Electric Vehicles

Plugging into Colorado Regulation

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This article describes the current state of electric vehicle regulation in Colorado.

The transition to electric vehicles (EVs)[1] has begun in earnest. EV sales in the United States grew over 80% in 2018 compared to 2017.[2] An IHS Markit forecast predicts that EV sales in the United States will experience explosive growth and expand to about 1.28 million units in 2026, compared with just less than 200,000 units in 2018.[3]

In 2018 Colorado ranked fourth nationwide in EV sales.[4] Support for EV use is evident in Colorado's recent legislative and other regulatory efforts. This article discusses how Colorado is incorporating the use of EVs into public utility law, with an eye toward other jurisdictions' approaches.[5]

The EV Landscape

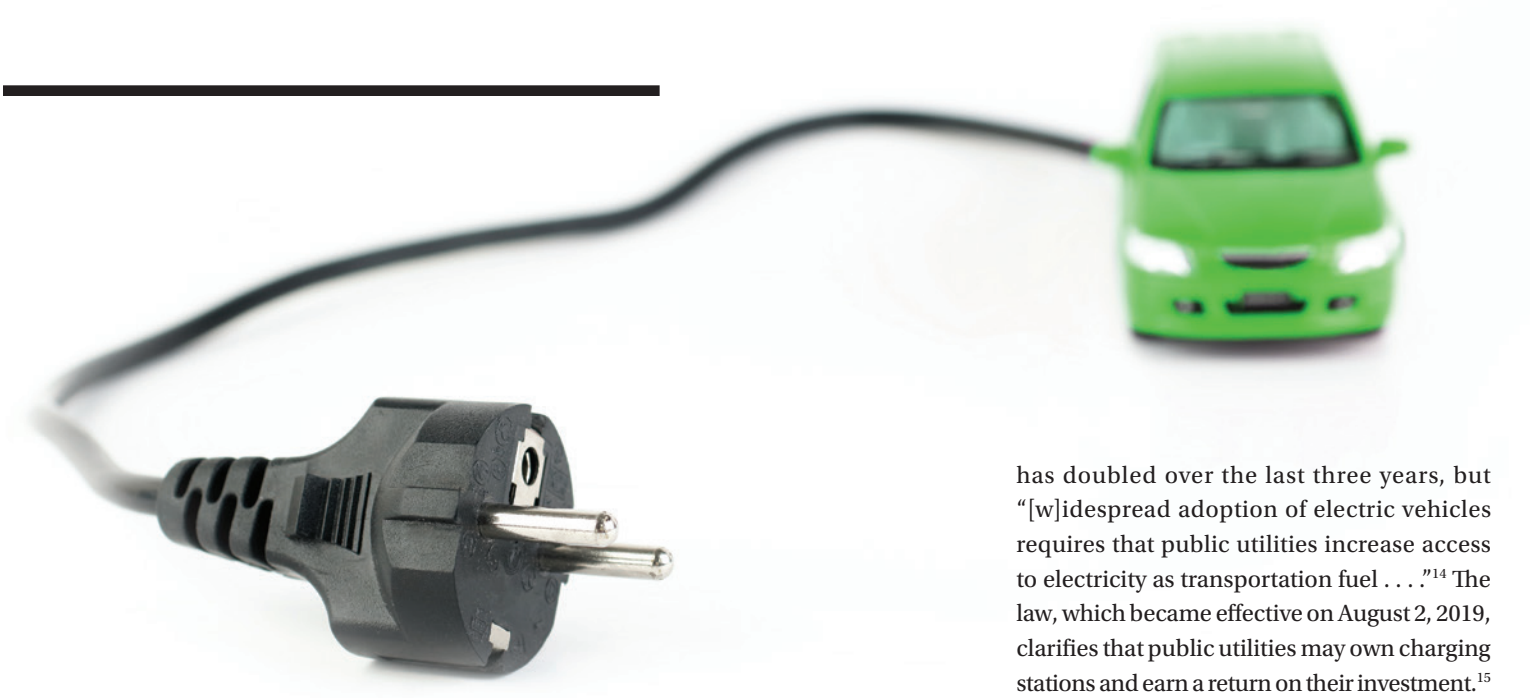
EVs represent a transition from a market dependent on fossil fuels to an electrified auto market. This change requires substantial electric load growth for public utilities. Electric utility regulators are tasked with balancing the public interest in integrating beneficial new technologies against providing adequate protections for system reliability and ratepayer cost. EVs add another intricacy for utilities and state regulators managing the impacts of distributed electricity generation, demand-side management, smart grids, energy storage, and net metering—technologies that have each disrupted the electric utility market in the last decade. However, unlike other forms of electric load, EVs move in all directions and at all times from their primary meter. And EVs require significant refueling infrastructure to become fixtures on U.S. roads.

