



A turning point of US climate action

Assessing the Inflation Reduction Act

TRANSATLANTIC NETWORK | DECEMBER 13, 2022

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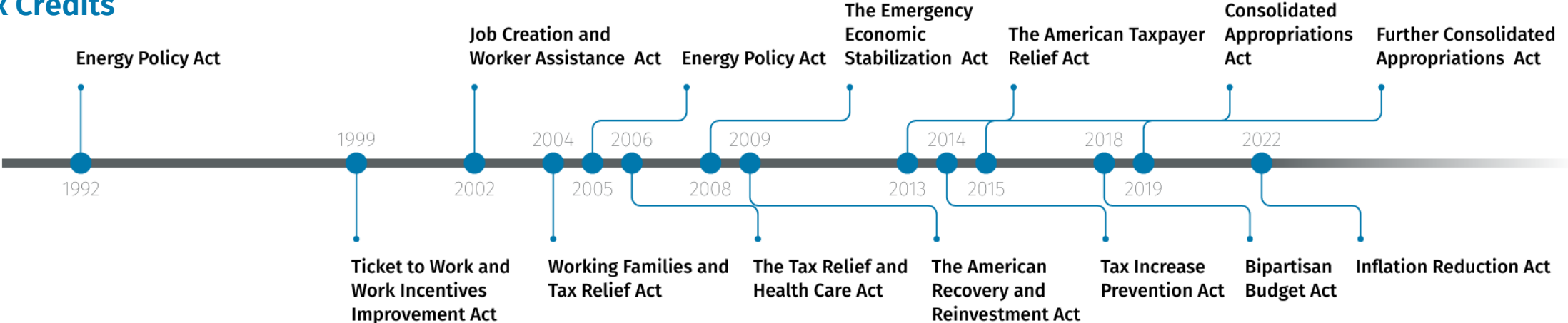
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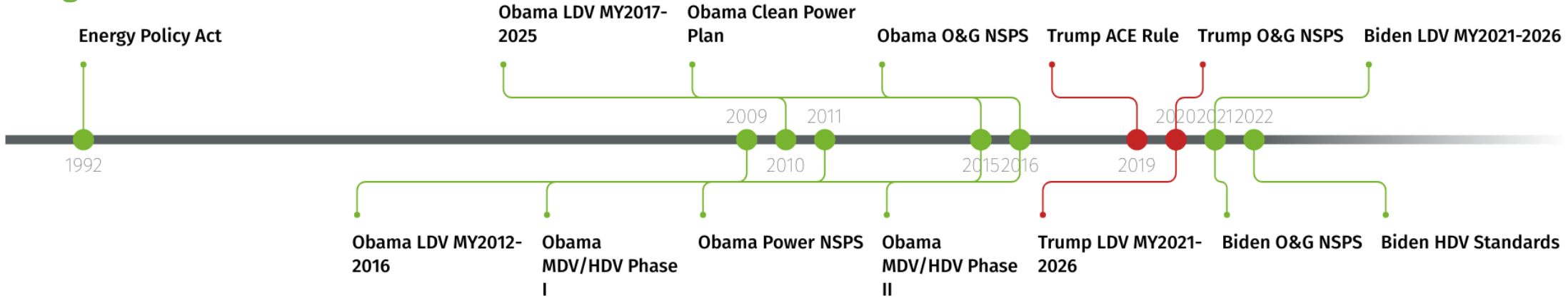
The IRA builds on a 30-year US policy trend

Major tax credit extensions and GHG regulatory actions (lots of other regs with GHG benefits)

Tax Credits



GHG Regulations



Source: Rhodium Group

Major IRA policies explicitly modeled

Target Sector	Policies
Electric power	<ul style="list-style-type: none"> • Extension and modification of existing production tax credit and investment tax credit • New clean electricity production and investment credits • Extension and modification of carbon capture tax credits • New zero-emissions nuclear power production credit • Tax credit direct pay provisions and transferability • USDA assistance for rural electric cooperatives
Transportation	<ul style="list-style-type: none"> • New clean vehicle credit for light-duty vehicles and qualified commercial clean vehicles • Extension of biofuel incentives • New clean fuel production tax credit • New sustainable aviation fuel credit • New clean hydrogen production tax credit
Industry	<ul style="list-style-type: none"> • Extension and modification of carbon capture tax credits • New clean hydrogen production tax credit • New clean fuel production tax credit

Target Sector	Policies
Buildings	<ul style="list-style-type: none"> • Extension and modification of energy efficiency commercial buildings deduction • Extension and modification of nonbusiness energy property credit • Extension and modification of residential clean energy credit • Extension and modification of new energy efficient home credit • New performance based, whole-house rebates • New high-efficiency electric home rebates
Oil and gas	<ul style="list-style-type: none"> • Methane emissions reduction program • Increases in onshore and offshore oil and gas royalty rates • Required lease sales from the 2017-2022 Outer Continental Shelf Leasing Program • Required minimum onshore and offshore lease sale acreages and timing provisions
Carbon removal	<ul style="list-style-type: none"> • Agricultural conservation investments • Non-federal land forest reforestation projects • State and private forestry conservation programs • Extension and modification of carbon capture tax credits to include a new tier for direct air capture

