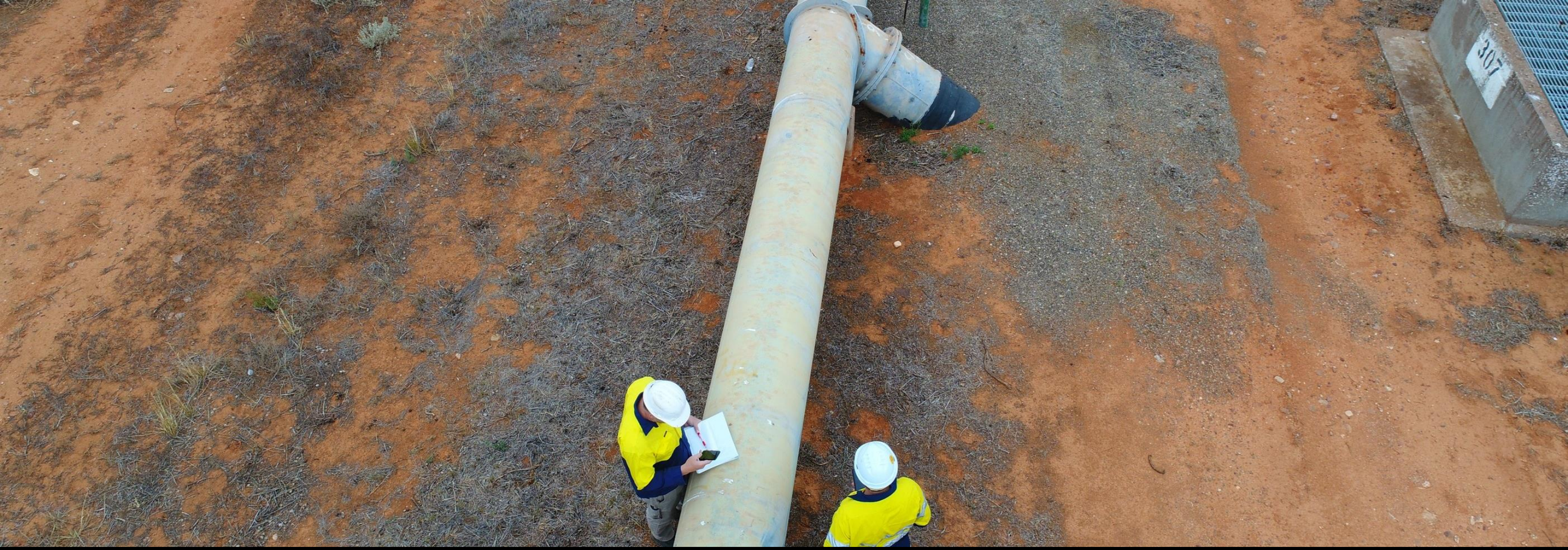

Permit Reform Impact on U.S. Natural Gas, Power Markets, and the Economy

American Petroleum Institute (API)

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Scope of work

ICF assessed the impacts of a modernized permitting environment (permitting reform) on U.S. natural gas and electricity markets, potential effects on regional retail electricity prices, CO2 emissions, and the broader economy, through modeling and analyzing two scenarios for the period 2026 – 2035.

Permitting reform refers to changes to the rules, processes, and timelines that the federal government uses to approve projects and aimed at accelerating the approval process for major infrastructure projects, such as natural gas pipelines and electric transmission lines, by creating clearer timelines and scope of review. The study constitutes of two scenarios chosen by API:

- Reference Case reflects the current permitting environment and policy landscape as of mid-July 2025, incorporating the impacts of OBBBA and other recent developments such as reduced tax credits for renewables, higher tariffs on solar photovoltaic (PVs) and other raw materials and equipment, diminished incentives for electric vehicles and energy efficiency, long backlog of orders for natural gas turbines and transformers, and continued electrification of the industrial sector. In addition, the outlook for U.S. LNG exports is expected to approximately double over the next five years.
- Policy Case assumes the passage of permitting reforms to federal statutes that have historically slowed or been used to halt the development of energy infrastructure like electric transmission lines, and natural gas pipelines that connect economic gas resources, particularly in the Appalachian Basin, to growing demand centers. These statutes include the National Environmental Policy Act (NEPA) and the Clean Water Act (CWA). The reforms allow for the development of such projects in a more expedited manner, especially in states that have had a history of denying water and air quality permits.
- The analysis was performed on a national level (U.S. Lower 48) and for specific wholesale power ISO markets and study states selected by API. The natural gas market and economic impact analysis was based on the below power markets and states selected.
  - Power markets: PJM, MISO, ISO-NE, NYISO, SERC-East, SERC-Southeast, WECC
  - Retail electricity and economic benefit study states: CT, NH, ME, MA, VA, PA, NJ, OH, GA, NC, MI, MN, IL, IN, WI, LA, MO, IA, KS, CO, NM, NY.

Executive Summary

Permitting reform reduces regulatory uncertainty and benefits producers, consumers, investors, gas and power system reliability, the economy, and lowers CO_2 emissions.

The API Policy Case showed lower natural gas prices:

- Comprehensive permitting reform enables a stronger buildout of gas pipelines (assumed ~ 22 Bcf/d additional to the Reference Case), increases the deliverability of low-cost abundant gas resources (such as the Marcellus/Utica plays), puts a downward pressure on overall gas prices and price volatility, and consequently retail electricity prices. For example, annual average Henry Hub prices for 2026-2035 declined by $0.6/MMBtu in the Policy Case and Transco Zone 5 declined by $0.76/MMBtu. Winter average prices (Dec-Feb) at Algonquin Citygate and Transco Zone 6 NY declined by $0.52/MMBtu and $0.69/MMBtu, respectively.
- Improves deliverability and stabilizes gas prices across hubs exerting downward pressure on price volatility, basis blowouts, and reliance on emergency measures especially during peak demand periods. These effects helps support power system reliability, limit retail electricity price spikes, lower consumer energy costs, and enable price stability and egress to constrained production.

The API Policy Case showed lower residential retail electricity rates:

- All 22 states see a decrease in residential retail electricity rates in most years of the study period. The magnitude of decrease in residential retail rates varies state to state depending on the underlying natural gas prices, regional wholesale electricity market dynamics, and the customer load characteristics in a particular state.
- Over the study period, residential retail rates across states on average decreased by 0.71 cents per kWh, with the savings increasing on average from 0.15 cents per KWh in 2026 to 0.95 cents per kWh in 2035. VA sees the most impact of reforms with an average decrease of 1.33 cents per KWh or 5% lower than reference case and IA sees the least impact with an average decrease of 0.33 cents per kWh or 1.8% lower than reference case.
- In 2035, when residential retail rates reflect the full impact of the policy reforms, VA sees the most impact of reforms with a decrease of 2.10 cents per kWh or 7.3% lower than reference case and IA sees the least impact with a decrease of 0.26 cents per kWh or 1.3% lower than reference case.

The API Policy Case showed lower residential retail electricity bills:

- Total residential electricity utility bill spending by customers across the 22 states over the study period is projected to be $55 billion lower. Virginians alone would save more than $6 billion. The total annual bill savings increase from $0.9 billion in 2026 to almost $8 billion in 2035.
- Over the study period, residential retail bills across states on average decreased annually by $67. VA sees the most impact of reforms with an average decrease of $165 and WI sees the least impact with an average decrease of $26.

Executive Summary

- In 2035, when residential retail electricity rates reflect the full impact of the policy reforms, the lower residential retail electricity rates translate into annual bill savings in the range $26-$260 per residential customer across the states. States in the upper end of the savings range include VA ($260, 7.3% savings relative to the reference case), NJ ($137, 4.8%), and OH ($135, 5.9%) in PJM, LA ($149, 5.8%) in MISO, NC ($152, 6.7%) and GA ($150, 4.5%) in SERC.
- In some states like NY, ME, and NH with more limited electric bill savings over the study period, it's often the cost of other policy choices that are countering the benefits of permitting reform. For example, in NY, ME, and NH the rising cost of renewable policies, driven by a combination of higher REC prices in policy case and aggressive RPS targets in these states, offsets more than 18%, 50%, and 12% respectively of the possible electric bill savings in 2035 resulting from lower natural gas prices and other policy reforms.

Regional Differentiators – The impact on residential retail electricity rates is closely tied to the impact of reforms on the regional gas and power wholesale market dynamics. Each region is affected differently based on the region's current and future market dynamics.

- **High Demand Growth –** Regions like PJM, SERC, and MISO are projected to see sharp increases in electricity demand putting upward pressure on market prices due to anticipated supply shortages and delays.
- **Resource Availability and Grid Diversity –** Each region has its own distinct resource supply mix and grid topology which react differently and by different extents to these reforms.
  - With a larger pipeline network, gas producers and pipeline capacity holders gain the flexibility to respond faster to demand signals, reducing regional bottlenecks and increasing market stability.
  - Greater gas supply deliverability reduces the reliance on high-cost alternatives in power generation. For consumers, this could mean lower winter heating bills, more stable electricity prices, and reduced exposure to extreme price events during stress periods.

State Differentiators – Specific state characteristics also affect the impact of these reforms on residential retail electricity rates.

- **State RPS and REC prices** – RPS targets and corresponding compliance costs to purchase and retire RECs to meet these targets can vary between the states. States with more aggressive RPS targets can add to the total compliance costs which are passed on to customers through higher residential retail electricity rates.
- **Customer Load Profiles** are a key factor in determining the utility's cost allocation metrics based on a customer's contribution to peak load on the grid. Some states contribute more heavily to grid peaks whereas others contribute to a lesser extent. This results in states contributing more to the grid peaks bearing a larger share of fixed system costs (such as generation and transmission capacity procurement costs) which are recovered through higher residential retail electricity rates in those states.

Executive Summary

The API Policy Case showed nationwide economic benefits:

- Nationwide, permit reform policies are estimated to generate significant economic benefits. By 2030, this study estimates that these reforms could support over 700,000 jobs annually in the nation. Using the U.S. Bureau of Labor Statistics (BLS) data on projected U.S. labor force in 2030 of about 170 million, these impacts translate to slightly less than 0.5% of the total labor force. Among the 22 states modeled in this study, PA, NY, and OH are estimated to benefit the most in terms of jobs supported.
- The biggest driver of economic benefits appears to be the savings in energy bills by households and businesses across the nation. As permit reforms allow more gas to be supplied for power generation and household consumption, that puts a downward pressure on energy prices, leading to considerable bill savings across the nation.
- All states analyzed in this study have positive employment impacts in the long run (2030 and beyond). These positive benefits are driven by bill savings, with additional benefits coming from the investments in the power and gas markets.
- In terms of the distributional impacts, the largest beneficiaries appear to be various service sectors in these states, including various professional and technical services, as well as other types of service sector jobs, such as restaurants and food services. Construction and manufacturing sectors also benefit significantly from the jobs supported by permit reform policies.
- Permit reform policies also have the potential to generate significant fiscal revenues for federal and state/local governments. In 2030, these policies could lead to an estimated $10 billion in additional tax revenues for the public sector. Out of this, the federal government could collect an estimated $6 billion additional tax revenues from the added economic activity and the wages and salaries for the jobs discussed above. The remaining $4 billion could be additional revenues for various state and local governments.

The API Policy Case showed lower CO_2 Emissions :

- In the API Policy Case, coal generation is being displaced by natural gas and additional renewables, leading to lower carbon emissions than the API Reference Case. In the Reference Case, CO_2 emissions average around 1,373 million metric tons per year and under the Policy Case this is reduced to around 1,340 million metric tons per year, a decline of 2.4%. Cumulatively, over the 10-year period between 2026 and 2035, CO_2 emissions declined under the Policy Case by 367 million metric tons – roughly equivalent to the annual CO_2 emissions of California.

Other potential savings: While ICF only quantified the impact of permitting reform on residential electric bills, it would also likely drive lower costs in the commercial and industrial electricity sectors as well as in the natural gas sector. The macroeconomic impacts discussed in this study, however, include approximate benefits of energy bill savings across all sectors, including commercial and industrial, in order to provide a holistic picture of all the economic benefits of permit reform policies.

Natural Gas Markets Implications

Recent developments in permitting reform highlight the inconsistency and uncertainty in approval processes, which damages business confidence and further development

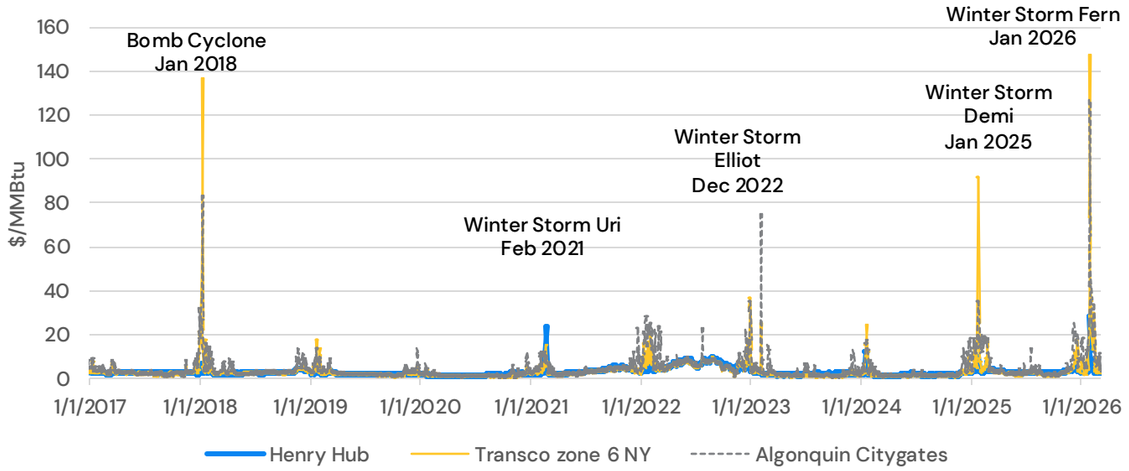
July 2025 One Big Beautiful Bill Act (OBBBA)	• The One Big Beautiful Bill Act (OBBBA), passed in July 2025, marks a turning point by modernizing permitting under NEPA and strengthening Natural Gas Act authorizations, aligned with the broader federal energy policy aiming at expanding natural gas infrastructure. • **These reforms have renewed developer interest and accelerated project activity, particularly in the Northeast.**
November 2025 Transco Northeast Supply Enhancement (NESE) Approved	• New York State Department of Environmental Conservation (NYDEC) and the New Jersey Department of Environmental Protection (NJDEP) approved key water quality permits for the Transco Northeast Supply Enhancement (NESE) project, its first interstate pipeline of the decade after years of regulatory resistance. • **The project will now be moving forward, pending legal challenges, showing a positive direction for developers and enabling business confidence.**
December 2025 Improving Interagency Coordination for Pipeline Reviews Act passed U.S. House	• The U.S. House passed the Improving Interagency Coordination for Pipeline Reviews Act which authorizes FERC to incorporate water quality assessments into its environmental review, eliminating the need to wait for separate state certifications under the Clean Water Act—a process that has historically delayed approvals. The Promoting Efficient Review for Modern Infrastructure Today Act, also passed with bipartisan support. • **This legislation, aimed at accelerating interstate natural gas pipeline permitting, would enable greater business confidence if made into law by modernizing permitting.**
January 2026 Constitution Pipeline Blocked by NY DEC	• NY DEC filed a formal opposition against an effort by Williams Cos. to revive the long-cancelled Constitution Pipeline, a project intended to transport natural gas from Pennsylvania into New York. NY DEC argued that reissuing the permit would effectively strip the state of its oversight authority under the federal Clean Water Act. • **This highlights continued uncertainty in permitting approval processes, given the NESE project developments.**
March 2026 Iroquois Gas asked FERC to reissue approval for its Wright Interconnect Project	• Iroquois Gas Transmission System has asked the FERC to reissue approval for its $152 million Wright Interconnect Project (WIP), a previously authorized natural gas infrastructure project in New York tied to the potential revival of the Constitution Pipeline. In its filing, Iroquois said renewed interest in the pipeline and broader federal energy policies aimed at expanding infrastructure have revived the need for the project. • **This suggests that initial reforms have helped renew business interest, but regulatory uncertainty on connected projects can have knock-on effects to subsequent development.**

Source: ICF - API Reference Case

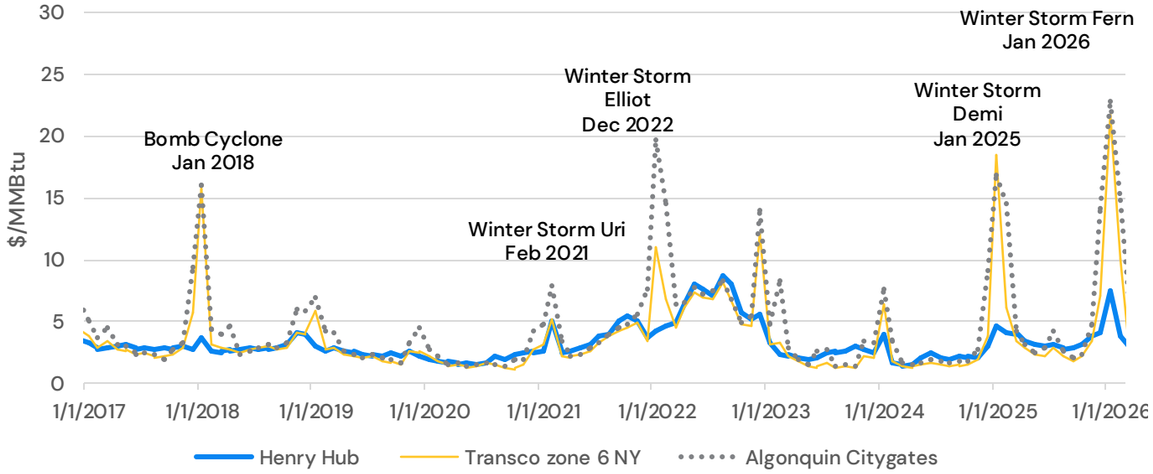
Insufficient pipeline capacity creates structural vulnerability in the Northeast, which repeatedly experiences extreme price spikes amid winter storms

- When pipeline capacity is insufficient, regions become physically isolated during peak demand periods. Even if national or basin-level supply is ample, gas cannot reach end users. The Northeast repeatedly experiences extreme price spikes—even when the rest of the country does not.
- During major winter storms—Bomb Cyclone (2018), Winter Storm Uri (Feb 2021), Winter Storm Elliott (Dec 2022), and Winter Storm Fern (Jan 2026)—prices at Transco Zone 6 NY and Algonquin Citygate surged to extremely high levels, while Henry Hub remained relatively stable. This pattern highlights persistent regional transportation bottlenecks
- These bottlenecks persist because multiple pipeline expansion projects in the Northeast have been delayed, denied, or stalled for years—primarily due to state water-quality certification denials under Clean Water Act Section 401. (Example- Constitution Pipeline, Northeast Supply Enhancement, Northern Access, Iroquois expansions). However, the NESE project has recently been issued key water quality permits, key milestones for the project which would offer new incremental capacity from PA to NY to help ease regional bottlenecks and price volatility.

Daily Gas Price Across three key market hubs ($/MMBtu)



Monthly Gas Price Across three key market hubs ($/MMBtu)



Source: Argus for Historical Data

Summary of gas pipeline buildout assumptions in the Policy Case

- The Policy Case assumes a larger gas infrastructure buildout outlook compared to the Reference Case.
  - The Reference Case includes pipeline projects that are brownfield or under construction, have reached FID, filed a FERC application and is likely to get FERC approval, and is in low-risk permitting states (states with a history of approving water and air quality permits)
  - The Policy Case assumes the passage of reforms to federal statutes that have historically slowed or been used to halt the development of energy infrastructure like natural gas pipelines and electric transmission lines. These statutes include the National Environmental Policy Act (NEPA) and the Clean Water Act (CWA). The reforms allow for the development of such projects in a more expedited manner, especially in states that have had a history of denying water and air quality permits. Pipelines included in the Policy Case are a mix of brownfield, greenfield, most of which reached FID, will likely get FERC approval and are in both high and low risk states for denial of water and air quality permits.
- The Policy Case assumes the buildout of 65.6 Bcf/d of gas pipeline capacity in 2026-2035, 22.3 Bcf/d higher than the Reference Case.
  - In the South Central* region, the Policy Case advances 14.7 Bcf/d of early to mid-stage projects that expand long-haul connectivity between major producing basins and downstream market hubs. This buildout spans greenfield interstate projects at the FERC application stage (including Rio Bravo, Mississippi Crossing, and the Kosciusko (Kosci) Junction Pipeline), targeted brownfield expansions such as Southeast Supply Enhancement, Wharton West, and Midwest Market Access, and a limited number of hypothetical market-need long-haul corridors. Collectively, these projects increase supply optionality into the South Central and adjacent markets, supporting LNG-driven demand growth.

