RMI

ELECTRICITY AFFORDABILITY TOOLKIT

Time-Varying Rates

COST CONTROL | CUSTOMER AGENCY

AT A GLANCE

TARGET COST DRIVERS

This policy can address overall affordability and provide a solution specific to certain cost drivers

- **Aging grid infrastructure**
- **Fuel price volatility**
- **Extreme weather/wildfires**
- **Load growth**
- **Misaligned utility incentives**

IMPACT TIME HORIZON *Page 2*

How long it typically takes before changes materialize in utility behavior or customer bills

Medium-term (2–5 years)

POTENTIAL COST SAVINGS *Page 2*

The level of cost savings that can reasonably be expected to result from this policy

Low

CONTEXT AND BACKGROUND

Under a traditional electricity rate structure, customers pay the same amount no matter when electricity is consumed. This provides no incentive for customers to shift their electricity consumption throughout the day from peak hours when the cost to provide electricity is high to periods when the grid is less strained and the cost to provide electricity is lower.

Time-varying rates are an alternative to this traditional rate structure, where utilities charge customers a different amount based on the hour, day, and/or season when the electricity is used.

As a result, customers have an incentive to shift their electricity consumption from peak to off-peak periods, lowering their own electricity bills and potentially reducing systemwide costs if utilities can defer capital investment that would otherwise have been needed to meet peak demand.

Time-varying rates can be structured in several different ways, including establishing seasonal rates in advance or dynamically varying pricing through critical-peak pricing or real-time pricing. Ultimately, the impact of time-varying rates can be maximized when customers have technology like smart thermostats, battery storage, and advanced metering, which allow them to easily respond to varying prices and alter their electricity consumption.

The deployment of electric vehicles presents another opportunity to expand the impact of time-varying rates on affordability, as customers and utilities can benefit substantially by charging during off-peak periods.

REAL-WORLD EXAMPLES

In **Maryland**, Baltimore Gas and Electric operates a default or opt-out peak time rebate program where customers do not pay a higher price for electricity during peak periods but instead receive a bill credit for reducing their electricity consumption during these times.

Michigan established default or opt-out time-varying rates for DTE Energy and Consumers Energy. The time-varying rate structures include time-of-use, seasonal, and critical-peak pricing.

Missouri requires its investor-owned utilities to offer default or opt-out time-varying rates.

Oklahoma Gas & Electric uses opt-in time-of-use and variable-peak pricing rates, which originated from a Department of Energy Smart Grid Investment Grant the utility was awarded in 2010.

IMPACT TIME HORIZON

Medium-term (2–5 years)

Full deployment of time-varying rates requires regulatory proceedings and is often preceded by pilot programs and customer education.

POTENTIAL COST SAVINGS

Low

While cost savings will vary based on the specific time-varying rate structure and state context, the overall bill savings for customers enrolled in time-varying rates range from 0%–5%. Bill savings are dependent on the rate design, particularly the difference between on- and off-peak prices, the availability of enabling technology, and the success of educational efforts for customers.

FURTHER READING

- "A Strategic Framework for Utility Cost Control", RMI, 2025
- "Moving Ahead with Time of Use Rates", American Public Power Association, n.d.
- "Time Varying Rates are moving from the periphery to the mainstream of electricity pricing for residential customers in the United States", Brattle, 2023
- "A Review of Alternative Rate Designs", RMI, 2016
- "The use of price-based demand response as a resource in electricity system planning", Lawrence Berkeley National Laboratory, 2023