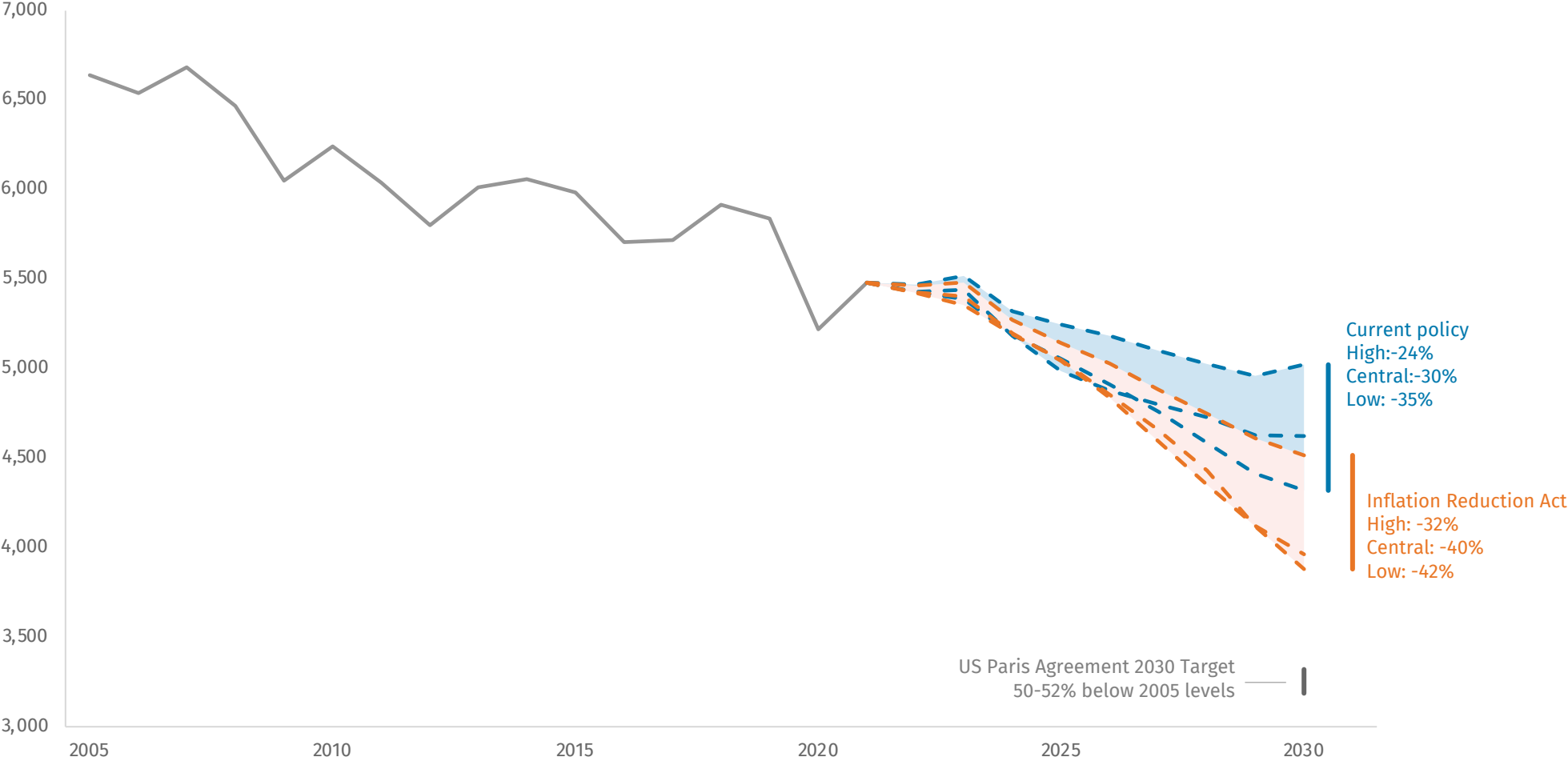
IRA analysis scenario design

- We assess the impacts of the IRA by comparing emissions under our three core Taking Stock 2022 emissions scenarios, which reflect all policy on the books as of June 2022, with emissions under those same scenarios plus the IRA.
- To conduct this analysis, we used RHG-NEMS, a version of the Energy Information Administration's (EIA) National Energy Modeling System modified by Rhodium Group.

TS 2022 Main Scenarios	Low Emissions	Central	High Emissions
Natural gas & oil prices	High	Mid	Low
Clean technology costs	Low	Mid	High
Economic growth	Baseline	Baseline	High

The Inflation Reduction Act puts the 2030 target within reach...

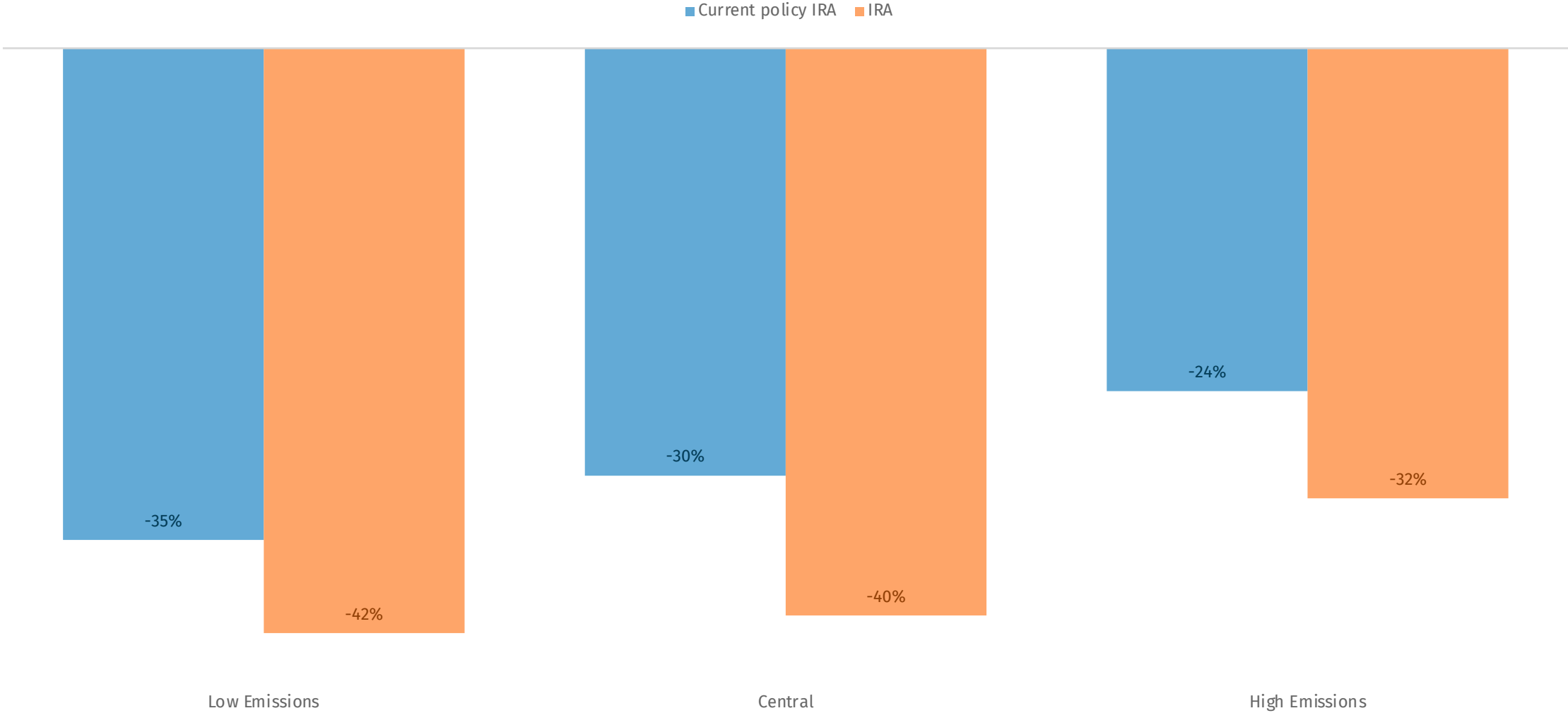
Net million metric tons (mmt) of CO₂e



Source: Rhodium Group. Note: The range reflects uncertainty around future fossil fuel prices, economic growth, and clean technology costs. It corresponds with high, central, and low emissions scenarios detailed in [Taking Stock 2022](#).

