Getting New Jersey on Track to Distant Goals
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FRANKLIN NEUBAUER
PRINCIPAL

Energy Efficiency Experience
- EE planning in Pacific NW, California, Pennsylvania, New Jersey
- Resource planning (IRP)
- Simulating policies, impacts
- Demand analysis, forecasting, regional power modeling
- Evaluation, attribution and statistical analysis
- Investment research

Past Work for
- Bonneville Power Administration
- San Diego Gas & Electric
- Electric Power Research Institute
- California Energy Commission
- State agencies
- Technical, consulting firms
- Nonprofits
- Commodity trader

NJ Needs a Reliable Planning Process
INEVITABLE CHANGES
- Pace of progress, technologies
- PJM’s offerings, gas availability
- Demand-Side Management
- Consultants’ tools
- Academic approaches
- Elected officials

MANAGE UNCERTAINTY
- HOW WILL NJ CONSISTENTLY TRACK PROGRESS 3 YEARS, 10 YEARS, 20 YEARS FROM NOW?

P.L. 2018, c. 17 deals with utility EE, not all energy savings.
- Responsibility for programs
- 2% or 0.75% per year
- Greater funding needs
- EE is an unmetered resource.
- How do you plan 32 years ahead?
- Long-term energy demand forecast
- For energy use, GHG, imports
- Suited to unfolding developments
- Gas, petroleum, electric, leakage
Demand Forecasting Challenges

- Apples to apples comparisons
- Starting with 2011 EMP, infeasible
- PJM’s forecasts suit PJM’s needs, not New Jersey’s.
- Otherwise: basic methods, commercial services
  - No university provides one-stop load forecasting.
- Any load forecast is based on many assumptions.
- Awareness of assumptions helps

Comparing forecasts requires controlled testing.

2011 EXAMPLE
- Economic growth
- Just PJM loads or broader
- Definition of net loads
  - Solar, DER, behind-the-meter, on-site...
- Different forecasting methods
- Vintage of input data

CURRENT LOAD FORECASTS
- Solar assumptions
- New technology penetrations
- Rate design to shift loads
- Storage (not just batteries)
- EVs and fuel switching
- Long-term EE strategies for aging equipment, buildings

Pick demand projections every 3 years (snapshots)

- In 2018-19, basic forecast methods may be sufficient for EE planning and less burden for staff. NJ/Rutgers could compile sources and extrapolate.
- Expertise is not most important in setting a baseline.
- Other PJM states may have long-term forecasting
- Disclosing the forecast is essential to government accountability for EE and GHG progress.

Planners have many tools but no magic bullets.

1. Demand projections and assumptions
   - Reward or penalty for utility performance
   - Requires statistical analysis
2. EE goals & quantitative performance indicators
   - Highest priority is to allocate future investments.
3. Cost-effectiveness methods
   - “Best practices” designation
4. “Best practices” designation
5. EE financing
6. Behavior programs
EE Best Practices Don’t Always Fit NJ

- Corzine Administration developed a best practices EE strategy in 2009.
- Hindsight revealed vulnerabilities
  - Big transition, need expertise to understand
- Pursue affordability and better information.
- Revisit decisions when better informed.

Where to Get Dependable Demand-Side Savings

- Utility programs for all end-uses
- Clean Energy Program for all fuels
- Building codes, design, and enforcement
- Appliance standards
- Expand AML
- Targeted financing
- Demand response
- Time varying rates (+/-)
- Benchmark buildings
- Prices on carbon through state alliances

Other Grid Related Energy Savings

SUPPLY (PARTIAL LIST)
- Voltage optimization
- CHP
- Microgrids
GHG PRIORITIES
- EVs
- Fuel switching (+/-)
REFORMS
- Utility business model
- Administrative processes (+/-)