Fundamental Basis for Determining Value and Direction in the Electric Energy Industry

IREC Presentation 6/4/2021

Dave LeVee - PwrCast

Member- Customer Grid Edge Working Group

Overview: Presentation of the "What and Why" not the "How" accomplished in the industry.

- The "How" - Many options that include industry control, participation by aggregators and direct automatic response by customers.

- Many hurdles and obstacles to address concerns of constituents from where we are today to full market maturity

- Presentation aligned w/ metric that provides objective of "value" maximization for both customers and suppliers based upon open, transparent market perspective.

Customer prices not consistent w/ economic value considerations

- Customer prices (tariffs) based upon utility revenue requirement costs
  - Utility costs based upon historical investment, not marginal
  - Costs recovery not specific to "real time" conditions, out of period recovery
- Utility planning based upon 'marginal costs", often referred to as "avoided costs"
  - Historically ignored customer options of consumption preferences, timing and marginal cost
  - Generally ignore detailed granularity or volatility corresponding to real time conditions

What Has Changed? Acknowledgment of Customer Options and Preferences Essential

- Technology allows communication of real time price incentives
- Customer options of consumption expanded (appliances, DERs)
- Variable generation (renewables; wind and solar) create volatile swings in marginal costs and prices

Industry Approaches Market Fundamentals of Supply/Demand and "Market Clearing Prices"

- Clearing price (supply/demand equilibrium) establishes both marginal avoided cost and customer preference of consumption to price

- Near-term, signal attracting additional supply where price > variable costs, hence provides contribution to fixed costs.

- Long-term, anticipated prices attract investments when revenues are sufficient to recover all fixed investment and variable costs specific to anticipated operations. Inclusive of the variability of market prices.

Market "Dynamics"

- Changes in levels of Supply or Demand alter the equilibrium price.

- Early recognition of appropriate metrics for the determination of "value" is essential to avoid adoption of uneconomic alternatives that take value and opportunity away from preferred alternatives – customer pays the price.