US emissions in 2030 under the IRA, compared to current policy

Percent reduction in 2030 from 2005 levels

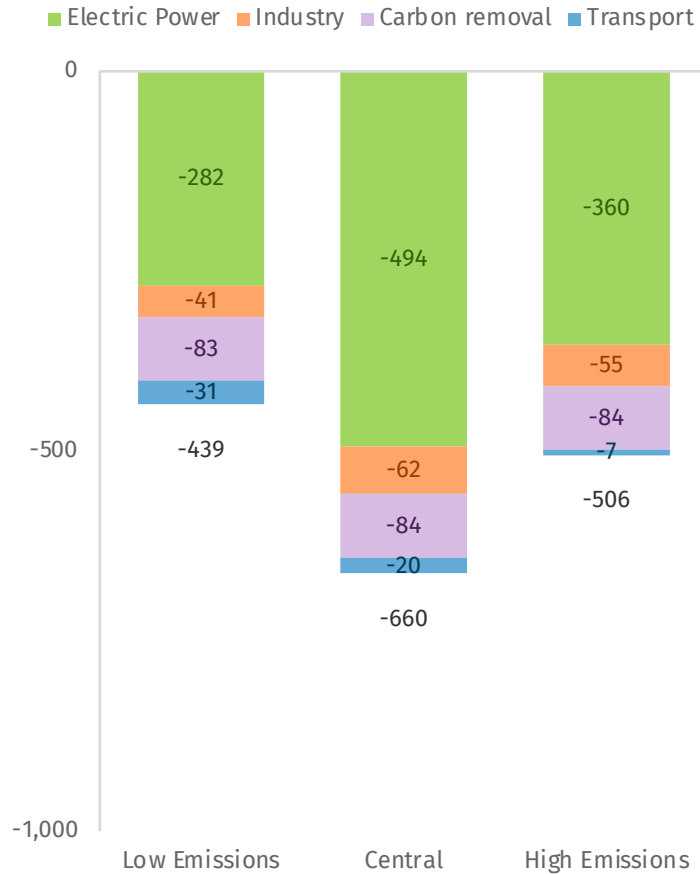


Source: Rhodium Group. Note: The high, central, and low emissions scenarios reflect uncertainty around future fossil fuel prices, economic growth, and clean technology costs, and are detailed in [Taking Stock 2022](#).

Sector-level changes in emissions

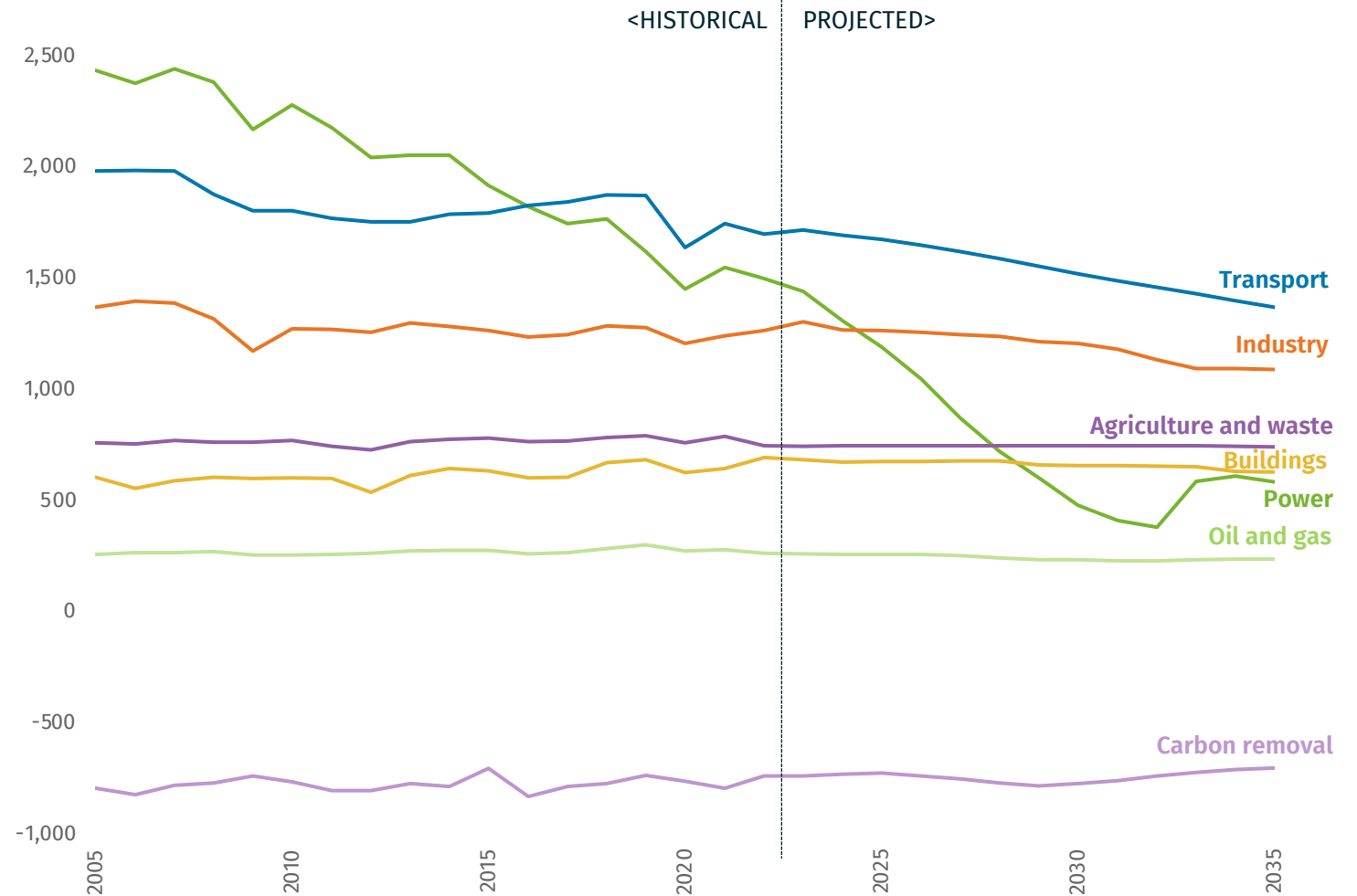
Additional emissions reductions from the IRA by sector, 2030