EVs can provide system-wide benefits and achieve important environmental and economic goals, principally toward the goal of mitigating global climate change contributions from motor vehicles. EVs produce about half of the carbon dioxide emissions per mile of gasoline fueled vehicles, even with coal fired generation comprising a significant portion of the electric generation portfolio.[6] Policies that address overcoming the barriers to EV market growth are critical if EV technology is to successfully merge into gasoline-fueled roads.

To achieve widespread adoption, fueling an EV must eventually be comparable in ease to fueling a gasoline-powered vehicle. This cannot happen in a vacuum because EV charging speed and the times of day when EV charging occurs affect electric demand. Governments must plan for EVs' presence on roads and in neighborhoods, which necessarily involves joint efforts from the auto industry, utilities, electric utility regulators, departments of transportation, local governments, and many other stakeholders.

Colorado EV Regulation

The popularity of EVs in Colorado is mirrored in governmental efforts aimed at promoting their



use. Colorado has recently made significant strides in this area in the form of executive action, new legislation, and regulatory implementation.

Governor Polis Executive Actions

On January 17, 2019, a mere nine days after his inauguration, Colorado Governor Jared Polis signed Executive Order B-2019-002 (the Executive Order), which supports the state's transition to zero emission vehicles (ZEV) by adopting California's ZEV rules.[7] The Executive Order joins Colorado with Connecticut, the District of Columbia, Maine, Maryland, Massachusetts, Minnesota, New Jersey, New Mexico, New York, Oregon, Rhode Island, and Vermont in following California's ZEV standards.

The Executive Order directed the Colorado Department of Public Health and Environment (CDPHE) to develop rules establishing a state ZEV program and to propose the program to the Air Quality Control Commission (AQCC) by May 2019. The Executive Order also called for a new Transportation Electrification Workgroup and for the Colorado Department of Transportation (CDOT) to develop a Zero Emission Vehicle and Clean Transportation Plan to embrace ZEV adoption in the state. And it recommits Colorado to the REV West Memorandum of Understanding, discussed below.

On May 30, 2019, Governor Polis released his administration's "Roadmap to 100% Renewable Energy By 2040 and Bold Climate Action" (the Roadmap).[8] The Roadmap was released in conjunction with the end of Colorado's 2019 legislative session, during which Governor Polis signed seven energy and climate bills, along with four EV-specific bills.

The Roadmap includes a policy goal of eliminating greenhouse gas pollution by the year 2030.[9] A major aspect of the Roadmap is the electrification of Colorado's transportation sector, as reflected in its inclusion of a goal to put 940,000 ZEVs on Colorado roads by 2030.[10] To meet this effort, the administration has allocated roughly $14 million of the approximately $70 million Volkswagen (VW) settlement funds (resulting from the settlement between VW and the U.S. Environmental Protection Agency over VW's air quality violations) to transit agencies for the deployment of cleaner buses.[11] The Roadmap also cites the passage of various new laws supporting EV acceleration.

2019 General Assembly Actions

Consistent with the Governor's policy directives, the Colorado Legislature passed a number of bills in 2019 aimed at clean energy and EVs.[12]

SB 19-077: Electric Motor Vehicle Public Utility Services

SB 19-077[13] is the primary legislative direction to the Colorado Public Utilities Commission (COPUC) to implement the Executive Order. The bill clarifies and expands the role of EVs in Colorado public utility law. It acknowledges that the number of EVs registered in the state has doubled over the last three years, but "[w]idespread adoption of electric vehicles requires that public utilities increase access to electricity as transportation fuel . . . ."[14] The law, which became effective on August 2, 2019, clarifies that public utilities may own charging stations and earn a return on their investment.[15]

A major feature of SB 19-077 is its requirement that regulated electric utilities submit Transportation Electrification Plans (TEPs) to the COPUC by May 2020. TEPs are slated to become the primary vehicle for utility investments and strategic planning across multiple elements of EV integration. TEPs will constitute "application[s] for a program for regulated activities to support widespread transportation electrification within the area covered by the utility's certificate of public convenience and necessity."[16] TEP applications must be filed by qualifying public utilities every three years starting May 15, 2020.[17]

Pursuant to CRS § 40-5-107(b)(I) through (IV), TEPs must address

- investments or incentives to facilitate the deployment of customer-owned or utility-owned charging infrastructure, including charging facilities, the infrastructure between the traditional utility/customer break-point to the EV charge (make-ready infrastructure),[18] and associated electrical equipment that supports transportation electrification;
- investments or incentives to facilitate the electrification of public transit and other vehicle fleets;
- rate designs, or programs that encourage vehicle charging that supports the operation of the electric grid; and
- customer education, outreach, and incentive programs that increase awareness of the programs and related benefits.

