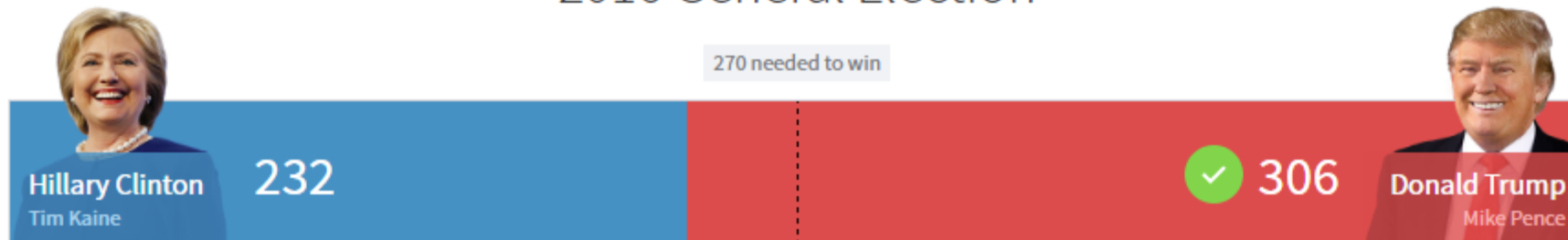


“Elections Have Consequences...”

What Does It Mean for Grid Modernization?

2016 General Election



Craig Glazer
Vice President – Federal Government Policy
April 27, 2017

Some Notable Statistics

Popular Vote:

- Trump: 61,021,031 47.01%
- Clinton: 62,523,126 48.03%

Electoral Vote:

- Trump 306
- Clinton 232



Total Trump Margin in WI, MI and PA:

- Approx. 97,284 votes
- .08% of total votes cast

Size of Penn State Beaver Stadium: 106,572

- Voters deciding this election would fit comfortably in Beaver Stadium (with room to spare)
- Hillary Clinton popular vote margin would fill 28 Beaver stadiums
- Total vote would fill 1,159 Beaver stadiums



Presidential Appointments

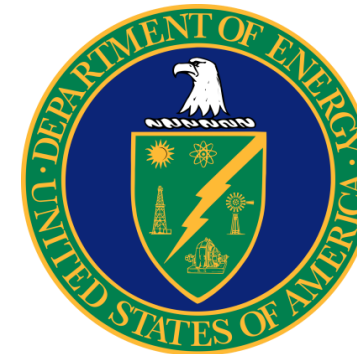
- 4,000 Executive Appointments

Department of Energy

- All Assistant Secretaries, Under Secretaries and Policymaking Positions

FERC

- Designation of the Chairman
- 3 Commissioner Positions Open
- No Republicans on FERC



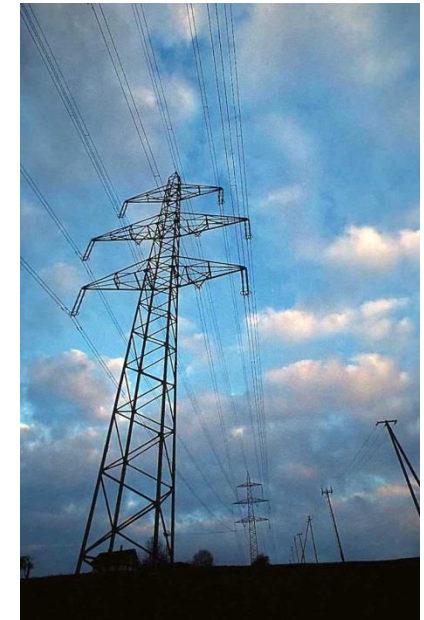
“Bring back coal jobs”