Net million metric tons (mmt) of CO₂e



US greenhouse gas emissions by sector, 2005-2035

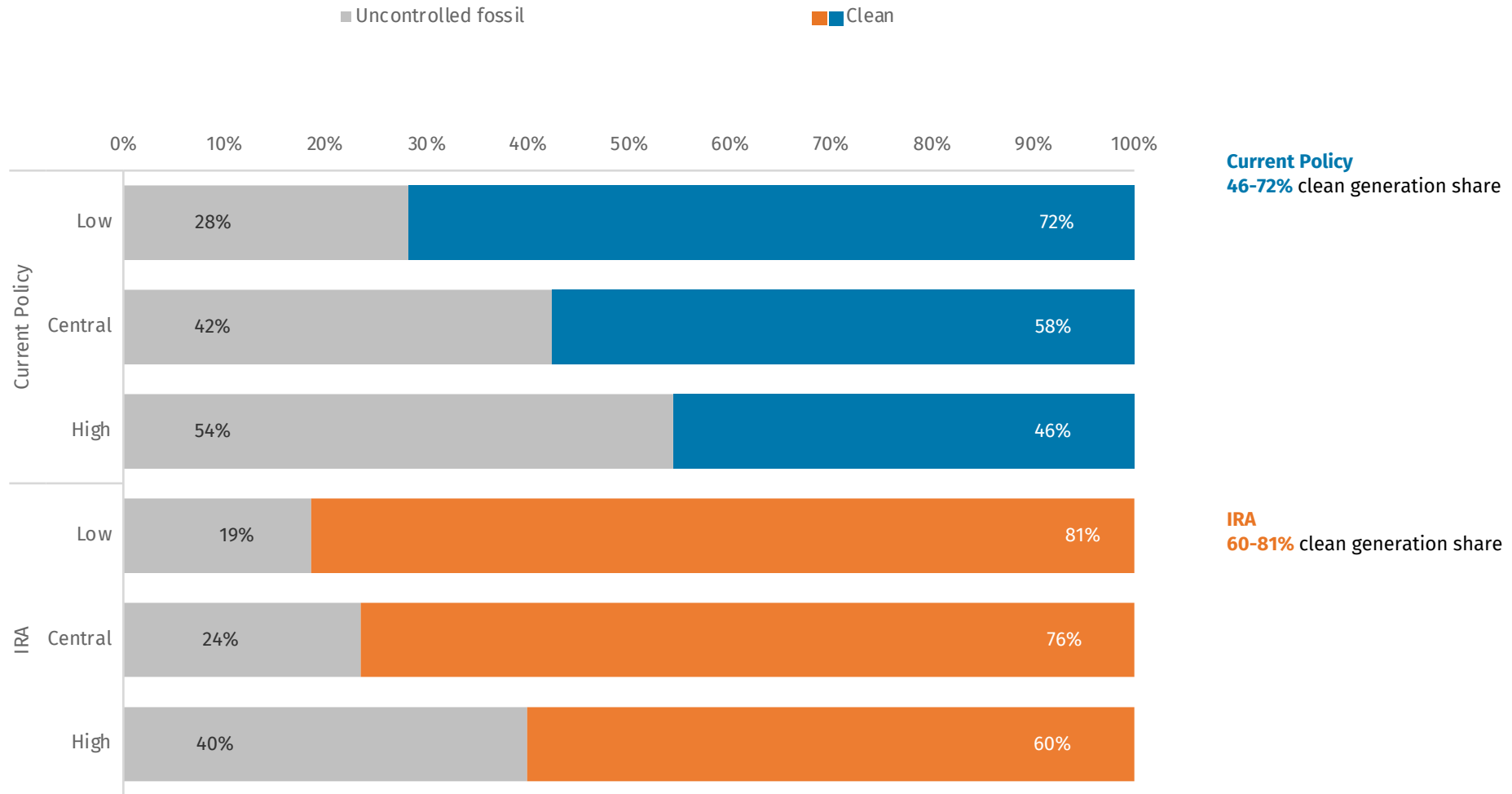
Net million metric tons (mmt) of CO₂e. Central scenario



Source: Rhodium Group

Clean electricity shares in 2030

Percent of total generation

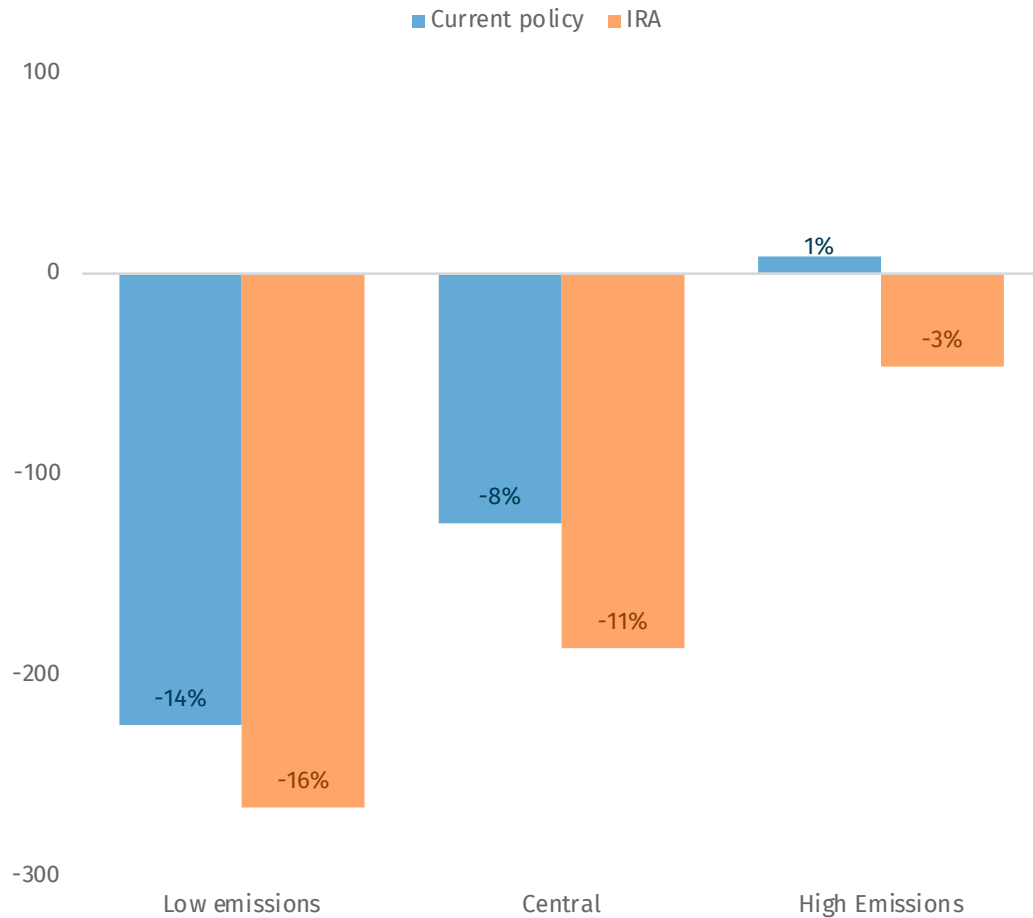


Source: Rhodium Group.