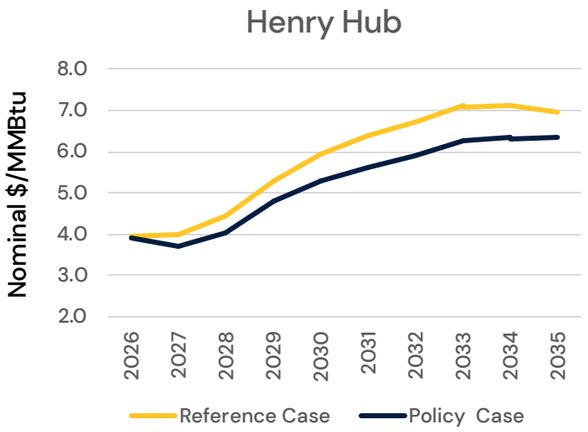
  - This is followed by Northeast with 4.7 Bcf/d of incremental capacity in the Policy case which is largely driven by higher risk Tier 3 and Tier 4 projects tied to the Appalachian Basin. Additions are led by greenfield expansions like the Constitution, Northeast Supply Enhancement (NESE) and Borealis pipeline, along with brownfield expansions like the MVP Boost and Power Express.

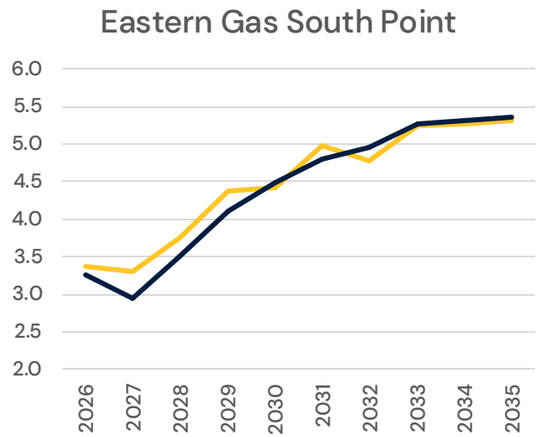
Incremental Pipeline Capacity starting 2026 (Bcf/d)	South Central	Mountain	Northeast	Pacific	Midwest	Southeast	Total
Reference Case	39.6	0.4	1.2	0.3	0.4	1.4	**43.3**
Policy Case	54.3	1.8	5.9	0.3	1.2	2.0	**65.6**
Delta (Policy vs Reference)	14.7	1.4	4.7	0.0	0.8	0.6	**22.3**

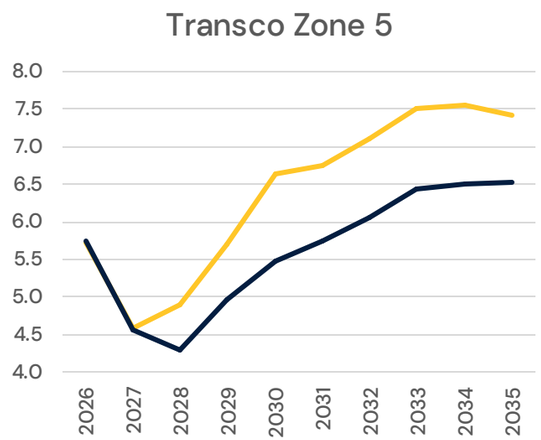
*Details on all the pipelines included within the Reference and Policy Case are part of the Appendix. South Central region includes TX, OK, KS, AR, LA, MS and AL. Regional Definitions are in the Appendix.

Annual average natural gas prices are lower in the Policy Case as pipeline capacity expands, pipeline bottlenecks ease, and supply deliverability increases

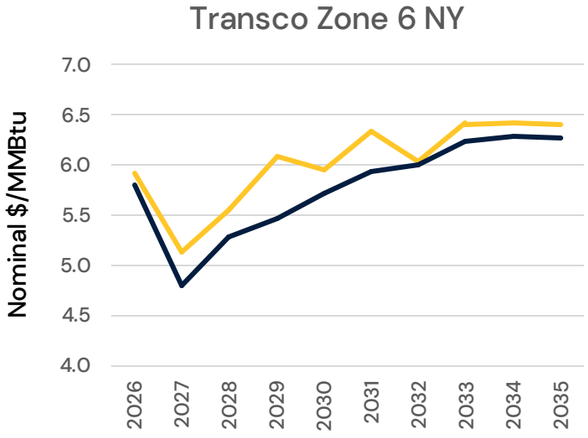
Annual Average Gas Price at Major Hubs (nominal-$/MMBtu)

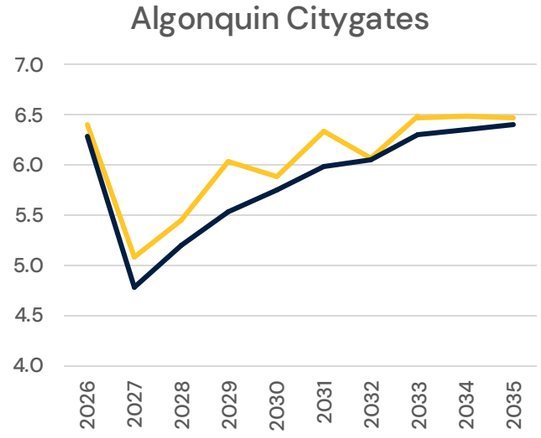


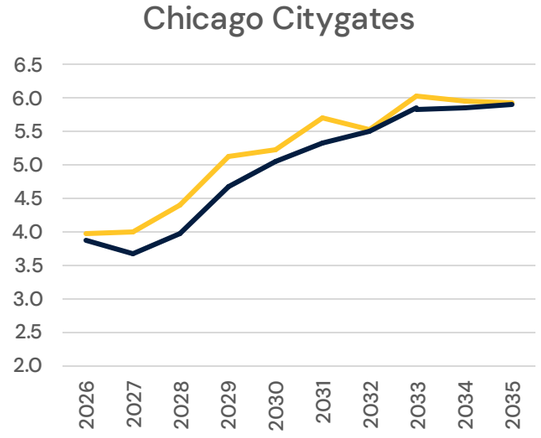


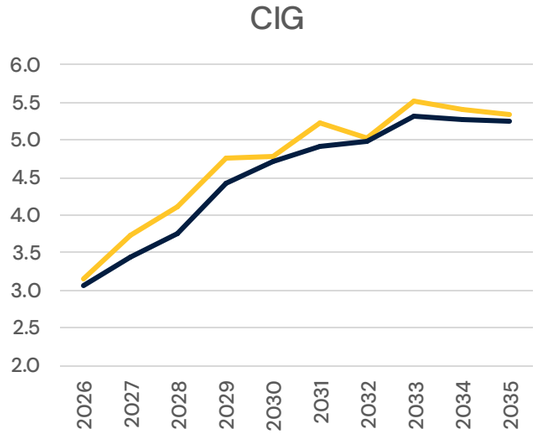


- Key demand hubs like Henry Hub, Transco Z5, Transco Z6 NY, Algonquin, and Chicago Citygates prices are projected to witness the most impact (lower prices) by the build-out of incremental pipeline capacity in the Policy Case. Annual prices dropped by an average $0.56/MMBtu, $0.76/MMBtu, $0.24/MMBtu, $0.21/MMBtu and $0.21/MMBtu, respectively, across the 2026 – 2035 period
- Prices at Eastern Gas South Point, a supply hub, decreased by a modest $0.08/MMBtu while those at CIG (Rockies) decreased by $0.20/MMBtu.









Source: ICF - API Policy Case and API Reference Case

Gas price impacts differ across various price hubs with increased pipeline buildout in the Policy Case

Henry Hub: with additional pipeline expansions in the Policy Case, especially from the prolific low-cost Appalachian Basin and in the Gulf Coast, supply deliverability increases- putting a downward pressure on Henry Hub prices. Henry Hub sits at the intersection of growing production and expanding LNG demand where pipeline expansions directly lower the cost of incremental supply. Annual average prices for 2026-2035 declined by ~0.6/MMBtu. Summer price reductions relative to the reference case approach $1/MMBtu, while winter reductions (~$0.4/MMBtu) reflect a better-supplied market driven by increased deliverability.

Eastern Gas South Point (EGSP): prices at Eastern Gas South Point (EGSP) are driven by Marcellus/Utica production economics and egress pipeline capacity. In the Reference case, constrained pipeline capacity buildout led to recurring periods of stranded Marcellus/Utica supply, depressing EGSP to below $2.0/MMBtu in the core summer months. In the Policy case, expanded pipeline capacity buildout improves Marcellus/Utica supply access to downstream markets, limits the summer price collapse, lowers winter prices, and enables price stability which benefits both consumers and producers. As a result, EGSP prices average $0.22/MMBtu below the Reference case for 2026-2035.

Transco Zone 5: prices at Transco Zone 5 reflect market fundamentals for the east coast region from VA/MD border to South Carolina. Historically, prices exhibited high volatility due to lack of pipeline capacity and strong demand during winter storms or colder-than-normal weather conditions. The region also exhibits strong datacenter and large load demand growth, amplifying pipeline constraints and price spikes. Expanded pipeline buildout from the Appalachian Basin in the Policy Case increases gas flows to growing downstream centers in Virginia, Georgia, North Carolina, and lowers Transco Zone 5 prices by $0.76/MMBtu on an annual average in 2026-2035.

Transco Zone 6 NY: prices at Transco Zone 6 NY reflect market fundamentals for the New York area with the state having access to Marcellus/Utica production. Expanded pipeline capacity such as the addition of Constitution and Northeast Supply Enhancement (NESE) reduces pipeline capacity bottlenecks, allowing more gas to reach the New York market and lowers annual average and winter prices. However, given the linkage between Transco Zone 6 NY and EGSP, summer prices recover in the Policy Case. Annual average prices are projected to be $0.24/MMBtu lower in the Policy Case on an annual average in 2026-2035. Winter average prices declined by $0.69/MMBtu.

Algonquin Citygate: prices at Algonquin Citygate, a key natural gas benchmark in New England, have historically exhibited pronounced winter spikes and summer lows due to chronic capacity constraints. Algonquin Citygate prices exhibit similar linkage to upstream hubs as Transco Zone 6 New York. Even modest incremental pipeline capacity improves marginal supply in New England because demand is highly inelastic during cold weather. Expanded pipeline capacity such as the addition of Constitution and NESE projects reduces constraints, and additional projects could materially affect the Northeast market. Annual average prices are projected to be $0.21/MMBtu lower in the Policy Case on an annual average in 2026-2035. Winter average prices declined by $0.52/MMBtu

Chicago Citygate: Chicago Citygate prices have historically traded at a discount to Henry Hub, driven by growing access to low-cost Marcellus/Utica supply. Summer prices fell sharply in the Reference Case because limited Marcellus takeaway capacity leaves Appalachian gas stranded, pushing down upstream prices and, as a result, Chicago Citygate prices. In the Policy Case, additional pipeline capacity in the Midwest enhances supply access into the region, stabilizing prices by shrinking the summer price collapse and lowering the winter prices. Annual average prices are projected to be $0.22/MMBtu lower in the Policy Case on an annual average in 2026-2035.

CIG Rocky Mountains: While CIG primarily reflects Mountain/Rockies/Anadarko supply, the oversupply from the East causes Appalachian gas to flow west, often depressing prices across a broader area, especially during times of lower demand or high production. This phenomenon is more pronounced in the Reference Case when gas production is looking for a market. Enhanced regional supply access supports overall lower CIG prices in the Policy Case with approximately 1.4 Bcf/d of newpipeline capacity enters service in the Mountain region. Annual average prices are projected to be $0.20/MMBtu lower in the Policy Case on an annual average in 2026-2035.

Source: ICF - API Policy Case and API Reference Case

By reducing congestion across the system, permitting reform also helps dampen volatility and extreme price spikes associated with weather events or localized disruption

- In summary, permitting reform could help reduce prices for consumers whilst also help improve prices for Appalachian and Rockies producers mitigating summer price collapse in periods of oversupply.
- Permitting reform does not fundamentally eliminate regional price differences, but it reduces their magnitude, frequency, and volatility.
- The result is a more integrated U.S. gas market in which hub prices better reflect underlying supply–demand fundamentals rather than infrastructure constraints, improving price signals for producers, end users, and investors alike.

Price Hub	Annual Price Policy Case	Annual Price Delta vs Reference Case	Winter * Price Policy Case	Winter Price Delta vs Reference Case	Summer** Price Policy Case	Summer Price Delta vs Reference Case
Henry Hub	5.23	(0.57)	5.85	(0.37)	5.11	(0.89)
Eastern Gas South Point	4.40	(0.08)	5.18	(0.22)	3.89	0.56
Transco Zone 5	5.63	(0.76)	6.09	(0.55)	5.69	(1.21)
Transco Zone 6 NY	5.78	(0.24)	8.68	(0.69)	4.12	0.53
Algonquin	5.87	(0.21)	8.71	(0.52)	4.16	0.52
Chicago Citygate	4.97	(0.22)	5.79	(0.38)	4.42	0.48
Colorado Interstate Gas	4.51	(0.20)	5.49	(0.32)	3.73	0.39

* Winter months December – February
** Summer months June – August

Source: ICF - API Policy Case and API Reference Case

Summary of natural gas supply and demand changes in the Policy Case

Comparison of Natural Gas Production (Bcf/d)

Average (2026-2035)	Reference Case	Policy Case	Delta
Marcellus/Utica	38.6	40.8	2.2
Permian	26.4	26.5	0.1
Bakken	2.8	3.6	0.8
Eagle Ford	8.6	8.5	(0.1)
Haynesville	19.5	19.3	(0.2)
MidCon Plays	9.4	10.5	1.1
Other	20.6	20.3	(0.3)
Lower 48 Production	**125.9**	**129.5**	**3.6**
Net Canadian Imports	**6.3**	**6.1**	**(0.2)**

Comparison of Natural Gas Domestic Demand & Exports (Bcf/d)

Average (2026-2035)	Reference Case	Policy Case	Delta
Residential & Commercial	23.0	23.1	0.1
Industrial	23.3	23.9	0.6
Power	42.4	43.5	1.1
Pipeline Fuel and L&P	9.0	9.2	0.2
LNG Export Feedgas	27.3	28.7	1.4
Pipeline Exports to Mexico	7.2	7.2	0.0
Total Demand	**132.2**	**135.6**	**3.4**

- Pipeline capacity expansions, enabled by permitting reform, alters the flow map of natural gas and leads to incremental production growth being determined by supply cost competitiveness in the Policy Case, as opposed to available infrastructure capacity in the Reference Case.
- Natural gas supply in the U.S. Lower 48 is projected to increase by an average of 3.6 Bcf/d in the API policy case vs the Reference case across the 2026 – 2035 period
  - The Marcellus/Utica, Midcontinent, and Bakken plays witnessed higher production but a slight drop in Haynesville and Eagle Ford
  - This outcome was driven by relative flow economics, where newly available capacity allowed lower-cost Appalachian and Midcontinent gas to slightly displace some Gulf Coast supply (Eagle Ford, Haynesville, Other) in adjacent downstream markets.
  - Additionally, higher low-cost Appalachian production in the Policy Case competes with Canadian imports and pushes the Canadian imports down by 0.2 Bcf/d vs Reference Case.
- Natural gas demand, including exports, in the U.S. lower 48 is projected to increase 3.4 Bcf/d in the API policy case vs Reference case across the 2026 – 2035 period.
  - Price elastic demand categories – industrial users, power generation and LNG exports- benefit from lower prices and increase consumption.
- LNG Utilization averaged 88% between 2026-2035 in the API Policy Case compared to 84% in the API Reference Case.

Source: ICF - API Policy Case and API Reference Case

Wholesale Power Markets Implications

Rising Demand, Tightening Supply, Stalled Permits — U.S. Power Markets at an Inflection Point

The U.S. power sector is entering a period of simultaneous demand acceleration and supply-side strain. Across six major wholesale markets — MISO, PJM, SPP, ISO-NE, NYISO, and WECC — reserve margins are tightening, thermal retirements are outpacing replacement capacity, and new large loads are arriving faster than the grid can absorb them. The binding constraint is no longer economics or technology — it is the speed at which infrastructure can be permitted and built.

Demand is Accelerating

Electricity demand growth has shifted from near-flat historically to structurally positive, driven by data center development, AI compute buildout, industrial re-shoring, and continued electrification.

- PJM's peak demand growth rate has surged from near-flat to 3.6% annually, between 2025 to 2035, driven largely by data center load in Northern Virginia that now exceeds the peak demand of several mid-sized states.
- SPP's peak forecast is set to grow at 2.5% annually driven by large load additions.
- MISO's projected load growth accelerated from 1.6% to 2.2% CAGR in a single year — the largest year-over-year revision.

This is not cyclical. It is a step-change in U.S. electricity consumption.

Supply is Tightening

Accredited capacity is declining even as nameplate capacity grows. Coal and legacy gas retirements are removing firm, dispatchable generation capacity, while replacement resources carry considerably lower capacity accreditation. This is reflected in the market dynamics.

- NERC has flagged multiple regions as "high risk" for reliability shortfalls within five years.
- PJM's capacity auction cleared at record prices for a second consecutive year.
- In MISO, summer surplus fell 60% in three planning years.
- ISO-NE is pricing scarcity, and SPP expects insufficient capacity by 2030.

Ongoing interconnection reforms across regions are aiming to streamline the process of bringing necessary supply online.

Infrastructure is the Binding Constraint

The generation and gas supply to serve the growing demand exist but the infrastructure to deliver them is not keeping pace. New projects are entering the interconnection process faster than existing ones are being completed, creating a growing backlog that is delaying the resource additions the grid urgently needs.

On the gas side, pipeline development out of the Appalachian Basin has faced a decade of permitting delays, regulatory friction, and cancellations. Without adequate pipeline and transmission infrastructure, low-cost gas cannot reach demand centers, wholesale prices spike during stress events, and reliability margins erode.

Source: ICF; MISO, PJM, SPP, ISO-NE, NYISO, WECC public filings

Permitting Reform Unlocks the Gas Infrastructure Needed to Restore Reliability and Moderate Wholesale Power Prices

OBBBA, signed into law in July 2025, alongside broader federal policy realignment, has fundamentally shifted the landscape for natural gas infrastructure. What follows is an assessment of how wholesale power markets respond when the permitting environment is reformed to allow gas pipelines and generation to reach demand centers at the speed the grid now requires.

WHAT HAS CHANGED

The OBBBA accelerates the phase-out of Production and Investment Tax Credits for wind and solar, while higher tariffs on imported solar PV modules increase the landed cost of renewable buildout. Diminished incentives for electric vehicles and energy efficiency remove anticipated demand-side offsets. The federal posture toward natural gas including expedited LNG export approvals and executive orders supporting gas-fired generation signals a structural, not temporary, policy realignment.

- On the infrastructure side, MISO's ERAS process is fast-tracking ~30 GW of generation out of which 75% is gas-fired, through a three-month interconnection timeline.
- PJM is pursuing similar queue reform.
- Across SPP, ISO-NE, and NYISO, capacity markets are sending historically strong price signals for new dispatchable entry.

WHAT IT UNLOCKS — POLICY CASE OUTCOMES

Supply adequacy improves. Faster pipeline development connects low-cost Appalachian and Gulf Coast gas to power demand centers in PJM, MISO, and the Northeast, enabling larger gas-fired capacity to reach commercial operation by 2035.

Wholesale price pressure eases. Reduced infrastructure bottlenecks lower the cost of delivering natural gas to power plants, which in turn moderates wholesale electricity prices. Under the Policy Case, average wholesale power prices are lower than the Reference Case, with the largest reductions in Virginia (PJM), Maine (ISO-NE), Louisiana (MISO), and North Carolina and Georgia (Southeast).

Reliability risk diminishes. Accelerated gas-fired capacity additions restore reserve margins where retirements and demand growth have eroded them. The Policy Case reduces the projected capacity shortfall across MISO, PJM, and SPP.

Regional price volatility declines. With adequate pipeline capacity, the frequency and severity of regional gas and power price spikes are materially reduced — particularly during winter stress events in ISO-NE and NYISO.

