Rate Design for Distributed Generation: Understanding the Fast-Changing Landscape

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Presentation Outline

- Review NRRI Research Report 15-08:
  - Listing the major reasons for the heightened interest in rate designs for DG and other DER, especially solar PV
  - High-level summary status report on DER legislative and regulatory policies, based on a review of over 100 proposed or recently enacted changes in 43 states plus DC.
  - Ideas for how best to evaluate proposals

Recent Status

- U.S. distributed PV cumulative capacity has roughly doubled every two years from 2003 to the present, with the rate growing even faster... nearing full launch velocity.
- Lower cost PV and other pressing utility industry factors have ignited, in the last two years, an explosion of proposed legislative and regulatory actions, already touching 43 states plus DC.
- Is solar PV the elephant in the (dark) room? Many utilities are proposing higher fixed charges, minimum bills, or demand-charges for PV customers, and net metering freezes or rollbacks, but some state legislatures and commissions and utility companies , and many DER advocates, are proposing policy changes to help DER grow even faster.

Pressing Utility Industry Factors

(1) aging utility infrastructure in need of replacement
(2) new requirements for grid modernization
(3) further tightening of federal environmental protections and the likelihood of greenhouse gas regulations
(4) flat or declining loads and load factors, resulting from greater energy efficiency and the widespread slow-growing economy
(5) declining costs and rapidly growing markets for distributed energy resources, particularly solar PV and battery storage
(6) state and utility net metering programs nearing or exceeding existing caps, thus triggering policy reviews
(7) strong interest on the part of growing numbers of large corporate and institutional buyers and municipalities, in getting more or all of their electricity from renewable and low- or zero-emissions energy resources

Legislative & Regulatory Activity (1)

- **RPS Changes** – Under legislative review in 26 states
  - Increases considered in 8 states
  - Decreases or roll-backs in 7 states
  - Eleven states with competing proposals (including both increases and decreases)
- **Fixed charge increases** –
  - 2 new laws enacted (KS, OK), authorizing rate changes
  - 45 proposals, some for all customers, others only for net metering customers, only for solar, or only for DG
  - 23 dockets are still open in 17 states
  - 22 dockets are closed in 13 states, with three of the final orders appealed to state or federal courts

Legislative & Regulatory Activity (2)

- **Generic NEM reviews**
  - Open regulatory proceedings in 18 states, plus new Hawaii decision, ending net metering for new customers
  - Proceedings initiated by the state regulatory agencies in 17 states, plus 9 cases in 5 states initiated by utilities
  - Only 4 states now do *not* have NEM programs
- **Community Solar**
  - 7 state decisions and 9 states plus DC with open dockets
  - 8 states where legislatures enacted laws directing state commissions to set up the programs: California, Connecticut, District of Columbia, Hawaii, Illinois, Maryland, New Hampshire, Oregon.

Legislative & Regulatory Activity (3)

- **Generic DER reviews**
  - Open dockets in 8 states, decisions reached in 3 more states
- **Legalizing 3rd Party Ownership**
  - approved by legislation in CT, DC, GA, HI, and VA
  - Approved by state court decision in IA
  - under commission review in North Carolina
- **Broad REV-like reviews**
  - California, District of Columbia, Hawaii, Massachusetts, Minnesota, New York
- **Utility ownership**
  - Approved in Arizona, affiliate ownership is proceeding in Georgia, Kansas has one open docket, and utility ownership has been greatly restricted in New York

Legislative & Regulatory Activity (4)

- **Value-of-solar (VOS) reviews**
  - A Louisiana study finds net metering costs outweigh benefits to ratepayers, a Pennsylvania study finds net metering does not a standard TRC test, but studies from Mississippi and Nevada find net metering benefits outweigh costs.
  - 11 states have ongoing studies of net-metering costs and benefits
  - South Carolina and Georgia are explicitly studying VOS, with Georgia studying values of DER for analysis in Georgia Power's 2016 IRP.

How can proposals be evaluated?

- Model effects on utilities
  - Pro-forma financial modeling
  - Avoided costs for G, T, and D
  - With and without possible mitigating measures and rate design changes
- Model effects on different groups of customers:
  - Low, medium, and high energy users
  - Smallest, medium, large, and extra large PV systems
  - Low income customers
  - Voluntary green power purchasers
- Model effects on DER business value chain
  - Study feedback loops between policies and consumer adoption rates

Future research needs

- How best to achieve fully integrated, thorough, localized, distribution system resource planning?
  - How can IRP models be expanded to accommodate non-transmission and non-distribution alternatives?
- How to model the economic inputs and outputs for each utility service territory?
  - What will be the direct and spin-off effects of changes in DER markets?
  - Is a utility better off with lower, maybe even declining sales per customer, but a growing service-territory economic base and growing numbers of customers?