

Money for Nothing? Why FERC Order 745 Had to Die

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Demand response (DR) plays a potentially important role in the electricity systems by curtailing peak load and reducing system costs. However, the historically-based customer baseline load (CBL) determination method currently used may induce CBL manipulations, which could increase the burden of rate payers, and at the same time jeopardize system reliability. With FERC Order 745 vacated by a Federal Appeals Court, the future of such payments, as well as the structure of demand response, is now uncertain. Testing for the existence of DR manipulation may help policy makers in FERC, RTOs, and state regulatory agencies in the reshape process of DR coming soon. Our analysis examine if consumers are taking advantage of what we call “Seemingly Unattractive Free-money Opportunities (SUFO),” when a participant with a temporarily inflated CBL faces an real time price lower than that which occurred in the previous days.

We examine a DR data set from the PECO energy market in southeastern Pennsylvania in PJM between 2010 and 2011. Regressions based on the PECO data suggest that participants are utilizing CBL based manipulation strategies, as CBLs dramatically increase with learning experience. In addition, there is substantial evidence that firms engage in DR during SUFO opportunities when their CBLs potentially over-represent expected usage. In particular, participants create and use more SUFO days to earn extra profit as their experiences accumulate.

Notably, our analysis shows that a participant's experience increases both its amount of bidding and its apparent demand reductions in the market. More DR dispatches and more total dispatched MW in the energy system are expected on hours with higher LMPs, higher number of cooling degree days, or on weekday work hours. However, less reduction per dispatch is expected on weekday work hours.

FERC's now overturned Order 745 envisioned that DR participants would provide energy during peak hours, generating a large amount of social welfare and deferring costly infrastructure constructions. However, the incentives for manipulation shown here may well have been undermining DR programs. Indeed, because our data comes from a period with lower manipulation incentives than that occurred under Order 745, it suggests that the manipulation problem may have been worse had the Order stayed in effect.

In paying for perceived demand reductions, rather than allowing consumers simply to consume until their marginal benefit equals the price of electricity, FERC created a system ripe for manipulation. Keeping this system in place required a regime of constant regulatory in the past, or else the system would devolve into a large "free-money" machine with increasing burdens on customers unable to participate in such programs. To achieve a more robust CBL may require the DR customers to submit to RTOs more detailed, or even real-time, meter reading data on both event days and non-event days. This may represent a serious regulatory burden. Perhaps regulatory authorities concerned with promoting demand management should shift their attention toward marginal cost pricing, as well as demand response in the ancillary and reserve market, which has recently been shown to be successful.