Key Supply Strain Drivers

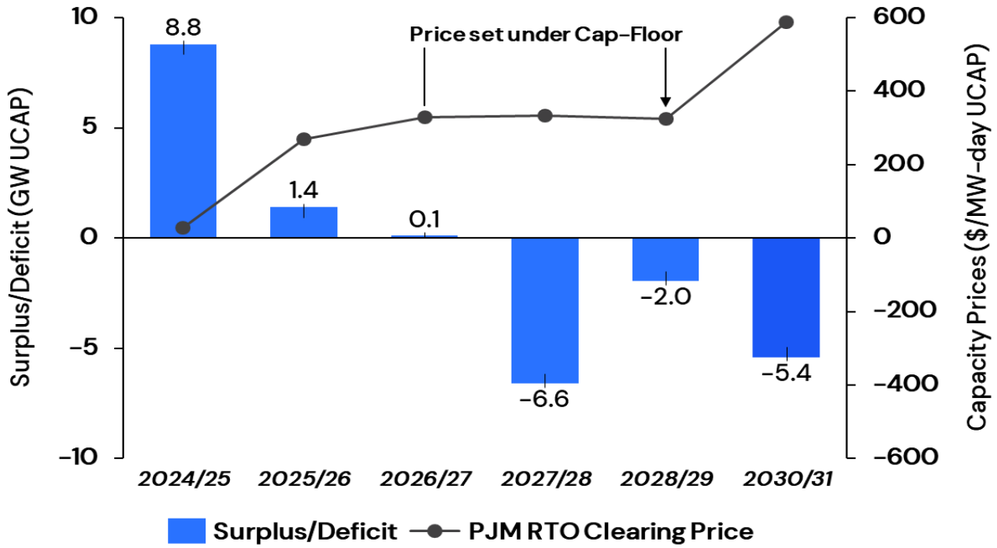
Market	Capacity Balance	Key Supply Strain Drivers	Policy / Market Response	Outlook
PJM	🔴 Severe Deficit	• Rapid load growth, limited near-term adds, retirements; 2027/28 BRA ~6.6 GW UCAP short	• Reliability Backstop Auction, co-located load rules, enhanced transmission service, tighter BTM netting	• Persistent scarcity; auctions likely at price cap for several years
MISO	🟠 Tightening	• Thermal retirements exceed accredited addition; renewables dilute capacity value	• ERAS process heavily gas-weighted; transition to loss-of-load accreditation	• Firm capacity premium rises; gas favored
SPP	🔴 Deteriorating	• Steep load growth; renewable-heavy queues slow firm capacity	• FERC-approved one-time ERAS (2025) with strict eligibility	• Deficit by late 2020s; gas advantaged
NYISO	🔴 Structurally Tight	• Aging fossil fleet; Peaker Rule impact; load growth	• Interconnection queue reforms; reliability planning	• Supply-demand balance remains tight through 2035
SERC-East / SERC-SE	🟠 Declining Margins	• Rising peaks, aging thermal fleet, renewable intermittency	• Utility-led reliability planning	• Growing need for dispatchable backup
WECC (CO+NM)	🟠 Declining Margins	• Load growth, aging thermal fleet, renewable intermittency	• Utility-led resource adequacy, reliability planning	• Growing need for dispatchable capacity

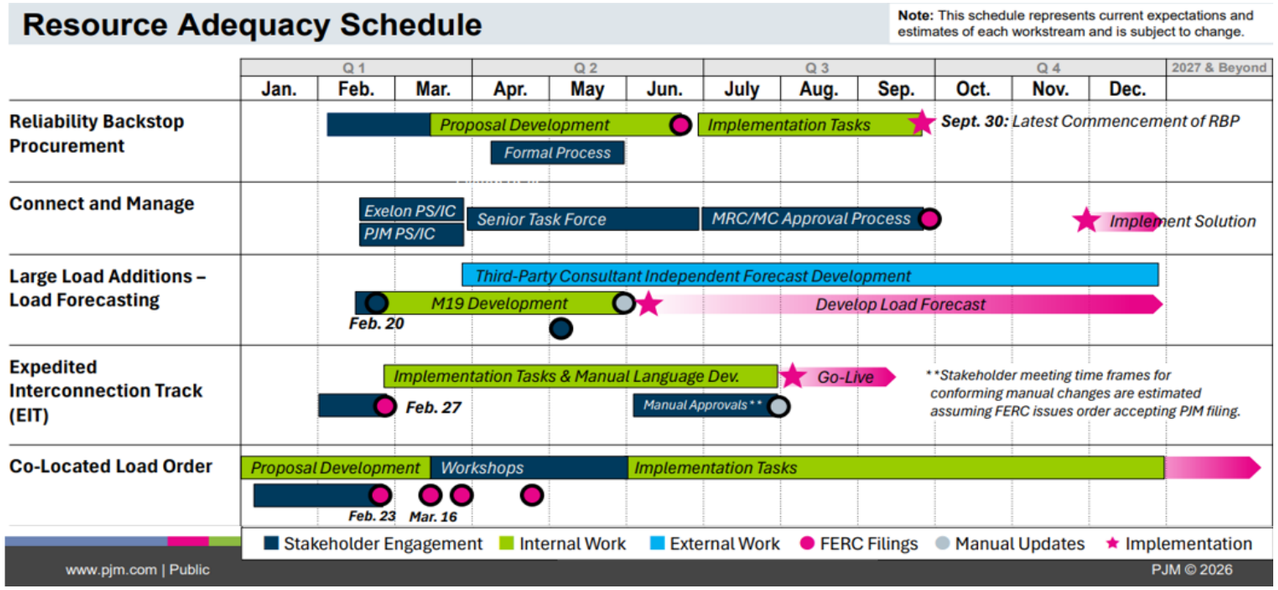
🔴 High Risk: Structural deficits, price pressure, reliability concern
🟠 Moderate Risk: Tight margins, firm supply valued
🟢 Low Risk: Adequate margins

Source: NYISO 2025 Power Trends, PJM, MISO, Utility IRPs

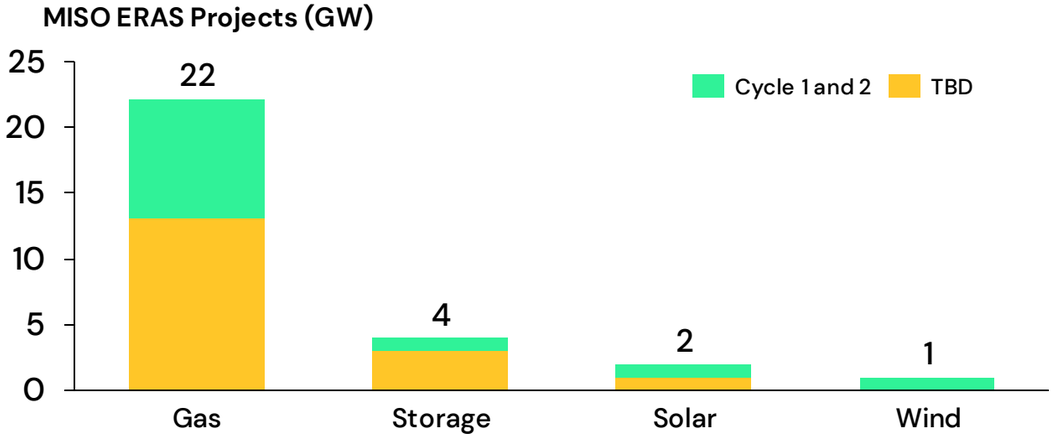
ISO-led reforms signal a structural shift toward expedited pathways

- PJM reforms target near-term resource adequacy risks, while broader policy actions on gas infrastructure and continued ISO process enhancements—such as Connect and Manage and interconnection reforms—may support longer-term supply conditions and help ease pricing pressure for consumers





- MISO is using ERAS to accelerate resources needed to meet emerging local and system-wide adequacy shortfalls. Firm Capacity Emphasis - The ERAS pipeline is heavily weighted toward natural gas (~70–80%), indicating strong demand for dispatchable, reliability-critical resources.
- Limited Near-Term Relief: While ERAS advances project readiness, commercial operation timelines remain constrained, limiting near-term supply response.
- Similarly, SPP's FERC-approved one-time ERAS and Georgia Capacity RFP prioritize reliability needs, favoring gas-fired resources.

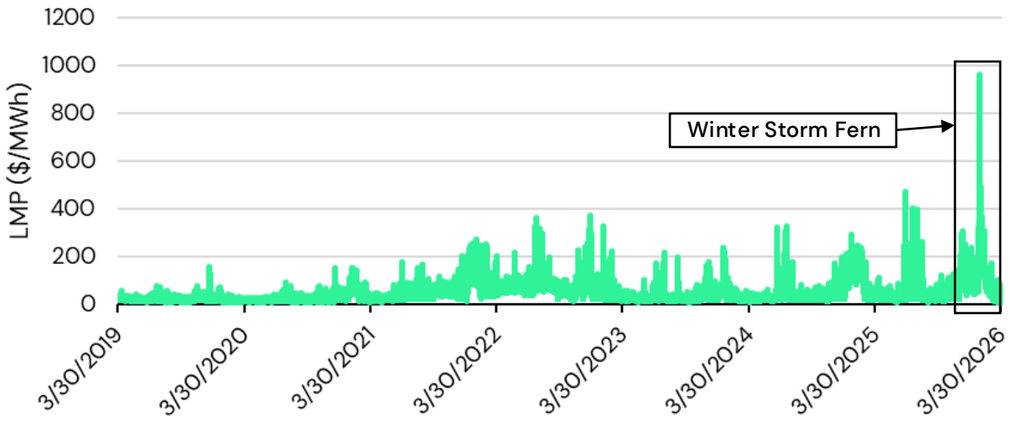


Source: ICF, MISO, PJM, SPP, Georgia Power

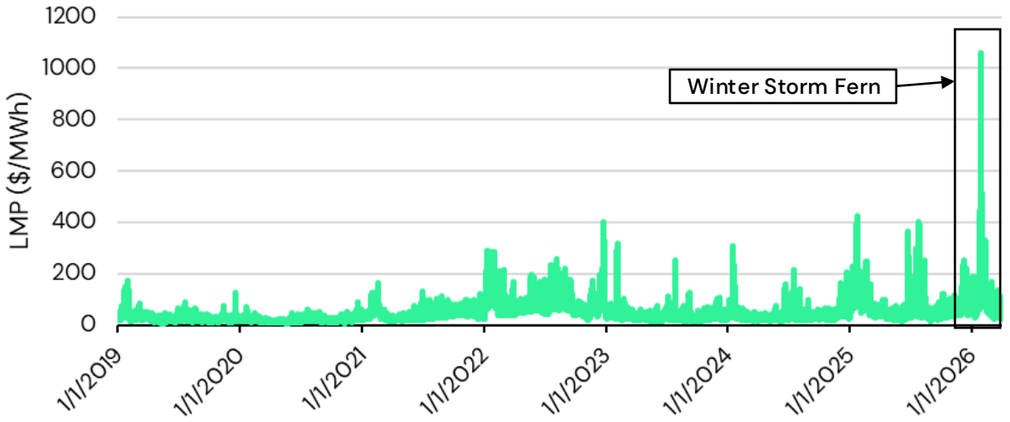
Natural gas constraints in the Northeast pose reliability risk during winter months

- During cold weather, natural gas in the Northeast is prioritized for residential and commercial heating, exposing non-firm gas generators to fuel curtailments.
- New England sits at the end of the interstate gas pipeline network with no local production; winter heating demand uses most pipeline capacity, limiting gas for power generation.
- NYISO has increasingly relied on oil-fired and dual-fuel units in winter, but oil inventories and fuel-switching capability are becoming more constrained.
- Severe winter events regularly strain fuel supply, leading to extreme gas and power price volatility (Polar Vortex 2014, Bomb Cyclone 2015, Cold Snap 2018, Winter Storm Fern Jan–Feb 2026).
  - Winter Storm Fern caused prolonged sub-freezing temperatures, forcing increased reliance on oil-fired generation in New England and resulting in operational flow orders (OFOs) and generator outages in New York, driving day-ahead electricity prices to historical highs.
- NYISO and NYSRC continue to warn of worsening winter fuel security risks as the system trends toward winter-peaking by the late 2030s.
  - ISO-NE is likewise expected to shift to a winter-peaking system in the latter half of the 2030s.

Historical Hourly Day-Ahead LMPs ($/MWh) – ISO-NE Mass Hub



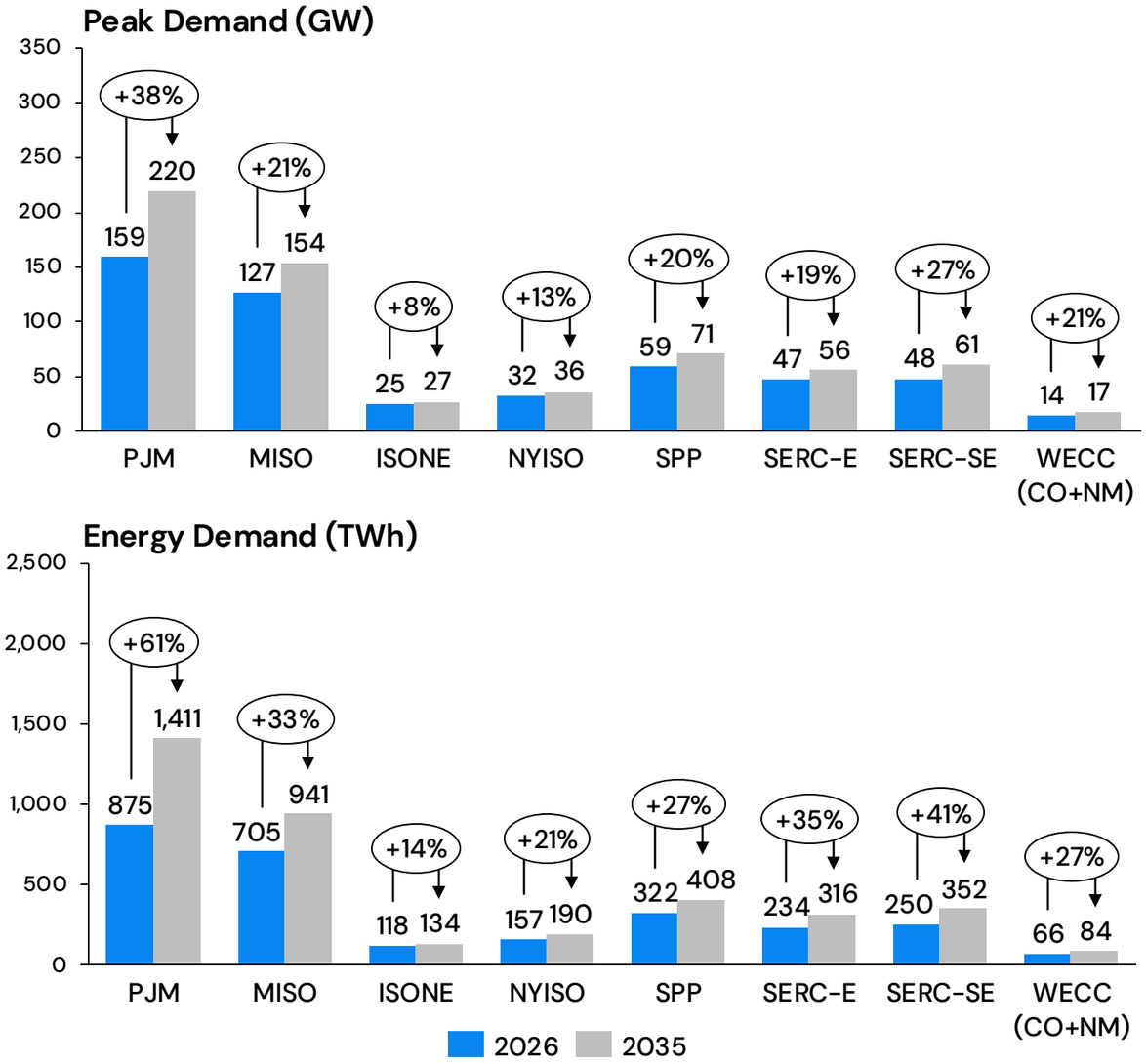
Historical Hourly Day-Ahead LMPs ($/MWh) – NYISO Zone J



Source: NYISO, ISO-NE

Large Loads are driving Energy-Intensive Demand Growth

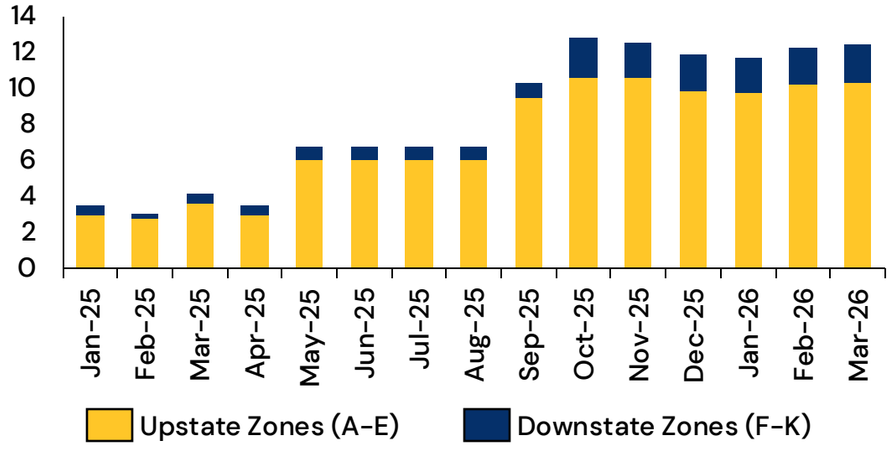
- U.S. electricity demand continues to accelerate, driven by data centers, EV adoption, industrial growth, and broader electrification, resulting in increasingly energy-intensive and flexible load profiles.
- Load Serving Entity (LSE) load forecasts are trending toward the upper end of planning ranges, particularly in MISO, underscoring heightened uncertainty and the need for continued diligence in resource adequacy and infrastructure planning.
- MISO: Approved nearly 20 GW of large loads over the past two years through EPR and MTEP processes, with many supported by grid-connected gas generation advanced under ERAS.
- Large-load interconnection activity is rising sharply across regions, with NYISO requests tripling to ~12 GW by March 2026.
- PJM near-term peaks are lower than the 2025 vintage through 2030, after which the load forecast is higher from the early 2030s as projects mature.
- Southeast load growth remains pronounced, with Georgia large-load projections in queue increasing from ~51 GW to ~66 GW by 2035 in just six months, highlighting the supply requirements.
- Load growth is accelerating in Colorado and New Mexico, led by large industrial customers and electrification trends.



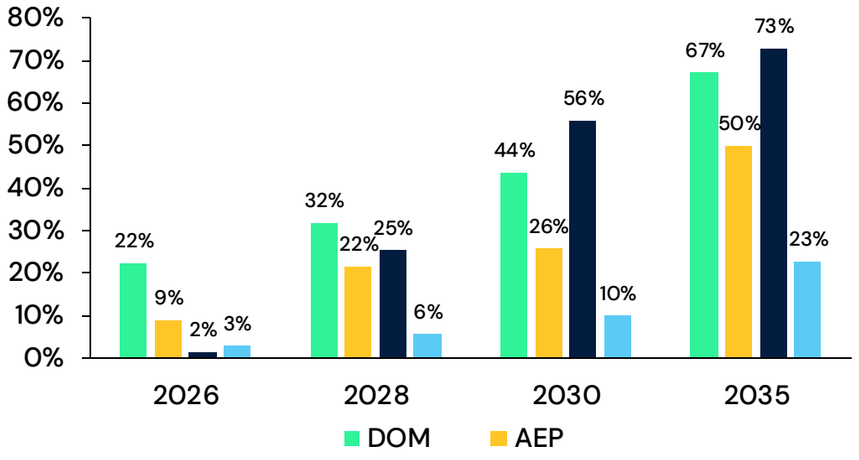
Key Implication: → Accelerating large-load development is materially tightening supply-demand balances across markets, elevating the importance of timely resource additions and transmission readiness.

