Getting New Jersey on Track to Distant Goals

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FRANKLIN NEUBAUER
PRINCIPAL
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Energy Efficiency Experience

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- 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

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NJ Needs a Reliable Planning Process

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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?**

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P.L. 2018, c. 17 deals with utility EE, not all energy savings.

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- 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

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Demand Forecasting Challenges

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- 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**

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Comparing forecasts requires controlled testing.

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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

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Pick demand projections every 3 years (snapshots)

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- 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.**

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Planners have many tools but no magic bullets.

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1. Demand projections and assumptions
2. EE goals & quantitative performance indicators
   - Reward or penalty for utility performance
   - Requires statistical analysis
3. Cost-effectiveness methods
   - Highest priority is to allocate future investments.
4. "Best practices" designation
5. EE financing
6. Behavior programs

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EE Best Practices Don't Always Fit NJ

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- 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.**

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Where to Get Dependable Demand-Side Savings

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

HARNESS MARKET FORCES

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Other Grid Related Energy Savings

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SUPPLY (PARTIAL LIST)

- Voltage optimization
- CHP
- Microgrids

GHG PRIORITIES

- EVs
- Fuel switching (+/-)

REFORMS

- Utility business model
- Administrative processes (+/-)

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