The bill also requires utilities to facilitate the deployment of charging stations for electric vehicles and to support EV adoption in their service territories.[19] For example, the Polis Administration is working with Charge Ahead Colorado, a grant program administered by the Colorado Energy Office and the Regional Air Quality Council, to meet the goal of installing 234 community-based EV charging stations by the end of the 2019 fiscal year. Finally, the bill requires the COPUC to consider whether TEPs provide "access for low-income customers" and the effect of TEPs on low-income communities and ratepayers.[20]

HB 19-1159: Modify Innovative Motor Vehicle Income Tax Credits

HB 19-1159,[21] which went into effect on August 2, 2019, supports consumer purchases of plug-in vehicles by modifying the amounts of existing income tax credits for electric or hydrogen fuel cell vehicles. The bill also extends the number of years of the tax credit availability from 2021 through 2025.[22] The tax credits in HB 1159 gradually decrease from the current $5,000 level, to be phased out by the end of 2025. The bill also allows ride-sharing companies like Uber and Lyft to claim the full tax credit so long as the vehicles are provided to the companies' drivers under short-term rental programs.[23]

HB 19-1198: Electric Vehicle Grant Fund

HB 19-1198[24] enlarges the scope of Colorado's Charge Ahead program by allowing for more flexibility in how the state's EV Grant Fund is used. The bill, effective as of August 2, 2019, prioritizes funding for the administration of charging station grants as well as how to offset charging station operation costs. This bill is crucial to the goal of attaining the state goal of reaching 940,000 EVs by 2030.

HB 19-1261: Climate Action Plan to Reduce Pollution

HB 19-1261[25] sets economy-wide targets for the reduction of greenhouse gas pollution and includes statewide goals of a 26% reduction by 2025, a 50% reduction by 2030, and a 90% reduction by 2050 of the levels of statewide greenhouse gas (GHG) emissions that existed in 2005.[26] The bill, which became effective on May 30, 2019 when Governor Polis signed it into law, includes a delegation of authority to the AQCC to adopt rules to implement progress toward those GHG reduction goals.[27] The rulemaking is expected to begin in 2020, and along with SB 19-096[28] will require a quantification of how EVs benefit GHG emission reductions, which may further the interests of utility providers and vehicle fleets in EVs.

HB 19-1298: Electric Motor Vehicle Charging Station Parking

HB 19-1298[29] allows charging station owners the right to install signage identifying EV-only parking spots, specifically for drivers to charge their EVs. The bill, which took effect on August 2, 2019, creates a new traffic offense targeting both non-EV drivers who park in EV charging stations and EV owners who have already completed their charging when proper signage is posted. The bill imposes a $150 penalty fee on violators, but permits a 30-minute grace period.

SB 19-236: Sunset Public Utilities Commission

SB 19-236[30] concerns the reauthorization of the COPUC. It includes additional clean energy mandates for the Public Service Company of Colorado (Public Service), the state's largest electric utility, as well as other utilities that may opt in, to generate 100% of their power from clean energy resources by 2050 and to cut power sector emissions 80% below 2005 levels by 2050.[31] The bill, which took effect on May 30, 2019, features a number of initiatives for the COPUC, including adding a cost proxy for carbon emissions across resource planning exercises,[32] and as directly relevant to EVs and infrastructure, the bill creates a distribution grid planning process,[33] which will allow the COPUC to evaluate applications by utilities to plan for and incorporate EV charging on a macro level across the state.

SB 19-239: Address Impacts of Transportation Changes

SB 19-239[34] convenes a stakeholder process, led by the CDOT, to study how to encourage shared electric trips by car-sharing companies such as Uber and Lyft, as well as delivery services.

Regulatory Agency Actions

The Colorado regulatory bodies tasked with addressing the growth and impact of EVs include the AQCC, which is a commission housed in CDPHE; CDOT; and COPUC. All appear to be accelerating their efforts to address EVs.

