

Time-Based Rates Pick Up Pace as Grid Modernization Efforts Rise

Utilities Turn to Time-of-Use Rates to Manage EV Charging and Shape Usage

Industry Insight

The **move towards time-varying rates** is on the rise as electric utilities seek rate designs that better align with the changing energy landscape. Utilities are increasingly experimenting with time-of-use (TOU) rates – tariffs which price electricity higher when peak demand drives up system costs – as **customer-sited generation eats into revenues needed to maintain the grid and amid a widening disparity between average and peak demand.**

California is setting an example with its major utilities poised to default to TOU rates by 2020. Recently, regulators in several states have followed suit via pilot programs, grid modernization efforts or integration of electric vehicles (EVs). **Minnesota** and **Pennsylvania** are exploring pilots, while **Massachusetts** will investigate removing the barriers to customer adoption of time-based rates. Meanwhile, **Michigan** utilities are considering TOU rates to better integrate EVs into their systems.

Key Takeways

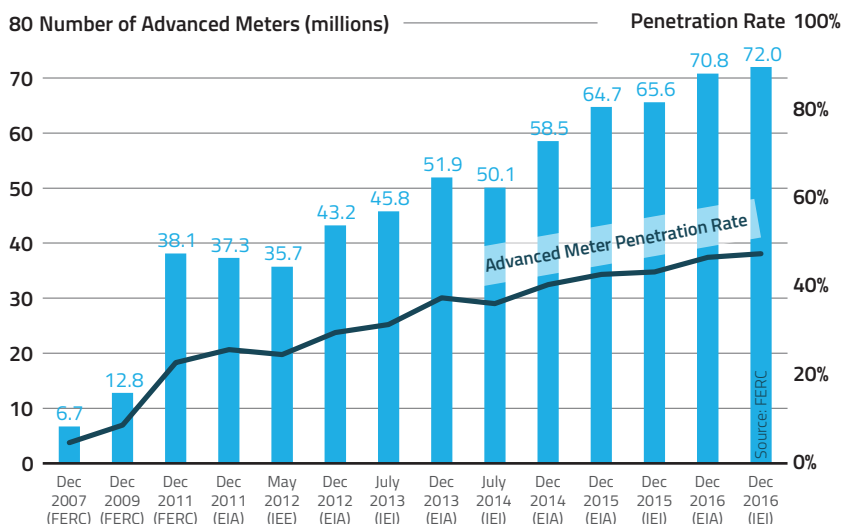
- Grid operators are leaning more heavily on tools such as time-of-use rates to balance the grid during periods of peak consumption as growing amounts of intermittent renewable generation starts to undermine their ability to meet the surges in electricity demand.
- Deployment of smart meters that provide more granular energy usage data has paved the way for rate designs that incorporate time-varying pricing, allowing for reduced peak usage as consumers respond to price signals.
- Well-designed TOU rates can help customers save money by shifting their usage away from high-priced time periods.
- Variable-rate plans designed to shift electric vehicle charging to off-peak hours is a win-win for consumers and utilities, enabling residences to benefit from lower rates and utilities to make more efficient use of the power grid.
- Customer education and awareness is key to widespread adoption of time-based rates and advanced meters as misinformation and mistrust, such as invasion of privacy, has deterred adoption.



FERC Report



U.S. Smart Meter Penetration Reaches 50 Percent



Nov. 7 - **U.S. electric utilities installed nearly 71 million advanced meters, accounting for about 47 percent of meters that were operational in 2016**, according to the Federal Energy Regulatory Commission’s annual report on demand response and advanced metering. The report found that **several states are considering large-scale smart meter projects**, in some cases as part of their grid modernization initiatives. While enrollment in time-based rate programs has increased in most regions since 2013, the report identified slow implementation of these programs as the main barrier to customer participation in demand response. Several states have taken efforts to **support time-based rates via pilot programs**, grid modernization efforts, or integration of electric vehicles. In addition to regulatory developments, nascent technological developments, such as blockchain technology and associated **“smart contracts”** to the energy sector, are expected to support meaningful response to prices.



Recent Actions



CA PGE to Create Commercial EV Charging Rate Class

Nov. 6 - PGE proposed (A1811003) to create a new Commercial EV Charging rate class to accelerate EV deployment for commercial customers. The charges would feature a monthly subscription charge based on charging capacity and a time-of-use volumetric rate.

