Utility Transportation Electrification Plan Best Practices

Recommendations for Impactful and Cost-Effective EV Programs

Written by

Wired Group

André Gouin and Paul Alvarez

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Table of Contents

Executive Summary

The transportation sector is the leading source of greenhouse gas emissions nationally. In addition to climate-warming pollution, gas- and diesel-powered vehicles also emit local air pollution that is extremely harmful to human health. Much of this harmful tailpipe pollution is concentrated along major roads and in urban environments, disproportionately impacting lower-wealth communities and communities of color. Because electric vehicles (EVs) do not emit tailpipe pollution, widespread EV adoption would yield significant and environmental health benefits.

As a result, accelerating EV adoption is a significant policy objective in many states, often driving regulators to require utilities to develop Transportation Electrification Plans, or TEPs. Since 2015, utilities have committed over $6.2 billion dollars toward vehicle electrification programs.

This document discusses foundational principles that should be applied to maximize the environmental value of TEPs while maximizing ratepayer benefits that can be derived from EV adoption.

Guiding Principles for TEP Development

To optimize the balance between customer, utility, ratepayer, and stakeholder interests, the following set of principles and perspectives should guide the evaluation of utility-sponsored EV programs and plans:

- Minimize ratepayer risk
- Maximize benefits
- Emphasize equity
- Balance customer and shareholder interests
- Address market failures and check monopoly expansion
- Leverage market forces and available resources
- Hold utilities accountable
- Adhere to foundational utility principles (cost causation)

Regulator's Role

Regulators have a duty to provide guardrails on proposed programs and planning processes, and to clearly establish TEP expectations and requirements. Responsibilities of the regulator include the following:

- Establish overall costs for TEPs
- Determine which costs are appropriate to socialize and to what extent
- Establish performance expectations, including:
  - Cost caps
  - Benefit value
  - Performance metrics
- Require cost-benefit analyses
- Evaluate TEP performance
- Establish a regular cadence for TEP updates, performance reporting, and evaluation
- Determine how the TEP integrates with other utility programs (such as demand-side management and distribution resource planning).

Common EV Programs and Recommendations

Reviewing TEPs from across the US reveals several common EV program types. Program types and recommendations for successful implementation include:

Rates and Charging Incentives
Options to reduce charging costs for charger owners or EV drivers. Three program types are most common:

Time-of-Use (TOU) Rates—Time-differentiated pricing programs.

- **Encourage broad adoption** of TOU rates to help mitigate grid impacts of EV charging.
- **Offer residential, whole-home TOU rates**, which are easier to implement than EV-only rates.
- **Limit "EV only" TOU rates** to commercial customers and facilities where a dedicated meter is not cost-prohibitive.

Managed Charging Programs—Incentives for shifting charging behavior to provide grid benefits.

- **Use managed charging programs to complement TOU rates**, emphasizing the "carrot" over the "stick" approach.
- **Require participation in managed charging programs** as an eligibility requirement for other EV incentive programs.
- **Introduce dynamic managed charging pilots** to learn how to maximize grid benefits. To manage costs and risks, enrollment caps may be warranted.

Demand Charge Incentives—Reductions in demand charges assessed for peak electricity use to reduce EV charging costs.

- **Avoid on-peak demand charge forgiveness**. Demand charge discounting/forgiveness should only be associated with off-peak demand.
- **Recognize that demand-charge rates help stoke innovation** to avoid these costs.
- **Adopt volumetric (kWh) low load factor rates sparingly** as they do not encourage beneficial charging behavior.

Make-Ready Incentives
To address the cost of infrastructure supporting EV charging stations.

- **Use rebate programs**, which can be administered efficiently at relatively low cost.
- **Prioritize flexibility** to assign rebates to vendors, removing the burden of coming up with funding up-front.
- **Create tiered incentives**, offering higher incentives to customer segments where adoption lags, the free market may not adequately address needs, or that provide significant societal benefits
- **Avoid utility ownership** of customer-side infrastructure, as it may impede competitive market development and saddles ratepayers with on-going operations and maintenance expenses.

Electric Vehicle Supply Equipment
Incentives for EV chargers.

- **Provide flexible rebates** to accommodate a large variety of charger types, models, and use cases.
- **Bundle with make-ready programs** to offer rebates for "chargers-plus-installation."
- **Ensure "skin in the game"** by tailoring rebate amounts so they do not exceed the total cost of the charger, including available incentives from governments or vehicle and equipment manufacturers.

Fleet Programs and Advisory Services
Targeted offerings for high-impact sectors, including consultation on vehicle selection and charging needs.

- **Provide targeted programs** (for example, school buses and transit fleets).
- **Higher rebates may be justified** for segments providing public benefit.
- **Bundled make-ready and EV charger rebates** to simplify the application process.
- **Offer advisory services** to educate customers on managing charging costs.
- **Avoid duplicating** fleet advisory services offered by third parties.
- **Focus utility fleet services** on addressing grid connection.

Outreach and Education
Marketing of utility programs and promotion of EV adoption.

- **Provide utility-specific services** such as utility bill analysis and rate comparison tools.
- **Leverage existing teams**, including account management and small business relations teams.
- **Create designated roles** for channel managers or trade partner relations managers to work with manufacturers and dealers of EVs and EV chargers.
- **Leverage EV content** developed by third-party providers and government agencies.

Vehicle Rebates
To help reduce the purchase price of vehicles.

- **Government-supported rebates are more appropriate** than ratepayer funded rebates.
- **Focus on low-income or disproportionately impacted communities** if utility-funded rebates are offered.
- **Rebates for medium- and heavy-duty vehicles drive up program costs**, reducing TEP cost effectiveness.

Special Programs and Research
To demonstrate and evaluate newer technologies and novel approaches.

- **Leverage participation in joint funding** of research and development projects through existing partnerships
- **Avoid pilots that duplicate** other utility efforts or collective research efforts
- **Clearly define objectives**, performance metrics, and success factors.
- **Identify how findings will be used** to improve TEPs or other utility initiatives.
- **Focus pilots on reducing grid impacts**, such as managed charging and flexible interconnection standards.
- **Pilot rate options that provide realistic price signals**, allowing technology providers to place a value on the services provided.

Introduction

Purpose of this Document

This document is designed to be a resource for utilities, regulators, consumer and environmental advocates, and other stakeholders involved in the development, review, approval, and implementation of utility transportation electrification plans (TEPs). The document discusses foundational principles to maximize the societal benefits of transportation electrification while minimizing ratepayer impact. The Report evaluates common electric vehicle (EV) program types and provides recommendations to most effectively design and implement EV plans and programs. The recommendations in this document were developed based on reviews of notable TEPs and other utility regulatory dockets from across the United States.

Background

Electric utilities around the country have been developing programs to encourage the adoption of EVs. These programs are often proposed and considered through periodic rate cases; as part of existing Demand Side Management (DSM), Energy Efficiency (EE), and Grid Modernization proceedings; or through dedicated transportation electrification proceedings. Utility regulators often utilize TEPs to help implement state climate and environmental policies and to realize the benefits of increased EV adoption for ratepayers, customers, and the grid. State and utility regulators should use these plans to facilitate more efficient, equitable, and rapid EV adoption.

As more utilities develop TEPs, consumer and environmental advocates hope to maximize the potential of these plans and EV-focused programs. Specifically, they are interested in the types of programs being proposed, cost-effective program design, and ways to ensure that economic and environmental benefits are maximized for ratepayers, customers, and society writ large.

