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Insights Engine

Subsidy Sunset: The CleanTech Market Stress Test



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Executive Summary

As 2025 progresses, the U.S. clean-tech landscape stands at a pivotal moment. Critical federal incentives—covering home solar and heat pumps, EVs (new and used), and residential efficiency upgrades—are set to expire between September 30 and December 31. These abrupt deadlines are triggering a "buy-now or miss out" dynamic that could reshape market demand, supply chain investment, and long-term carbon trajectories.

A recent model by Resources for the Future suggests that the termination of EV purchase credits alone could suppress EV sales by one-third and result in \$33 billion in societal costs by 2030. BloombergNEF forecasts U.S. EV market share could be halved by 2030 if aligned fuel-economy and emissions standards are scrapped under new federal policy. The House and Trump administration are already pushing proposals that would repeal EV subsidies, roll back efficiency standards, revoke the California waiver, impose annual EV fees, and slash spending on charging infrastructure and local rebates.

Despite the reversals, automakers remain financially committed to EV supply chains, driven by global positioning and economies of scale. Yet a slowdown in U.S. demand could lead to stranded assets and carbon lock-in as consumers and fleets defer EV purchases, turning back to gas-powered vehicles. That said, state and local incentives—bolstered by over \$8.5 billion from climate-focused federal funding—continue to support heat pumps, insulation, solar, and residential equipment upgrades.

Add to the mix widely documented reliability challenges with public chargers, and we face a potential policy-infrastructure gap that threatens momentum toward a low-carbon transition. Governments, utilities, and private actors must act fast: prolong incentives, strengthen V2G and charger roll-outs, and maintain federal-state coordination—or risk compromising U.S. climate and industrial leadership.

Inflation Reduction Act (IRA) clean energy incentives at risk

\$369B

-28%

Drop in U.S. utility-scale solar installations (Q2 2025 Y/Y)

Target Year for Power Sector Decarbonization – Now Uncertain

2030

\$2.7T

CleanTech Investments by 2030 Now Facing U.S. Policy Drag

Expiring Incentives: A Looming Fiscal Cliff for EVs, Solar, and Electrification

1

The clean-tech sector is rapidly approaching a fiscal cliff, as several major federal incentives for EVs, residential solar, and home electrification are set to expire between September and December 2025. These include tax credits for new and used electric vehicles, rooftop solar installations, and heat pump systems under the Energy Efficient Home Improvement Credit. Collectively, they represent the backbone of the U.S. consumer-driven energy transition. While some credits like 45X for battery production extend into the 2030s, others tied to consumer purchasing behavior are much more time-sensitive. A lapse in these incentives could trigger a sharp pullback in demand, especially in middle-income and price-sensitive market segments. Short-term OEM incentives are already peaking to drive Q3 sales, but the absence of federal renewals could lead to a major Q4 hangover.

Figure 1: How the 'One Big Beautiful Bill' Alter the Federal Clean Energy Tax Credits Landscape?

Code	Name	Length and Value	Foreign Entities of Concern
452	Clean fuel production credit	- Value of credit = % domestic feedstock + (% foreign feedstock × 80%) - % Foreign feedstock = total foreign feedstock / total feedstock - % Domestic feedstock = 100% - % foreign feedstock - Lifecycle GHG emissions adjusted to exclude emissions from indirect land use change - Emissions rates for transportation fuel from animal manure calculated on specific feedstocks - Sustainable aviation fuel credits applicable to any fuel sold in 2025 until termination Sept 30	- Applies to sections 452, 45Q, 45X, 45U, 48E, 45Y • No credits if taxpayer is a specified or influenced foreign entity after enactment - Applies to 452 & 45U: No credits if taxpayer is a specified foreign entity after enactment; none if influenced entity after 2 years - Specific: 452 - Starting 2026, clean fuel cannot be produced using foreign feedstock
45Q	Carbon oxide sequestration credit	- Matches value of tax credits for sequestration with permanent storage	
45X	Advanced manufacturing production	- Phaseout timeline: 75% of tax credit in 2031, 50% in 2033, 25% in 2033, phased out in 2034 - No wind components sold after 2027	- Specific: 45X - No material assistance from specified/influenced foreign entity; components cannot be manufactured through effective control of such entity
45U	Zero-emission nuclear power production tax credit	- Cannot be produced in a "covered nation" or "covered entity" - Credit decreases 20% each year from 2029; to 0% by 2032	Same as 452
48E	Clean electricity investment credit	- Phases out for solar/wind unless put in service starting 2028, with projects needing to start within 12 months of enactment to qualify - Additional domestic content restriction: From June 16, 2025: ≥40% domestic, From Jan 1, 2026: ≥45%, 2027: ≥50%, 2028: ≥55%	Specific: 48E - Starting 2026, qualified facilities can't receive material assistance from foreign entities
45Y	Clean electricity production credit	- Additional restrictions like 48E - For offshore wind, From June 16, 2025: ≥20% domestic, Jan 1, 2026: ≥35%, 2027: ≥55%	Same as 48E
300	Clean vehicle credit		Termination after Sept 30, 2025
45V	Clean hydrogen production tax credit		Termination in 2028
30D	Qualified commercial clean vehicles credit		
30C	Alternative fuel vehicle refueling property credit		45L, 30C: Termination after June 30, 2030