SCE Asks for Approval of Charge Ready

July 6 - SCE asked (A1806015) the CA PUC to approve the second phase of its Charge Ready program launched two years ago. The four-year expansion aims to accelerate the adoption of light-duty EVs by deploying 48,000 charging stations at an estimated cost of \$760.1 million.

California to Default to TOU Rates

May 17 - The CA PUC issued a decision (A1712011, A1712012, A1712013) under the first phase of its proceeding to transition to residential default TOU rates. California IOUs will begin transitioning in 2019 and 2020.

VT Green Mountain Power Files Annual Plan

Nov. 1 - Green Mountain Power filed (18-3702-INV) an annual plan to meet the requirements of the renewable energy standard Tier II in 2019. GMP called for dynamic device control or, for reluctant customers, rate designs, such as TOU rates, as the appropriate mechanism for demand management of new loads.

MA MA DPU Puts Investments on Hold

May 10 - The MA DPU refused (15-120) to preauthorize customer-facing investments in National Grid, Eversource Energy and Unifi's grid modernization plans, finding that they need to re-examine advanced metering.

RI RI PUC Approves National Grid's Settlement

Aug. 24 - The RI PUC approved National Grid's settlement (4770) that increases the company's revenue requirements and advances the state's Power Sector Transformation Initiative, including advanced metering, time-varying rates, electric transportation, and performance incentives, among other things.

PA PA PUC Supports TOU Rates

May 3 - The PA PUC issued (M-2015-2518883) a statement that identifies factors behind distribution rates that support the efficient use of electricity and DER. The PUC discusses a number of alternative rate methodologies that utilities may consider including TOU rates and critical peak pricing.

MD MD PSC to Consider EV Infrastructure Portfolio

Feb. 6 - The MD PSC opened a proceeding (9478) to consider the implementation of an EV infrastructure portfolio proposed by the Public Conference 44 Electric Vehicle Working Group. Among other things, the workgroup proposes to expand existing, and create new, residential TOU rates.

NV NV PUC Approves NV Energy's EV Demonstration Program

May 11 - The NV PUC approved (17-08021) regulations to implement an EV demonstration program allowing NV Energy to own and operate charging stations and recover costs. The regulations are part of legislation (SB 145) enacted last year that tasked the commission with creating an EV pilot consisting of vehicle chargers and time-based rates, among other things.

VA Dominion Energy Introduces Advanced Metering in Transformation Plan

July 24 - Dominion Energy filed (PUR-2018-00100) Phase I of its Grid Transformation Plan, which includes full deployment of advanced meters across its service territory by the end of 2023. The plan also proposes a customer information platform that with access to detailed energy usage information, enabling them to select TOU rate options to meet their needs.

MI MI PSC Approves New EV Pilot Program Tariff

Nov. 8 - The MI PSC approved (U-20282) a new tariff under Indiana Michigan Power Co.'s EV pilot program that will change how usage is metered but not change rates. The plug-in EV tariff will allow to submeter to measure load.

OH OH PUC Establishes PowerForward Collaborative

Oct. 24 - The OH PUC established (18-1596-EL-GRD) the PowerForward Collaborative, a utility workgroup charged with monitoring marketplace developments to modernize the grid. The collaborative will initially focus on EVs and a process for deploying nonwire alternatives.

DTE Energy Proposes TOU Rates

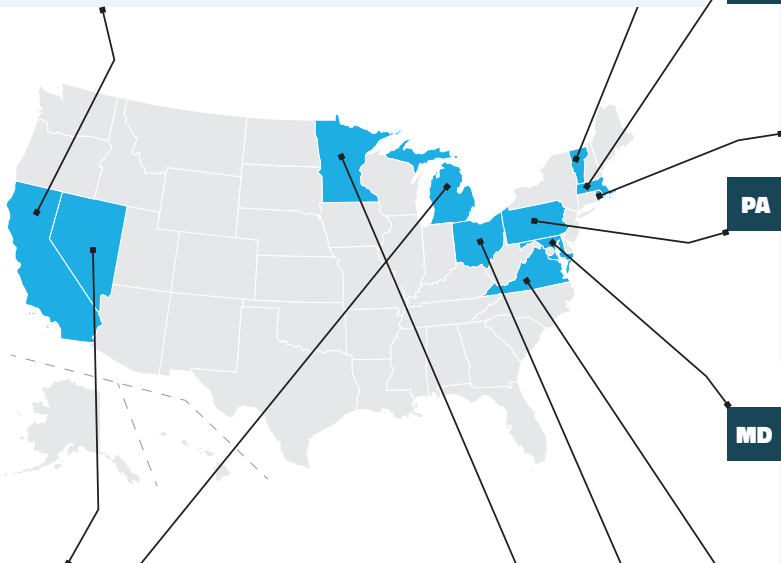
July 6 - DTE Energy proposed (U-20162) new TOU rates in compliance with the MI PSC's direction in Case No. U-18255, which ordered the company to propose tariffs for residential customers' non-capacity charges based on summer on- and off-peak rates. DTE Energy asked for voluntary opt-in or allow for a transition.