This Report identifies many commonalities in the types of programs available, along with best practices that increase the overall cost-effectiveness of the plans. The Report identifies core principles that should guide the development of effective plans and inform the evaluation of common EV programs. The electrification of the transportation sector has significant benefits, but it is a complex undertaking that requires participation and coordination among stakeholders, including vehicle manufacturers, EV equipment suppliers, policymakers, regulators, utilities, fleet managers, and drivers, just to name a few. Balancing the needs of these varied players requires a pragmatic approach to achieve the greatest overall results.

Benefits of Transportation Electrification

Transportation electrification is already delivering an array of societal benefits beyond the benefits to EV drivers and operators, and these benefits are anticipated to increase as electric vehicle adoption accelerates over the coming years. The transportation sector is responsible for an estimated 28% of greenhouse gas (GHG) emissions nationally.[1] In addition to climate-warming pollution, internal combustion engine (ICE) vehicles, like gas and diesel-powered cars and trucks, also emit local air pollution, including nitrogen oxides, particulate matter, and air toxins that are

[1] Env't Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022* ES-21 (2024).

extremely harmful to human health.[2] Much of this harmful tailpipe pollution is concentrated along major roads and in urban environments, disproportionately impacting lower-wealth communities and communities of color.[3] Because EVs do not emit tailpipe pollution, widespread EV adoption could yield an estimated $72 billion in avoided annual health costs nationwide by 2050.[4]

Individual EV drivers can also benefit through lower total cost of ownership when compared to ICE vehicles. The average purchase price of EVs to date has been higher than that of comparable ICE vehicles, though this gap is closing. Further, fuel costs (that is, charging) and maintenance costs for EVs are significantly lower than those for ICE vehicles, often resulting in a lower total cost of ownership despite higher purchase prices.[5]

Beyond the direct environmental benefits and advantages for individual EV drivers, transportation electrification provides benefits to all utility customers and the utility itself. Transportation electrification can create greater utilization of the electric grid, moving more total energy across the grid and putting "downward pressure" on unitary electric rates that in large part cover the utility's costs that are fixed in nature. Downward pressure on electric rates is primarily attributed to the increased revenue generated from EV charging and the associated optimization of utility grid usage, leading to lower costs for all customers. This effect stems from EVs generating more revenue than they cost the utilities to serve, particularly when charging occurs during off-peak hours, making better use of existing grid capacity. As EV adoption increases, electrical infrastructure and grid capacity will need to be expanded, requiring utility investment and providing opportunities to increase utility rate bases and profits.

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[2] Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles, 88 Fed. Reg. 29184, 29186 (May 5, 2023).
[3] *Id.* at 29186, 29393-97; Mary Angelique G. Demetillo et al., *Space-Based Observational Constraints on NO2 Air Pollution Inequality from Diesel Traffic in Major US Cities*, 48 Geophysical Rsch. Letters 1, 1 (2021).
[4] Am. Lung Ass'n, *The Road to Clean Air: Benefits of a Nationwide Transition to Electric Vehicles* 6 (2020).
[5] Dan Wilkins and Nick Nigro, *Comparing the Total Cost of Ownership of the Most Popular Vehicles in the United States: 2025 Update,* Atlas Public Policy (July 2025). https://atlaspolicy.com/comparing-the-total-cost-of-ownership-of-the-most-popular-vehicles-in-the-united-states-2025-update/

EV Investments by Utility

To meet state- and regulator-ordered requirements, many utilities are introducing EV programs, investments, rates, and pilots, either through dedicated TEPs or as part of other regulatory filings. Nationally, utilities have committed over $6.2 billion toward transportation electrification efforts since 2016.[6]

Table 1 shows the total EV-related spending of large investor-owned utilities, or IOUs, that serve more than one million customers and provides a relative dollar-per-customer comparison.[7] Though the cost per customer varies widely, there are broad similarities in the types of programs that utilities have offered.

Table 1: Large Utility Transportation Electrification Spending Commitments (2015–2025)

Utility	State	EV Investment	Total Customers	$/Customer
Southern California Edison	California	$ 1,786,686,157	5,259,622	$ 339.70
San Diego Gas & Electric	California	$ 350,880,695	1,511,430	$ 232.15
Consolidated Edison Company	New York	$ 768,792,904	3,638,088	$ 211.32
Pacific Gas & Electric Company	California	$ 872,515,121	5,649,605	$ 154.44
NV Energy	Nevada	$ 180,667,659	1,390,941	$ 129.89
National Grid	New York	$ 162,548,085	1,712,049	$ 94.94
Public Service Electric and Gas Company	New Jersey	$ 205,200,000	2,368,500	$ 86.64
Xcel Energy	Colorado	$ 114,560,040	1,569,461	$ 72.99
Rocky Mountain Power	Utah	$ 62,000,000	1,030,992	$ 60.14
Eversource	Connecticut	$ 73,657,123	1,281,655	$ 57.47
Duke Energy	Florida	$ 112,159,946	1,968,212	$ 56.99
Commonwealth Edison Company	Illinois	$ 225,000,000	4,130,538	$ 54.47
Florida Power & Light Company	Florida	$ 205,000,000	5,811,951	$ 35.27
Jersey Central Power & Light	New Jersey	$ 39,874,366	1,163,140	$ 34.28
DTE Energy	Michigan	$ 75,275,000	2,270,824	$ 33.15
Georgia Power Company	Georgia	$ 82,500,000	2,735,271	$ 30.16
Eversource	Massachusetts	$ 45,000,000	1,515,653	$ 29.69
Baltimore Gas and Electric Company	Maryland	$ 36,341,101	1,336,792	$ 27.19
Xcel Energy	Minnesota	$ 35,678,666	1,357,170	$ 26.29
National Grid	Massachusetts	$ 30,331,865	1,356,226	$ 22.36
Consumers Energy	Michigan	$ 41,044,333	1,885,232	$ 21.77
Ameren Illinois	Illinois	$ 23,044,447	1,216,469	$ 18.94
Puget Sound Energy	Washington	$ 21,213,200	1,223,225	$ 17.34
Dominion Energy Virginia	Virginia	$ 39,479,565	2,626,220	$ 15.03
Ameren Missouri	Missouri	$ 11,000,000	1,254,162	$ 8.77
PECO Energy Company	Pennsylvania	$ 1,625,000	1,700,250	$ 0.96

[6] Atlas Pub. Pol'y, *EV Hub: Electric Utility Filings Dashboard Utility Program Summary* (last visited Aug. 12, 2025) (on file with author).

[7] *Id.* Utility customer counts reported by utilities on U.S. Energy Information Admin. Form 861 (2023).

Guiding Principles

Wired Group focuses on advancing utility performance accountability as well as advocating for regulatory and ratemaking practices that optimize the balance between customer, shareholder, and environmental interests. Over time, we have established a set of principles and perspectives that we employ as we evaluate utility plans and programs. These principles and perspectives guide this Report's evaluation of utility-sponsored EV programs and plans:

- **Minimize ratepayer risk** with prudent spending that delivers projected benefits while minimizing cost volatility and long-term commitments.
- **Maximize benefits** by focusing on the activities and efforts that deliver the greatest value per dollar spent on utility programs.
- **Emphasize equity** across rate classes and customer types, as well as across socioeconomic groups.
- **Balance customer and shareholder interests** by carefully navigating utilities' competing obligations to their customers and shareholders.
- **Address market failures while checking expansion of monopoly power** by avoiding market segments adequately served by competitive businesses.
- **Leverage market forces and available resources** by complementing, not duplicating, programs offered by federal or state agencies or other market participants.
- **Hold utilities accountable for benefit and cost projections** to ensure that ratepayer funds are being applied to their highest and best use.
- **Adhere to "cost causation" principles** to ensure that costs are allocated to the customers or services that cause them to be incurred.