Large-Load Growth Is accelerating across U.S. Power Markets

NYISO Monthly Large Load IQ Growth (GW)

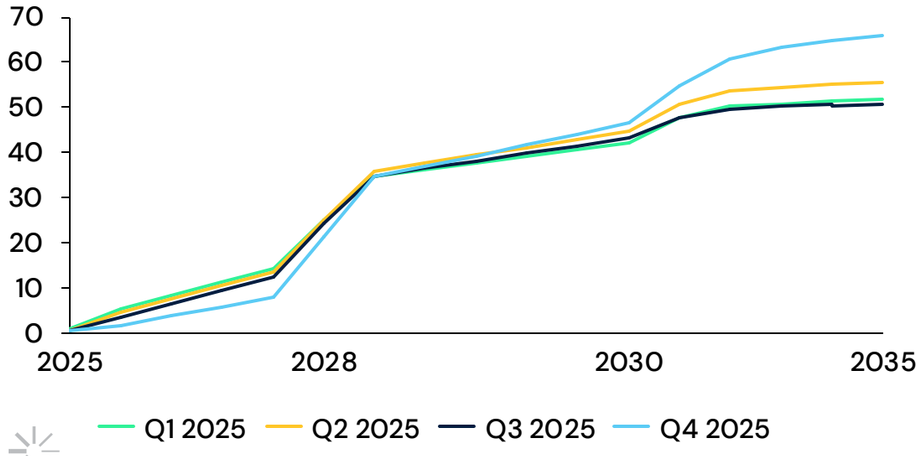


PJM Datacenter Contribution to Peak Load (%)

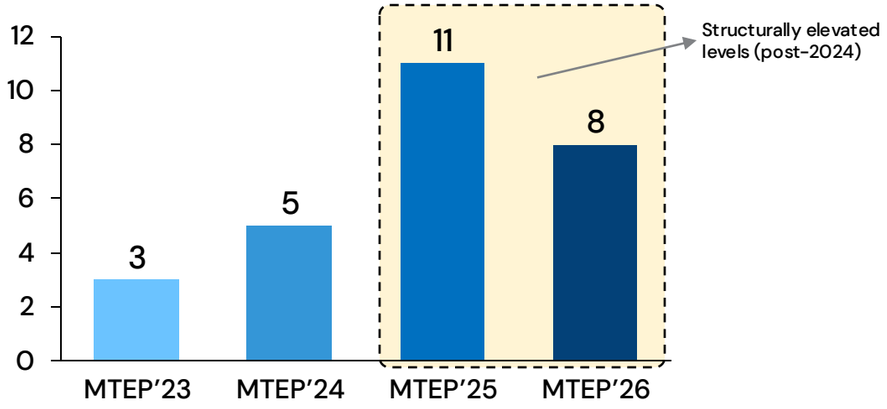


Region/ISO	Primary Load Drivers
MISO	• Data centers • EVs + Emerging Industries • Conventional Manufacturing • Commercial + Residential
PJM	• Data centers • Industrial growth • EVs • Electrification
NYISO	• Data centers & semiconductor manufacturing • Electrification • EVs
SERC-SE and SERC-E	• Data centers • Manufacturing • Clean Energy Tech • Economic growth • EVs
WECC	• Data centers • Electrification

Georgia Power Company – Q4 2025 Large Load Pipeline (GW)



Trend in Large Load Additions across recent MISO MTEP cycles (GW)



Source: NYISO, PJM, MISO, Georgia Power Large Load Economic Development Reports

Interconnection reforms aim to expedite the addition of new supply

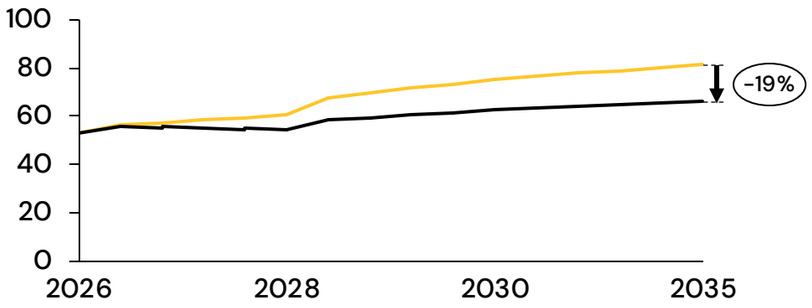
Regional interconnection reforms in response to FERC Order 2023 have led to a transition from a first-come, first-served queue to a first-ready, first-served cluster study framework. The revised process requires upfront site control, defined readiness milestones, and escalating withdrawal penalties, materially reducing speculative entries and late-stage withdrawals.

ISO-NE	• ISO-NE launched a Transitional Cluster Study in late-2025, qualifying ~7.2 GW of storage, solar, and wind across 25 projects; the final report is expected in August 2026, and the next 2026 cluster window is anticipated to open October 5, 2026.
NYISO	• NYISO launched its first Transitional Cluster Study in 2024, with ~75 GW across 376 projects applying; following withdrawals, ~15.6 GW across 92 projects advanced to Phase 2, with the study expected to conclude by August 17, 2026, the final decision period ending October 29, 2026, and parallel reforms to streamline the cluster process targeted for FERC filing by mid-2026.
PJM	• PJM's shift to a cluster-based interconnection process is expected to improve study efficiency over time, but near-term entry delays persist as the backlog is resolved; to address systemic constraints, PJM has proposed targeted measures—including the Reliability Resource Initiative (RRI), CIR transfer reforms, and Surplus Interconnection Service (SIS)—with RRI enabling 42 projects outside Transitional Cluster 2 to be fast-tracked and studied in parallel with TC2.
SERC	• Duke Energy Carolinas (DEC) and Duke Energy Progress (DEP) conduct annual DISIS cluster studies—recently dominated by solar-plus-storage hybrids—with the 2026 Cluster Request Window open from February 1 to mid-March 2026; similarly, Southern Company processes interconnection requests through periodic queue-based Cluster Studies, grouping all requests submitted within each ≤180-day window.
MISO	• MISO already uses a cluster-based interconnection process, and a FERC-approved cap on project volume per cycle is designed to reduce study backlogs and improve timeline certainty. MISO expects to finalize interconnection agreements for its 2022, 2023, and 2025 study cycles by end of 2026. Separately, MISO's ERAS fast-track process can issue interconnection agreements in as little as three months for reliability-critical projects, with the portal open until 68 projects are studied or May 2027.
SPP	• SPP has cleared its legacy interconnection queue backlog and is transitioning to the Consolidated Planning Process (CPP), approved by FERC in March 2026. The CPP replaces siloed planning processes with a single integrated cycle, reducing average interconnection study times from 18 months to an anticipated seven months with greater upfront cost certainty. The first CPP window opens in April 2026. As a bridge, SPP's one-time ERAS process fast-tracks projects meeting defined reliability needs, with interconnection rights granted as early as April 2026.

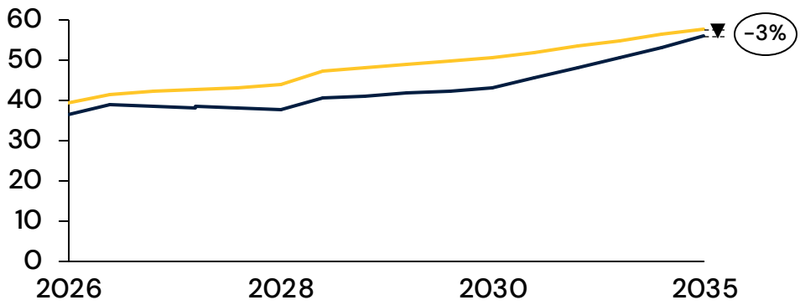
Source: ISO-NE, NYISO, PJM, SERC, MISO, SPP

Lower Annual Average Prices in the Policy Case Reflect Lower Gas Prices, Expanded Gas Infrastructure, and Increased Renewable Buildout

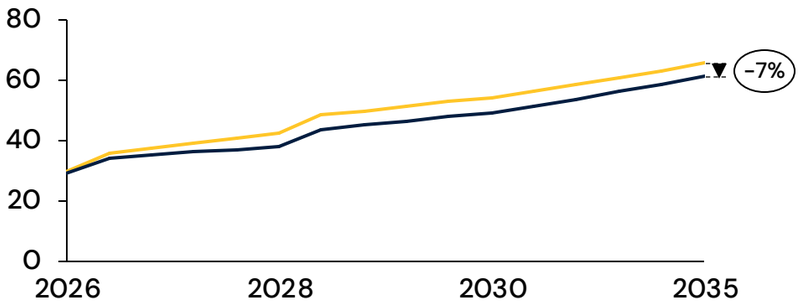
DOM Annual Average Power Prices (Nominal $/MWh)



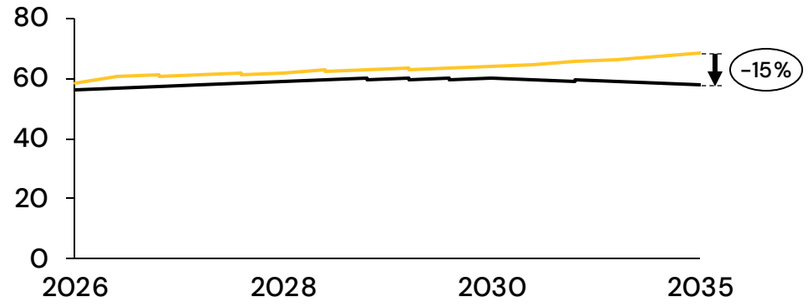
MISOILL Annual Average Power Prices (Nominal $/MWh)



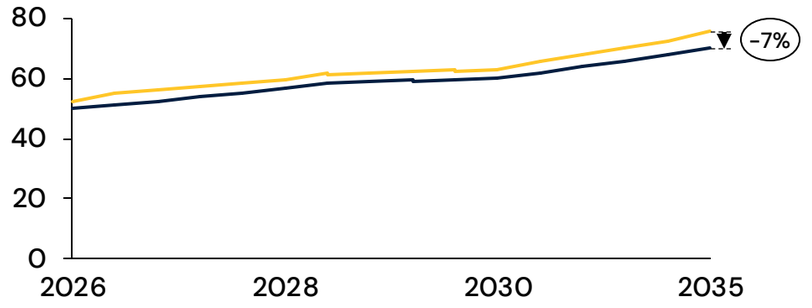
Colorado East Annual Average Power Prices (Nominal $/MWh)



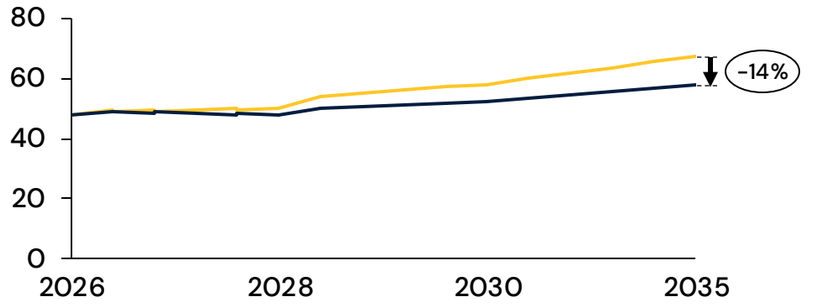
Maine Annual Average Power Prices (Nominal $/MWh)



NYISO Zone C Annual Average Power Prices (Nominal $/MWh)



DEP Annual Average Power Prices (Nominal $/MWh)



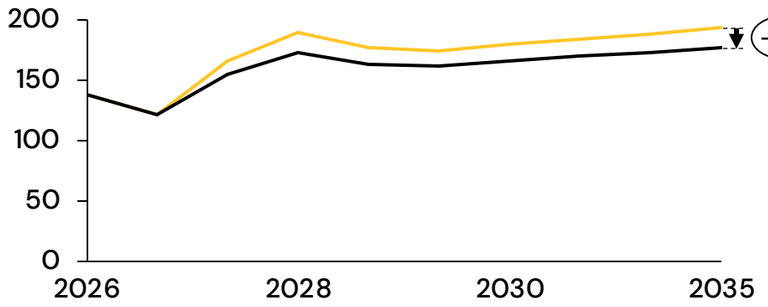
Reference Case — Policy Case

Key Implication: → Across markets, energy prices remain primarily driven by natural gas fundamentals; however, under the policy reform scenario, lower gas prices, accelerated generation buildout, and congestion relief materially offset demand-driven pressure—resulting in structurally lower power prices relative to reference case.

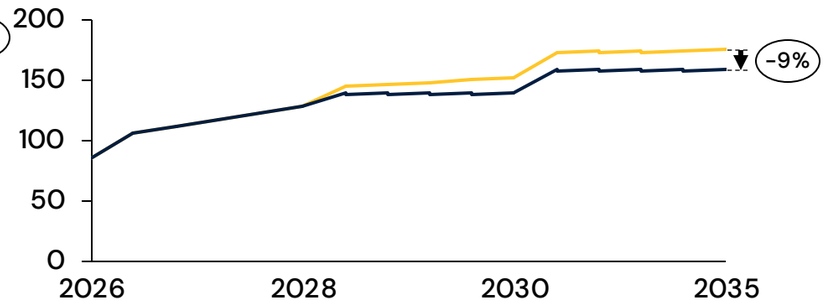
Source: ICF - API Policy Case and API Reference Case

Capacity Prices moderated by Reform-Driven Supply Response

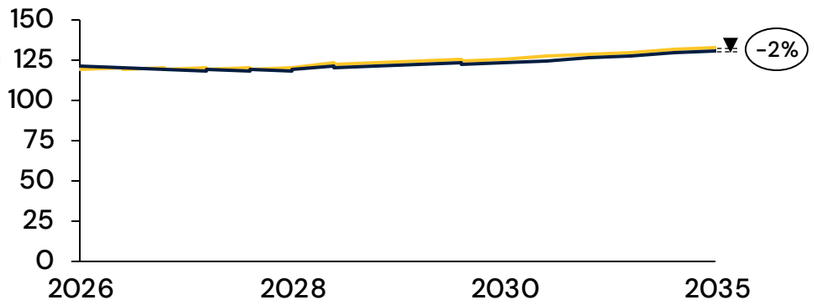
DOM Capacity Prices (Nominal $/kW-yr)



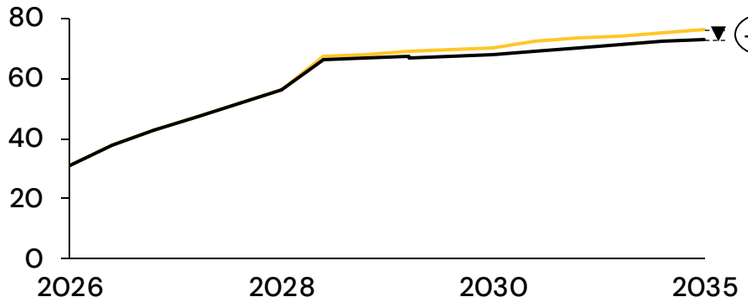
MISO Zone 9 Capacity Prices (Nominal $/kW-yr)



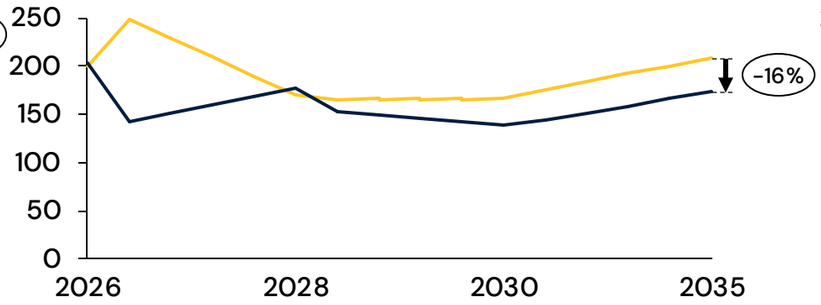
Colorado East Capacity Prices (Nominal $/kW-yr)



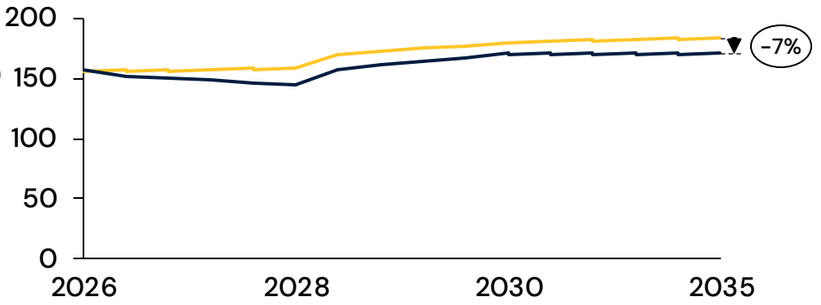
ISO-NE ROP Capacity Prices (Nominal $/kW-yr)



NYC Capacity Prices (Nominal $/kW-yr)



SERC-E Capacity Prices (Nominal $/kW-yr)



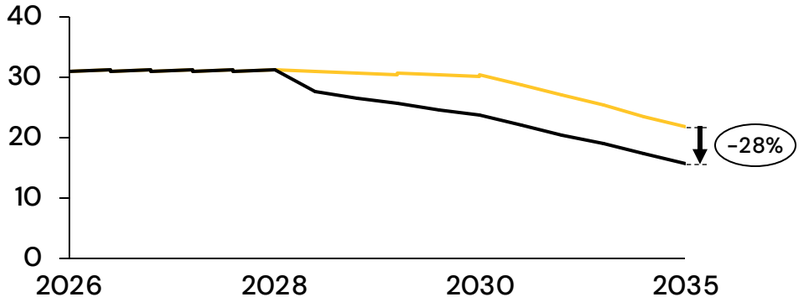
Reference Case — Policy Case

Key Implication: → Across markets, capacity prices remain primarily driven by supply-demand dynamics, new build capital costs, going forward fixed costs and financial assumptions (ROE etc.). Under the policy reform scenario, lower capex, higher generation buildout, offset demand-driven pressure—resulting in structurally lower capacity prices relative to API's reference case.

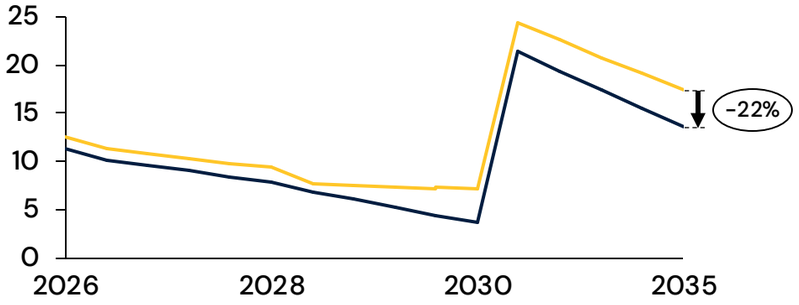
Source: ICF - API Policy Case and API Reference Case

Lower REC prices in policy case are driven by lower capital costs

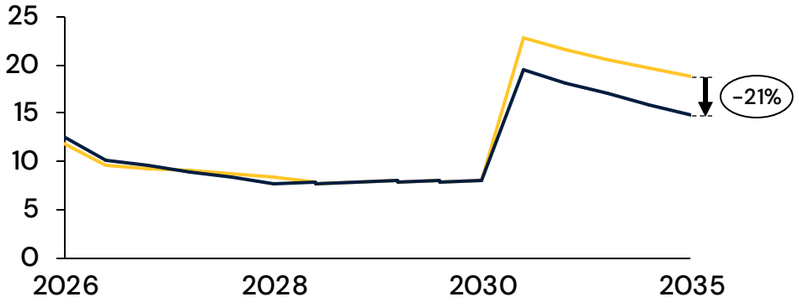
DOM REC Prices (Nominal $/MWh)



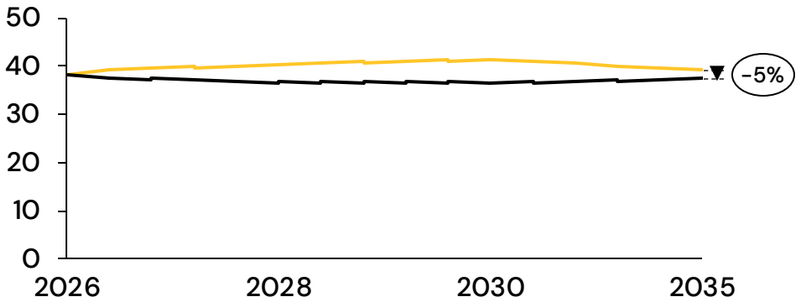
Minnesota REC Prices (Nominal $/MWh)



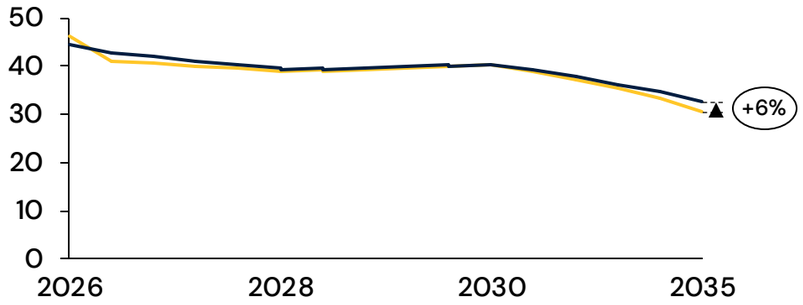
Colorado East REC Prices (Nominal $/MWh)



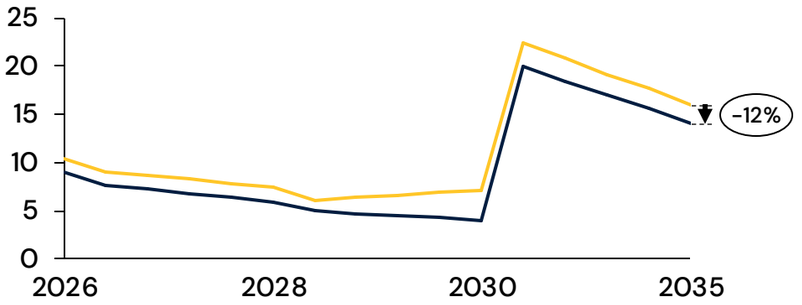
Massachusetts REC Prices (Nominal $/MWh)