MN MN PUC Approves Xcel's Pilot Program

Aug. 7 - The MN PUC approved (17-775, 17-776) a pilot program by Xcel Energy for about 10,000 customers. The opt-out program will offer an on-peak period, off-peak period, and middle period. The rates for on-peak period are about four times higher than rates during the off-peak period.

Consumers Energy Proposes Long-Term Rate Redesign

Consumers Energy Company proposed (U-20134) a long-term redesign of residential rates to conform to the MI PSC's order in Case No. U-18322 and to establish two new TOU rates and to modify the Peak Power Savers Peak Reward Program to replace certain residential rates proposed for gradual elimination.





Hot Policy Monitors



AZ CC
RU-00000A-18-0284



Arizona CC Modifications to Energy Rules | Aug. 2018



CA PUC
A1712011, A1712012, A1712013



California IOUs Residential Rate Design Window Proposals | Dec. 2017



KS CC
19-GIME-012-GIE



Inquiry into Opt-Out Program for Advanced Metering | July 2018



OH PUC
18-1596-EL-GRD



PUCO Grid Modernization Proceeding | Oct. 2018



PA PUC
M-2015-2518883



Pennsylvania PUC Alternative Ratemaking Methodologies | Dec. 2015



Industry Voices



National Grid's Proposed Grid Modernization Plan (15-120)

Attorney General: Use Plan as a Foundation

The attorney general contends that the Massachusetts Department of Public Utilities should use National Grid's grid modernization plan as a foundation and with stakeholder input determine the best way to maximize time-varying rate benefits of automated meter reading meters; develop statewide data access protocols; and require an updated business case analysis and TVR study to ensure accurate estimates of capacity and energy savings benefits.

National Grid: Demand Reduction is the Largest Benefit

National Grid argues that the largest benefit from the deployment of advanced metering functionality is from demand reduction. National Grid argues that its demand response assumptions are supported by the results of its smart grid pilot, the results of other time-varying rate programs, and a regression model that it compared to other peer-reviewed regression models.

Xcel Energy Residential TOU Rate Design Pilot (17-775)

Office of Attorney General (OAG): Give Customers Simple Forms

The OAG argues that customers should be permitted to self-identify as eligible for low-income bill protection by signing a simple form, and no additional verification should be required during the pilot. Xcel should be ordered to track LIHEAP recipients and customers who self-identify as eligible for low-income bill protection separately so that data about the different groups can be analyzed. The TOU rate pilot could unintentionally drive low-income customers who do not receive LIHEAP to opt out, which could impact the data that is collected by the pilot. Conducting a pilot without collecting sufficient data about low-income customer impacts would increase the risks of unintended consequences for any broad rollout in the future.

Xcel Energy: Self-Identification Not Viable in Long Term

Xcel Energy contends that it would be inconsistent with company programs and irregular with respect to customer expectations to provide benefits based on customer self-certification of income status. Further, self-identification of income status would likely not be viable for a wider roll-out TOU rate program. For the purposes of learning how low income customers respond to and are impacted by the TOU Pilot rates and design, a key stakeholder goal discussed at length in this proceeding, it is imperative to operate it with the same eligibility process that would be used for a fully implemented program.



Industry Updates



KS CC Examines Options for Opt-Out

July 24 - The KS CC on July 24 opened a case (19-GIME-012-GIE) to examine **how state utilities should permit ratepayers to opt out of advanced meter programs as some customers look to ditch the systems amid complaints**, ultimately rejected by the agency, that the **technology causes health problems, cause fires and threaten an invasion of privacy through inadequate cyber security**. The proceeding will discuss the non-advanced meter types that customers prefer, costs associated with installation and operation of such meters and billing strategies. The case will cover programs by Westar Energy Inc., Kansas Gas and Electric Co., and Kansas City Power & Light Company.