Additional details related to these principles and perspectives, and how they apply more specifically to TEPs, are provided below.

Minimize Risks to Ratepayers

Utilities should be conscientious when incurring costs they expect to collect in rates. Spending must be shown to be prudent. Installed infrastructure must be used and useful, and it must deliver projected benefits. Expenses should be closely monitored, and non-essential spending and administrative costs should be minimized to reduce overall costs to ratepayers. For TEP programs, this might mean tailoring incentives for different market segments depending on their economic needs. Utilities might create program eligibility requirements to help limit free ridership or ensure EV charging infrastructure will be used once installed.

Maximize Benefits

Regardless of the type of business plan a utility might provide at a regulator's request — for example to improve reliability, cut operating costs, reduce emissions, or provide some other benefit — the utility should strive to maximize the benefits that can be achieved per dollar of spending. By and large, utility programs should show a direct causal link between program spending and the benefits being sought. Spending on indirect programs, such as education and awareness campaigns, are sometimes warranted, but expenses should be limited in favor of programs delivering direct benefits. TEP programs can provide a range of benefits, such as GHG and other emissions reductions on a local and societal level, creating downward pressure on electric rates for

all ratepayers, and cost savings for individual EV drivers. However, not all programs deliver these benefits equally. For example, electrification of diesel transit buses may result in greater emissions reductions and environmental benefits than electrifying light-duty passenger vehicles, but meeting the daytime charging needs of transit buses is less beneficial to the grid than charging personal EVs during off-peak hours (assuming the utility's peak corresponds to daytime charging periods, which may not be the case for utilities with high penetrations of solar generation). When developing TEPs, utilities must consider these tradeoffs and attempt to balance objectives by offering a portfolio of incentive programs. Each utility should strive to strike the right balance, with input from regulators and stakeholders who can represent the needs of particular constituencies and the circumstances and policies specific to the relevant jurisdiction.

Emphasize Equity

Public utilities have a legal obligation to provide adequate, safe, and non-discriminatory service to all customers within their service territory at reasonable rates. This obligation extends to the types of incentive programs that utilities provide, as well. As much as possible, offerings should extend to all customer types. It is reasonable to tailor specific vehicle electrification programs to certain customer classes. For example, a program designed to encourage fleet electrification would not be relevant for single-family homeowners, but a parallel program to encourage individual EV adoption could also be offered.

To address social and economic inequity, it may be appropriate to offer tiered incentive levels, for example providing lower-income customers higher incentives than customers who do not face similar needs. Similarly, programs targeting public chargers, or chargers for multi-family dwellings, may warrant higher incentives than those targeting private, commercial customer charger installations. These types of allocations help reflect the fact that all ratepayers fund utility programs, and as such, all deserve to participate in the benefits delivered.

Balance Customer and Shareholder Interests

In addition to the obligation to provide adequate, safe, and non-discriminatory service discussed above, investor-owned utilities also have a fiduciary obligation to their shareholders. The role of utility regulators, and potentially legislators, is to determine how to balance these competing obligations. Utility regulators must ensure that customer and societal interests are adequately considered when evaluating TEPs and programs.

Consider vehicle electrification programs: as discussed previously, these programs provide societal and customer benefits. Yet utilities may have their own motivations for introducing TEPs as increased EV adoption increases electricity sales, grows utility revenue and profits, and creates infrastructure investment opportunities that add to shareholder value. The inherent utility incentive of growing the rate base and sales should be considered when TEP programs are developed, especially because those programs are funded at the customer's expense. Care should be taken to ensure that expansion of any EV programs results in net benefits flowing to ratepayers and society.

Address Market Failures while Checking Expansion of Monopoly Power

Care must be taken to ensure that a utility's involvement in advancing technology adoption does not expand its monopolistic power, stifling free markets and ultimately increasing costs to consumers. Addressing the high costs associated with delivering power for EV charging is a

natural element on which TEPs should focus. This can and should be accomplished without expanding the utility's monopoly position of owning assets beyond its current distribution system. For-profit monopoly utilities maintain economies of scale, diversification of risk, access to capital at attractive terms, and other advantages that regulators should ensure utilities cannot abuse to gain an unfair competitive advantage over the private sector.

Leverage Market Forces and Available Resources

Many actors exist within the electric vehicle ecosystem, each with its own motivations for greater EV adoption. This results in a wide variety of programs available to support EV adoption. Auto manufacturers often offer discounted or even free vehicle charging equipment and installation services. Fleet dealers have been known to offer services advising customers on vehicle selection and charging needs. Federal and state agencies may offer rebates or tax incentive programs to advance particular policy goals.

Utilities should understand existing market conditions and develop programs to complement, not duplicate, existing incentives or services offered by market participants. This allows actors to address market barriers over which they have the most purview. For utilities a logical focus is mitigating the impact of EVs on the electric grid. This might mean creating rates or managed charging programs to encourage beneficial vehicle charging, or offering incentives to help reduce the costs of installing charging infrastructure.

Hold Utilities Accountable for Benefit and Cost Projections

To ensure that ratepayer funds are used prudently, utilities should report on program benefits and costs. Periodic reporting should address how programs perform relative to expectations. This requires relevant performance indicators and metrics for each program as well as the TEP as a whole. Utilities should arrange for the necessary monitoring and data collection to measure the required metrics and ultimately evaluate program performance. Performance reports should be provided to regulators and made available to the public on a regular basis. Mechanisms should be in place to allow for modification or elimination of underperforming programs to ensure prudent use of ratepayer funds.

Adhere to "Cost Causation" Principles

A foundational principle within the regulated utility model is cost causation. This means that costs should be allocated to the customers or services that cause them to be incurred. This idea promotes fairness and efficiency, and it ensures the beneficiaries of a particular service bear the costs for those services. It also helps avoid cross-subsidization, where ratepayers who do not drive the cost or reap the benefits still incur costs. The cost causation principle also has implications for system design and resource management. It can encourage customers to use resources more efficiently and incentivize utilities to invest in infrastructure that is responsive to customer needs.

All rates that utilities charge customers for service should reflect the core principle. For example, "line extension" policies exist to determine how customers pay to interconnect new or expanded electric loads, driving customers to make pragmatic choices and encouraging site selection and infrastructure designs intended to keep costs down. Well-designed TEPs should seek to avoid undermining these principles. Although regulators may decide to socialize some TEP program costs to ratepayers, such decisions should be accurately quantified, carefully considered, and clearly justified.