The ZEV Rule

On August 16, 2019, the AQCC adopted a ZEV Rule that requires automakers to have a minimum percentage of zero-emission cars and light-duty trucks (8,500 gross vehicle weight or less) available for sale by January 2023.[35] The rule requires manufacturers selling in Colorado to have, at a minimum, the same percentage of ZEVs as set by the California Code of Regulations,[36] using Colorado-specific production volume also calculated according to California regulations.[37] This would be almost 5% of sales by 2023 and 6% by 2025. Manufacturers may bank credits, which can be sold to other manufacturers or used to meet a maximum amount of obligations in future years.[38] The state negotiated with the auto industry to create this alternative rule to California's rule to provide carmakers with proportional and/or early-action credit options.[39] Manufacturers must report annually to comply with ZEV requirements.[40]

CDOT Action

As of April 2019, CDOT's Division of Transit and Rail's Settlement Alt-fuel Bus Replacement Program had awarded nearly $14 million to six transit agencies through competitive solicitations. Four of the six awarded transit agencies—serving Boulder, Colorado Springs, Fort Collins, and Eagle County—will implement zero-emission electric bus fleets for the first time. This equates to 24 zero-emission, battery-powered buses, plus related charging equipment. Alternative-fueled buses will also be added.[41] The program funds are derived from over $68.7 million the state received in settlement funds from VW following the 2015 scandal involving VW's underreporting of emissions for its diesel engines. Other monies will go toward funding new charging stations

and replacing other types of vehicles with alternative fuel vehicles.[42]

CDOT is also tasked with creating a Zero Emission Vehicle and Clean Transportation Plan. To date, there have been no reports on the plan, but presumably it is underway and is expected to come out sometime in 2020.[43]

COPUC Regulation

Common issues arose early in state proceedings concerning the implications of EV deployment, including how to address EV charging within the context of public utility law, infrastructure investment, and utility rates and utility bill impacts.[44] COPUC continues to grapple with these issues today.

Exemption from the definition of "public utility." As EV charging initially advanced, a threshold legal issue concerned whether a party who operates an electric vehicle supply equipment (EVSE) charging station is a public utility subject to state utility commission regulation. This issue arose from the fact that public utilities generally are granted regulated monopolies within a service territory by operation of state law in exchange for regulation by state commissions. Because EV charging station owners sell electricity in a service territory of another monopoly utility, it could be argued that EV charging station owners must acquire a certificate of public convenience and necessity from a public utilities commission (PUC) and become subject to regulation as a public utility. This condition could potentially become cost-prohibitive or legally impossible for third-party EVSE owners and therefore a barrier to competition for and growth of EV charging infrastructure in new markets.

To address this issue, states, including Colorado,[45] have enacted statutes to exempt EV charging stations from the definition of "public utility."

Building out EV infrastructure. Upgrades to the electricity distribution grid for charging stations affect where and how far one can drive. Fast chargers (DCFC), named for their use of direct current, have high costs to build and operate. The current low use rates of existing DCFCs, which reflects the current share of EVs in the personal vehicle market, make it hard for "EV charging companies to create a business case" to finance and develop DCFC.[46] This area is thus one where a proactive approach on charging infrastructure by policymakers, regulators, and utilities is needed.[47] The COPUC Working Group advised that the "biggest risk" of not being proactive "may be that EV adoption could lag and Colorado will not be prepared to enjoy the benefits of widespread transportation electrification without investment by utilities in EV infrastructure and related programs."[48]

A major consideration in EVSE build-out is whether to allow utilities to own charging infrastructure and the extent to which such infrastructure is paid by all ratepayers, as opposed to just EV users. Charging infrastructure refers to both EVSEs as well as service connections and supply infrastructure needed to support EV charging, which includes equipment on the utility side of the meter (e.g., transformer upgrades), as well as customer-side equipment (e.g., electrical panels, conduit, and wiring), including make-ready infrastructure. Installation costs and the development of make-ready infrastructure account for a significant portion of the cost of deploying an EV charging station, particularly at multi-unit dwellings and in public places, where the additional load from the charging stations may necessitate expensive upgrades. High upfront investment costs present a substantial hurdle to deployment of EV infrastructure in certain market segments.

SB 19-077 addressed these concerns by allowing regulated utilities into the market for charging stations via TEPs.[49] The bill created CRS § 40-1-103.3(6), which states that an "electric utility may recover the costs of distribution system investments to accommodate alternative fuel vehicle charging [comparable to other distribution investments] . . . except that distribution system investments that are a component of a transportation electrification plan"[50] are subject to additional provisions. These provisions allow electric utilities to earn a return on capital invested in make-ready infrastructure, including customer-owned or utility-owned infrastructure, and provide customer rebates or incentives.[51] Advocates of this approach have concluded that utilities will be able to more quickly, inexpensively, and safely install charging infrastructure.[52]

In contrast, opponents of public utility ownership of make-ready infrastructure caution that, unlike electricity distribution infrastructure, charging infrastructure "does not exhibit natural monopoly characteristics" because numerous charging stations could use the same grid but offer different prices, attributes, and locations.[53] Further, utilities are not providing an "extraordinary service" for offering access to EV charging, as opposed to the service provided for access to the electric grid as a whole.[54] Prohibiting utilities from owning or operating charging stations could arguably stimulate customer choice and competition.