Source: [ING Research](#), based on U.S. Congress Reports and Legislations

Home Energy Systems

- **Solar panels, heat pumps, geothermal systems:** Federal tax credits end on **December 31, 2025**. Contracts must be signed—and systems installed—by year-end to qualify.
- **Energy Efficient Home Improvement Credit:** Up to **\$2,000 tax savings** for heat pumps and insulation—also ending December 31, which makes Q4 a critical install and contractor rush.

Electric Vehicles

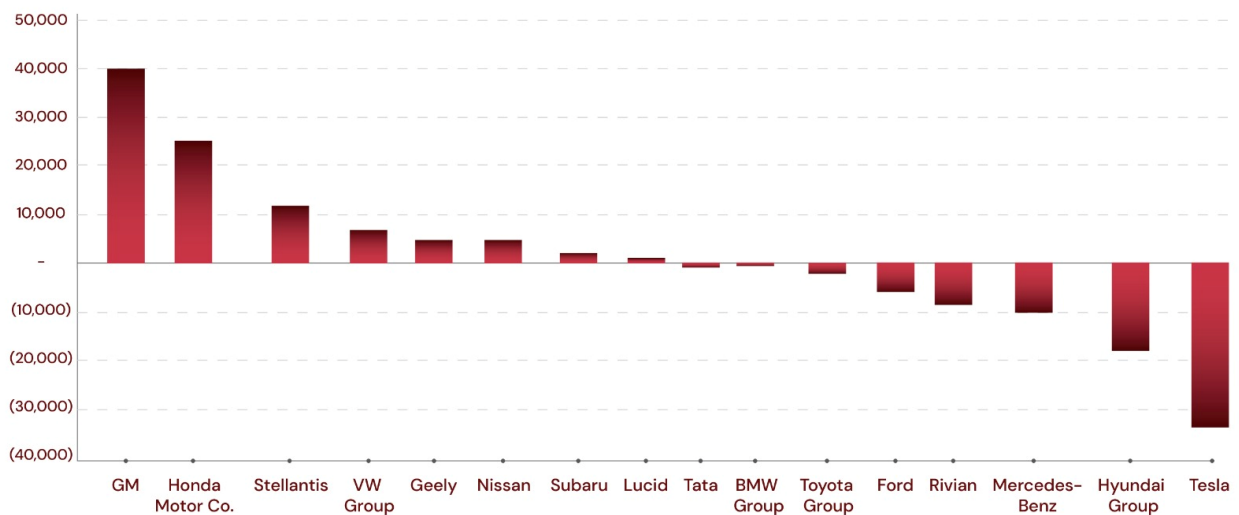
- **New EV tax credit** (\$7,500) and **used EV credit** (\$4,000) expire **September 30, 2025**. Automakers (e.g., Tesla and Ford) are aggressively discounting and promoting "act-before-it's-gone" messaging.
- RFF modeling shows EV purchase subsidy expiry could slash U.S. EV sales share by ~6 ppts by 2030, raising emissions by 20 mmt CO₂.

Charger and Infrastructure Credits

- Federal charger installation credits (30%) and NEVI program funding face partial freeze or rollback.
- Trump administration halted high-speed highway chargers—many states are litigating.

Key takeaway: Rapid action—before year-end is essential to lock in savings and avoid long-term demand drops.