Best Practices: EV Plan Fundamentals

A review of TEPs from across the country reveals that many share basic commonalities:

1. **Clearly defined objective and vision for the plan.** TEPs are essentially utility business plans and should therefore include:
   - Detailed objectives (such as GHG emissions reduced per plan year)
   - Market analysis detailing which customers are targeted and eligibility requirements
   - Service or product descriptions for the proposed solutions
   - Organization structure outlining the implementation strategy and responsibilities
   - Marketing strategy for reaching customers
   - Financial implications, including detailed budgets and program cost-effectiveness
2. **Description of programs to address identified challenges to EV adoption.** Market barriers and other challenges that are commonly addressed by various programs that make up a TEP include:
   - The cost of charging infrastructure
   - The cost of charging (for example, rate design or managed charging)
   - The impact on the transmission and distribution grid (estimating and managing capacity needs)
3. **Demonstration of cost effectiveness.** Utilities have an obligation to incur costs that ratepayers are asked to cover in a reasonable and prudent manner. Cost effectiveness can be demonstrated by projecting TEP benefits (denominated in dollars) and comparing these to TEP costs. Common, industry standard cost-effectiveness tests include the total resource cost test (TRC), ratepayer impact measure (RIM), and societal cost test (SCT). [8] Appropriate tests should be applied at both the individual program level as well as the plan level.
4. **Performance metrics and reporting.** With objectives established, market barriers addressed, and cost-effectiveness projected, defined performance measures and reporting are essential to evaluate TEP performances.
5. **Programs for medium- and heavy-duty (MHD) vehicles as well as light-duty vehicles (LDV).** Many TEPs focus solely on LDVs. However, due to the disproportionate environmental impact of MHD vehicles, accelerating adoption of zero emission vehicles in this sector can offer outsized benefits per TEP dollar. The higher charging requirements (in terms of demand and total energy) of many MHD EVs may result in greater infrastructure needs and increased impact on the grid. Targeted MHD programs can help address these issues and accelerate MHD EV adoption.
6. **TEP execution**. Successfully executing TEPs requires the utility to clearly designate the organization(s) within the company responsible for delivering TEP objectives.

[8] Common cost effectiveness tests are discussed in further detail in the Regulators' Role section below.

Common EV Programs and Recommendations

TEPs are organized in various ways. Some focus on customer segmentation, such as residential, multi-family, commercial, public, and private. Others are divided between LDV offerings and MHD vehicles. Regardless of how programs are organized, they commonly address similar market needs, which can be categorized as:

- **Rates and Charging Incentives**—Options to reduce a charger owner's or EV owner's cost to charge.
- **Make-Ready Incentives**—Incentives for infrastructure supporting power delivery.
- **Electric Vehicle Supply Equipment**—Incentives for EV chargers.
- **Fleet Programs and Advisory Services**—Targeted offerings for high-impact sectors, including consultation on vehicle selection and charging needs.
- **Outreach and Education**—Marketing of utility programs and promotion of EV adoption.
- **Vehicle Rebates**—To help reduce the purchase price of vehicles.
- **Special Programs and Research**—To demonstrate and evaluate newer technologies

The following section provides brief descriptions of these offerings along with recommendations on how they can be most effectively designed and implemented.

Rates and Charging Incentives

Rates and charging incentives can be effective tools to modify customer's charging behavior to drive more efficient grid utilization. Certain charging behaviors (such as off-peak charging) not only provide EV owners with the means to reduce charging costs, but they also help reduce rates for all utility customers. There are several incentive structures that can be offered, but the most common are time-of-use rates, managed charging programs, and demand charge incentives.

Time-of-Use Rates

Summary: Time-of-use (TOU) rates are one of the simplest ways to encourage beneficial charging behavior by offering reduced "off-peak" energy prices when energy demand on the grid is lowest and higher "on-peak" pricing when the grid experiences more demand. Existing utility investments in advanced metering infrastructure (AMI, also known as smart meters) allow this to be a standard offering for residential customers. Generally, TOU rates are easier to implement for a customer's entire facility as opposed to structuring the rate for EV charging only, as this may require a separate meter.

Recommendations:

- Encourage broad adoption of TOU rates, especially for EV charging to help mitigate its impact on the grid.
- Offer whole home TOU rates for residential customers, which are easier to implement than EV-specific rates.
- Developing EV-specific rates can be challenging and may be short lived as EVs become more ubiquitous and EV load is not considered "special."
- EV-specific TOU rates are more common for commercial facilities (with large numbers of chargers for which installation of a dedicated meter is not cost prohibitive).

Managed Charging Programs

Summary: Managed charging (MC) programs provide another tool for managing charging behavior beyond traditional TOU rates. Rather than using a "stick"–higher prices for on-peak charging–MC offers a "carrot." The customer receives incentives and in exchange agrees to charge at times more beneficial to the grid, which generally correspond to off-peak times. TOU rates and MC programs can be complementary to each other, with customers able to participate in both types of programs if the MC benefits go beyond what is captured through the TOU rate.

Two types of MC programs exist: static and dynamic. Static programs provide incentive to charge within a window of time during any given day. Dynamic MC allows utilities to adjust the charging window to best match grid conditions while ensuring customer's vehicle is charged when needed. MC programs require access to vehicle usage or charger usage data, which adds to program costs and may limit eligibility. Further, third-party providers are often necessary to access data. Not all EVs or EV chargers can currently be accessed for gathering this data, introducing limitations as to who can participate. Yet MC programs, especially dynamic ones, offer the potential of greater grid benefits than TOU rates. Dynamic MC programs can adjust to changing grid conditions as a means of addressing system peaks and local grid capacity constraints. This flexibility will become more important for managing the grid as EV penetration increases and the number of distributed energy resources (such as solar generation and battery storage) on the grid continue to grow.

Recommendations:

- Provide MC programs as a tool to complement TOU rates, emphasizing the "carrot" over the "stick" approach.
- Require participation in MC programs as an eligibility requirement for other EV incentive programs.
- Introduce dynamic MC pilots to learn how to maximize grid benefits. To manage costs and risks, enrollment caps may be warranted.

CASE STUDY

Baltimore Gas Electric's EVsmart Vehicle Charging TOU Rate and Smart Charge Management Program

Baltimore Gas and Electric (BGE) offers residential EV owners two ways to save on their EV charging, the EVsmart Vehicle Charging Time of Use Rate[9] and the Smart Charge Management Program.[10] The TOU rate allows customers to place their EV or EV charger on a TOU rate while the rest of their home remains on the standard electric rate. To participate, customers must have an eligible EV or EV charger that BGE or its third-party program implementer can communicate with and extract usage data. The program is advertised as helping customers save $120 per year on average by charging off-peak.

The Smart Charge Management program allows EV owners to earn a monthly bill credit by allowing BGE to charge their vehicles during the optimal times for the electric grid. This is accomplished by optimizing the customer's designated battery needs (for example, 80

[9] *EVsmart® Vehicle Charging Time of Use Rate*, BGE, https://www.bge.com/smart-energy/innovation-technology/electric-vehicles/ev-tou-rate (last visited Sept. 5, 2025).
[10] *Smart Charge Management Program*, BGE, https://www.bge.com/smart-energy/innovation-technology/electric-vehicles/residential-evs/electric-vehicle-programs-incentives/smart-charge-management-program (last visited Sept. 5, 2025).

percent charged by 6 a.m.) with the lowest cost energy (based on the EV owner's rate plan) and the time of day when energy usage on the grid is lowest. Customers with a Level 2 charger[11] earn a credit of $10 per month per enrolled vehicle (up to $120 annually), while those with Level 1 chargers earn a $5 per month credit. Similar to the TOU rate, EV and EV charger eligibility limitations apply. However, customers can enroll in both the Charge Management program and the TOU rate, effectively increasing their potential bill savings to $240 per year.

Key takeaway: Innovative program design can provide optionality for customers and allow stacking of incentives and cost savings when additional grid benefits can be realized.