Industrial sector emissions and installed carbon capture capacity

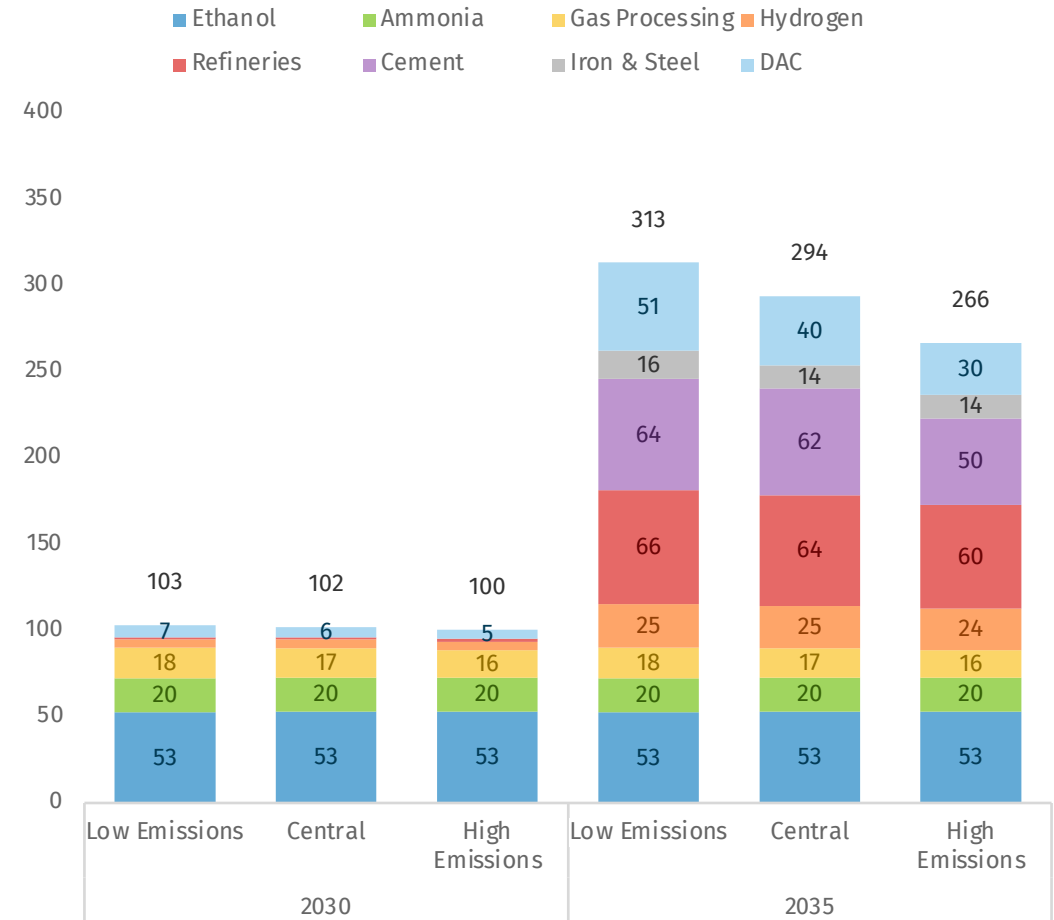
Industrial sector emissions, 2030

Million metric tons, % change relative to 2005 levels



Installed carbon capture capacity, inclusive of the IRA

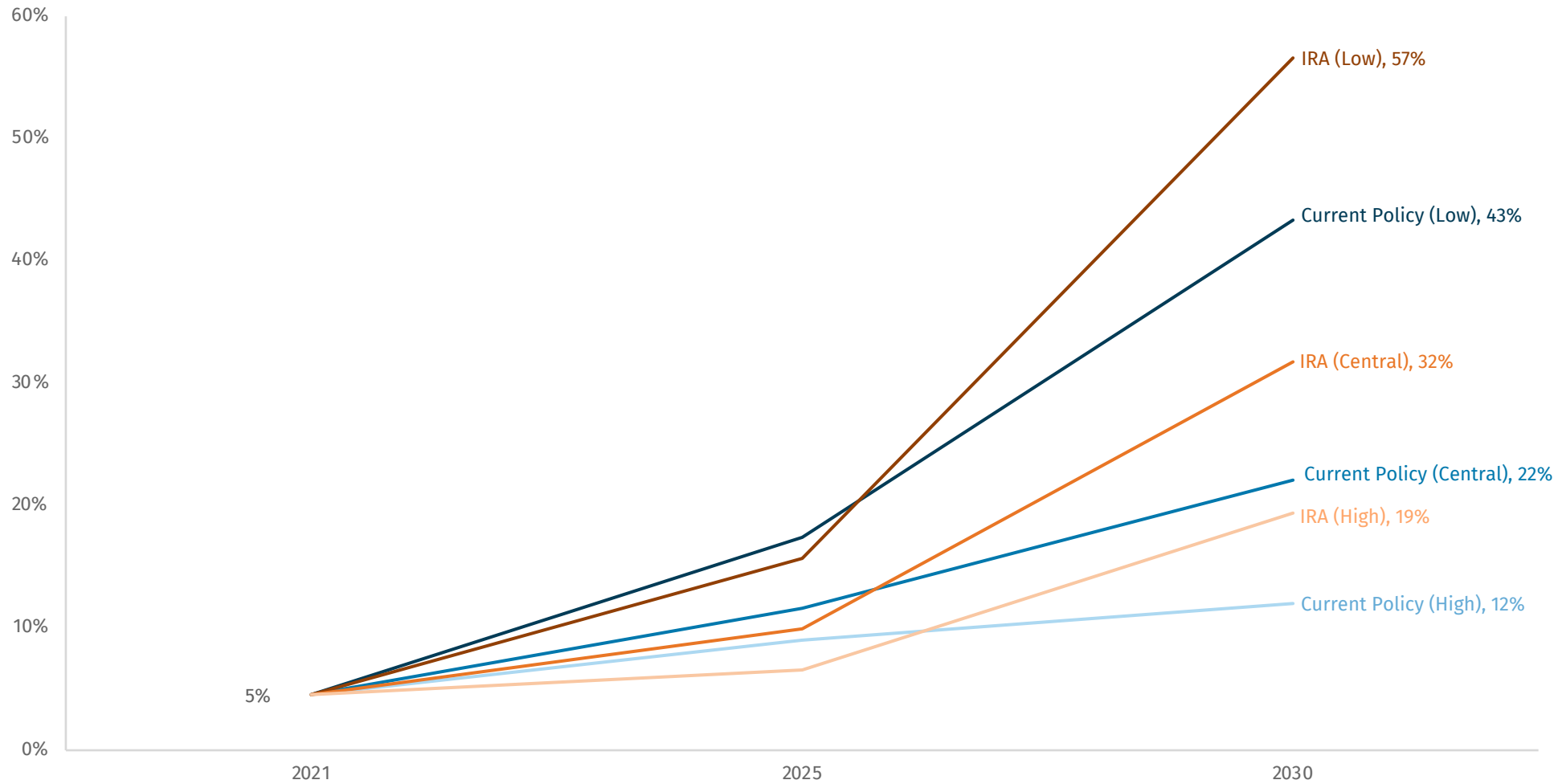
Million metric tons of capture capacity per year



Source: Rhodium Group. Note: For the figure on the right, results reflect the impacts of future energy market conditions and current policy, as well as the impacts of the IRA.