NYISO Zone G Solar REC Prices (Nominal $/MWh)



Michigan REC Prices (Nominal $/MWh)



Reference Case Policy Case

Source: ICF - API Policy Case and API Reference Case

Residential Retail Electricity Markets Implications

Electricity residential retail electricity rates are determined by a combination of regional and state-specific factors

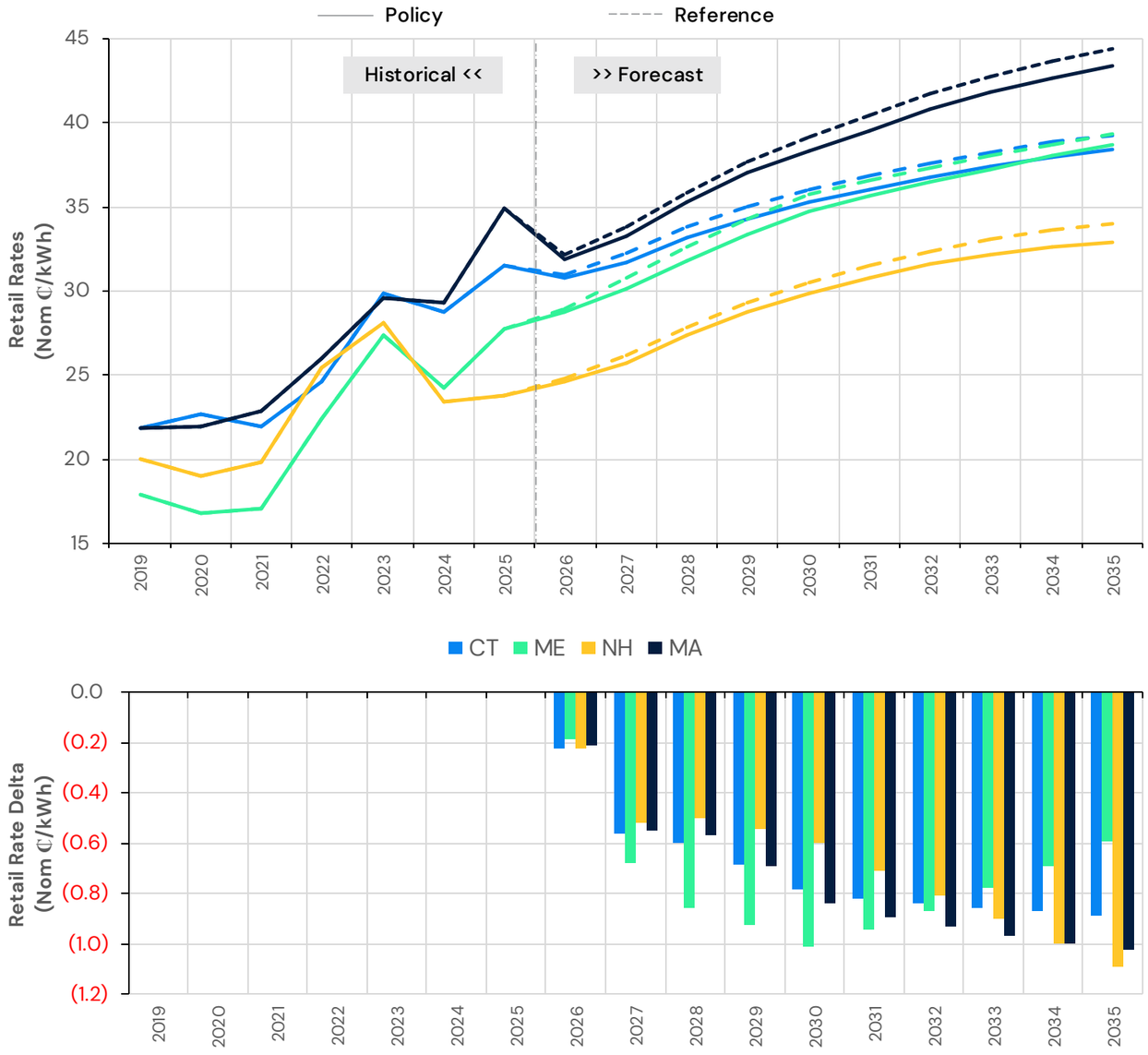
Key factors affecting Residential Retail Electricity Rates across different states

	Driver	Impact on Residential Retail Electricity Rates
Demand Growth	Regions like PJM, SERC, and MISO are projected to see sharp increase in demand putting an upward pressure on market prices due to anticipated supply shortages and delays.	Rising demand puts an upward pressure on residential retail electricity rates especially in markets with lower reserve margins.
Resource Availability and Grid Diversity	Each region has its own distinct resource supply mix and grid topology which react differently and by different extents to these reforms. - With a larger pipeline network, gas producers and pipeline capacity holders gain the flexibility to respond faster to demand signals, reducing regional bottlenecks and increasing market stability. - Greater gas supply deliverability reduces the reliance on high-cost alternatives in power generation. For consumers, this means lower winter heating bills, more stable electricity prices, and reduced exposure to extreme price events during stress periods.	Regions having more dependency with natural gas-based generation to meet demand along with natural gas supply constraints see retail rates more exposed to fluctuations in commodity prices.
State Clean Energy Targets	RPS targets and corresponding compliance costs to purchase and retire RECs to meet the targets can vary between the states.	States with more aggressive RPS targets can add more compliance costs to residential retail electricity rates.
Customer Load Characteristics	Customer Load Profiles are a key factor in determining the utility's cost allocation metrics based on a customer's contribution to peak load on the grid.	Some states which contribute more heavily to grid peaks see more of the fixed grid costs (generation capacity and transmission capacity) being recovered from their customers through increasing retail rates.

Permit reform to lower residential retail electricity rates across the study states compared to the reference case (1/6)

ISO-NE

- Lower natural gas prices and higher renewable buildout in Policy Case yield in lower energy prices. Capacity prices are also lower in the outer years along with REC prices due to the lower capital costs for renewables.
- Residential customers in ISO-NE study states see their retail rates go down due to the permit reforms. However, the impact is not uniform across the study states with CT and MA seeing a considerable decrease in rates, while ME and NH see a smaller decrease.
- The increased REC prices in NH and ME offset the decrease in energy and capacity prices and result in a smaller rate decrease compared to CT and MA states.

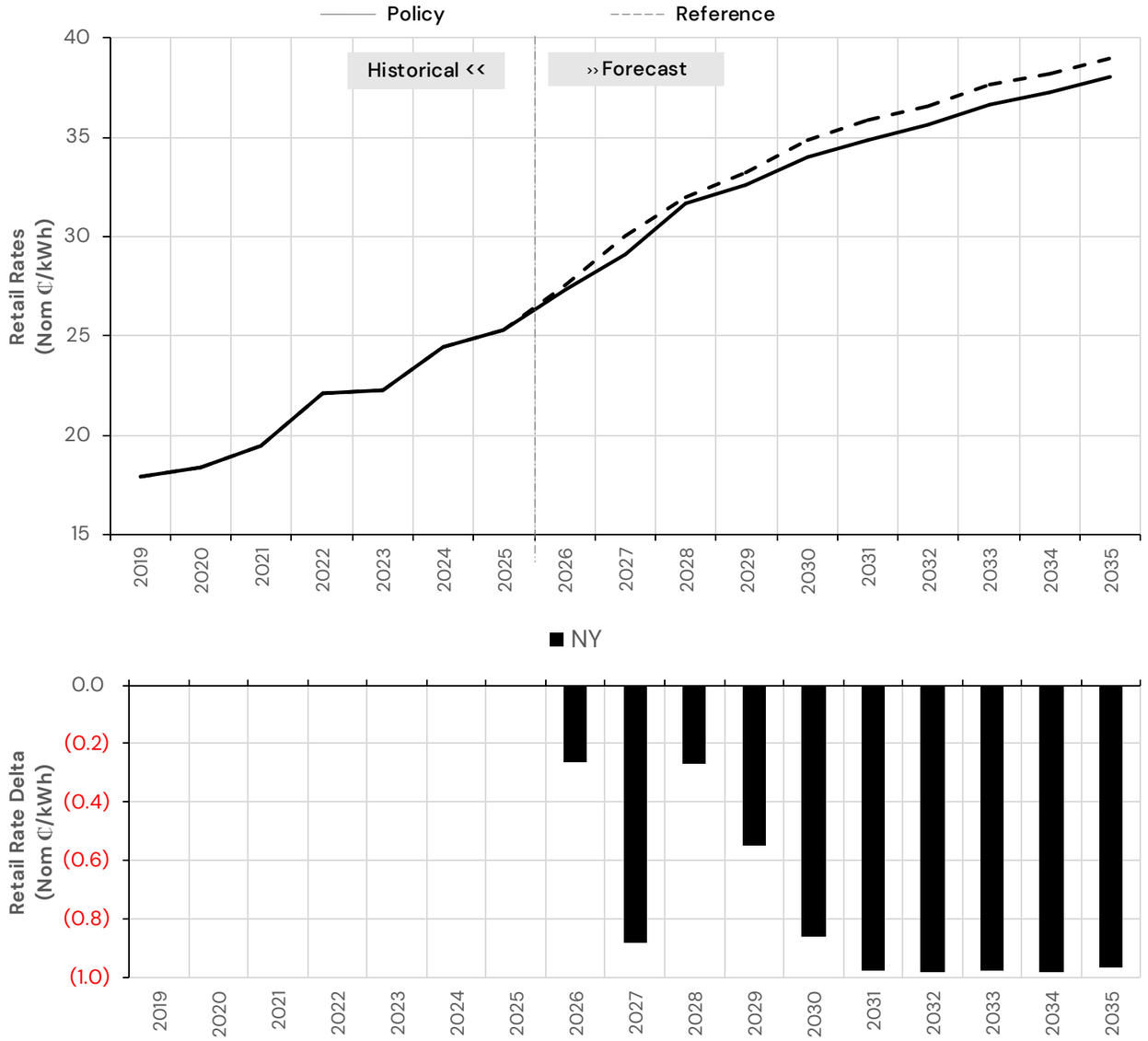


Source: ICF - API Policy Case and API Reference Case

Permit reform to lower residential retail electricity rates across the study states compared to the reference case (2/6)

NYISO

- Lower natural gas prices and higher renewable buildout in Policy Case yield in lower energy prices. Capacity prices are also lower in the outer years along with REC prices due to the lower capital costs for renewables.
- Accelerated transmission timelines, higher renewable, and storage buildout, and reduced capital costs contribute to lower capacity prices. Despite lower capital costs for renewables, RECs here are generally similar or higher than reference case due to the lower energy prices.
- Residential retail rates in NY decrease primarily due to lower capacity prices followed by lower energy prices. While the increased REC prices slightly offset the savings from lower capacity and energy, the overall retail rate is lower in the Policy case.

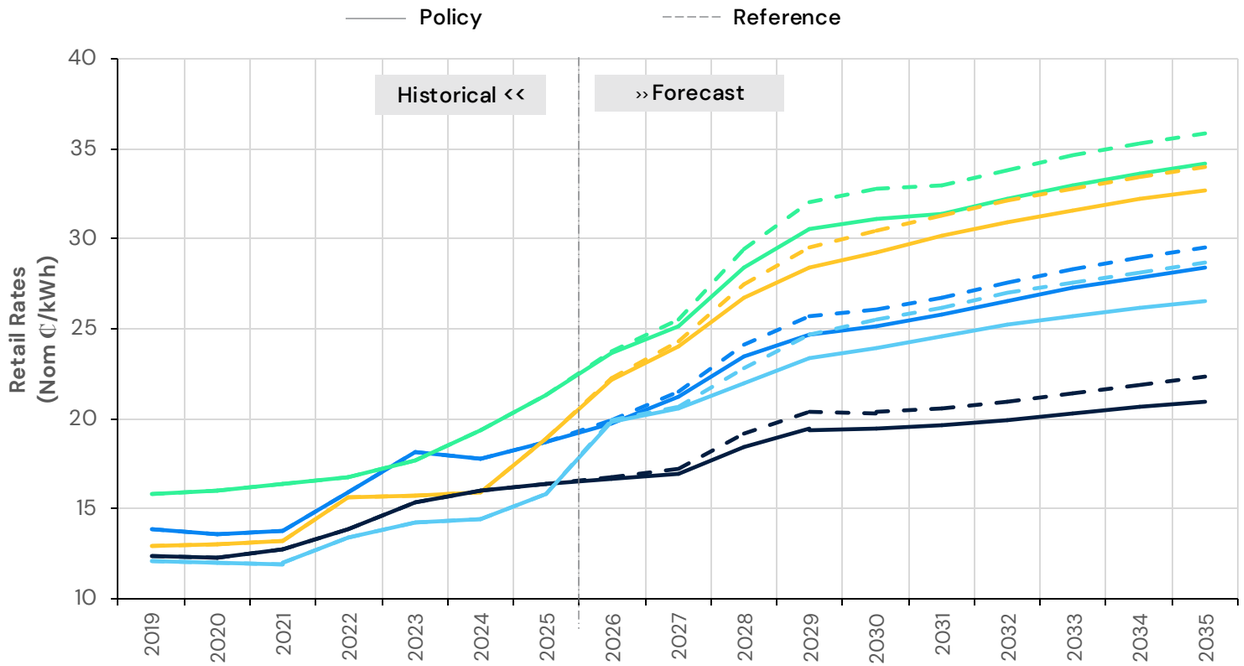


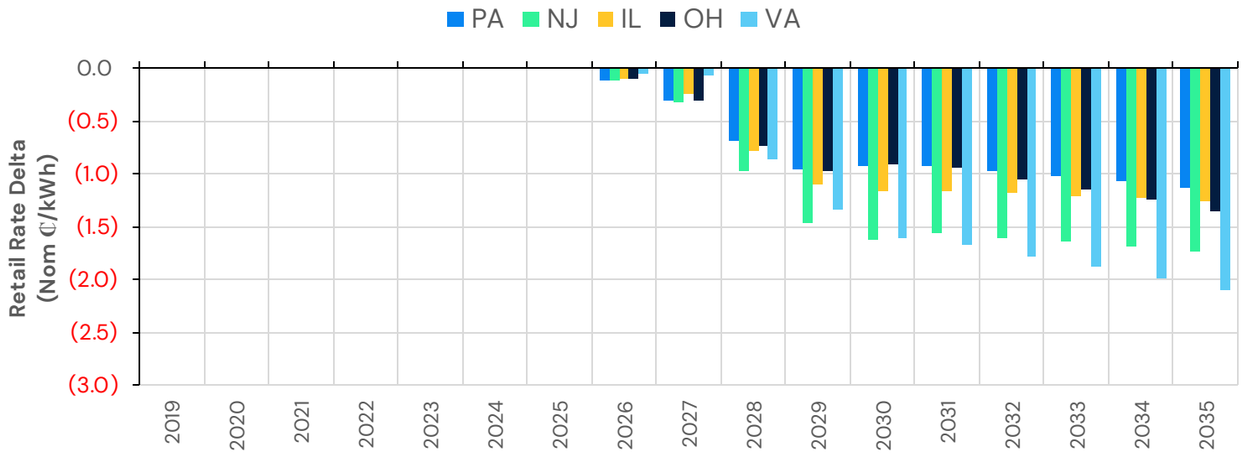
Source: ICF - API Policy Case and API Reference Case

Permit reform to lower residential retail electricity rates across the study states compared to the reference case (3/6)

PJM

- Lower natural gas prices in Policy Case yield lower energy prices and lower REC prices in PJM. Capacity prices saw a modest decrease in outer years in Policy Case.
- PJM study states see significantly lower rates primarily due to lower capacity prices followed by lower energy prices, except for VA where lower energy prices are the primary driver. The lower REC prices also contribute to this decrease in states with RPS mandates – PA, NJ, IL, VA.
- Residential customers across PJM study states save upwards of $100 on their annual electricity bills in 2035, with VA customers saving nearly $260, the largest savings among all the study states in that year.



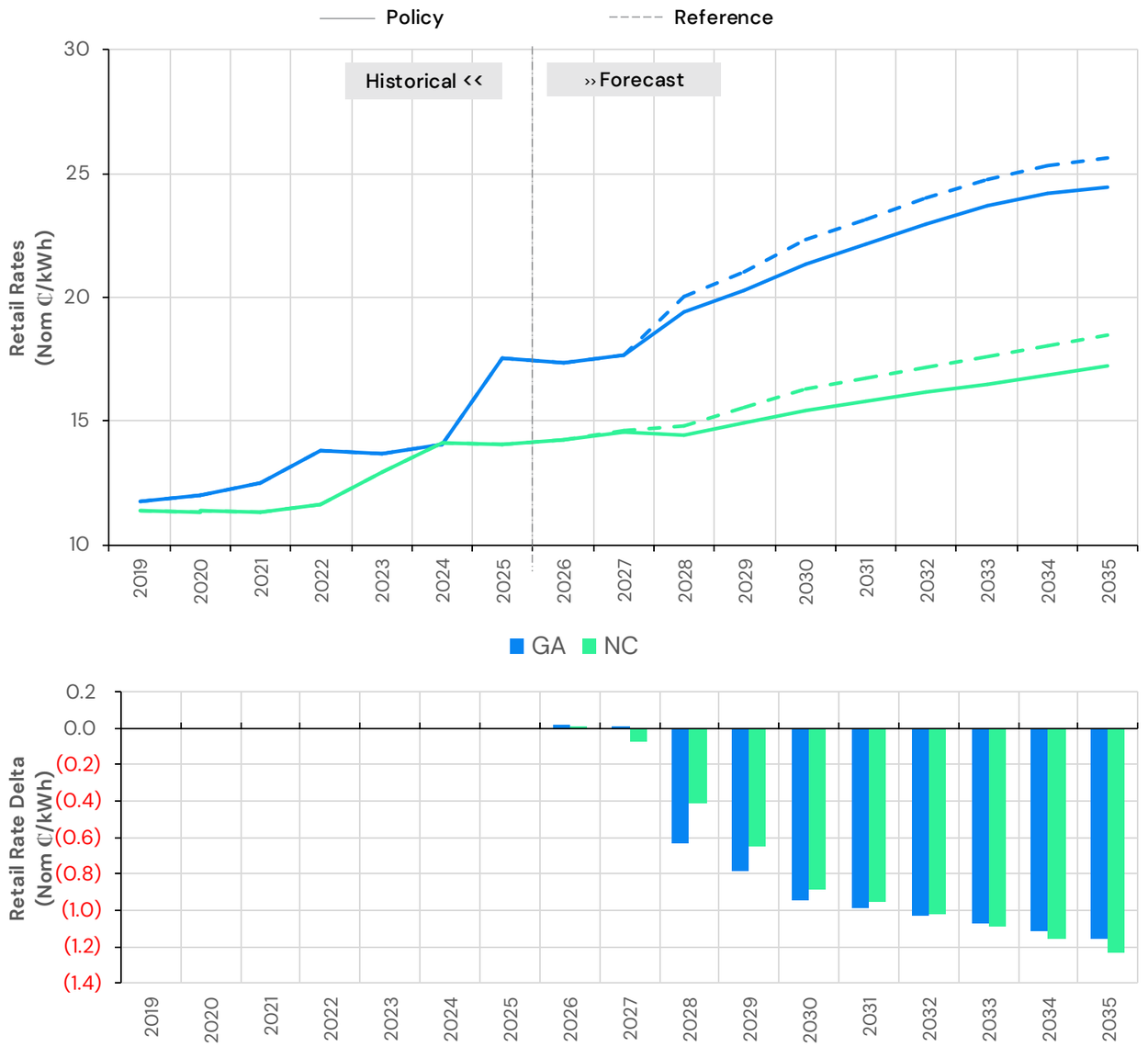


Source: ICF - API Policy Case and API Reference Case

Permit reform to lower residential retail electricity rates across the study states compared to the reference case (4/6)

SERC

- Lower natural gas prices and higher renewable buildout in Policy Case yield lower energy prices in SERC.
- SERC study states benefit from lower residential retail electricity rates due to lower energy prices and slightly lower capacity prices. There is no impact of RECs as these states do not have an RPS mandate.