Demand-Charge Incentives

Summary: A third type of charging incentive is the demand-charge incentive. Commercial customers on demand charge rates may be faced with high per kilowatt hour (kWh), or volumetric, charging costs when charger utilization is low. To address customer electric bill sticker shock, some utilities provide an incentive that offsets a portion of these demand charges. Some offer discounts when on-peak charging is shifted to off-peak, while others simply provide demand-charge forgiveness for a period of time, often known as a "demand-charge holiday." These later designs distort price signals of cost-of-service based utility rates. Demand-charges provide a market signal and can encourage innovation to avoid these costs (such as charge management software or integrated energy storage systems). Demand-charges also encourage differential pricing by public charger owners that better reflects the cost of serving peak energy demand (that all ratepayers share).

The fundamental issue with EV charging and demand rate structures is EV charging's low load factor.[12] Historically, utilities have addressed this through the introduction of low load factor rates, which convert traditional demand charges into volumetric (kWh) charges. Some EV-specific rates copy this philosophy. These rates, developed using traditional ratemaking principles, are preferred to simple forgiveness of demand charges. However, these rates simply recover the appropriate costs associated with charging but do not encourage beneficial charging behavior.

Recommendations:

- Avoid incentive programs that forgive or discount an EV charger owner's demand charge when that demand occurs during a utility's system-wide peak.
- Forgiving or discounting off peak demand charges may be appropriate encouraging off-peak charging behavior.
- Recognize that demand-charge structured rates may help stoke innovation to avoid demand charges. Allow the price signal provided by demand charge rates to encourage EV charger owners to adopt beneficial charging behavior
- Adopt volumetric (kWh) low load factor rates sparingly as they do not encourage beneficial charging behavior.

[11] EV chargers are classified by their power output. Level 2 chargers typically provide 3.6–22 kW of output.
[12] The ratio of the total energy (kWh) consumed during a period to the maximum possible energy that could have been used at the peak demand (kW) during that same period.

CASE STUDY
ConEd's SmartCharge Commercial Program

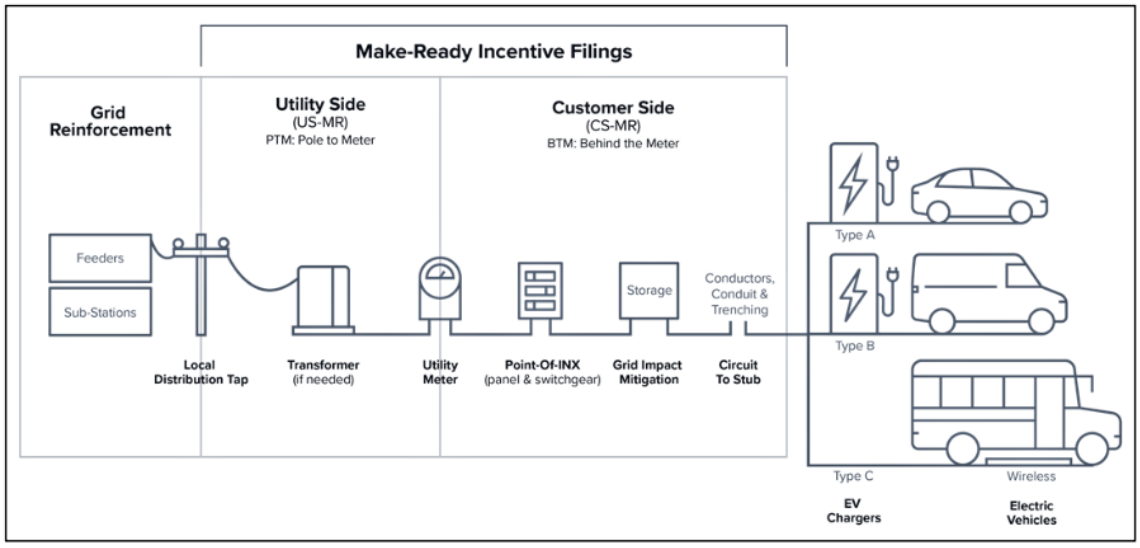
Through ConEd's SmartCharge Commercial program, EV charging station operators can earn incentives for shifting charging loads to off-peak and avoiding peak periods.[13] Charging between midnight and 8:00 a.m. can earn the operator $0.03 per kWh, while avoiding charging during the system peak earns $10 per kilowatt (kW) during summer months and $2 per kW during non-summer months.

Key takeaway: Incentives can be structured to encourage beneficial charging behavior without peak demand charge forgiveness.

Make-Ready Infrastructure

EV charging infrastructure, or make-ready infrastructure (make-ready), refers to the electrical equipment, wires, conduit, switchboards, transformers, and other materials required to power EV charging equipment. As illustrated in the figure below, the utility meter typically demarcates the separation between "utility side" and "customer side" make-ready infrastructure and equipment. This distinction is often described as infrastructure "behind the meter" and "front of meter" (or "pole to meter").

Figure 1: Make-ready infrastructure



Direct Testimony of Mr. Todd Hranicka, *Petition of Public Service Electric and Gas Company for Approval of its Clean Energy Future-Electric Vehicle Medium Heavy-Duty Program on a Regulated Basis,* BPU Docket No. QO25020101 (Feb. 27, 2025) at 8.

Customer Side Make-Ready Programs

Summary: Make-ready programs help cover the cost of infrastructure used to power EV chargers (such as wires, conduit, and panels) on the customer's side of the meter. These costs can be substantial and are a known barrier to installing chargers. Customers generally maintain ownership of these "behind the meter" assets, though some utilities have proposed to install, own, operate,

[13] *SmartCharge Commercial Program (for Station Operators)*, ConEdison, https://www.coned.com/en/our-energy-future/electric-vehicles/commercial-electric-vehicle-charging-station-rewards (last visited Sept. 5, 2025).

and maintain them. Each individual installation differs to meet the individual customer's charging needs and facility characteristics. These variations can add cost and complexity, making it cumbersome for utility ownership.

Recommendations:

- Provide incentives through rebate programs, which can be administered efficiently at relatively low cost.
- Allow customers flexibility to assign rebates to vendors, removing the burden of fronting the full cost.
- Create tiered incentive levels, offering higher incentives to customer segments where adoption lags or that provide greater overall benefits (for example, low-income segments facing greater financial burden, public transit, or multi-unit dwellings that a free market might fail to adequately address).
- Avoid utility ownership of customer-side infrastructure, as it may impede competitive market development and saddles ratepayers with on-going operations and maintenance expenses.

CASE STUDY

Xcel Energy's Electric Vehicle Supply Infrastructure (EVSI) Program

Xcel Energy's first TEP introduced a commercial EVSI program that provided make-ready services in which the utility would install, own, operate, and maintain the infrastructure.[14] Xcel highlighted how this turnkey approach provided a simplified solution for customers. However, many private market actors voiced concerns over the structure of the program as they felt it provided the utility an unfair advantage, was anti-competitive, and hampered their ability to participate in the market. Xcel's own reporting highlighted the challenges with the program design, as their April 2024 TEP status report showed only 10% of the forecasted EVSI projects were installed during the three-year program.[15] By order of the Colorado Public Utilities Commission, Xcel modified its EVSI program for the 2024–2026 TEP to provide rebates to customers.