WA UTC Determines Utilities Must Allow Opt-Outs

April 10 - The WA UTC determined (U-180117) that **companies must allow customers to opt out of advanced meter installation**, following concerns raised by ratepayers over the implementation of the new technology and opt-out charges. The commission will **develop explicit requirements and create new rules** to protect consumer information and allow customers who opt out to retain their existing meters.



Upcoming Events



Jan. 25,
2019

PA DEP Application Deadline for EV Charging Equipment Rebates

The Pennsylvania Department of Environmental Protection is due to accept applications for grants and rebates for installation of fast-charging stations and hydrogen fuel cell equipment for zero emission vehicles. The grants and rebates are part of the department's "Driving PA Forward" initiative that seeks to lower nitrogen oxide pollution from vehicles. The programs are funded by the state's share of \$118 million from the Volkswagen settlement. The department will also provide \$3 million in rebates for Level 2 or 240-volt charging stations this year, allowing 180 days for applicants to complete their projects. Subsequent rounds of applications are due by July 15 and Dec. 16, 2019.

Feb. 1,
2019

VA DEQ Electric Bus Deployment

The Department of Environmental Quality which is tasked with implementing Virginia's allocation of \$93.6 million from the Volkswagen settlement will provide the funding through a new program that will replace the heavy and medium-duty vehicles with cleaner ones. The project will be implemented under the Department of Rail and Public Transportation's annual public transportation capital grant cycle, which begins Dec. 1 and runs through Feb. 1, 2019. In August, the department selected charging station company EVgo for a contract to develop a statewide public electric vehicle charging network. The two announcements account for 30 percent of state's total allocation from the settlement.

March 1,
2019

OK DEQ Application Deadline for EV Charger Grants

The Oklahoma Department of Environmental Quality will accept proposals under its ChargeOK Grant Program aimed to build out the state's light-duty electric vehicle charging stations. The agency will award grants a competitive basis for the purchase, installation, and operation of publicly accessible charging stations. The grant will reimburse up to 80 percent of eligible project costs. The program is funded by 15 percent of the state's \$20.9 million allocation from the settlement with Volkswagen Group of America for cheating on U.S. Environmental Protection Agency emissions tests.

April 1,
2019

OH PUCO Utilities Grid Architecture Report Deadline

The Ohio Public Utilities Commission is due to receive reports from utilities on the status of their grid architecture as part of the agency's PowerForward initiative, that charts a roadmap for grid modernization in the state. The plan envisions the modern grid as an open access platform that facilitates the seamless interface of evolving applications, as well as a marketplace that allows customers to access innovative products and services from entities of their choice. The architecture calls for the development of a cyber-physical platform, as well as standardized access to customer energy usage data for third parties across the four territories of the electric distribution utilities.



Select 2018 Dockets on Time-Based Rates



AZ CC **RU-00000A-18-0284** 6 Nov 2018

Application for approval of Pacific Gas and Electric Company's commercial electric vehicle rate

CO PUC **18A-0676E** 1 Oct 2018

Application of Black Hills Colorado Electric Inc. for approval of its residential time-of-day rate pilot program

HI PUC **2007-0341** 26 Jul 2018

Proceeding to review Hawaii utilities' demand-side management reports and requests for program modifications

KS CC **19-GIME-012-GIE** 6 Nov 2018

General investigation of metering infrastructure digital electric meters

NV PUC **18-09017/8** 27 Sep 2018

Application of V Energy to implement Electric Vehicle Commercial Charging Rider Time-of-Use Schedule

SC PSC **2018-321-E** 10 Oct 2018

Application of Duke Energy Carolina for approval of proposed electric transportation pilot and an accounting order to defer capital and operating expenses

SD PUC **EL18-031** 2 Jul 2018

Filing by Otter Tail Power Company for approval of new customer information system including migrating rate codes that identify TOU rates

VT PUC **18-3980-TF** 16 Nov 2018

Tariff filing of Green Mountain Power for Residential Seasonal TOU Rate to be effective with bills rendered on or after November 21, 2018

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