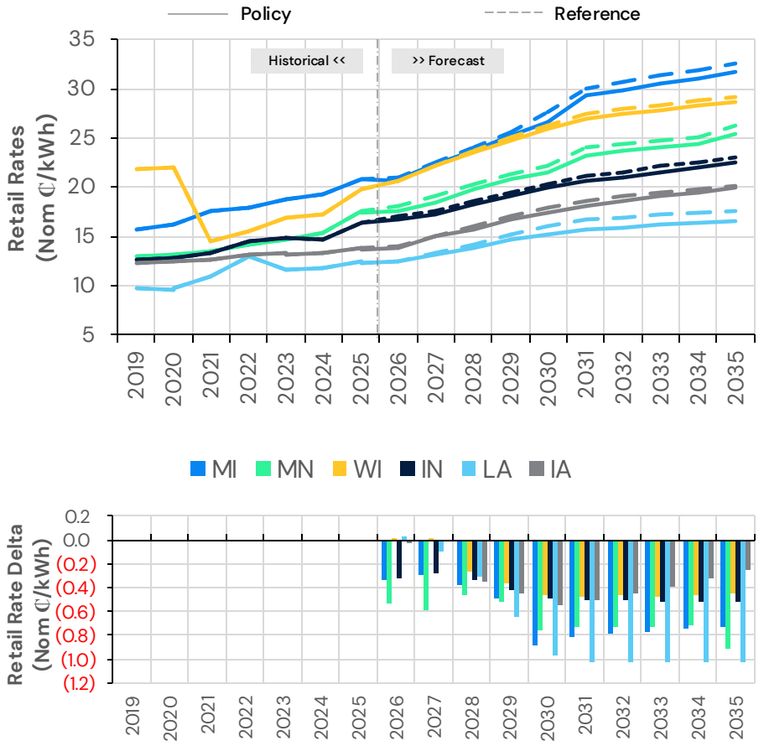


Source: ICF - API Policy Case and API Reference Case

Permit reform to lower residential retail electricity rates across the study states compared to the reference case (5/6)

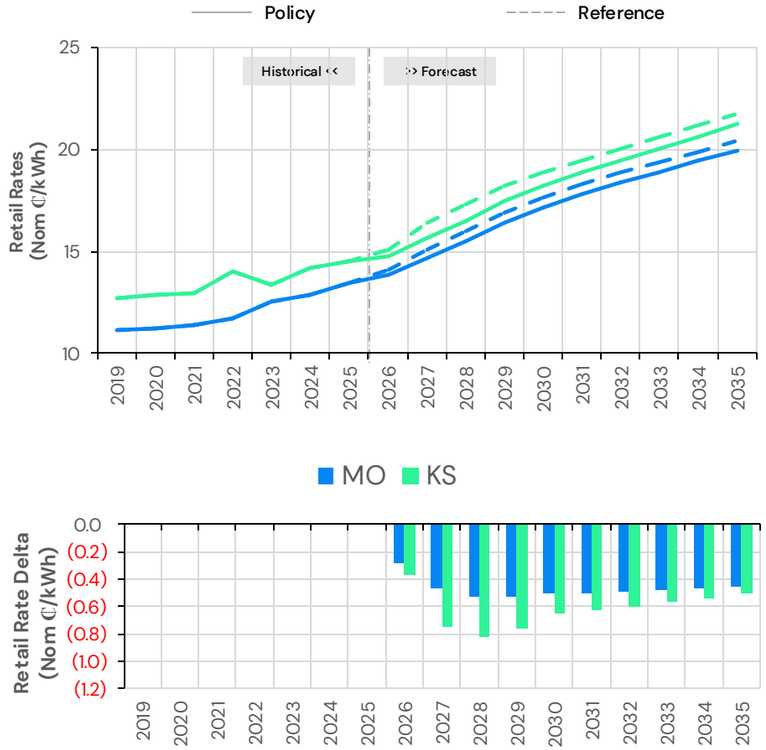
MISO

- All MISO study states benefit from lower residential retail electricity rates due to lower energy prices and capacity prices. MI and MN also benefit from lower REC prices.
- Impact due to lower capacity prices is more observable in MI, MN, WI. Impact due to lower energy prices is more observable in IN and LA.



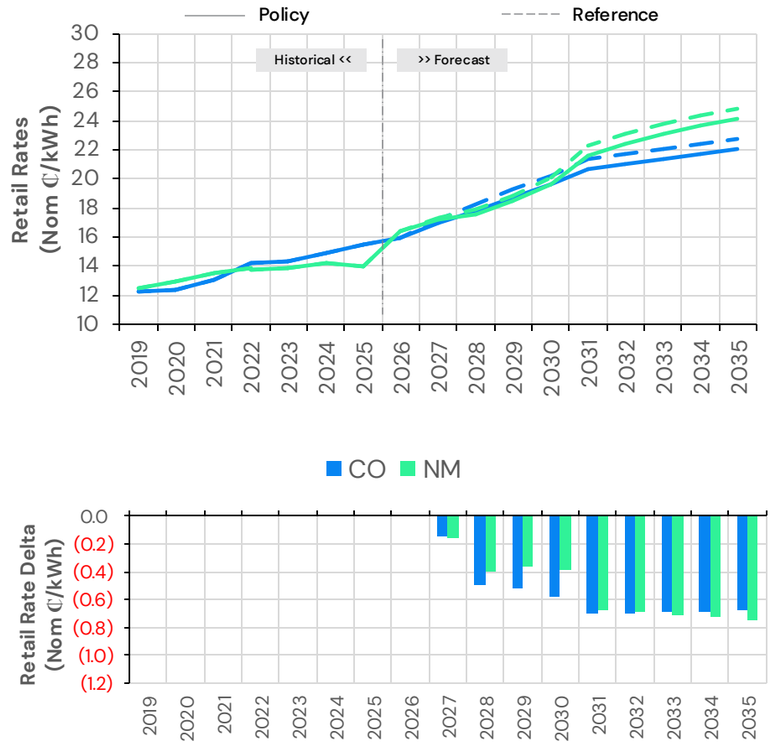
SPP

- Lower natural gas prices and higher renewable and thermal buildout in Policy Case yield lower energy prices. Capacity prices saw a modest decrease in Policy case due to slightly lower capital cost assumptions.
- SPP study states on average benefit from lower residential retail electricity rates primarily due to lower capacity prices.



WECC

- Lower natural gas prices and higher renewable buildout in Policy Case yield lower energy prices. Capacity prices saw a modest decrease in Policy Case due to slightly lower capital cost assumptions. REC prices are lower due to lower capital cost assumptions in Policy Case.
- WECC study states on average benefit from lower residential retail electricity rates primarily due to lower energy prices followed by the contribution from lower REC prices.



Source: ICF - API Policy Case and API Reference Case

Permit reform to decrease residential retail electricity rates across the study states, but the magnitude of change varies among states

All 22 states see a decrease in residential retail electricity rates in most years of the study period. Permitting reform enables a stronger buildout of gas pipelines, increases the deliverability of low-cost abundant gas resources (such as the Marcellus/Utica plays), puts downward pressure on overall gas prices, and consequently residential retail electricity prices.

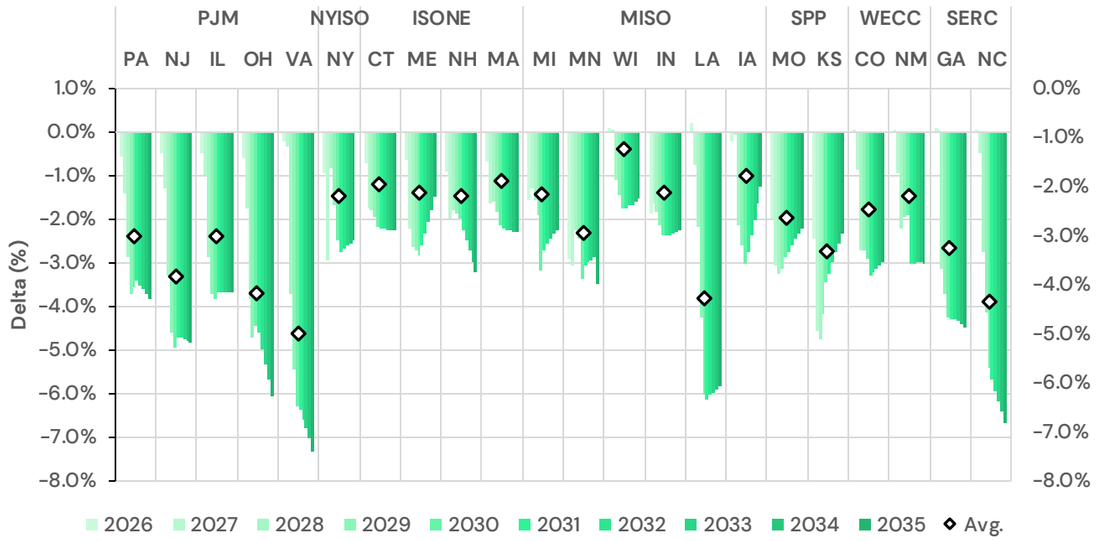
The magnitude of decrease in residential retail electricity rates varies state to state depending on the underlying natural gas prices, regional wholesale electricity market dynamics, and the customer load characteristics in a particular state.

Over the study period, residential retail electricity rates across states on average decreased by 0.71 cents per kWh, with the average savings increasing from 0.15 cents per KWh in 2026 to 0.95 cents per kWh in 2035. VA sees the most impact of reforms with an average decrease of 1.33 cents per KWh or 5.0% and IA sees the least impact with an average decrease of 0.33 cents per kWh or 1.8%.

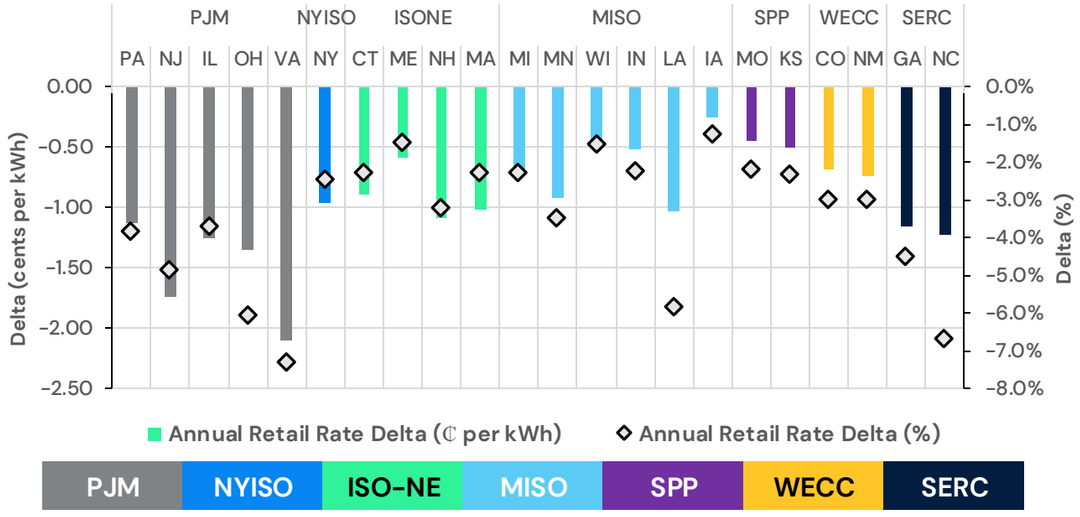
VA in PJM, NH in ISO-NE, LA in MISO, KS in SPP, CO in WECC, and NC in SERC see the most decrease in residential retail electricity rates (in % terms) among states in that ISO footprint.

Lower Residential Retail Electricity Rates in 2035 – The decrease in annual residential retail electricity rates varies across the study states and ranges between 0.28-2.10 cents per kWh (or 1.3%-7.3%) depending on the underlying gas prices, wholesale market dynamics, and the state's customer load characteristics.

Impact of Permit Reform on Annual Residential Retail Rates



Impact of Permit Reform on Annual Residential Retail Rates in 2035



Source: ICF - API Policy Case and API Reference Case

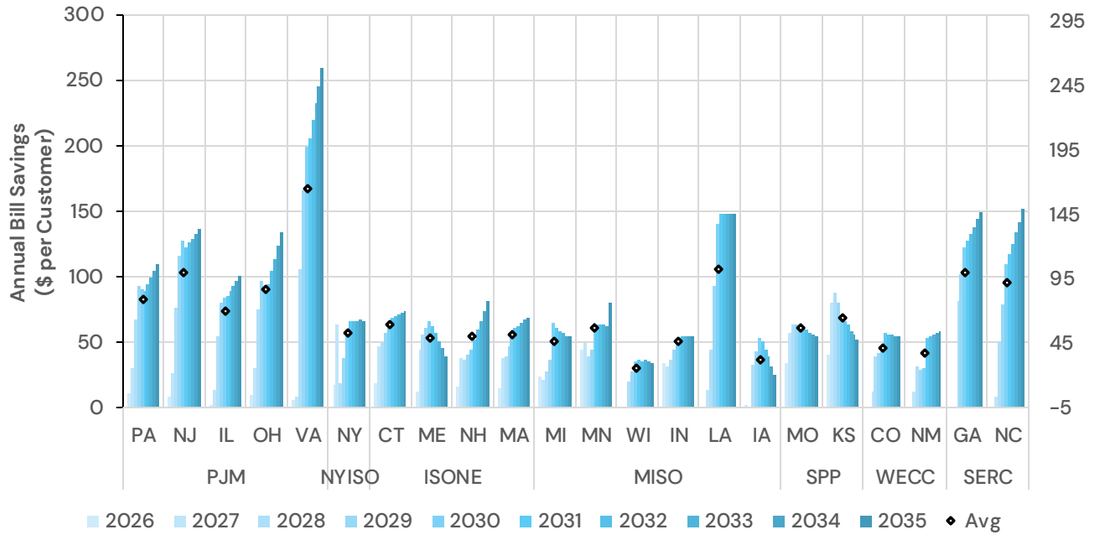
Permit reform to reduce the energy burden for ratepayers with residential customers saving on average 3.4% on their annual electricity bills

Over the study period, residential retail bills across states on average decreased annually by $67. VA sees the most impact of reforms with an average decrease of $165 and WI sees the least impact with an average decrease of $26.

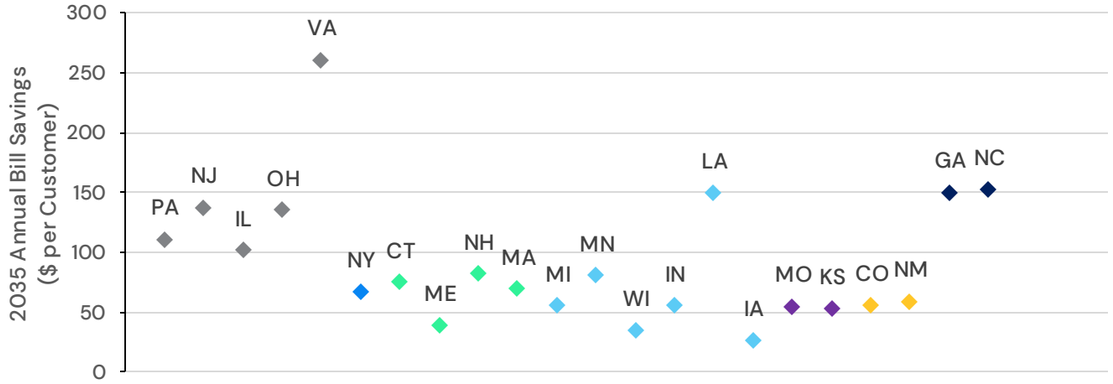
Annual Bill Savings in 2035 – The lower retail rates translate into bill savings for residential customers relative to the reference case in the range 26-260 per customer in that year.

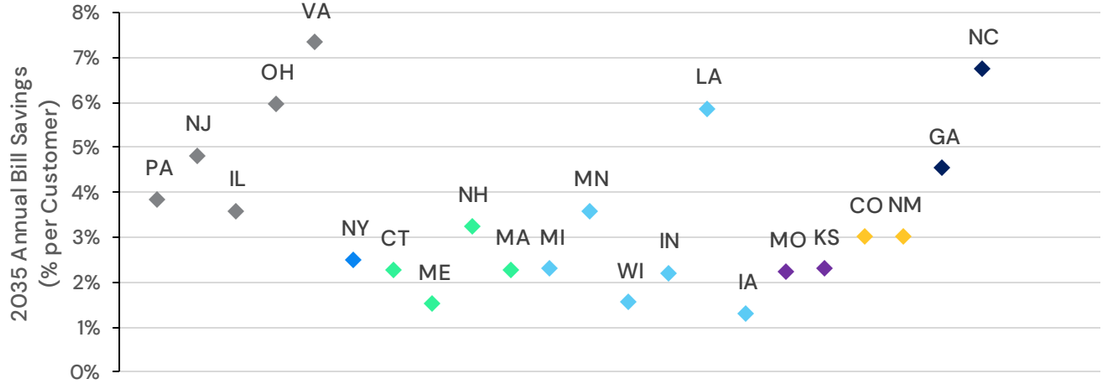
States towards the higher end of the savings range include VA (260$, 7.3% savings relative to the reference case) in PJM, NJ ($137, 4.8%), and OH ($135, 5.9%) in PJM, LA ($149, 5.8%) in MISO, NC ($152, 6.7%) and GA ($150, 4.5%) in SERC.

Annual Retail Electricity Bills Savings per Residential Customer



Estimated Residential Retail Electricity Bill Savings in 2035



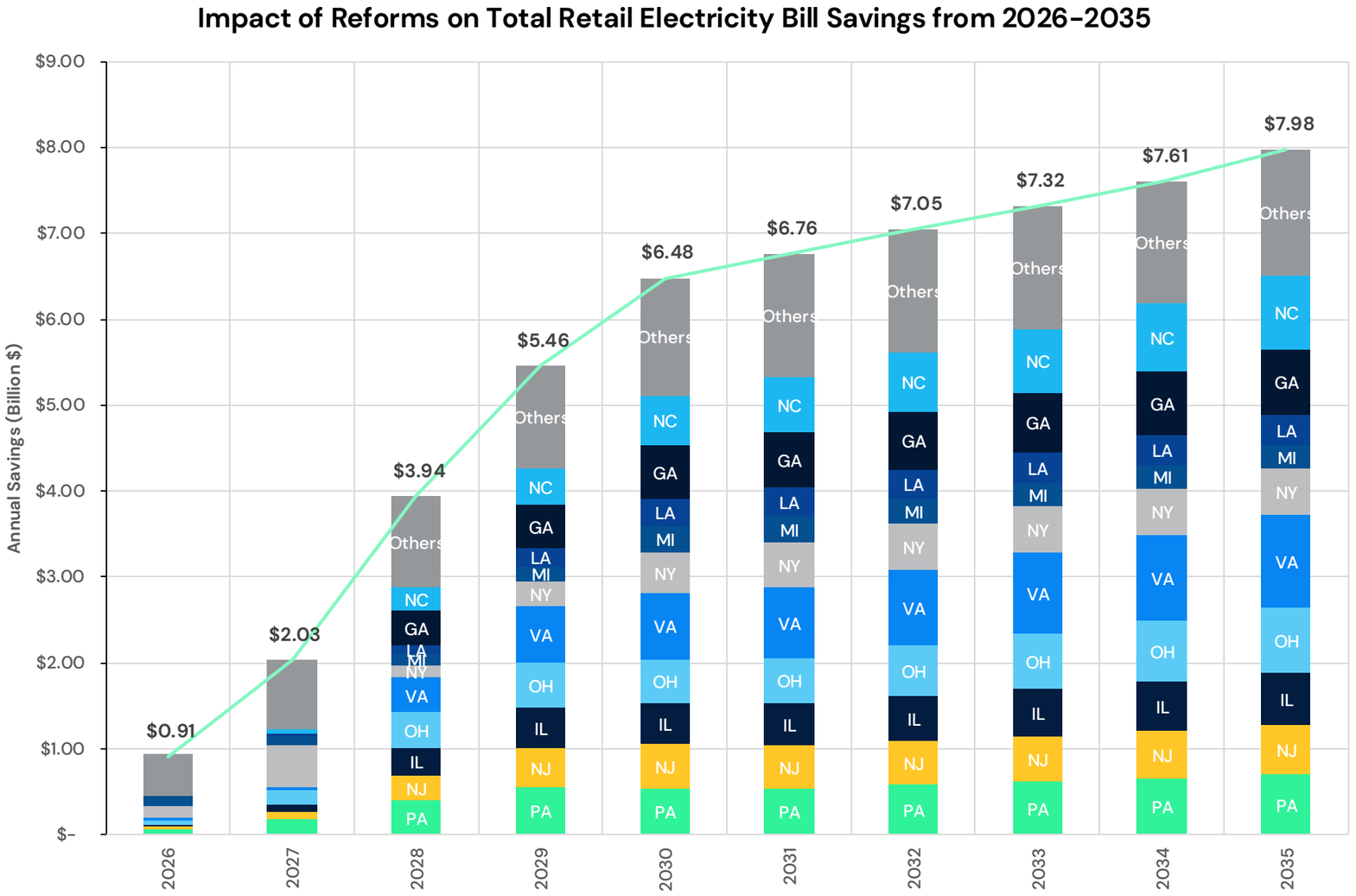


PJM | NYISO | ISO-NE | MISO | SPP | WECC | SERC

Source: ICF - API Policy Case and API Reference Case

Permit reform to drive massive Bill Savings across the study states compared to the reference case (6/6)

Annual Bill Savings across study states – Total residential electric utility bill spending by customers across 22 states is projected to be over $55 billion lower through 2035. The top 10 states in terms of cumulative bill savings – PA, NJ, IL, OH, VA, NY, MI, LA, GA, and NC – account for almost 80% of the total savings with the rest coming from the remaining 12 states.