Electric vehicles as a share of all LDV sales, 2021-2030

Percent share of total

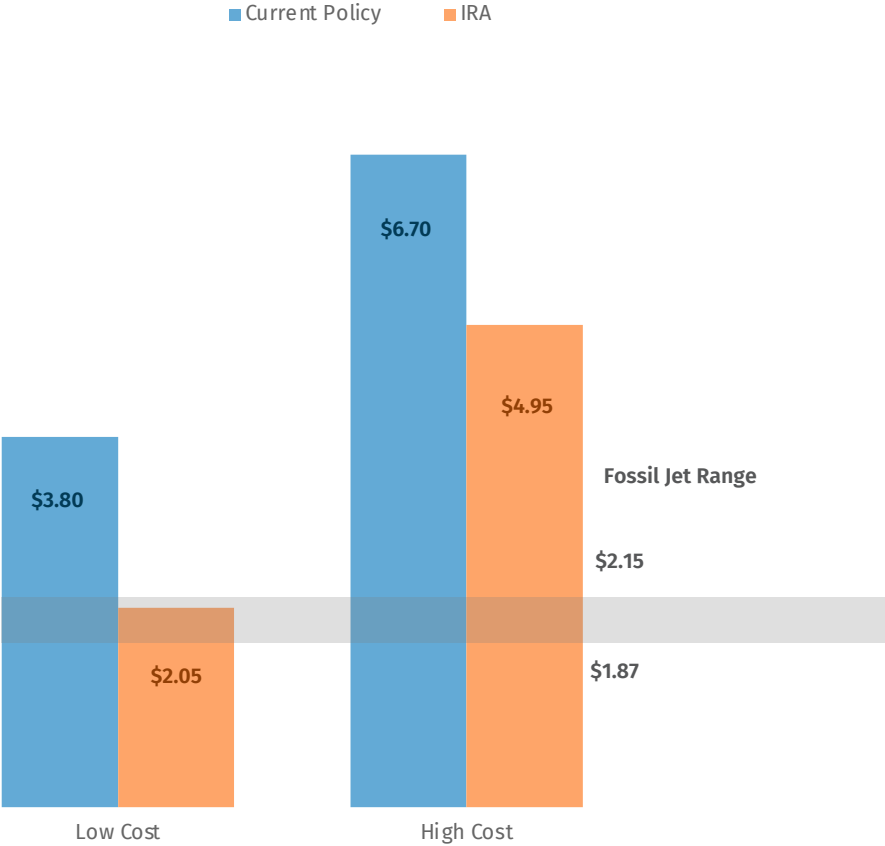


Source: Rhodium Group.

Sustainable aviation fuel and green hydrogen prices

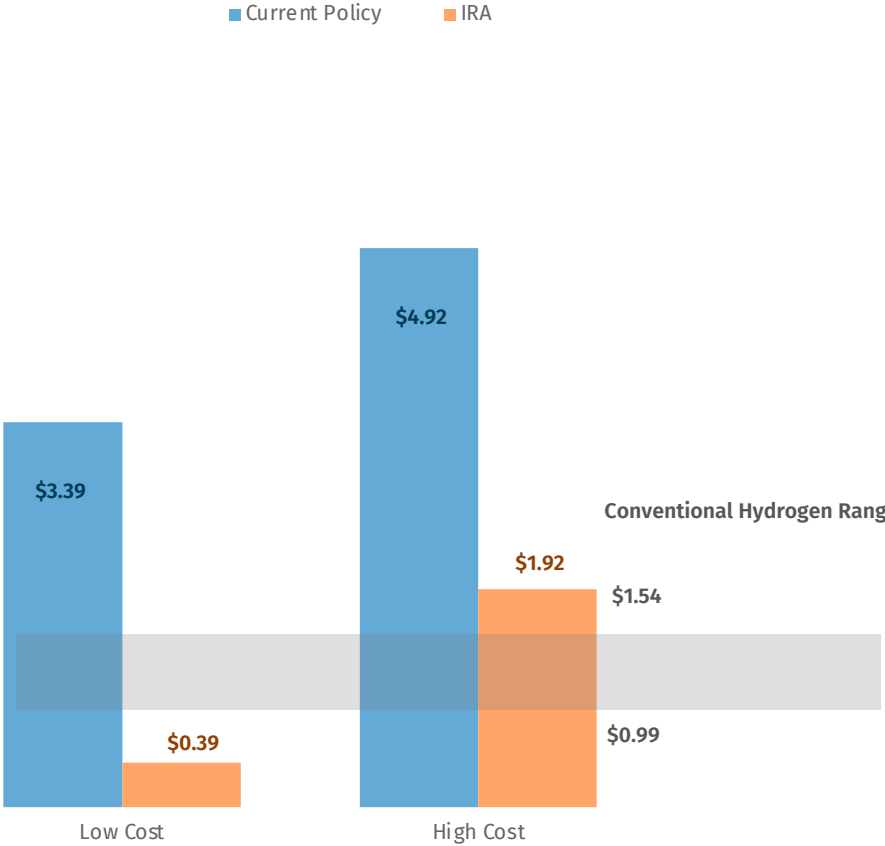
Wholesale sustainable aviation fuel prices, 2027