The Commission's final Order on the proceeding concluded in part,

> [I]t is therefore time to transfer responsibility for the design and installation of [behind the meter] EVSI to the competitive market and to put the ownership of that EVSI into customers' hands. We expect that this change will have the beneficial effects of promoting competition (thereby driving down costs), stimulating innovation, increasing consumer choices, and attracting private capital investments.[16]

Now the program provides rebates designed to cover 50 percent of the make-ready costs for all customers, and 100 percent of those costs for income-qualified customers or

[14] *See* Xcel Energy, *Public Service Company of Colorado's 2021-2023 Transportation Electrification Plan*, Proceeding No. 23A-0242E (May 15, 2020) at 37-39.
[15] Xcel Energy, *2021-2023 Transportation Electrification Plan Semi-Annual Report*, Proceeding No. 23A-0242E (Apr. 1, 2024) at 17, Table 6.
[16] Final Order, *Application of Public Service Company of Colorado For Approval of Its 2024-2026 Transportation Electrification Plan*, Proceeding No. 23A-0242E (Apr. 10, 2024) at 57.

disproportionately impacted communities. The new program allows vendors to receive the rebates directly, reducing up-front costs to customers.

Key takeaway: Programs where utilities own make-ready infrastructure can be inefficient and undermine market incentives. A rebate model is generally preferred.

Utility Side Make-Ready Programs

Summary: Utility side make-ready programs help reduce the cost of interconnecting new EV load to the distribution grid, often by reducing or eliminating a customer's "contribution in aide of construction" (CIAC) associated with utility line extension policies. Such incentives distort cost causation principles by removing a cost burden designed to encourage efficient use of the electric grid.

Recommendations:

- Forego utility side make-ready programs. Rely instead on existing line extension policies, which encourage thoughtful investment and protect ratepayers.
- Promote the use of utility distribution capacity maps that indicate where capacity is available on the system, allowing EV charging developers to determine locations where installation may be cheaper and faster.

Electric Vehicle Supply Equipment

Summary: Utilities often provide incentives for installation of Electric Vehicle Supply Equipment (EVSE), with a focus on Level 2 and direct-current fast chargers (DCFC).[17] These incentives are most commonly provided as rebates, but sometimes utilities offer programs where the utility initially installs and owns the charger, paid for through a monthly fee added to the customer's electric bill. There are a wide variety of charger types, configurations, and capabilities designed to meet customer and vehicle requirements. Programs featuring utility ownership must necessarily limit charger options so the utility can manage procurement and inventory. Rebate programs can be more flexible, offering incentives for a wide variety of products so long as they meet certain eligibility criteria (such as UL listed, or Energy Star rated).

Recommendations:

- Allow flexibility in rebates to accommodate a large variety of charger types and models and use cases while adhering to developing industry standards to promote product safety and industry best practices.
- Bundle EVSE rebates with make-ready programs to offer rebates for chargers-plus-installation, simplifying the process for customers.
- Rebates should not exceed (or even match) the total cost of the charger (plus installation). It is preferable that those installing chargers maintain some level of risk for their decisions (meaning, that charger owners have some skin in the game).
- Maximum incentive amounts offered should be adjusted to reflect available incentives from government programs, tax credits, or discounts provided by vehicle or equipment manufacturers that reduce the charger owner's total charger cost.

[17] EV chargers are classified by their power output. Level 1 chargers provide 1.8–2.4 kW output, Level 2 chargers from 3.6–22 kW, and DCFC (or Level 3) from 25–350 kW.

Fleet Programs and Advisory Services

Summary: Fleet owners are prime candidates for vehicle electrification. Fleet operators are likely to see the advantage of adopting EVs as the total cost of ownership of an EV is often less than that of a comparable ICE vehicle. Utilities can help with this transition by creating programs targeted to these customers. Fleet programs are essentially ways of customizing the utility's other EV offerings to address the particular challenges fleet customers face. Make-ready and other incentive levels are often increased for public-serving fleet customers.

One popular way of targeting fleet customers is through fleet advisory services. These are often turn-key consulting services designed to help fleet customers with everything from appropriate EV selection, understanding charging needs, customer-side make-ready infrastructure design, selecting the most beneficial rate plans and charge management strategies, determining possible capacity constraints, and identifying available incentives. As the EV market has evolved, various consultants as well as vehicle and charger manufacturers have begun to offer these types of services. It is generally more cost effective to allow these experts to focus on vehicle and charging matters while the utility brings its expertise with interconnection to the grid, rather than having the utility attempt to provide all these services itself.

Recommendations:

- Provide targeted school bus and transit fleet programs. Higher rebates for these segments are often justified by the public benefits provided. These programs should be designed to interface with and compliment federal and state incentives for electric bus acquisitions.
- Provide advisory services and education on how to leverage managed charging rate options to reduce charging costs.
- Bundling make-ready and EVSE rebates can simplify the application process for fleet customers.
- Avoid duplicating fleet advisory services that vehicle and charger manufacturers already provide.
- To reduce potential distribution capacity constraints, utilities should incorporate fleet location, size, and potential to electrify into their distribution system planning processes. The utility should identify areas facing potential capacity constraints and address those before lack of capacity delays fleet transitions.

CASE STUDY

Pepco Maryland Electric Vehicle Fleet Program

Pepco in Maryland introduced its Electric Vehicle Fleet Program in 2022.[18] The program provides advisory services and incentives for purchasing and installing charging infrastructure. The program is comprised of three offerings: technical fleet assessments and fleet advisory services, make-ready incentives, and EVSE rebates. The advisory services offering evaluates the customer's fleet and recommends electrification alternatives as well as providing an analysis of financial benefits and emissions reductions.

Pepco covers most of the cost of the $25,000 assessment, with customers paying only $2,500 upfront, which can be refunded if they move forward with a fleet electrification project. Make-ready incentives are available to help cover 90 percent of infrastructure costs,

[18] *Electric Vehicle Fleet Program,* Pepco, https://www.pepco.com/smart-energy/innovation-technology/md/electric-vehicle-program/electric-vehicle-fleet-program (last visited Sept. 5, 2025).

to a maximum of $15,000. EVSE rebates can cover 50 percent of the cost of eligible chargers and installation (60 percent for historically disadvantaged communities)—up to $5,000 per Level 2 charging port and up to $15,000 per DCFC port, for a maximum rebate of $30,000 per location.

Key takeaway: Packaging programs into a wholistic offering for fleet customers is a useful approach to addressing EV adoption barriers within the fleet segment.

Outreach and Education

Summary: Programs that raise customer awareness are necessary to help ensure the effectiveness of utility incentive offerings. Utilities are familiar with these programs from demand-side management and other programs they maintain. Existing account management and small business teams are integral to informing customers of the utility's EV programs. Use of digital marketing is cheaper than direct mail. Investing in a web presence (such as Uber's Zappy-ride for consumers and J.D. Power's ZappyRide for businesses) could be valuable, but economies of scale mean that third-party software can typically be leveraged at lower cost than utility self-build.

Recommendations:

- Provide utility-specific information for customers, such as utility bill analysis and rate comparison tools.
- Encourage use of existing account management and small business relations teams to inform business customers.
- Create dedicated roles such as channel managers or trade partner relations managers that leverage the services available from manufacturers and dealers of EVs and EV chargers.
- Leverage EV content packaged by third-party providers (for example, Clear Result, Zappy-ride, government resources).

CASE STUDY
Orange & Rockland Site Electrification and Fleet Electrification Calculators

Orange & Rockland utility in New York supplies their customers with an easily accessible on-line tool, their Site Electrification[19] and Fleet Electrification Calculators.[20] These tools provide useful information to help customers plan for vehicle electrification. It allows the user to consider matters from the perspective of either their site or their fleet. The tools help the customer to evaluate the following:

- Utility Bill Analysis—Evaluate how the customer's charging project will affect their Orange & Rockland bill.
- Rate Comparison—Identify the right Orange & Rockland rate for their project.
- Fuel Savings—Calculate the savings of electrification, and identify available incentives to increase their expected savings.
- Incentives—Identify available incentives to increase the customer's expected savings.

