

Bid-in Demand

Win for consumers
Win for the system
Win for the economy
Win for the environment



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Rate Alignment and Demand Participation

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History



- In the U.S. power markets, **prices and procedures** are regulated by the FERC under the **just and reasonable standard** of the FPA of 1935 (amended).
- **For centuries, the 'just' price has been debated in ancient Greek philosophy, the Roman Empire, the Roman Church and recently, regulatory commissions.**
- Until the 1990s, in U.S., the just price was set by cost-of-service regulation
 - consumers consumed, got a monthly bill and complained to the PUC.
 - Utilities made money by owning large capital investments.
 - **Generation followed load**
 - **Peak-load curtailment programs for load**

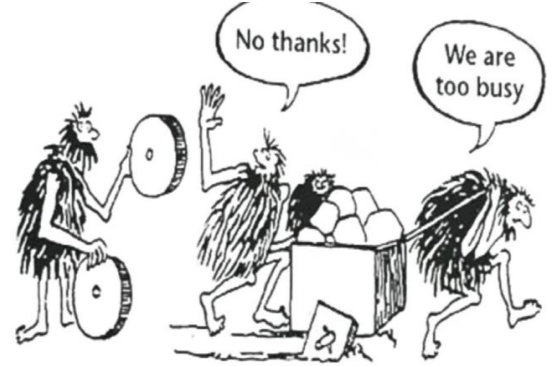
History of Consumer Participation



- Multiple choice
- A. Switches to disable equipment (HVAC and hot water). Easily disabled; no measurement
- B. Subsidies for high efficiency equipment
- C. High latency response (eg, two hours) to comes too late
- D. Zonal response ignores transmission constraints wrong place
- E. Forecast prices and self-schedules creates market inflexibility
- F. Price-responsive demand harsh rules
- G. Comparable to generators
- H. All the above
- I. Some of the above



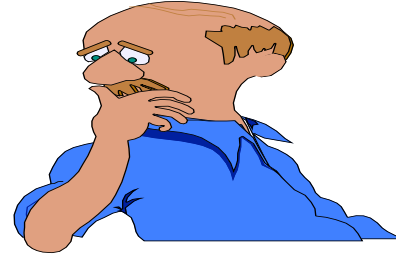
Is consumption negative generation? Value of ~~lost~~ curtailed load 1 in ten



- VOLL is the average capital cost of a marginal CT!!???
 - Somewhere between \$350K and \$1K/MWh
 - should value of load (VOL) be expressed by consumers
- The best way to do this is by bid-in demand; $VOL < VOLL$
- Reserves requirements are public goods for consumers who want to 'self consume'
- Consumers should
 - avoid high prices, for example, scarcity prices
 - take advantages of low prices
- The doubting Thomas approach to reliability (see ERCOT Feb. 2021)



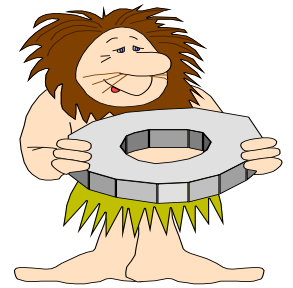
Questions and Some Answers



- Why are most consumers missing from ISO markets?
 - Tradition? They want to pay more for power? What me worry?
- What is the best way for consumers to participate?
 - bid-in demand participation comparable to generation
- What is the value of participation to the consumer? Higher value
- What is the value of participation to the system? Higher value
- What is the change in computational burden? Maybe benefit
- Is consumer participation green? Yes, less renewable curtailment
- Does bid-in demand need a capacity obligation? No
- Do low-income consumers respond to dynamic prices? Yes [Md PUC]



Future Bid-in Demand



WIN, WIN, WIN, WIN

- More renewables, EVs, greater consumption and weather-based reliability
- Order 2222 facilitates bid-in demand
- Load follows generation and participates in reliability
- Consumers treated comparable to generation and storage
- Start bid-in demand with large industrials
- Markets bring greater efficiency?
- Without bid-in demand electricity could become very expensive

- WIN, WIN, WIN, WIN

Thank you
questions?