US dollars per gallon



Green hydrogen prices, 2030

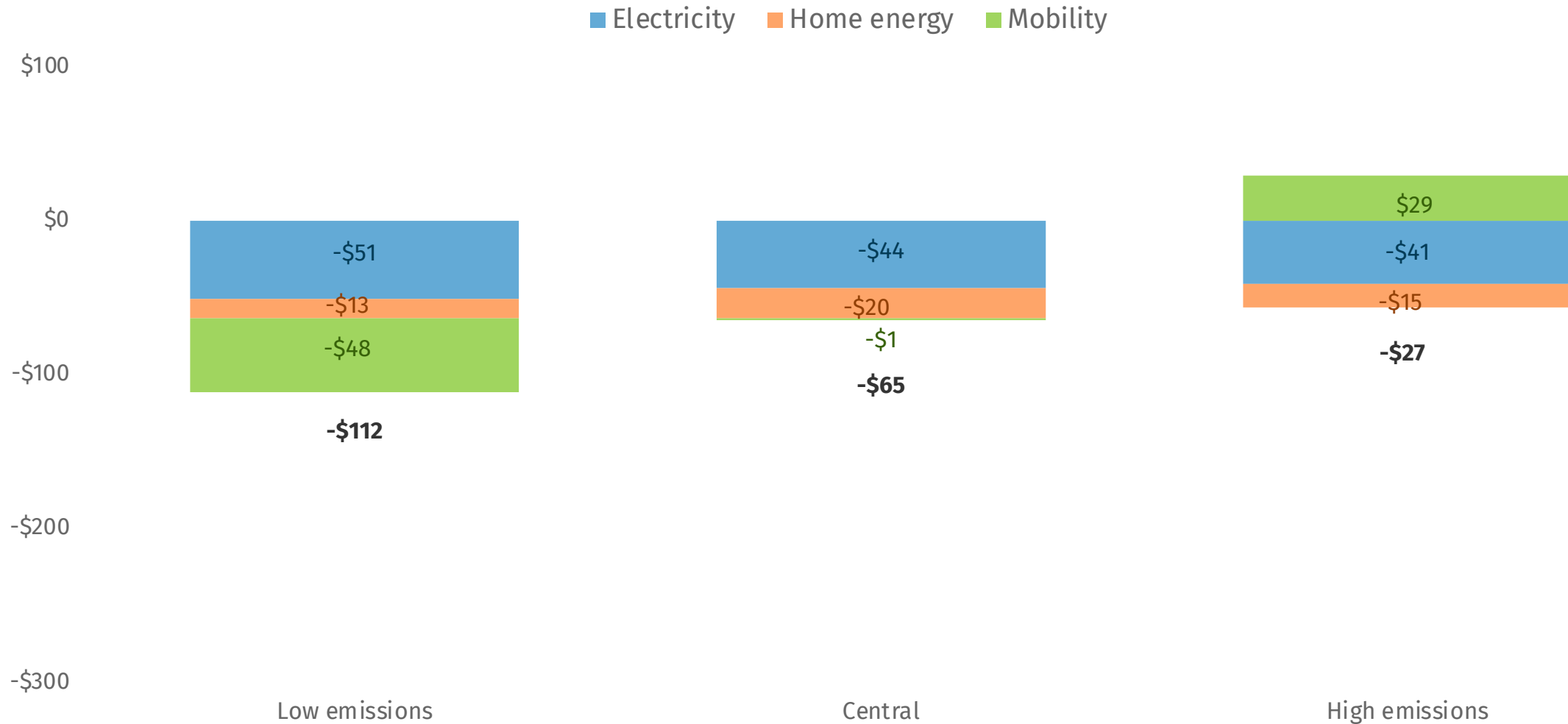
US dollars per kilogram



Source: Rhodium Group. Note: (1) Sustainable aviation fuel estimates reflect HEFA and ATJ processes. (2) Green hydrogen assumed to be produced with utility-scale solar. Other zero-emitting electricity sources will lead to different costs.

Change in household energy costs from the IRA in 2030

US dollars



Source: Rhodium Group

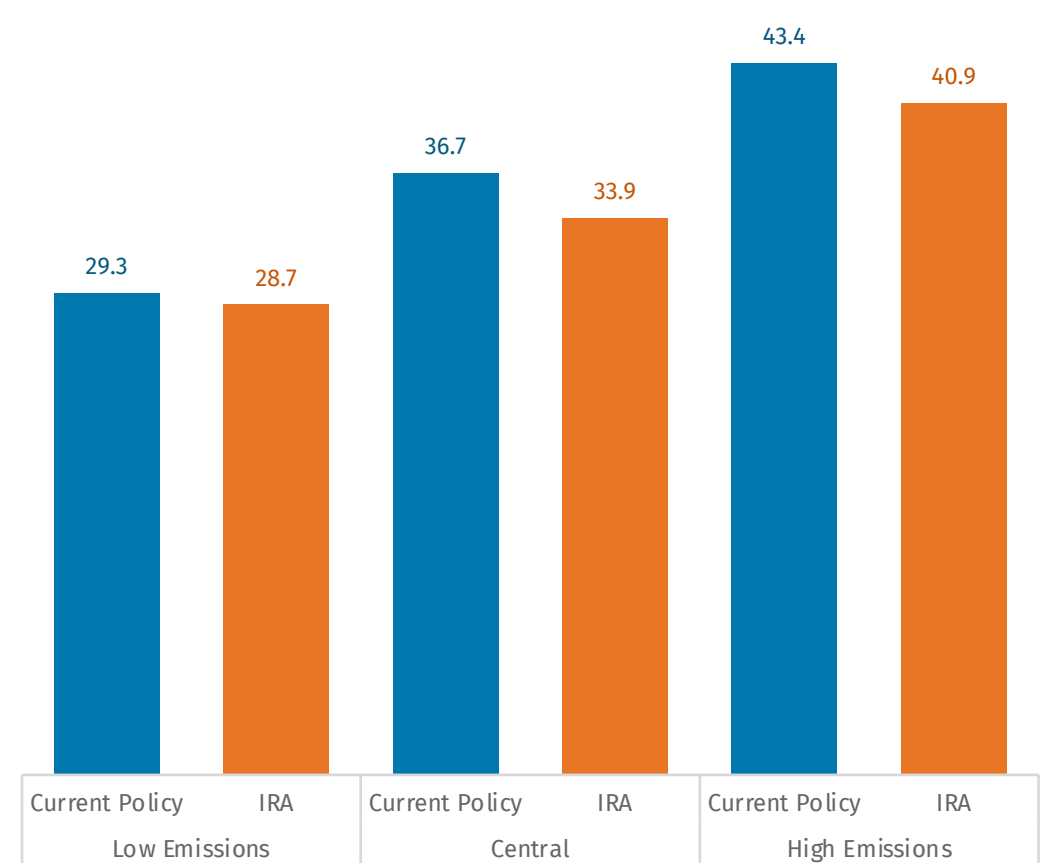
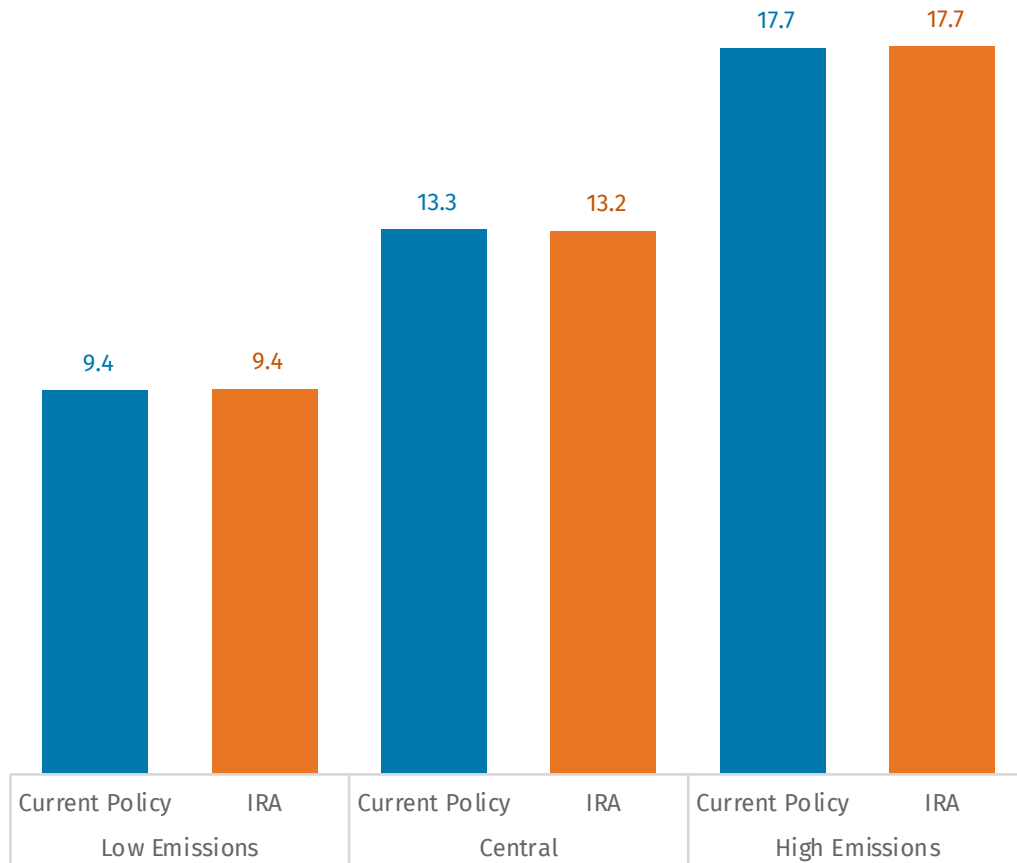
Domestic oil and gas production is flat or decreased