Key takeaways. Making online tools readily accessible helps to address a lack of knowledge customers may have about electric vehicles. Providing utility-specific analysis further personalizes that information.

[19] *Charging Site Electrification*, Orange & Rockland, https://charging.oru.com/sites (last visited Sept. 5, 2025).
[20] *Fleet Electrification*, Orange & Rockland, https://charging.oru.com/fleets (last visited Sept. 5, 2025).

Vehicle Rebate Programs

Summary: Vehicle rebate programs provide rebates to customers to help address the up-front cost associated with purchasing electric vehicles. These programs are often focused on lower-income consumers or organizations that serve disproportionately impacted communities. In some jurisdictions, these programs may duplicate existing taxpayer-funded EV rebate and tax credit programs, as well as EV manufacturer rebate programs that are periodically offered. EV prices continue to decline, despite the repeal of federal tax credits[21] As the total cost of ownership (TCO) of an EV is often less than that of a comparable ICE vehicle, LDV rebates are not the most effective use of limited ratepayer funds, and free ridership is an issue.[22] For MHD EVs there is still a substantial cost premium. However, addressing the incremental purchase price by offering utility-funded rebates may not be cost effective, as it results in large program budgets and can drag down overall program cost-benefit ratios.

Recommendations:

- Utility-funded EV rebates are often not as cost-effective as other EV-program offerings. Taxpayer funded rebates may be more appropriate.
- Any utility-funded vehicle rebates should focus on low-income or disproportionately impacted communities.
- Rebate programs for MHD and special-use vehicles will drive up program costs and may reduce TEP cost-effectiveness.

CASE STUDY

ComEd's Beneficial Electrification Plan 2, C&I[23] and Public Sector EV Purchase Sub-Program

Commonwealth Edison's Beneficial Electrification Plan 2, approved by the Illinois Corporation Commission in March 2025, provides an example of utility vehicle rebate program.[24] Per the filing**:**

> The C&I and Public Sector EV Purchase Sub-program offers C&I and Public Sector customers rebates on new and pre-owned electric vehicles that are registered in the state of Illinois. This includes vehicles of all weight classes, school and transit buses, as well as repowered electric vehicles. Within this Sub-program, higher rebate values are provided to customers that are located in or primarily serve LIC/EIEC[25] and to all Chicago Transit Authority ("CTA") buses. Rebates will be payable beyond the year in which they were awarded, and at least 50% of this Sub-program's budget is reserved for customers that are located in or primarily serve LIC/EIEC. An applicant will be

[21] Ellen Kennedy et al., *Electric Vehicles Are on the Road to Mass Adoption*, RMI, (June 27, 2025).
[22] "Free ridership" refers to instances where customers receive subsidies from utility programs for implementing measures they would have completed anyway, without program assistance.
[23] C&I refers to the commercial and industrial class of utility customers.
[24] Petition for Approval of Beneficial Electrification Plan 2 pursuant to Section 45 of the Electric Vehicle Act, Docket No. 24-0484 (July 1, 2024) at 43.
[25] "LIC/EIEC" stands for "low-income communities/equity investment eligible community," as defined by 20 ILL. Comp. Stat. 627/45(b) (2024).

deemed to be primarily serving an LIC or EIEC if they demonstrate that over 50% of the driving will be in LICs or EIECs.[26]

Creating the vehicle rebate program requires a significant investment of ratepayer funds, with the program dedicating an average of $28.5million a year for vehicle rebates alone, totaling $85.6 million over the program's three-year period.[27] Cost-effectiveness is based on the value of societal benefits from reduced emissions and the maintenance savings to individual participants.

Table 2: ComEd C&I and Public Sector EV Purchase-Sub-program Eligible Measures

Measure	Vehicle Class	Rebate per vehicle* (non-LI/non-EIEC)	Rebate per vehicle* (LI/EIEC)
LDV Rebate	Class 1	N/A	$3,750
	Class 2	N/A	$3,750
MDV Rebate	Class 3	$2,500	$7,500
	Class 4	$5,000	$15,000
	Class 5	$10,000	$30,000
	Class 6	$15,000	$45,000
HDV Rebate	Class 7	$20,000	$60,000
	Class 8	$25,000	$75,000
School Bus Rebate	Type C	$80,000	$180,000
	Type D	$90,000	$200,000
Transit Bus Rebate	35 ft long	$30,000	$90,000
	40 ft long	$40,000	$120,000
	60 ft long	$60,000	$180,000

*Rebate will not exceed total cost

Credit: Petition for Approval of Beneficial Electrification Plan 2 pursuant to Section 45 of the Electric Vehicle Act, Docket No. 24-0484 (July 1, 2024) at 44.

Key takeaways: Incentives to address the incremental cost of EVs, especially MHD EVs, can be significant. These incentives rapidly drive up TEP budgets. Linkage to providing grid benefits is less clear than that of providing infrastructure incentives.

Special Programs and Research

Summary: Utilities frequently introduce special programs or pilot projects within their TEPs. Pilot projects are often research and developed (R&D) focused, looking at newer technologies such as vehicle-to-grid/vehicle-to-everything (V2G/V2X) applications. Often these pilot projects lack clear objectives and fail to identify what constitutes success or how pilot results will inform and improve the greater set of TEP initiatives. Utilities habitually introduce programs as "pilots" whenever a

[26] Petition for Approval of Beneficial Electrification Plan 2 pursuant to Section 45 of the Electric Vehicle Act, Docket No. 24-0484 (July 1, 2024) at 44.
[27] *Id.* at 41, Table 5-4.

program or rate is offered for the first time within their service territory, even if the program or rate has been well documented as successful in jurisdictions of multiple other utilities over many years. To accelerate beneficial EV adoption, utilities should be willing to embrace technologies and concepts that have been vetted by their peers.

Duplication of effort among utilities is a significant issue. A case in point is the number of utilities running V2X school bus pilots. The monopolistic, non-competitive nature of electric utilities allows for the sharing of innovations and best practices. Rather than each utility launching its own technology demonstration pilot, it would be more efficient to leverage investments in research organizations.

Recommendations:

- Utilities should participate in working groups and support efforts of research organizations such as the Electric Power Research Institute (EPRI). Ratepayer funds can be more efficiently used through joint funding of independent R&D projects as opposed to individual utilities funding similar efforts on their own.
- Clearly define pilot objectives, performance metrics, and success factors. Identify how findings will be used to improve TEPs or other utility initiatives.
- Focus pilots on applications that reduce the impact of vehicle electrification on the grid, such as managed charging and flexible interconnection standards.
- Utilities should develop pilot rate options which provide realistic price signals, allowing technology providers to place a value on the services provided.

Regulators' Role in EV Plan Evaluation and Plan Implementation

Utility regulators have a critical role to play in shaping the types of programs, TEPs or otherwise, that utilities offer. Investor-owned utilities are first and foremost for-profit businesses. Because they have a fiduciary obligation to their shareholders, investor-owned utilities will plan and design programs with an eye toward how they will impact earnings, maximizing or minimizing their efforts in accordance with the profit motive. For this reason, regulators have a duty to provide guardrails on proposed programs and planning processes, and to clearly establish TEP expectations and requirements. Responsibilities of the regulator include:

1. **Establish overall costs for the TEP**. This may be achieved through an actual dollar cap or by setting an acceptable rate impact for the plan (for example, 0.25 percent increase for the typical retail customer).