Initially, the California Public Utilities Commission (CalPUC) adopted a prohibition on utility ownership of EV charging equipment, with the exception of charging infrastructure for the utilities' fleets.[55] The rationale was that utilities' claims that ownership would increase user safety, reduce costs, and support utility notification of EV location were speculative and did not outweigh the benefits of competition. However, the CalPUC reversed itself in 2014, citing a need for "an expanded role for utility activity in developing and supporting [EV] charging infrastructure."[56] The CalPUC allows utility ownership of charging infrastructure on a case-by-case basis, using a balancing test to weigh benefits of utility ownership with competitive limitations.

Colorado's TEPs may follow some concepts pioneered by the CalPUC and other first-mover states. In 2018, the CalPUC approved transportation electrification projects for California's three largest electric utilities, totaling $738 million.[57] For San Diego Gas & Electric Company (SDG&E), the CalPUC limited the infrastructure to 60,000 EVSE meters; did not allow SDG&E ownership on the customer side of the meter; and required that any rebates for infrastructure on the customer side of the meter be treated as an expense rather than an asset (which allows the utility to recover the costs in rates but limits the utility's ability to make a return on the investment).[58] Pacific Gas and Electric Company's (PG&E) proposal varied significantly from SDG&E by focusing on its investment in make-ready infrastructure for DCFC public sites and medium and heavy duty charging

sites. PG&E will not own any EVSE, but it will make rebates available to customers who build out charging stations (up to $25,000 for DCFC and up to 50% of EVSE costs for medium/heavy duty charging sites).[59]

Other states have followed a model that allows for utility investments in EVSE. The Oregon Public Utilities Commission approved proposals by PacifiCorp and Pacific Gas and Electric to implement transportation electrification programs that include proposals to install, build, and own charging stations.[60] Washington's legislature allows the Washington Utilities and Transportation Commission to authorize an incentive rate of return on investment in capital expenditures for certain EVSE that is deployed for the benefit of ratepayers.[61]

The COPUC has recently considered an application by Public Service for $9 million in EVSE upgrades for three government-related projects.[62] The COPUC referred the proceeding to an administrative law judge (ALJ), and a final decision is expected by June 2020.[63]

This past October, the COPUC opened a miscellaneous proceeding, No. 19M-0574E, to create a dialogue among utilities and stakeholders centered on the forthcoming TEP applications. The COPUC solicited comments regarding the types of information a utility should include in its inaugural TEP application.[64] COPUC solicited comments on the contents of a TEP and posed questions ranging from cost recovery, to market failures, to how the COPUC can assess a utility's TEP with regard to providing access to low-income customers. Comments were filed by a wide range of stakeholders, including utilities, local governments, state agencies, EV charging equipment providers, and a consortium of non-governmental environmental organizations.

Many comments support the idea that a utility's TEP application should take into consideration the benefits of managing EV charging.[65] Comments also emphasize a utility's role in consumer outreach and education, with Public Service indicating that it plans to include a stakeholder outreach plan as part of its TEP application.[66]

Regarding the low-income customer consideration, one commenter, Enel X, proposed that utilities should designate a budget for electrified transportation options specifically for low-to-moderate income customers, including residential charging carve-outs, as well as an effort to reduce poor air quality for customers living in highly polluted areas by focusing on the electrification of medium-to-heavy duty fleet vehicles.[67]

One key topic of disagreement among commenters is the role a utility should have in owning and operating public charging stations. For example, ChargePoint, the nation's leading EV charging network, cautions against direct utility ownership of charging stations in the absence of appropriate safeguards and believes that the COPUC must ensure that monopoly utilities do not harm the competitive EV charging station marketplace.[68]

It is also foreseeable that transmission and distribution (T and D) upgrades may be needed to accommodate more EV users on the system. States will have to determine how such costs should be recovered. In determining who pays for such upgrades, the CalPUC, for example, has been guided by state statutes mandating reductions in carbon dioxide emissions; it has stated its priority to adopt rules to address "infrastructure upgrades necessary for widespread use" of EVs.[69] The CalPUC was persuaded that EVs should be designated as "new and permanent load," meaning investments are to be paid by ratepayers in general.[70] In recognizing that this policy could result in ratepayers initially paying more for EV upgrades, CalPUC stated that "from a broader perspective" EV charging facilitates off-peak power usage, which could benefit all ratepayers in the future.[71] With the passage of SB 19-236 and HB 19-1261, Colorado now has similar direction from its General Assembly.