Figure 2: Q2 EV Sales Dip as Dealers Brace for Tax Credit Phase-out



Source: [Cox Automotive](#)

Federal Retrenchment: Trump-Led Coalition Targets EV and Clean Energy Repeal

2

The political landscape is shifting sharply. Trump-aligned lawmakers are escalating their push to dismantle the clean-tech provisions of the Inflation Reduction Act (IRA). This includes proposed repeals of EV tax credits, a freeze on EPA emissions targets, bans on California's authority to set independent standards, and new regulatory roadblocks for charging infrastructure. In essence, the agenda pivots back to internal combustion, fossil fuel extraction, and deregulation — a “Drill Baby, Drill” redux with modernized legal tools. Analysts estimate that if these rollbacks succeed, EV adoption could fall to 27% by 2030, far below the ~50% projected under full IRA implementation. Domestic automakers, already facing weak Q2 demand for affordable EVs, may rethink capital allocation, with hybrid models becoming a hedge.

EV Subsidy Repeal & Eligibility Tightening

- House Republicans propose eliminating both new and used EV purchase credits.
- Additional annual EV registration fees (\$250 new EVs, \$100 hybrids) slated.
- RFF forecasts EV sales share drop from 48% to 27% by 2030; BloombergNEF cuts forecasts by 14 million units.

Standards Rollbacks & California Waiver Revocation

- NHTSA and EPA plan to freeze fuel economy and GHG standards at 2026 levels.
- Revocation of the California waiver eliminates its Clean Car Program, with repercussions across 12 states.
- Loss of federal leadership likely to spawn states-only patchwork, undermining scale.

Charger Infrastructure and State Pushback

- Federal charger credits will freeze June 2026; NEVI funding vulnerability.
- Maryland is the first state with seamless V2G interconnection rules, requiring utilities to integrate bidirectional EV charging and incorporate VPPs.
- Local clean-tech rebates—\$8.5 billion allocated—could buffer impact.

Key Takeaway: Republicans aim to unwind Biden-era clean-energy policy, which could compound market dislocation unless replaced or contested through state-level action.

Infrastructure Bottlenecks and the Reliability Gap

3

Beyond incentives, the Achilles' heel of U.S. electrification remains the reliability of public charging infrastructure. Nationwide uptime for public EV chargers still hovers around 78%, compared to >92% for gas stations. This unreliability is reinforcing "charge anxiety" — a new barrier distinct from range anxiety — especially for commercial operators and rural drivers. If federal funding for the National Electric Vehicle Infrastructure (NEVI) program is curtailed, charger buildout in underserved areas could stall. Without a dependable charging network, federal policy goals around fleet electrification, logistics decarbonization, and emissions reduction will remain aspirational.

Public Charger Reliability

- Only **78% of non-residential chargers** operate properly, versus 92% reliability of gas pumps.
- Commercial driver charging gaps extend range anxiety to "charge anxiety"—challenges for fleet electrification.

Infrastructure Gaps & Equity

- Charging deserts—rural/low-income areas suffering lack of access.
- High charger unreliability deters adoption and reduces value of incentives.

Private Sector and Public-Private Roles

- Companies like GM are bolstering private investments in charging infrastructure.
- Utility-regulated V2G pilots (Maryland DRIVE Act) build resilience—but need federal policy support.

Key risk: Without tough infrastructure improvements, deferred demand gains may stall.

States Step Up: Maryland and New York Pioneer V2G and Grid Flexibility

4

In contrast to federal pullbacks, states like Maryland and New York are doubling down on innovation. Maryland's adoption of comprehensive V2G (vehicle-to-grid) interconnection rules in June 2025 is a landmark development. These rules create clear pathways for both AC and DC bidirectional systems, allowing EVs to act as mobile storage assets that can feed power back into the grid. This positions Maryland as a regulatory leader in grid-integrated mobility. Meanwhile, New York is issuing targeted grants for solar storage, smart charging, and EV-grid integration. Over \$8.5 billion in IRA block grants have been deployed by states to maintain policy continuity, reduce grid congestion, and support clean energy equity goals. These local actions represent a lifeline for the clean-tech sector as federal support wavers.

Maryland's V2G Milestone

- As of **July 7, 2025**, Maryland enforces clear pathways for bidirectional EV charging.
- VPP-enabled rates, one-point interconnection rules, and utility compensation debut.

Reducing Infrastructure Lag

- Over \$8.5 billion in federal IRA funding distributed to states for rebates on solar, efficiency upgrades, EV chargers.
- Combined with local utility rebates, homeowners can still offset lost federal tax credits.

The Need for Policy Coordination

- Without federal leadership, states must craft cohesive steps—coordinating standards, rebates, building codes, and equity goals.
- Linking incentives with infrastructure deployment addresses both demand and grid capacity simultaneously.

