

(GUEST OPINION)

# Be Part of the Solution

AN ECONOMIST'S VIEW OF SMART GRID // BY FRANK A. WOLAK

➤ REGULATORS AND POLITICIANS claim that the smart grid will revolutionize how the industry operates. Utility executives are enthusiastic because it implies more capital in their rate base earning a regulated rate of return. The only skeptical parties are consumers, because they have to pay for it.



Unless hourly retail prices pass through the hourly wholesale price, consumers could end up paying more for electricity because of these investments and spend time learning how to use new devices, with no compensating benefits.

Consumers with interval meters that record their electricity

consumption on an hourly basis can save both time and money from smart grid investments if they face hourly retail prices that pass through the hourly wholesale price. However, there's one huge barrier to this happening – regulators and utilities must implement these pricing plans as the default option for customers with interval meters.

Retail prices that pass through the wholesale price paid for the product sold is the standard for all unregulated markets. The history of output price regulation in the electricity supply industry and the absence of interval meters to record hourly consumption are the two major factors that explain why hourly retail electricity prices typically have little relation to the hourly wholesale price.

However, the cost to consumers of setting a fixed retail price or price schedule grows as more jurisdictions install interval meters and the share of intermittent generation resources increases. The highest hourly price during the day in wholesale electricity markets in the United States can easily be as much as 20 times higher than the lowest price during that day. Many jurisdictions even have negative prices during the night because more intermittent and long-start generation units want to operate than are needed to meet demand.

Consumers paying dynamic retail prices that pass through the hourly wholesale price have the option to shift their consumption from high-priced hours of the day to low-priced hours of the day, which lowers their monthly electricity bill. Fixed retail price customers face a higher average retail price than customers paying a pass-through of the hourly wholesale price with some ability to shift their demand throughout the day.

Dynamic retail prices also provide a financial incentive for customers to make capital investments that allow them to store electricity across hours of the day or days of the week, because the value of storage comes from its ability to transfer energy from low-priced hours to high-priced hours.

Maintaining fixed retail prices that, at best, recover annual wholesale energy costs makes it very likely that smart grid investments will only raise the retail prices. However, setting the default hourly retail price equal to a pass-through of the hourly wholesale price for customers with interval meters ensures that they will have lower annual electricity bills and maximizes the amount of beneficial investments in storage and other demand flexibility technologies.

Regulators' fears of bill volatility, where extremely high wholesale prices during one billing cycle substantially raise the customer's monthly bill, has a straightforward solution. Customers can purchase load shapes at fixed prices in advance. This approach to retail pricing ensures that the customer faces an hourly retail price that passes through hourly wholesale price for every kilowatt-hour consumed and virtually eliminates bill volatility.

If regulators and utilities want to avoid future consumer backlash from smart grid investments, they should adopt retail pricing policies best suited to maximizing the consumer benefits from smart grid technologies. ☒

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