EV rate design. A number of jurisdictions engaged in EV issues are focused on developing and implementing rate structures designed to encourage off-peak EV charging and associated metering. Similar to distributed energy, policies are needed to mitigate the need for costly additional power generation facilities and T and D infrastructure. To that end, and to mitigate EVs' environmental impact, it is important to avoid the construction of quick-starting dispatchable electric generation resources to meet peak load, which often are relatively inefficient gas combustion turbine generators. A cost-effective strategy to counter that risk is to maximize the use of off-peak charging for EVs.

In addition, charging EVs primarily from renewable generation sources produces the maximum net environmental benefit between EVs and gasoline-fueled vehicles. For example, wind energy, in most U.S. markets, is a nighttime-peaking resource.[72] In markets with large wind installed capacity, this can result in curtailments of wind facilities due to balancing that must occur to manage reduced off-peak load.[73] EVs, if charged overnight at home, may leverage this otherwise stranded energy. Solar energy peaks in the middle of the day, often just before the afternoon peak load of many utilities. If charged off-peak at the workplace (pre-peak), solar energy resources can also meet marginal EV load.

However, EV owners may not be inclined to charge during off-peak hours. A pilot study of 20 individuals on EVs in Colorado found that two peaks charging times occurred, at 11:00 p.m. and 9:00 a.m. The latter peak time was due to the roughly 25% of pilot participants who charged in the morning, likely when they arrived at work.[74] In contrast, studies show that customers under a time-of-use (TOU) rate delay EV charging to align with TOU rate periods to take advantage of lower rates.[75]

Public utility ratemaking principles must be considered with EV-focused or EV-beneficial rate design. When a regulated utility wants to change its rates, it must prove to the state commission that the components of its total costs of service and its costs of investment, or its "revenue requirement," are valid and that its resulting rate design is just and reasonable across all ratepayer classes. Although consumers within the same class of service should be subject to substantially similar rates, the PUC may establish different classifications of service, and different rates for each class, based upon reasoned distinctions. "Classifications that neither impinge on fundamental rights nor affect suspect classes are not unlawfully discriminatory unless they do not have a rational relationship to a legitimate governmental purpose in the context of utility regulation."[76]

TOU rates. TOU rates are a mechanism to incentivize EV owners to charge vehicles during off-peak hours. This requires influencing ratepayer behavior and countering the easily available choice to plug-in at the peak of afternoon demand, when an EV user arrives home after work. TOU rates are calculated by (1) defining the peak and off-peak periods in a straightforward fashion, (2) accounting for incremental costs, and (3) achieving an appropriate discount to incentivize ratepayers. TOU rates are intended to enable individual customers to achieve favorable rate treatment for shifting the timing of their electric use and thereby contribute to the efficiency of the system.

Utilities in numerous states offer TOU rates, though fewer offer an EV-specific TOU rate. As of June 2015, at least 28 utilities offered an EV-specific rate, whereas over 200 utilities offered TOU rates.[77] An EV TOU rate requires a separate meter that tracks EV charging. In contrast, a whole-house TOU rate applies to all electricity usage. California's major utilities all offer an EV-specific rate.[78] In Minnesota, the major utilities received commission approval to create residential EV rates. These rate offerings were required by Minn. Stat. § 216B.1614.[79] The approved rates and charging hours vary. For example, Otter Tail's EV-specific TOU rate consists of a fixed monthly charge of $7, with off-peak hours between 10 p.m. to 6 a.m. Peak-time charging triggers an additional "penalty" of either 7.495 cents per kilowatt hour (kWh) in the summer (six to seven times the off-peak price), and 5.233 cents per kWh in the winter (about double the off-peak price).[80] A number of utilities also offer EV rates or whole-house TOU rates on a voluntary basis.[81]

Colorado regulators are presently considering whether and how to implement TOU rates for residential customers. Public Service has proposed TOU rates to take effect for residential customers as customers are transitioned onto new, advanced meters over the next several years.[82] However, COPUC recently rejected an initial application by the other regulated electric utility in Colorado, Black Hills Energy, for a pilot TOU rate program totaling approximately $800,000, which the COPUC had required the utility to file.[83] COPUC envisioned the TOU pilot would take advantage of the existing advanced meters in place in Black Hills' service territory. But COPUC became concerned about evidence suggesting the proposed TOU rates would result in a large number of low-income customers in the utility's service territory seeing increased bills. It concluded there is "little utility in moving forward, at a cost of over $800,000 to Black Hills' ratepayers, to test a rate design that may prove unworkable for a significant segment of Black Hills' customer base."[84] The impact on low-income customers or other segments of customers is an important consideration in setting TOU rates, even if they could benefit EV users. A TOU rate specifically for EV users could resolve the issue, at least in the short term.