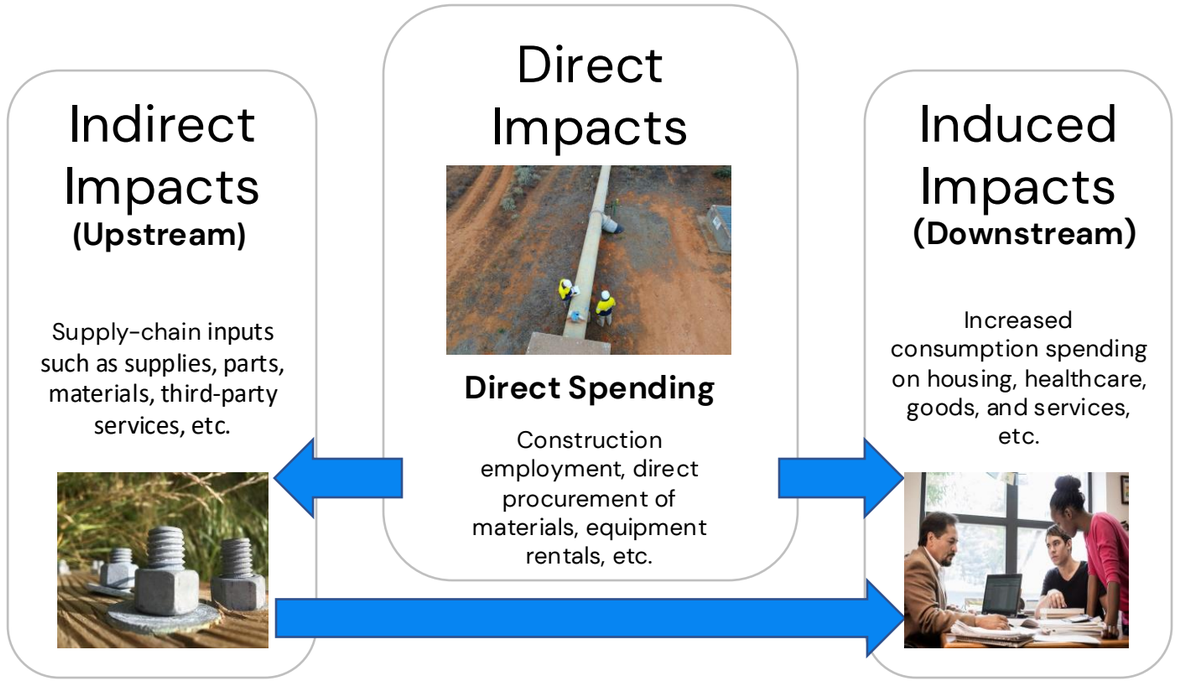
Source: ICF - API Policy Case and API Reference Case

Economic and CO2 Emissions Implications

Methodology

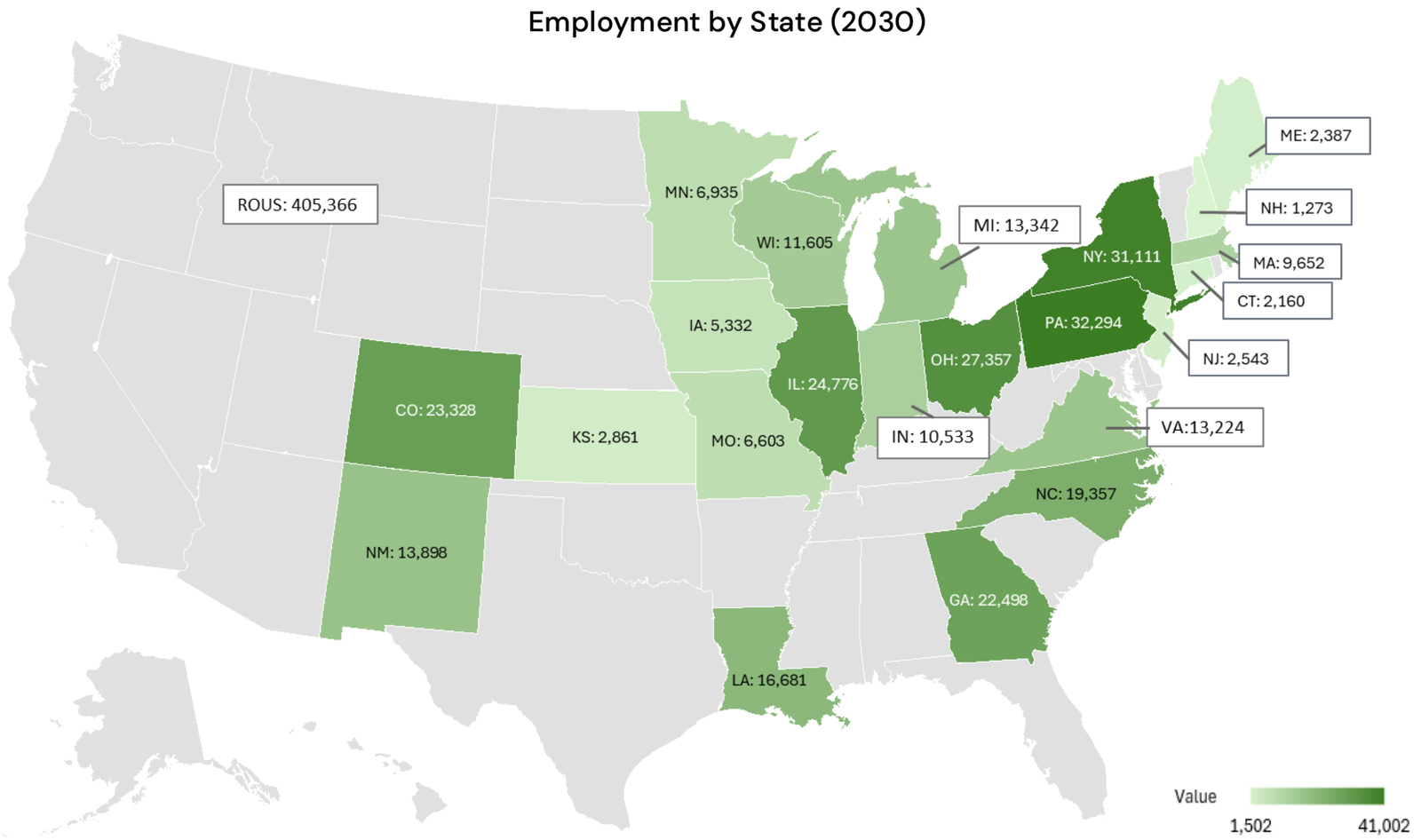
- Used the IMPLAN model to estimate the macroeconomic impacts of the permit reform related changes in the economy
  - Results discussed in this study are based on the *incremental* changes (i.e., difference between the permit reform policy case over the BAU reference case)
- IMPLAN is an economic impact modeling software based on input-output (I-O) framework combined with a social accounting matrix (SAM)
  - Model is used to trace how change in spending ripples across industries, households, and governments
- Estimated the direct, indirect, and induced economic impacts on the 22 states (shown on next slide) and the rest of the U.S. (RoUS)
  - Overall objective is to estimate the macroeconomic benefits on each states' economy
  - Primary economic metric discussed is jobs supported
  - Also included impacts on Gross State Product (GSP), personal income, and increased tax revenues

IMPLAN Model Structure



Results Summary – Employment Impacts by State

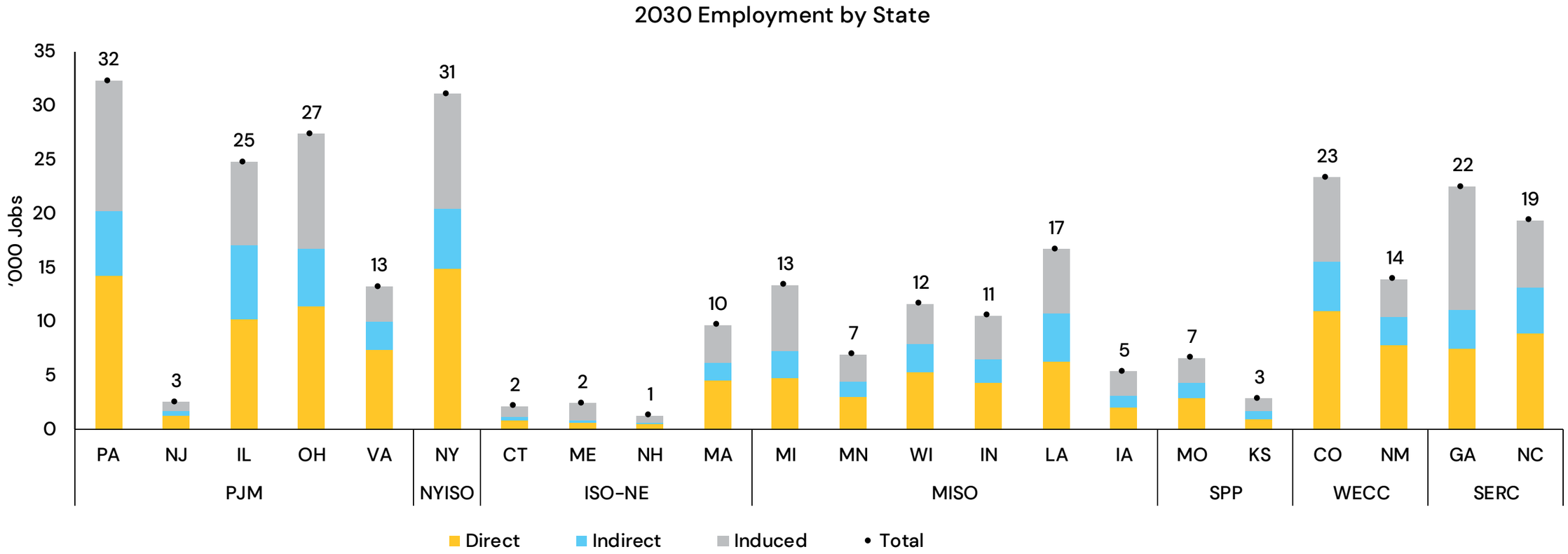
- Nationwide, permit reform policies are estimated to generate significant economic benefits across all regions
- Potential to support over **700,000 jobs** in 2030 nationwide
  - Employment impacts peaks in 2028, reaching close to 730,000 jobs
- Among the 22 states analyzed, PA has the potential for largest economic benefits with over 32,000 jobs supported in 2030, followed by NY with over 31,000, and OH with over 27,000 jobs supported
- Remaining U.S. states account for more than 405,000 additional jobs supported in 2030



Source: ICF - API Policy Case and API Reference Case

Results Summary – Employment Impacts by State

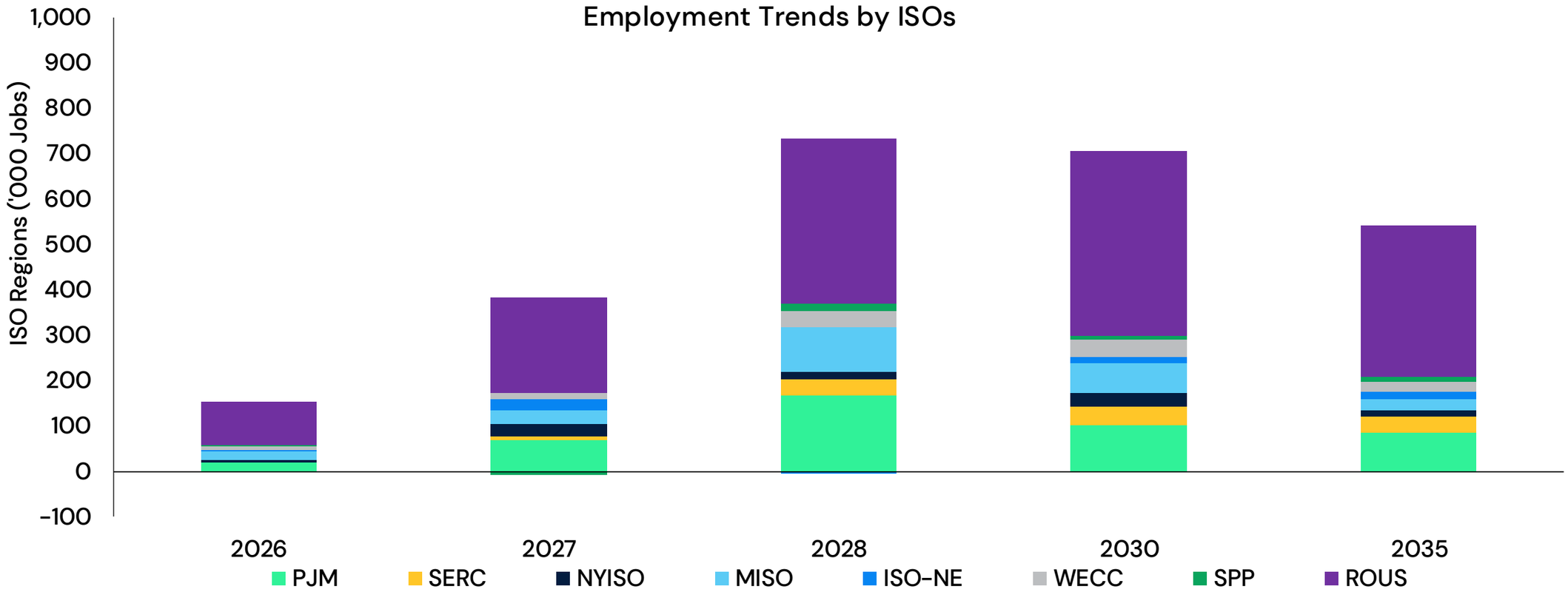
- The chart below shows state-level employment impacts in 2030, by direct, indirect, and induced effects
- Direct and induced impacts appear to be larger than indirect impacts, with roughly 80% on average for direct and induced combined, and remaining 20% for indirect benefits
- Gas producing states like PA appear to have the largest benefits, though large gas consuming states like NY and IL also stand to benefit from these changes



Source: ICF - API Policy Case and API Reference Case

Results Summary – Employment Trends

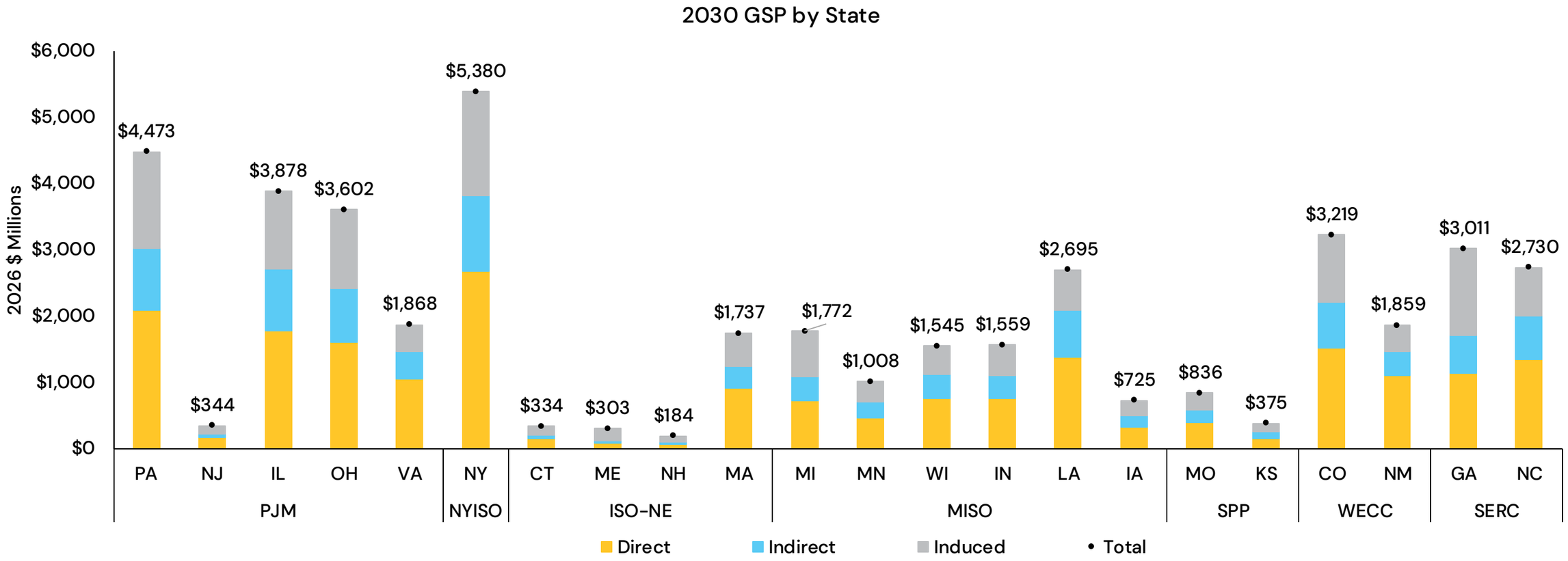
- The chart below shows the employment impacts over time separated by the ISOs and the rest of the U.S.
- Peak employment impacts occur in 2028 for PJM, MISO and SPP
- For NYISO, SERC, WECC and the rest of the U.S, peak employment occurs in 2030



Source: ICF - API Policy Case and API Reference Case

Results Summary - GSP Impacts by State

- The chart below shows state-level GSP impacts in 2030, disaggregated into direct, indirect, and induced effects
- NY is estimated to have the largest GSP gains followed by PA and IL
- NH, ME and CT are estimated to have the smallest GSP gains among the states analyzed

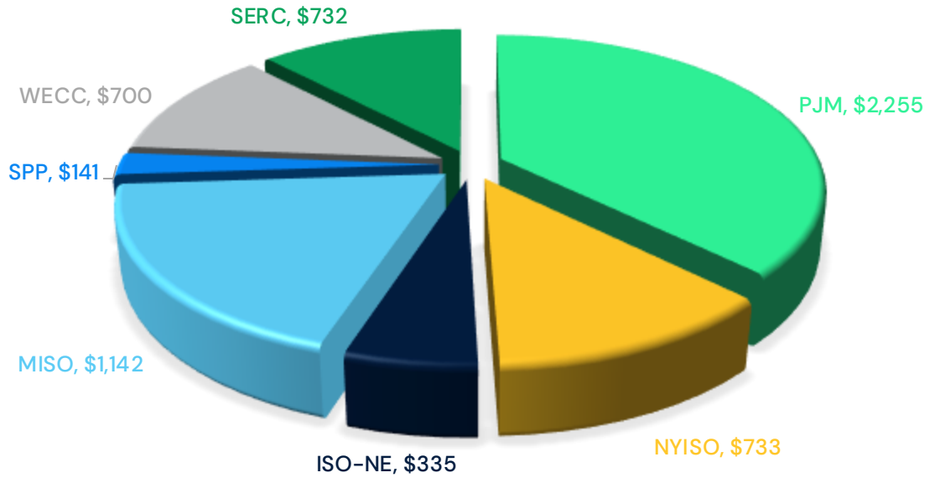


Source: ICF - API Policy Case and API Reference Case

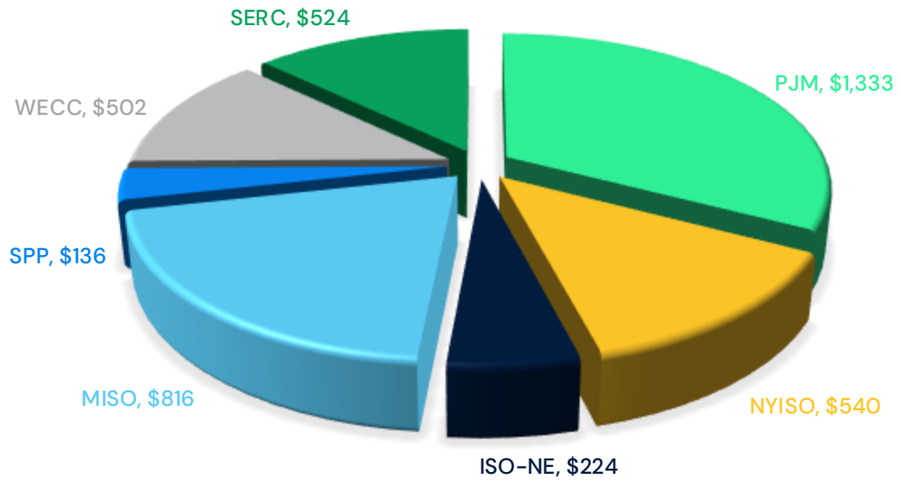
Results Summary- Fiscal Impacts by ISOs

- In 2030, permit reform policies are estimated to generate roughly $10B in total tax revenues, split between federal ($6B) and state and local ($4B) sources
  - Increased economic activity by businesses and residents supported by these reforms generate additional revenues via income, sales, excise, and other forms of taxes
- Largest fiscal impacts are estimated for entities in the PJM territory, accounting for roughly $2.2B in federal and an additional $1.3B in state/local tax receipts
- Fiscal impacts vary by ISOs, with government entities in SPP accounting for the smallest shares across both federal ($141M) and state and local ($136M) tax revenues
- In the RoUS, federal tax revenues dominate, comprising approximately 60 percent of total fiscal impacts, with the remainder accruing to state and local governments

