Energy Reliability in a Changing Landscape

Steve Kiesner
Director, National Customer Markets
Edison Electric Institute

FUPWG
January 14, 2014
Industry Infrastructure Investments
Needed Infrastructure Investments to Address:

- Reliability
- Environmental and other policy requirements
- Leading the *transformation* to make the grid more *flexible* and more *resilient* to meet the growing demands of our digital society
Industry Capital Expenditures

Notes: Total company spending of U.S. Shareholder-Owned Electric Utilities
Projections based on publicly available information and extrapolated for companies reporting fewer than three projected years (6% in 2014 and 2015).

Source: EEI Finance Department, company reports, SNL Financial (October 2013)
Projected Functional CapEx

2012P as of August 2012

- Generation: 41%
- Distribution: 22%
- Transmission: 15%
- Gas-Related: 10%
- Environment: 6%
- Other: 6%

2013P as of October 2013

- Generation: 37%
- Distribution: 21%
- Transmission: 17%
- Gas-Related: 12%
- Environment: 7%
- Other: 6%

Notes: Total company functional spending of U.S. Shareholder-Owned Electric Utilities
Projections based on publicly available information and extrapolated for companies not reporting functional detail (1.6%).

Source: EEI Finance Department, company reports (October 2013)
Electric Distribution System is in Transition
The Electric Distribution System Is In Transition

- Customers have new distributed energy resource (DER) options, including distributed generation (DG)

- The structure and operation of distribution systems will change as “smart” infrastructures are built out and new DER technologies are deployed
  - Ultimately, power will flow in 2 directions across distribution systems
  - Supporting a safe and reliable grid infrastructure is critical to the deployment of new technologies
Public Policies Are Spurring DER Adoption

43 States Have Net Metering + 17 States Have DG/Renewable DG Goals

State Renewable Policies

State Net Metering Policies

What is it?
- FIT-like programs are also called standard offer contracts or CLEAN Initiatives (Clean Energy Accessible Now) and many utilities are giving their own programs individual names. Typically, a FIT or FIT-like program requires a utility to purchase electricity (and sometimes RECs) from eligible renewable generators, independent of any energy consumption by those generators. The FIT provides a guarantee of payments ($/kWh) for the full output for a guaranteed length of time and ensures access to the grid. FIT rates typically vary by technology, project size, and other project-specific variables. Some FIT-like programs are being implemented with rates that adjust periodically based on market or other conditions.

Benefits of a FIT:
- By charging a customer for their consumption (as if they had no solar) and separately paying them for the value of their generation, a FIT solves the cross subsidy/cost shifting problems associated with net metering. The utility still charges for the full costs of service to a customer.

EEI, Energy Supply Department, 04/19/2013
Other Factors Contributing To The Transition

- The Department of Defense, the largest energy user in the U.S., is actively seeking to implement renewables and energy security policies
- Higher retail electric rates
- Declining cost of PV
- Evolution of “smart” infrastructure technologies (power electronics, storage, sensing and measurement, controls), high speed communications
  - ARRA funding for AMI deployment, smart grid demos
- Storm outages
New Regulatory Policy and Rate Design Are Needed

 › To ensure reliability:
   ▪ Enhance electric infrastructure

 › To ensure safety:
   ▪ Update interconnection standards & procedures

 › To ensure fairness:
   ▪ Adopt new approaches to designing rates for distributed generation so all users of the grid contribute to grid infrastructure
Rate Designs for Distributed Generation

› What’s the Problem?

› How Much Should Utilities Be Compensated for Providing Service to Customers with Distributed Generation?

› How Much Should Utilities Pay for Electricity from Distributed Energy Sources?
The Value Question: How Much is DG Electricity Worth to the Utility?

From the Utility’s Perspective

It is worth the avoided cost of electricity produced or purchased from the least expensive alternative source

From the DG Provider’s Perspective

It provides the following additional benefits:

- Clean energy
- Savings from deferred generation/transmission capacity
- Green jobs
- Energy security
Cost Impacts of Net Metering Do They Accord with Ratemaking Principles?

➤ Prices to customers should be based upon the **actual cost** to provide you electricity

➤ Any **subsidies** (*additional costs borne by some classes of customers to benefit others*) should be **transparent** and **justified**

➤ “Societal benefits” (e.g., job creation, CO$_2$ emissions reductions, energy independence) should be **paid for by “society,” not electricity customers**

➤ Net metering creates a **hidden subsidy** benefiting distributed generation owners at the expense of other electricity customers that is being defended on the basis of the “societal benefits” that it provides
What is the Best Rate Approach for DG?

**Straight Fixed/Variable Pricing (SFV)**

- **Fixed costs of service** (transmission, distribution, metering, customer support, taxes, interest expense) should be recovered in **fixed monthly charges** (customer charges and/or demand charges).
- Much of these fixed costs are currently recovered in **volumetric (per kWh)** charges.
- A **straight fixed/variable (SFW)** rate design recovers fixed costs through fixed charges, and variable costs (fuel, purchased power) through per kWh charges.
- Distributed generation customers on an SFV rate will continue to **fully compensate** the utility for fixed costs of service, even if they are **no longer taking electricity from the utility**.
DG Wrap

› The U.S. electric grid delivers a valuable product essential to all Americans.

› The electric power industry is leading the transformation to make the grid more flexible and more resilient to meet the growing demands of our digital society.

› Everyone who uses the grid should help pay to maintain it and keep it operating reliably.

› It is vital for our nation to have a diverse supply of safe and reliable electricity, and electric rates should be fair and affordable for all customers.
Utilities and Fed/DoD Collaboration on Energy Security
Energy Security Collaboration

- **Dialogue:** There is a need to have substantial, on-going conversations to educate one another and address common goals.

- **Alignment:** There is an alignment of energy security (ES) goals between the military and its serving utilities – *Are we missing opportunities?*

- **Majority** of ES solutions will require comprehensive, integrated approaches.

- **No** other industry has the experience and expertise to help the Feds/military with integrated resource planning (e.g., loading orders, energy efficiency, microgrids, etc.)
Energy Security: It’s Our Job

Utilities should be the first place you go!
- Long history of working with our major federal customers
- Understand what’s happening on our side of the meter
  - Our infrastructure developments
  - Policy and systems requirements (e.g., studies, interconnect policies, etc)
  - Programs
- Use our expertise to ID the core of the issue/problem?
  - What’s causing it?
    - What’s really happening with outages? And where?
  - Vulnerabilities that need to be addressed?
  - What side of the meter is it on?
- What’s the goal and the ways and means to accomplish energy security?
Energy Security is at a high level at utilities

We do energy security every day
  It’s our job to find the most effective solutions

We have the tools and objective expertise to work with you on addressing problems and developing solutions. E.g.:
  Expertise on loading orders
  UESCs
  Special tariffs
  Privatization

Successful precedents
  Tinker, Warner-Robins
  Numerous privatization initiatives
  Undergrounding, asset hardening, etc.
Thanks
skiesner@eei.org