> "TOU rates are intended to enable individual customers to achieve favorable rate treatment for shifting the timing of their electric use and thereby contribute to the efficiency of the system."

Demand charges. Another element of rate design that affects EVSE is the use of demand charges, which are traditionally reserved for large commercial and industrial customers. Demand charges are a third element of customer charges in rate design, in addition to fixed and volumetric (usage) charges. Demand charges generally capture the highest level of electricity demand (measured in kW over a 15-minute period in a billing cycle and place that value into a formula). For example, if the demand was 30 kW, the customer would be charged 30 times the per-kW demand rate for the month. The "high water mark" for usage sets the demand charge for an entire billing period.

Demand charges create a fundamental early-adoption quandary for EVSE charging station owners, and in turn, the users of such equipment. EVSE instantaneous demand is hard to classify but is most similar to industrial loads on the system. Yet in nascent EV markets, EVSE stations are likely to operate at full capacity for only short periods of time. Thus, they have high demand charges for capacity, but also low usage by relatively few customers. This issue is exacerbated for high-capacity DCFC stations because they can create very high levels of peak demand for very short periods of time compared to their overall consumption of electricity, which is due to their purpose of driving down electric charging times.

Several alternatives to demand charges for EVSE have been piloted based on the public interest in establishing EVSE and the fact that EVSE does not share the same customer characteristics as the loads historically charged as demand charges (i.e., the movement of load). One Connecticut utility implemented an interim EV rate rider pilot to reduce the demand charge for DCFC stations.[85] Under the pilot, each station was separately metered and all customers of that meter were billed their proportion of monthly electric service, provided that the demand charge of the applicable rate schedule was converted into an equivalent kWh charge (rather than a capacity-based per kilowatt charge) for all kWhs used by the customer during each billing period. In this way, the demand charge was shared by all, and reduced. The Connecticut Public Utility Regulatory Authority turned the pilot into an EV Rate Rider in 2019.[86]

Hawaiian Electric Company allows businesses to use DCFC based on EV TOU rates, called

EV-F, where the TOU rate replaces demand charges.[87] Recently, California approved a commercial EV rate for SCE that would include no demand charge for the first five years, with a gradually phased-in demand charge.[88]

In Colorado, pursuant to SB19-077, the COPUC approved a commercial EV rate design by Public Service.[89] Under the ALJ's Recommended Decision, the Schedule S-EV tariff offers an optional service for large, nonresidential customers to charge EVs or provide services to third parties for a fee.[90] The S-EV tariff uses a TOU structure that varies by season from critical peak pricing (CPP) set at $1.50/kWh during specific CPP events to winter off-peak pricing as low as $0.01/kWh. The pricing is expected to result in lower energy bills for commercial EV fleets and public fast chargers, by as much as 50% in some cases, and to incentivize off-peak charging. Public Service estimates that the S-EV tariff would lower existing demand charges by up to 72% relative to the existing secondary general rate.[91] The rates go into effect in January 2020.

Regional MOUs

Regional electric vehicle plans among states will also be necessary for widespread EV adoption. On October 4, 2017, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming entered into an MOU to collaborate in establishing a Regional EV Plan for the West (REV West Plan).[92] The purpose of the REV West Plan is to create a regional EV corridor across states, starting with the most traveled interstates.

The initial report summarizing the actions of the coordination group was issued in October 2018.[93] The report presents charging station availability data as well as profiles on each intermountain state's EV policies. The report specifically cites Colorado's Plug-in EV Tax Credit as an example of a vehicle purchase incentive that is applicable to not only light-duty EVs, but also to medium-to-heavy duty electric trucks.

Conclusion

EV use is rapidly growing throughout the country, and states are taking varied approaches to accommodate that growth. The road ahead for EV users, electric utility and EVSE providers, and other utility customers must be well-planned. EVs can potentially deliver benefits to utilities, the growing EV industry, and consumers, and can contribute to achieving climate change mitigation goals. Colorado is taking steps to manage its proactive EV policy that promise to merge those benefits with existing utility regulation in the least disruptive manner. CL