Federal Tax Revenues (2026 $ Millions)



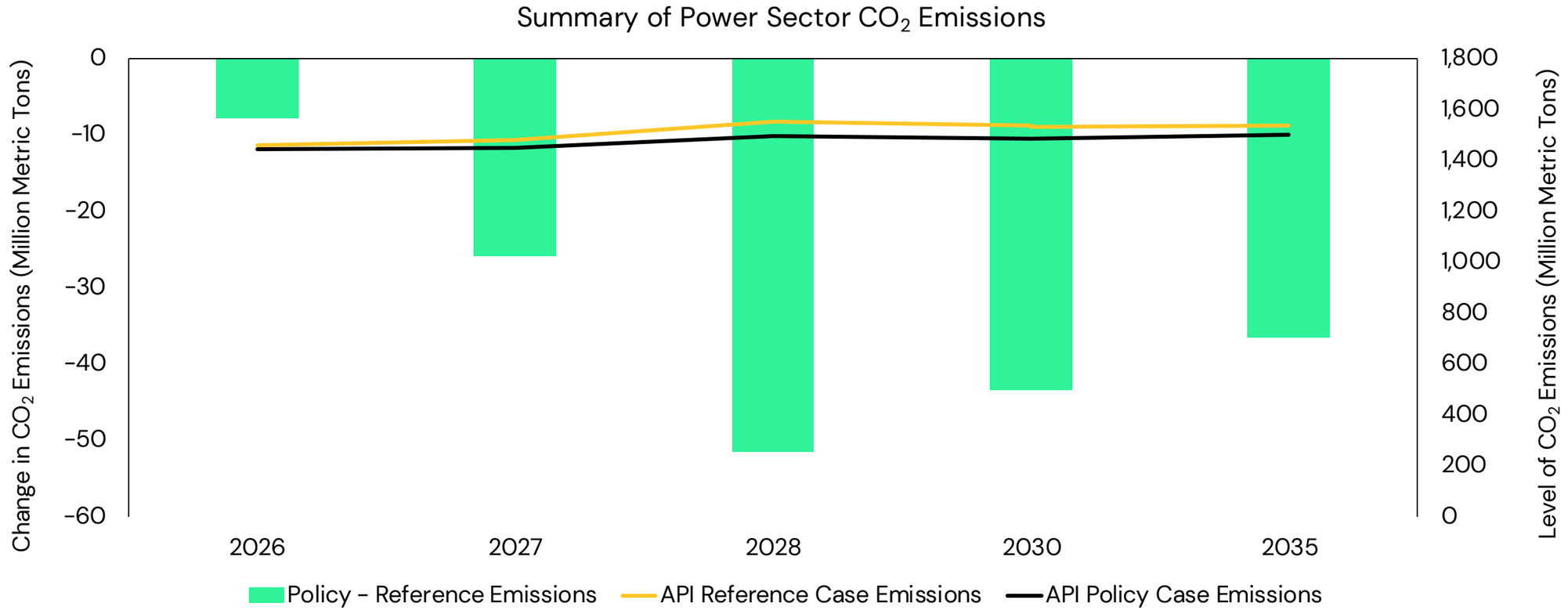
State and Local Tax Revenues (2026 $ Millions)



Source: ICF - API Policy Case and API Reference Case

Power Sector CO2 Emission Results

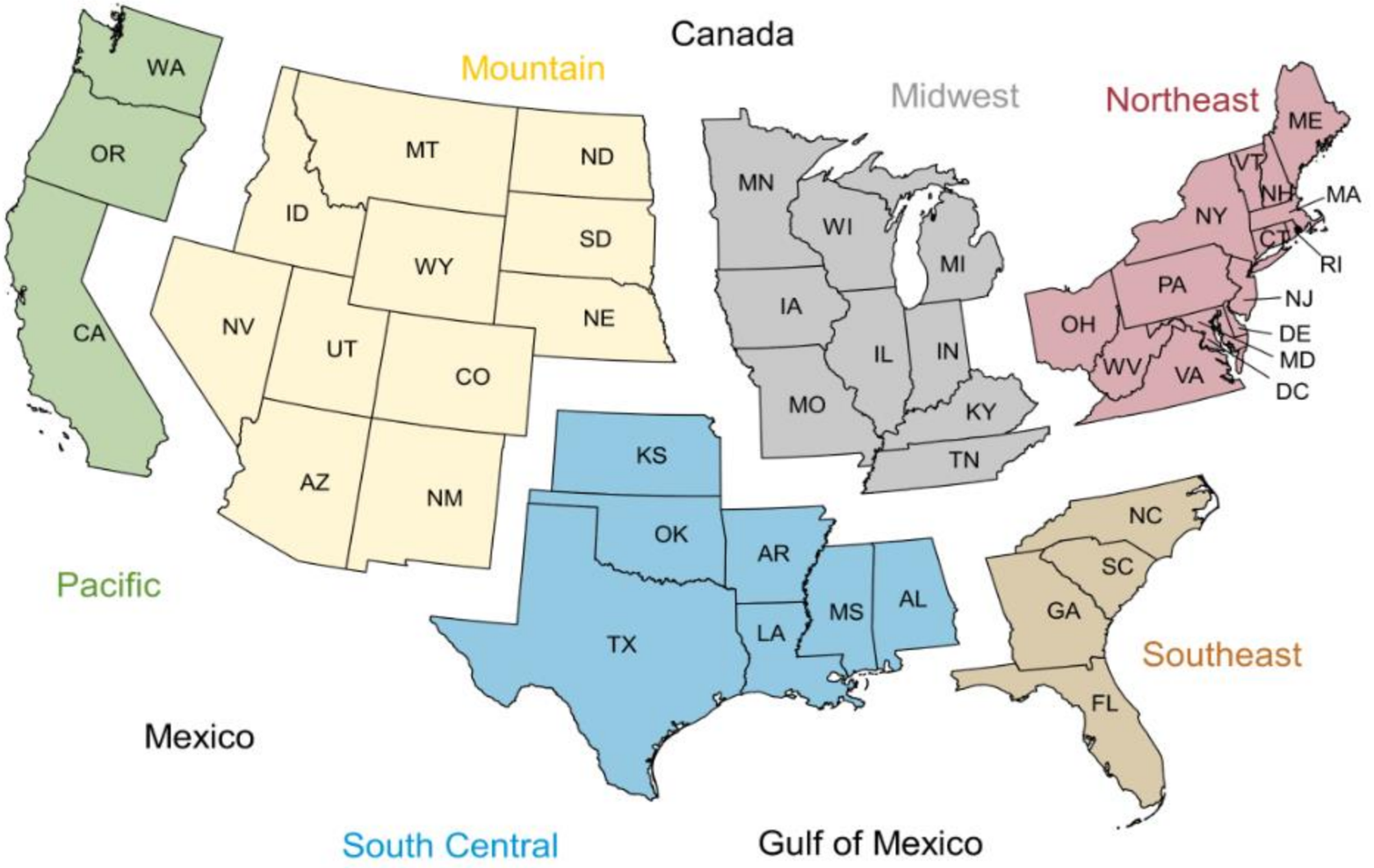
- Under the API Policy Case, coal generation is being displaced by natural gas and additional renewables, leading to lower carbon emissions than the API Reference Case
- Right axis reflects the level of emissions under the API Policy and Reference Case (line chart)
- Left axis reflects the change in emissions between the cases (bar chart)
- Cumulatively, between 2026 and 2035, emissions estimated to decline by 367 million metric tons



Emissions Source: ICF - API Policy Case and API Reference Case

Appendix

Natural Gas Regional Definitions



Tier 1 – Brownfield or Under Construction

Target In-Service Date	ICF In-Service Date	Project Name	Company Name	Capacity	Tier	Reason	Pipeline End Region	API Reference Case	API Policy Case
Jan-2026	Jan-2026	Blackfin Pipeline	WhiteWater Midstream	3,500	1	TX Intrastate; Under Construction	South Central	Yes	Yes
Mar-2026	Mar-2026	Bison Xpress Project	TC Energy	300	1	Brownfield; FERC Approved	Mountain	Yes	Yes
Mar-2026	Mar-2026	LEAP Phase 4	DT Midstream	200	1	Brownfield; Under Construction	South Central	Yes	Yes
Jun-2026	Jun-2026	Golden Pass Pipeline Reversal	Exxon	2,537	1	Brownfield; Under Construction	South Central	Yes	Yes
Jun-2026	Jun-2026	Gulf Coast Express Pipeline Expansion	Kinder Morgan	570	1	Brownfield; Under Construction	South Central	Yes	Yes
Jul-2026	Jul-2026	Blackcomb Pipeline	Whitewater MPLX Enbridge	2,500	1	TX Intrastate; Under Construction	South Central	Yes	Yes
Jul-2026	Jul-2026	Texas-Louisiana Expansion	Natural Gas Pipeline of America	150	1	Greenfield; Under Construction	South Central	Yes	Yes
Oct-2026	Oct-2026	Tioga Pathway Expansion	National Fuel Gas Supply Corporation	190	1	Brownfield; FERC Approved	Northeast	Yes	Yes
Nov-2026	Nov-2026	Hugh Brinson Pipeline	Energy Transfer	2,200	1	TX Intrastate; Under Construction	South Central	Yes	Yes
Nov-2026	Nov-2026	Rover-Bulger CS and Harmon Creek MS Expansion	Energy Transfer	400	1	Brownfield; FERC Approved	Northeast	Yes	Yes
Nov-2026	Nov-2026	Huntingdon Connector	Williams	87	1	Under Construction	Pacific	Yes	Yes
Nov-2026	Nov-2026	Ridgeline Expansion Project	Enbridge East Tennessee Natural Gas	395	1	Under Construction	Midwest	Yes	Yes
Dec-2026	Dec-2026	Louisiana Connector Project	Sempra Energy	2,000	1	Greenfield; Under Construction	South Central	Yes	Yes
Dec-2026	Dec-2026	Texas Connector Project	Sempra Energy	2,000	1	Greenfield; Under Construction	South Central	Yes	Yes
Dec-2026	Dec-2026	Cedar Vale Compressor Station Project	Southern Star Central Gas Pipeline	133	1	FERC Approved; Brownfield	South Central	Yes	Yes
Mar-2027	Mar-2027	Bull Run Extension	Targa Resources	750	1	TX Intrastate; Greenfield; Under Construction	South Central	Yes	Yes
Apr-2027	Apr-2027	Pelican Pipeline	WhiteWater Midstream	2,500	1	LA Intrastate; Under Construction	South Central	Yes	Yes
Aug-2027	Aug-2027	Appalachia to Market III Project	Enbridge Texas Eastern Transmission	32	1	Brownfield; FERC Application	Northeast	Yes	Yes
Nov-2027	Nov-2027	Capital Area Project	Eastern Gas Transmission and Storage	68	1	Brownfield; FERC Application	Northeast	Yes	Yes
Nov-2027	Nov-2027	CP Express	Venture Global	4,400	1	Under Construction	South Central	Yes	Yes
Nov-2027	Nov-2027	Traverse Pipeline	WhiteWater Midstream	2,500	1	TX Intrastate	South Central	Yes	Yes
Nov-2027	Nov-2027	South Central Louisiana Project	Florida Gas Transmission	75	1	Brownfield; FERC Application	South Central	Yes	Yes
Nov-2027	Nov-2027	Wild Trail Project	Williams Northwest Pipeline	58	1	Brownfield; FERC Application	Mountain	Yes	Yes
Jan-2028	Jan-2028	Buffalo Run Pipeline	Targa Resources	750	1	TX Intrastate; Greenfield; Under Construction	South Central	Yes	Yes
Jan-2028	Jan-2028	Parks Line Upgrade and Sorrento Station Project (PLUSS Project)	Gulf South Pipeline Company	236	1	Brownfield; FERC Application	South Central	Yes	Yes
Jun-2028	Jun-2028	Appalachian Reliability Project	Eastern Gas Transmission and storage	550	1	Brownfield; FERC Application	Northeast	Yes	Yes
Jun-2028	Jun-2028	Eiger Express Pipeline	Whitewater, ONEOK, MPLX, and Enbridge	3,700	1	TX Intrastate	South Central	Yes	Yes
Jul-2028	Jul-2028	Kelso-Beaver Reliability Project	Williams Northwest Pipeline	183	1	Brownfield; FERC Application	Pacific	Yes	Yes
Nov-2028	Nov-2028	South System Expansion 4 Phase 1	Southern Natural Gas	1,418	1	Brownfield; FERC Application	Southeast	Yes	Yes
Apr-2029	Apr-2029	Driftwood Pipeline Project	Woodside Energy (Driftwood Pipeline LLC)	4,000	1	Greenfield; FERC Approved	South Central	Yes	Yes
Apr-2029	Apr-2029	Line 200 and Line 300 Expansion Project - Phase 1	Woodside Energy (Driftwood Pipeline LLC)	2,400	1	Greenfield; FERC Approved	South Central	Yes	Yes
Apr-2029	Apr-2029	Mustang Pipeline	ARM Energy Holdings	2,500	1	TX Intrastate	South Central	Yes	Yes
Nov-2029	Nov-2029	South System Expansion 4 Phase 2	Southern Natural Gas	28	1	Brownfield; FERC Application	Southeast	Yes	Yes

Source: ICF - API Policy Case and API Reference Case

Tier 2 – Greenfield

Target In-Service Date	ICF In-Service Date	Project Name	Company Name	Capacity	Tier	Reason	Pipeline End Region	API Reference Case	API Policy Case
Sep-2026	Sep-2026	TTC Connector Pipeline Project	TTC Connector	300	2	Greenfield; FERC Application	South Central		Yes
Jan-2027	Jan-2027	Trident Pipeline	Kinder Morgan	2,000	2	TX Intrastate; Greenfield; Under Construction	South Central		Yes
Jun-2027	Jun-2027	Aspire Energy Express	Aspire Energy Express	300	2	OH Intrastate; Greenfield	Northeast		Yes
Sep-2027	Sep-2027	Decatur Lateral Project	Rockies Express Pipeline	181	2	Greenfield; FERC Application	Midwest		Yes
Nov-2027	Nov-2027	Heartland Project	ANR Pipeline	473	2	Greenfield; FERC Application	Midwest		Yes
Feb-2028	Feb-2028	Tiger Pipeline Expansion	Energy Transfer	250	2	Greenfield; FERC Application	South Central		Yes
Apr-2028	Apr-2028	Rio Bravo Pipeline Project	Enbridge	2,600	2	Greenfield; FERC Application	South Central		Yes
Apr-2028	Apr-2028	Big Hollow Project	Energy Transfer Enable Mississippi River Transmission	200	2	Greenfield; FERC Application	Midwest		Yes
Jun-2028	Jun-2028	Forza Pipeline	Targa Resources	750	2	Greenfield; FERC Application	South Central		Yes
Jun-2028	Jun-2028	Critical Energy Reliability Link Project	Cheyenne Connector; Rockies Express Pipeline	150	2	Greenfield; FERC Application	Mountain		Yes
Jun-2028	Jun-2028	MVP Southgate	Mountain Valley Pipeline	550	2	FERC Application; NC permits granted	Southeast		Yes
Nov-2028	Nov-2028	Mississippi Crossing Project	Tennessee Gas Pipeline	2,110	2	Greenfield; FERC Application	South Central		Yes
Apr-2029	Apr-2029	Kosciusko (Kosci) Junction Pipeline Project	Boardwalk Pipeline	1,160	2	Greenfield; FERC Application	South Central		Yes

Source: ICF – API Policy Case and API Reference Case

Tier 3 – High-Risk State Projects

Target In-Service Date	ICF In-Service Date	Project Name	Company Name	Capacity	Tier	Reason	Pipeline End Region	API Reference Case	API Policy Case
Nov-2027	Nov-2027	Southeast Supply Enhancement	Williams Transcontinental	1,597	3	Brownfield; FERC Application; High-risk states	South Central		Yes
Nov-2027	Nov-2028	Constitution Pipeline	Williams	650	3	Greenfield; FERC Approved; High-risk states	Northeast		Yes
Nov-2027	Nov-2028	Northeast Supply Enhancement Project	Williams Transcontinental	400	3	Greenfield; FERC Approved; High-risk states	Northeast		Yes
Jun-2028	Jun-2028	MVP Boost	EQT	600	3	Brownfield; High-risk states	Northeast		Yes
Nov-2029	Nov-2029	AGT Enhancement	Enbridge	75	3	Announced; Brownfield; High-risk states	Northeast		Yes
Jul-2030	Jul-2030	Power Express	Williams	689	3	Announced; Brownfield; High-risk states	Northeast		Yes

Source: ICF - API Policy Case and API Reference Case

Tier 4 – Early-Stage Development

Target In-Service Date	ICF In-Service Date	Project Name	Company Name	Capacity	Tier	Reason	Pipeline End Region	API Reference Case	API Policy Case
Nov-2026	Nov-2026	Wharton West	Williams	170	4	Brownfield; Announced	South Central		Yes
Apr-2027	Apr-2027	Colorado Interstate Generic	Generic	500	4	Hypothetical	South Central		Yes
Aug-2027	Aug-2027	Green River West Expansion	Williams MountainWest Overthrust Pipeline	64	4	Brownfield; Announced	Mountain		
Apr-2028	Apr-2028	Colorado Interstate Generic	Generic	500	4	Hypothetical	Mountain		Yes
Jul-2028	Jul-2028	South Texas Enhancement Project (STEP)	Kinder Morgan	150	4	Announced	South Central		Yes
Sep-2028	Sep-2028	Texas Eastern Line 31	Enbridge Texas Eastern Transmission	125	4	Announced; Brownfield	South Central		
Nov-2028	Nov-2028	Bakken East Pipeline	WBI Energy Transmission	750	4	Announced; Greenfield	Mountain		Yes
Nov-2028	Nov-2028	SCOOP/STACK Generic	Generic	1,000	4	Hypothetical	South Central		Yes
Nov-2028	Nov-2028	Guardian Pipeline Expansion	DT Midstream Guardian Pipeline	537	4	Announced; Brownfield	Midwest		
Jan-2029	Jan-2029	Pulaski Expansion Project	TC Energy Columbia Gulf Transmission	200	4	Announced; Greenfield	Midwest		
Jan-2029	Jan-2029	Maysville Expansion Project	TC Energy Columbia Gulf Transmission	200	4	Announced; Greenfield	Midwest		
Jul-2029	Jul-2029	Intensity Pipeline Project	Intensity Infrastructure Partners	1,100	4	Announced; Greenfield	Mountain		
Oct-2029	Oct-2029	Dalton Lateral Expansion II Project	Williams Transcontinental	460	4	Announced; Brownfield	Southeast		
Oct-2029	Oct-2029	Northwoods Project	TC Energy ANR Pipeline	400	4	Announced; Brownfield	Midwest		
Nov-2029	Nov-2029	Texas Gateway Project	Boardwalk Pipeline	1,450	4	Announced; Greenfield	South Central		
Nov-2029	Nov-2029	Borealis Project	Texas Gas Transmission	2,000	4	Announced; Greenfield	Northeast		Yes
Nov-2029	Nov-2029	Midwest Market Access	Southern Star Central Gas Pipeline	155	4	Announced; Brownfield	South Central		Yes
Nov-2029	Nov-2029	Northern Loop Project	Columbia Gas Transmission	500	4	Announced; Brownfield	Northeast		
Nov-2029	Nov-2029	Desert Southwest Pipeline	Energy Transfer Transwestern Pipeline	2,300	4	Announced; Greenfield	Mountain		
Jan-2030	Jan-2030	Sabine Crossing Pipeline	Cheniere	2,700	4	FERC Application; Brownfield	South Central		
Jan-2030	Jan-2030	CTPL Expansion Project	Cheniere Creole Trail Pipeline	900	4	FERC Application; Brownfield	South Central		
Apr-2030	Apr-2030	Bridge Project	Kinder Morgan Elba Express	325	4	Announced; Greenfield	Southeast		
Nov-2030	Nov-2030	Permian to Henry Hub 3	Generic	2,000	4	Hypothetical	South Central		Yes

Source: ICF - API Policy Case and API Reference Case

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