2. **Determine the appropriate mix of cost causation versus cost socialization (to all ratepayers)**. Determine the appropriate funding split and extent of cost causation (in which the cost causer or program benefactor pays) and cost socialization (in which ratepayers fund because all customers or society at large benefits, for example from cleaner air).

3. **Set performance expectations.** Provide investor-owned utilities with criteria on which the plan will be evaluated. For TEPs these may include:
   - **Cost caps:** Broad guidelines on cost splits between incentives, operations and maintenance, administrative expenses, and special programs (such as equity and R&D). Allow for some degree of budget flexibility so the utility can adjust programs based on periodic review of their performance or in response to changing market conditions.
   - **Benefit value:** To provide the utility with clarity, the regulator should specify the value of attributes used in the cost-benefit analysis. For example, a primary objective of most TEPs is GHG emissions reductions. Many utilities have calculated a value for GHG reductions (typically cost per ton of CO2 equivalent emissions), but they may use more than one value depending on when and why the calculations were made. The regulator should provide clarity and consistency by stipulating the value that should be used.
   - **Performance metrics:** The regulator should detail which attributes are important to track (for example, participant counts, charging port counts, charging port utilization, and GHG emission reduction per dollar).

4. **Require Cost Benefit Analyses**. Successful plans should require a cost-benefit analysis, or CBA on both a program-by-program and plan-wide basis. Five screening tests are traditionally used in utility program evaluation: Utility Cost (UCT), Total Resource Cost (TRC), Societal Cost (SCT), Participant Cost (PCT), and Rate Impact Measure (RIM). Further details on each of these screening tests, which costs and benefits are included in each, and their uses and limitations can be found in *The National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources.*[28] The manual provides a conceptual overview of each test, as shown in Table 3.

   Each test has its limitations, and no single test provides a complete picture. For this reason, regulators commonly require utilities to use multiple screening tests when they complete a cost benefit analysis.

   For vehicle electrification programs, the SCT and RIM tests are recommended. The SCT provides the most comprehensive picture of total plan impacts, including all the impacts captured within the TRC test plus the additional impacts on society; this is an important consideration given that environmental and public health benefits are key considerations driving transportation electrification goals. The RIM test does not measure cost-effectiveness but instead indicates whether long-term rates will increase or decrease. Requiring TEPs to pass the RIM test will help ensure that plans result in downward pressure on rates and do not negatively impact ratepayers.

[28] Nat'l Energy Screening Project, *Nat'l Standard Practice Manual™ for Benefit-Cost Analysis of Distributed Energy Res.* (2020).

Table 3. NSPM Conceptual Overview of the Traditional Cost-Effectiveness Tests

Test	Perspective	Key Question Answered	Impacts Accounted For
Utility Cost	The utility system	Will utility system costs be reduced?	Includes the benefits and costs experienced by the utility system
Total Resource Cost	The utility system plus participating customers	Will utility system costs plus program participants' costs be reduced?	Includes the benefits and costs experienced by the utility system, plus benefits and costs to program participants
Societal Cost	Society as a whole	Will total costs to society be reduced?	Includes the benefits and costs experienced by society as a whole
Participant Cost	Customers who participate in a program	Will program participants' costs be reduced?	Includes the benefits and costs experienced by the customers who participate in the program
Rate Impact Measure	Impact on rates paid by all customers	Will utility rates be reduced?	Includes the benefits and costs that will affect utility rates, including utility system benefits and costs plus lost revenues

Credit: *Nat'l Standard Practice Manual™ for Benefit-Cost Analysis of Distributed Energy Res. (2020)*, Appendix E, Table E-1.

5. **Evaluate utility, TEP, and program performance.** Regulators must establish a plan to require utilities to report their plan performance on a regular schedule. This is most often annually but can be more frequent depending on the overall duration of the plan or how quickly the market is changing. These reviews are important to ensure that utilities are properly managing their programs, as well as to check whether aspects of the plan are failing to achieve results. This information provides both the regulator and the utility the chance to re-evaluate and take any corrective actions as necessary.

6. **Establish a cadence for TEP updates, performance reporting, and evaluation.** The regulator should determine how frequently the utility should update their TEP or file a new plan. Many plans have a three-year cadence. This time period generally allows enough time for utilities to stand up their programs and begin to see utility customers adopt programs. Due to the long lead time to install infrastructure projects, often 12 to 24 months, it is recommended that utilities honor incentive payments beyond TEP end dates, so long as those incentives were allocated during the program term and program budgets are not exceeded.

7. **Determine how the TEP integrates with other utility programs (such as demand-side management and distribution resource planning).** Planning for EV adoption is just one of many changes in technology utilities must consider. Utilities face a rapidly changing landscape of distributed energy resources (DERs), rapid load growth from building electrification and data centers, and on-going concerns with resilience and reliability. Many utilities also offer demand response programs and distribution system planning proceedings, and the V2G capabilities of EVs can potentially serve as a demand-responsive resource. The regulator, having purview over all these initiatives, should help assure TEPs play a complementary role to these efforts as part of a broader strategy.

Conclusion

Utility TEPs can be useful tools for accelerating the adoption of electric vehicles, helping states reach their environmental goals and clean transportation targets. Successful plans create programs to help address common barriers to EV adoption, including the cost of charging infrastructure, cost to charge, and impact to the grid. Good program design should align with key principles:

- Minimizing ratepayer risk
- Maximizing benefits
- Emphasizing equity
- Balancing customer and shareholder interests
- Addressing market failures while checking expansion of monopoly power
- Leveraging market forces and available resources
- Holding utilities accountable for benefit and cost projections
- Adhering to “cost causation” principles

Common TEP Program Types

Reviewing TEPs from across the US reveals several common program types. Each program type discussed and recommendations for successful implementation are summarized here.

- **Rates and Charging incentives**—Options to reduce a charger owner’s or EV owner’s charging costs. Three program types are most common:
  - TOU Rates—Time-differentiated pricing programs.
  - Managed charging Programs—Provide incentives for beneficially shifting charging behavior.
  - Demand-Charge Incentives—Reductions in demand charges to reduce charging costs.
- **Make-Ready Incentives**—Provided to address the cost of EV charging station infrastructure.
- **Electric Vehicle Supply Equipment**—Incentives for EV chargers.
- **Fleet Programs and Advisory Services**—Targeted offerings for high-impact sectors, including consultation on vehicle selection and charging needs.
- **Vehicle Rebates**—To help reduce the purchase price of vehicles.
- **Special Programs and Research**—To demonstrate and evaluate newer technologies.

Regulator’s Role

Regulators play a critical role in ensuring the success of utility TEPs by providing guardrails for proposed programs and establishing filing expectations and requirements. TEPs are essentially the utility’s business plan for transportation electrification, and they should comprise all the standard components of a typical business plan including: detailed objectives, market analysis, service or product descriptions, organization structure and implementation strategy, marketing strategy, and financials. It is incumbent upon the Regulator to ensure any plan put forward by the utility captures these foundational elements. Regulators should also require utilities to perform a financial analysis of their plans and meet certain cost-benefit criteria, such as passing the ratepayer impact measure (RIM) and societal cost test (SCT), to ensure plans are truly beneficial.

Utilities, Regulators, policymakers, ratepayer advocates, conservation organizations, public health organizations, and many other stakeholders have an interest in the broad adoption of EVs. By working together and following the recommendations provided in this document, successful TEPs can accelerate transportation electrification in a manner that is beneficial for the utility, ratepayers, and society at large.