Domestic crude oil production in 2030

Million barrels per day

Domestic natural gas production in 2030

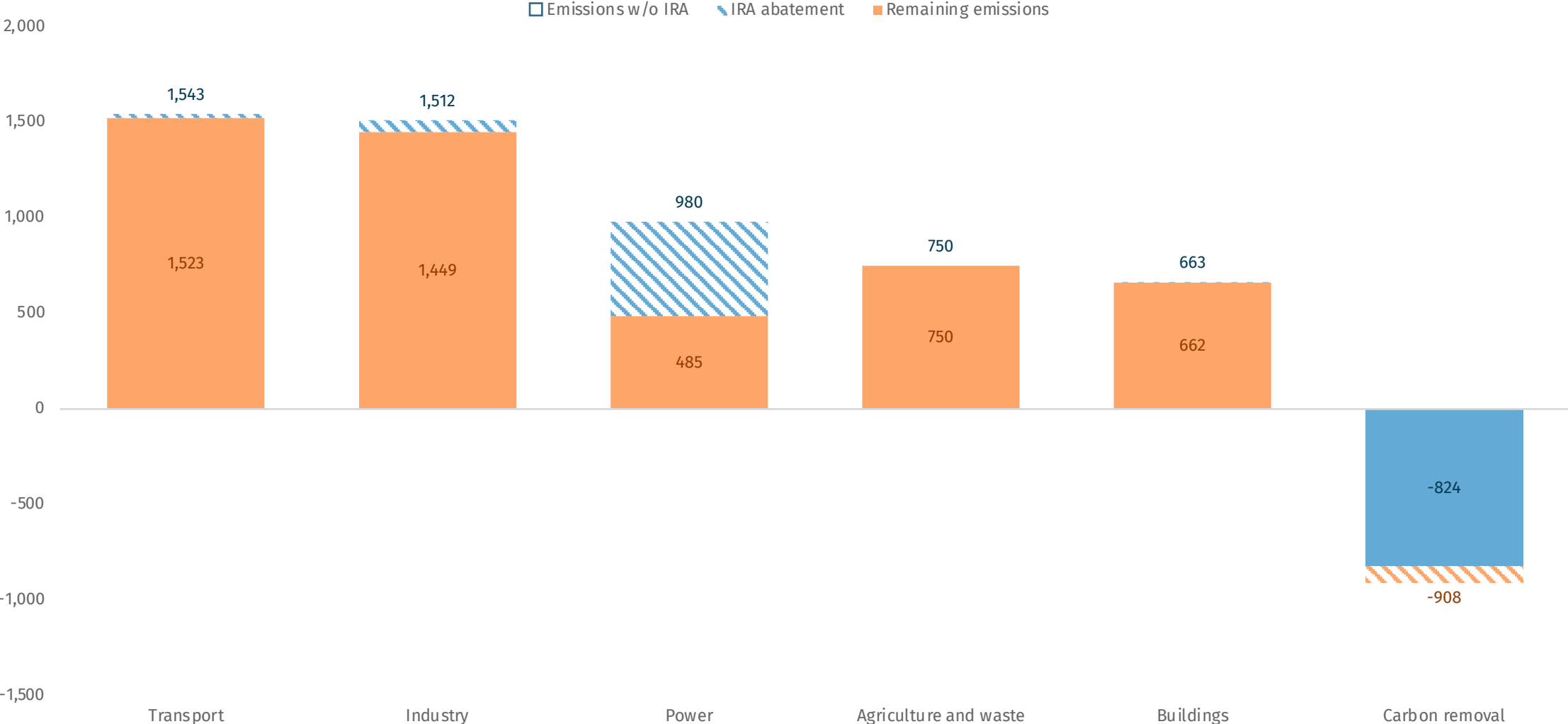
Trillion cubic feet



Source: Rhodium Group

What's left now that the IRA has been enacted?

2030 GHG emissions (MMT CO₂e) with and without the IRA, central emissions scenario



Source: Rhodium Group

IRA implementation priorities

Making sure projected reductions happen

Transferability rules

Clear, traceable, flexible and simple rules to facilitate a flood of new investment into clean energy projects.

Direct pay rules

Simple, streamlined rules to bring non-profit and government players into the clean energy project development space.

Bonus credit guidance

Guidance on where and how to qualify for bonus credits that amplify market signals for clean energy projects.

Domestic content and labor guidance

Clear guidance and tracking requirements for achieving minimum content, supply chain and labor provisions to maximize credit payouts.

Lifecycle GHG accounting guidance

Reasonable procurement and documentation of upstream emissions for clean fuels and clean hydrogen and other credits.

Company awareness raising

Raise awareness among companies not usually engaged in federal clean energy tax credits about IRA-created opportunities.

Key takeaways

- The IRA is a major step forward for US climate action and provides a strong foundation for further decarbonization over the next decade and beyond
- Net GHG emissions cut down to 32-42% below 2005 levels
- Consumers save as much as \$112 per household on a national average basis in 2030
- Clean technologies surges in the electric power, industrial and transportation sectors
- Emerging clean technologies have the potential to get to cost parity with fossil incumbents
- The IRA results in US oil production is unchanged and natural gas production declines in 2030
- Quick implementation is critical
- The US needs to do more, quickly to meet or exceed climate commitments
- EVERY TON COUNTS!

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<https://rhg.com/research/climate-clean-energy-inflation-reduction-act/>

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