

# 50x30: Insights from Recent Analyses

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# Contribution to economy-wide 50% reduction relative to 2005

	Charting an Ambitious NDC	All-In Climate Strategy
Electricity CO <sub>2</sub>	28%	31%
Transport CO <sub>2</sub>	11%	9%
Industry CO <sub>2</sub>	3%	2%
Buildings CO <sub>2</sub>	2%	3%
Non-CO <sub>2</sub>	4%	3%
LULUCF	3%	2%
<b>Total</b>	<b>51%</b>	<b>50%</b>

Working Paper

## CHARTING AN AMBITIOUS U.S. NDC OF 51% REDUCTIONS BY 2030

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### Key Messages

- New analysis shows that a comprehensive federal effort across all sectors and gases could deliver U.S. GHG emissions reductions of 51% below 2005 levels by 2030. This would put the U.S. on a trajectory to net-zero



**AMERICA IS ALL IN**

An All-In climate strategy can cut U.S. emissions by 50% by 2030

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# Examples of Assumptions: Federal Component of All-In Climate Strategy

Sector	All-In-Federal
Electricity	Standards and incentives drive clean electricity generation to 77%. Additional policies result in near-complete phaseout of coal and gas generation to peak by 2025.
Transportation	Incentives and standards drive EVs to over 60% of light-duty vehicle sales, 100% of bus sales, and 15% of heavy-duty vehicle sales.
Industry	Federal incentives lead all industrial facilities nationwide to adopt best-in-class energy management practices, and federal investments increase adoption of electrified technology. Federal policies and incentives promote adoption of CCUS.
Buildings	Due to standards and policies, all new buildings are 100% electrified and replacement appliances are electrified.
Emissions Caps	Additional states fully meet their aspirational economy-wide emissions reduction goals with the help of federal investment and support.
Non-CO <sub>2</sub>	Federal methane rules are reinstated and strengthened to cover new and existing sources. Fugitive methane emissions from oil and gas facilities are reduced by 60% nationwide. Federal actions allow for comprehensive reduction in HFC usage and emissions nationwide
LUUCF	Leading states incentivize low-cost natural climate solutions such as natural forest management, optimal nutrient application, and the use of cover crops. All states mitigate agricultural methane and nitrous oxide emissions where it is cost effective.

# Assumptions: Charting an Ambitious NDC

## Electricity:

- Renewable tax credits (PTC, ITC)
- Standards on gas and coal
- Carbon capture and storage (45Q)
- Incentives to retain nuclear

## Transportation

- Fuel economy standard enhancement (CAFE)
- Electrification of passenger vehicles
- Electrification of freight vehicles
- EV tax credits and cash-for-clunkers

## Buildings

- Energy efficiency measures
- Electrification of heating and water heating

## Industry

- Energy efficiency measures
- Industrial Carbon capture

## Non-CO<sub>2</sub>

- Methane reduction
- Nitrous Oxide reduction
- HFC, PFC, SFG reduction

## LULUCF

- Investments in reforestations and improved management

Sector	Modeled Policy	Approach
Power	Renewable Energy Incentives	Investment tax credit extends through 2030 at 30% of development costs. Production tax credit extends through 2030 at 2.5 cents/KWh.
	Standards on existing coal	Federal regulations impose an equivalent of a carbon price starting at \$5/ton in 2023, rising to \$25/ton by 2035.
	Standards on existing gas	Federal regulations impose an equivalent of a carbon price starting at \$10/ton in 2030, rising to \$25/ton by 2035.
	Standards on new gas	All new gas plants are built with 90% CCS starting in 2025.
	Incentives for Carbon Capture and Sequestration	45Q tax credit for CCS projects is increased to \$100/ton through 2030, achieving 154 MTCO <sub>2</sub> sequestration.
	Nuclear Retention Incentives	Incentives retain existing nuclear generation at 680 TWh in 2030.
Transport	Combustion Engine Performance	ICE GHG performance reaches 118gCO <sub>2</sub> /mi for new passenger cars and 160g/mi for new light trucks and SUVs by 2030.
	LDV ZEV incentives	For MY2021 through MY2025, EV credit is fixed at \$7,000/new sales. Post-2025, EV sales increase such that by 2030 new EV sales reach 40%, and by 2035 new sales reach 90%. Additional cash for clunkers incentive is set at \$5000/vehicle older than 15 years of age.
	M/HDV ZEV incentives	2030 ZEV sales reach 15% for Class 2b-3 trucks, 20% for Class 4-8 straight trucks, and 15% for Class 7-8 tractors.
Buildings	Electrification	Combination of appliance incentives and standards leads to 58% of appliances stock being electrified. New sales of electrified appliances are consistent with the National Renewable Energy Laboratory's Electrification Futures Study "High Electrification" scenario.
	Energy efficiency	High efficiency appliance standards and investments achieve reduced energy demand consistent with the Appliance Standards Awareness Project's A Powerful Priority report.
Industry	Energy efficiency	Efficiency increase to reduce overall energy demand by 1.7 EJ by 2030.
	Carbon Capture and Sequestration	45Q tax credit for CCS projects is increased to \$100/ton through 2030, achieving 79 MTCO <sub>2</sub> sequestration.
Non-CO <sub>2</sub> emissions	Methane (CH <sub>4</sub> )	Standards on oil and gas methane to address fugitive methane emissions. Incentives and standards for agricultural CH <sub>4</sub> emissions abatement consistent with economic potential from the EPA MAC report.
	Nitrous Oxide (N <sub>2</sub> O)	Incentives for N <sub>2</sub> O emissions abatement achieve 9.7% below 2015 levels by 2030, achieving economic abatement potential from the EPA MAC report.
	Hydrofluorocarbons (HFCs)	Incentives and standards on HFC emissions leads to reduction of 77% below 2015 levels, achieving economic abatement potential from the EPA MAC report.
LULUCF	LULUCF	Substantial new investment to pay for reforestation and improved land management practices grow the land sector sink to achieve -1000 TCO <sub>2</sub> e/year in LULUCF emissions (applying up to \$35-40/ton price as proxy).

# End

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