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NOTES

1. This article uses EV to describe the several types of electric vehicles, including plug-in hybrid electric vehicles and plug-in/battery electric vehicles.
2. Pyper, "US Electric Vehicle Sales Increased by 81% in 2018," greentechmedia (Jan. 7, 2019), https://www.greentechmedia.com/articles/read/us-electric-vehicle-sales-increase-by-81-in-2018.
3. Brinley, "IHS Markit forecasts EV sales to reach US market share of 7.6% in 2026," IHS Markit (May 28, 2019), https://ihsmarkit.com/research-analysis/--ihs-markit-forecasts-ev-sales-us.html.
4. https://autoalliance.org/economy/consumer-choice/electric-vehicles.
5. A 2016 law review article by the authors focused on a comparative analysis of EV regulation in early-moving states. *See* Detsky and Stockmayer, "Electric Vehicles: Rolling Over Barriers and Merging With Regulation," 40 *Wm. & Mary Envtl. L. & Pol'y Rev.* 477 (2016).
6. Christensen Associates Energy Consulting, LLC, Electric Vehicle Rate Design Study Prepared for Xcel Energy at 1 (Jan. 19, 2015), http://stmedia.startribune.com/documents/2EVrate013115.pdf.
7. Colo. Exec. Order B 2019 002, Supporting a Transition to Zero Emission Vehicles (Jan. 17, 2019), https://assets.documentcloud.org/documents/5688666/B-2019-002-Zev.pdf.
8. Office of the Governor of Colorado, Polis Administration's Roadmap to 100% Renewable Energy By 2040 and Bold Climate Action, (May 30, 2019), https://energypages.com/files/2019/08/ROADMAPTO100RENEWABLE.pdf.
9. *Id.* at 2.
10. *Id.*
11. *Id.*
12. COPUC completed a comprehensive stakeholder-driven technical report in January 2019 that discussed regulatory issues facing the development of EVs and related infrastructure. The report informed the legislature about COPUC's policy direction. COPUC Electric Vehicle Working Group Report (Jan. 15, 2019) (hereinafter COPUC Report), https://evcharging.enelx.com/images/azura-pages/utilities/2019-01_CoPUC_Electric_Vehicle_Report.pdf.
13. SB 19-077, https://leg.colorado.gov/bills/sb19-077.
14. SB 19-077 § 1, (1)(d).
15. SB 19-077 § 2, amending CRS § 40-1-103.3(6).
16. SB 19-077 § 4, creating CRS § 40-5-107(1)(a).
17. *Id.*
18. COPUC Report, *supra* note 12 at 38 ("Make-Ready Infrastructure . . . involves utility participation beyond traditional demarcation of service at the meter but importantly, does not include utility ownership of the charger itself. . . . [I]nvestment produces a nearly complete 'stub' site that can be quickly interconnected with a . . . charging station . . . .).
19. SB 19-077 § 4, creating CRS § 40-5-107(b)(i).
20. SB 19-077 § 4, creating CRS § 40-5-107(2)(g).
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22. HB 19-077 § 2, amending CRS § 39-22-516.7(2)(a).
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24. HB 19-1198, https://leg.colorado.gov/bills/hb19-1198.
25. HB 19-1261, https://leg.colorado.gov/bills/hb19-1261.
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30. SB 19-236, 2019 Colo. Sess. Laws 3448, https://leg.colorado.gov/bills/sb19-239.
31. SB 19-236 § 5, amending CRS § 40-2-125.5(2)(a).
32. SB 19-236 § 13, creating CRS § 40-3.2-106.
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44. *See generally* The EV Project, "Lessons Learned—The EV Project: Regulatory Issues and Utility EV Rates" (Mar. 14, 2013), https://avt.inl.gov/sites/default/files/pdf/EVProj/103425-835189.ri-2.pdf; Energetics Incorporated, "Compilation of Utility Commission Initiatives Related to Plug-in Electric Vehicles and Electric Vehicle Supply Equipment" (Apr. 2013), http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B222AFF10-78CC-42D4-A6FD-23422DEC4270%7D.

45. CRS § 40-1-103.3(4).

46. COPUC Report, *supra* note 12 at 14.

47. *Id.*

48. *Id.* at 20.

49. SB 19-077.

50. *Id.*

51. SB 19-077 § 3, creating CRS § 40-3-116(1).

52. *See, e.g.*, Joint Opening Comments of the Alliance of Automobile Manufacturers, Association of Global Automakers, Inc., and General Motors on the Assigned Commissioners' Scoping Memo and Ruling, R. 13-11-007 at 7 (Aug. 29, 2014) http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M104/K614/104614868.PDF.

53. Hofmeister, "Electric Vehicle Charging Infrastructure: Navigating Choices Regarding Regulation, Subsidy, and Competition in a Complex Regulatory Environment," 5 *Geo. Wash. J. Energy & Envtl. L.* 42, 49 (2014).

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57. CalPUC Docket No. A17-01-020 et al., Decision 18-05-040 at 2 (May 31, 2018), https://www.cpuc.ca.gov/sb350te.

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