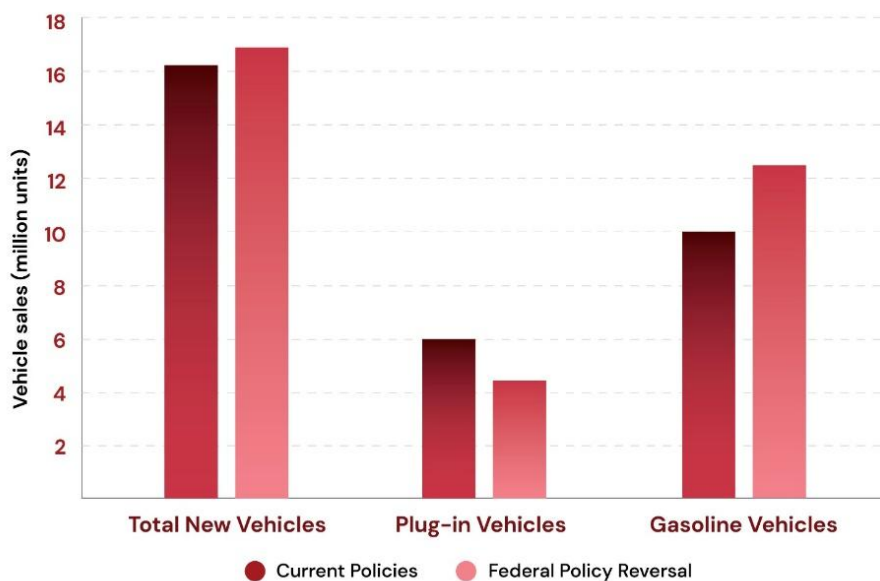
Strategic outlook: State policymakers and utilities must play a central bridging role through 2026 if federal momentum stalls.

Market Impact: Inventory Risks and Strategic Repositioning by Automakers

5

Automakers are caught in a precarious position. While the global EV market continues to grow—driven by EU and Chinese mandates—U.S. policy uncertainty is creating hesitation. Tesla and Ford are accelerating Q3 discounts and inventory-clearing offers, while Honda is pushing hybrid programs over full-EV commitments. GM is attempting to hold the line with Cadillac and Silverado EV rollouts, betting on long-term brand equity and emissions compliance. But if federal incentives lapse, U.S.-based EV production assets—especially battery plants and component suppliers—risk becoming underutilized. Capital expenditures may be redirected to hybrid powertrains or reallocated internationally, weakening U.S. industrial competitiveness.

Figure 3: Expected Effects of Policy Reversals on EV Sales: Gasoline Ramping Up



Source: [Resources.org](https://resources.org)

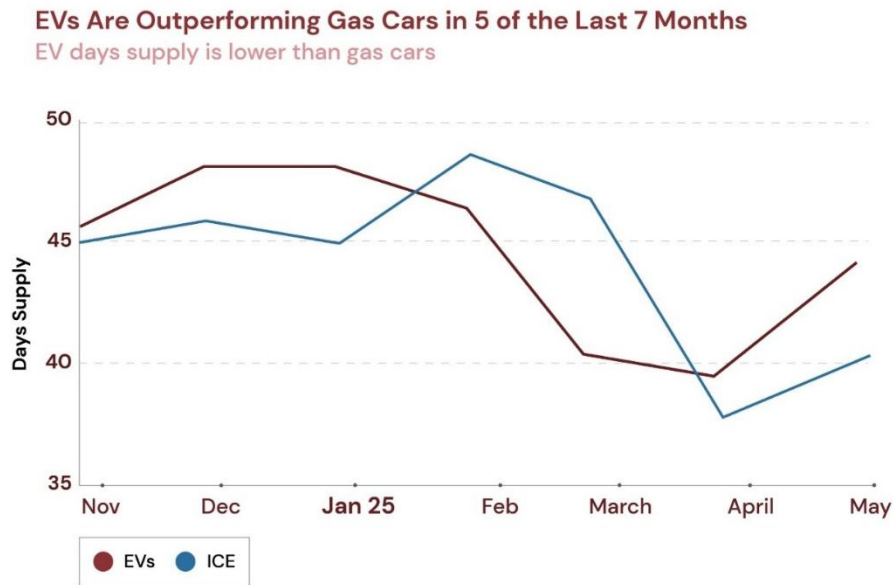
Short-Term Surge, Long-Term Slide

- Automakers anticipate a **Q3 sales spike**, followed by sudden Q4 drop at subsidy expiry.
- Tesla & Ford have already ramped incentives, targeting deadline buys.
- Forecast models estimate sales decline by **27–33%** post-expiration.

