: Passenger Ships	2020	0%	2050	50%
Mode Shifting: Passenger LDVs	2020	0%	2050	26%
Mode Shifting: Passenger Aircraft	2020	0%	2050	30%
Mode Shifting: Freight HDVs	2020	0%	2050	22%
Building Component Electrification: Urban Residential Heating	2020	0%	2030	75%

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Building Component Electrification: Urban Residential Appliances	2020	0%	2030	75%
Building Component Electrification: Urban Residential Other Components	2020	0%	2030	75%
Building Component Electrification: Rural Residential Heating	2020	0%	2030	75%
Building Component Electrification: Rural Residential Appliances	2020	0%	2030	75%
Building Component Electrification: Rural Residential Other Components	2020	0%	2030	75%
Building Component Electrification: Commercial Heating	2020	0%	2030	75%
Building Component Electrification: Commercial Appliances	2020	0%	2030	75%
Building Component Electrification: Commercial Other Components	2020	0%	2030	75%
Building Energy Efficiency Standards: Urban Residential Heating	2020	0%	2050	22%
Building Energy Efficiency Standards: Urban Residential Cooling and Ventilation	2020	0%	2050	38%
Building Energy Efficiency Standards: Urban Residential Envelope	2020	0%	2050	38%
Building Energy Efficiency Standards: Urban Residential Lighting	2020	0%	2050	40%
Building Energy Efficiency Standards: Urban Residential Appliances	2020	0%	2050	38%
Building Energy Efficiency Standards: Urban Residential Other Components	2020	0%	2050	11%
Building Energy Efficiency Standards: Rural Residential Heating	2020	0%	2050	22%
Building Energy Efficiency Standards: Rural Residential Cooling and Ventilation	2020	0%	2050	38%
Building Energy Efficiency Standards: Rural Residential Envelope	2020	0%	2050	38%
Building Energy Efficiency Standards: Rural Residential Lighting	2020	0%	2050	40%
Building Energy Efficiency Standards: Rural Residential Appliances	2020	0%	2050	38%
Building Energy Efficiency Standards: Rural Residential Other Components	2020	0%	2050	11%

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Building Energy Efficiency Standards: Commercial Heating	2020	0%	2050	22%
Building Energy Efficiency Standards: Commercial Cooling and Ventilation	2020	0%	2050	38%
Building Energy Efficiency Standards: Commercial Envelope	2020	0%	2050	38%
Building Energy Efficiency Standards: Commercial Lighting	2020	0%	2050	40%
Building Energy Efficiency Standards: Commercial Appliances	2020	0%	2050	38%
Building Energy Efficiency Standards: Commercial Other Components	2020	0%	2050	11%
Retrofit Existing Buildings: Urban Residential	2020	0%	2050	37%
Retrofit Existing Buildings: Rural Residential	2020	0%	2050	37%
Retrofit Existing Buildings: Commercial	2020	0%	2050	37%
Cogeneration and Waste Heat Recovery	2020	0%	2050	100%
Early Retirement of Industrial Facilities	2020	0%	2050	100%
Industry Energy Efficiency Standards: Cement Industry Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry Biomass Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Cement Industry LPG Propane or Butane Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Natural Gas and Petroleum Industry Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Natural Gas and Petroleum Industry Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Natural Gas and Petroleum Industry Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Natural Gas and Petroleum Industry Biomass Use	2020	0%	2050	25%



Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Industry Energy Efficiency Standards: Natural Gas and Petroleum Industry Crude Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Iron and Steel Industry LPG Propane or Butane Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Chemicals Industry LPG Propane or Butane Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Coal Mining Industry Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Coal Mining Industry Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Coal Mining Industry Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Coal Mining Industry Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Coal Mining Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Water & Waste Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Agriculture Electricity Use	2020	0%	2050	25%

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Industry Energy Efficiency Standards: Agriculture Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Agriculture Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Agriculture Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Agriculture LPG Propane or Butane Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries Electricity Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries Coal Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries Natural Gas Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries Petroleum Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries Heavy or Residual Fuel Oil Use	2020	0%	2050	25%
Industry Energy Efficiency Standards: Other Industries LPG Propane or Butane Use	2020	0%	2050	25%
Improved System Design	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry Biomass Use	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Cement Industry LPG Propane or Butane Use	2020	0%	2050	100%
Electrification + Hydrogen: Natural Gas and Petroleum Industry Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Natural Gas and Petroleum Industry Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Natural Gas and Petroleum Industry Biomass Use	2020	0%	2050	100%

Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Electrification + Hydrogen: Natural Gas and Petroleum Industry Crude Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Iron and Steel Industry Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Iron and Steel Industry Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Iron and Steel Industry Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Iron and Steel Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Iron and Steel Industry LPG Propane or Butane Use	2020	0%	2050	100%
Electrification + Hydrogen: Chemicals Industry Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Chemicals Industry Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Chemicals Industry Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Chemicals Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Chemicals Industry LPG Propane or Butane Use	2020	0%	2050	100%
Electrification + Hydrogen: Coal Mining Industry Coal Use	2020	0%	2050	100%
Electrification + Hydrogen: Coal Mining Industry Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Coal Mining Industry Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Coal Mining Industry Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Agriculture Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Agriculture Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Agriculture Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Agriculture LPG Propane or Butane Use	2020	0%	2050	100%
Electrification + Hydrogen: Other Industries Coal Use	2020	0%	2050	100%



Policy	Start Year	Percent of Policy Potential Achieved in 2020	Year	Percent of Policy Potential Achieved in 2050
Electrification + Hydrogen: Other Industries Natural Gas Use	2020	0%	2050	100%
Electrification + Hydrogen: Other Industries Petroleum Use	2020	0%	2050	100%
Electrification + Hydrogen: Other Industries Heavy or Residual Fuel Oil Use	2020	0%	2050	100%
Electrification + Hydrogen: Other Industries LPG Propane or Butane Use	2020	0%	2050	100%
F-Gas Substitution	2020	0%	2050	100%
F-Gas Recovery	2020	0%	2050	100%
Material Efficiency, Longevity, & Re-Use: Cement Industry	2020	0%	2050	35%
Material Efficiency, Longevity, & Re-Use: Iron and Steel Industry	2020	0%	2050	60%
Material Efficiency, Longevity, & Re-Use: Water & Waste	2020	0%	2050	30%
Methane Capture: Natural Gas and Petroleum Industry	2020	0%	2050	100%
Methane Capture: Coal Mining Industry	2020	0%	2050	100%
Methane Capture: Water & Waste	2020	0%	2050	100%
Methane Destruction: Natural Gas and Petroleum Industry	2020	0%	2050	100%
Methane Destruction: Coal Mining Industry	2020	0%	2050	100%
Methane Destruction: Water & Waste	2020	0%	2050	100%
Afforestation and Reforestation	2020	0%	2050	100%
Livestock Measures	2020	0%	2050	100%
Produce District Heat with Hydrogen	2020	0%	2021	100%
Fuel Use Reduction: Vehicles: Hydrogen	2020	0%	2050	15%