Secondary Market & Used EV Surge

- Used EV sales up ~30% YoY, average prices falling; used tax credit expiry exacerbates dynamics.
- Lease structures benefiting 80% of EV deals; both used and commercial credits under threat.

Figure 4: Used EV Prices Going Up As, Outpaces ICE Demand



Source: [Recurrent](#) - Used Electric Car Prices & Market Report – Q3 2025

Carbon and Clean Energy Repercussions

- Decline in EV share reverses emissions gains: even conservative reversals lead to **20 million metric tons** higher 2030 emissions.
- Loss of fuel economy and GHG standards compounds this trajectory. Thus, momentum toward low-carbon transport may falter—locking in gas vehicle demand and infrastructure for decades.

Strong Supply-Side Persistence

- Despite policy uncertainty, auto OEMs continue to invest in EV platforms and U.S. battery supply chains.
- Fixed costs, economies of scale, regulatory mandates abroad, and global market exposure anchor behavior.

Strategic Product Diversification

- Honda pivots back to hybrids and defers large EV SUV crossover.

- GM, Cadillac maintain luxury EV ranges, leveraging brands built on rebates and U.S. supply chain.

Risk of Production Mismatch

- Falling U.S. demand could lead to excess capacity—particularly in plants focused on full battery EVs versus hybrids.
- OEMs may redirect exports or renegotiate state incentives to maintain profitability.

Investor angle: OEM equity bets should account for regional production vs. demand risks—capacity may shift overseas.

Strategic Recommendations for Stakeholders

For Policymakers & Advocates

- Push for **extensions or phase-downs**, not cliff endings; advocate for bridging EV subsidies past Sept 2025.
- Reform standards rollback proposals—maintain vehicle efficiency mandates to limit emissions leakage.
- Prioritize charger infrastructure—close reliability gaps and address charging equity.

For Utilities & Grid Manufacturers

- Scale up **V2G pilots and VPP aggregation platforms**; Maryland rules provide a path forward.
- Coordinate home-energy and EV load flexibly—bundling chargers, batteries, and renewables for resiliency.
- Develop programmatic/pluggable infrastructure that remains valuable even as federal credits lapse.

For Automakers & EV Suppliers

- Anticipate quarterly sales surge/fall—plan production, inventory, rebate strategies accordingly.
- Push proactive lease/financing incentives to smooth post-credit demand crashes.
- Leverage existing supply chain investment—but hedge U.S. market risk through export and brand segmentation.

6.4 For Investors & ESG Managers

- Incorporate cliff and rollout scenarios into EV growth models and valuation assumptions.
- Allocate to **charging-infrastructure** and **V2G platforms** that can operate beyond federal regimes.
- Evaluate automaker exposure to U.S. policy risk—those with diversified global EV demand may outperform.

Strategic Outlook: Bifurcation, Backlash, and the Case for Grid-Interactive Demand

6

As we assess the trajectory ahead, the market is bifurcating. Clean-tech companies tied solely to U.S. EV sales or federally subsidized infrastructure are increasingly exposed to downside risk. In contrast, firms building distributed energy, bidirectional charging, and smart-grid solutions are entering a structural growth phase—especially in V2G-compatible states. The rebound in utility-side investment for flexible demand response, battery storage, and AI-driven grid balancing points to a market favoring integration over expansion. In the absence of federal leadership, investor focus should shift to scalable, interoperable solutions that can thrive in fragmented policy environments.

2025–26 represents a **pivotal inflection for U.S. clean tech**—where federal incentive expirations intersect with state policy reforms, infrastructure realities, and global competitiveness. The potential consequences are clear:

- A consumer-driven **EV demand cliff** with delayed vehicle adoption and higher carbon emissions.
- A scenario where **stranded EV infrastructure capacity** weighs on investments.
- A turning point where **states evolve as decarbonization leaders** in lieu of federal action.

Yet, pathways to stabilize transition exist:

1. State-level policy continuity (e.g., V2G, rebates).
2. Private-sector investment in reliable infrastructure.
3. Financial instruments designed to address cliff-risk.

Investors, policymakers, OEMs, and utilities must coordinate over the next 12–18 months. Failure to do so may lock in inefficiencies, elevated emissions, and strategic disadvantage—while cohesive action can cement low-carbon momentum for decades.

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