- Target: EPA Clean Power Plan
- Federal support for clean coal initiatives

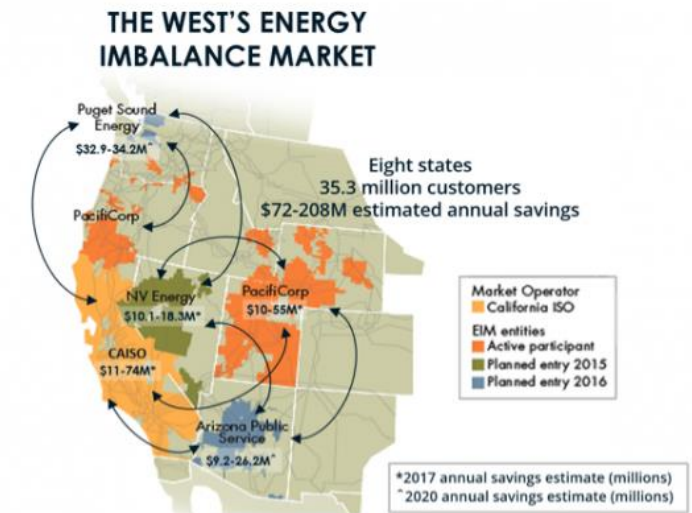


“America First” Energy Plan

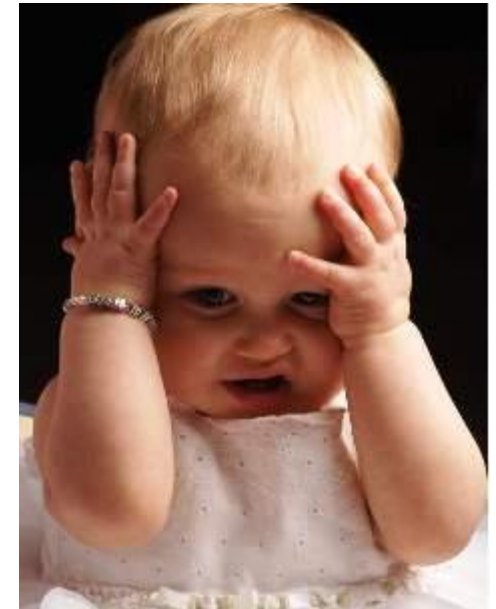
- Support for Infrastructure
- Executive Order calling for use of U.S. steel and iron in all pipeline projects
- “Energy Independence”
- Taxing revenues from energy production



- Power of the FERC Chairman
- **Senate Energy Committee:** Stable leadership, western dominance, New England detractors
- **House Energy & Commerce Committee:** Support for “baseload generation” negative experience with MISO capacity market
- **A sleeper:** Success or failure of the California Energy Imbalance Market



Source: "Energy Imbalance Market Overview," CAISO (2015)



Can/should the administration do more to ‘preserve baseload’

- What is “baseload” anyway?
- Are we over-dependent on natural gas? How is ‘over-dependent’ measured when operating to NERC standards?
- Need to build “pipes and wires”
 - Are FERC’s regulations a barrier to new pipe built?
 - Is this all a permitting/environmental problem? Or deeper economic problem?
- Can this fit into a tweet?



PJM's Fuel Security Paper:

- “Baseload” is increasingly made up of natural gas units in addition to coal and nuclear
- No natural ‘upper bound’ on amount of natural gas from a reliability viewpoint
- Focus will be on “Resiliency” to address high impact events
 - Operations changes to manage additional risk
 - Valuing flexibility as an ancillary service
 - Transmission Infrastructure to Make Critical Facilities



Is the grid vulnerable to cyberattack? What is the role of the federal government?

- More latitude to industry vs. ‘weakest link’ concerns?
- Does impact to the overall economy drive more government response or a ‘trust business to do the right thing’ approach?
- Where does the federal government’s authority start and end stop under its national security authority?



Accommodating State Actions to Promote State Policies

- Should FERC step in to adjust for state policy actions that distort competitive market outcomes?
- Which policy is superior?
 - Federal policy supporting nondiscriminatory competitive markets?
 - State policies that subsidize and support individual state policy goals e.g. protection of nuclear, protection of jobs, local economic development, etc.



Supreme Court's Holding in the Hughes Case

- State programs which change wholesale market prices violate the Commerce Clause
- Court looks to whether state program is 'tethered' to wholesale market results and wholesale market design
- Illinois ZEC program
 - Constitutionality under review in the Northern District of Illinois

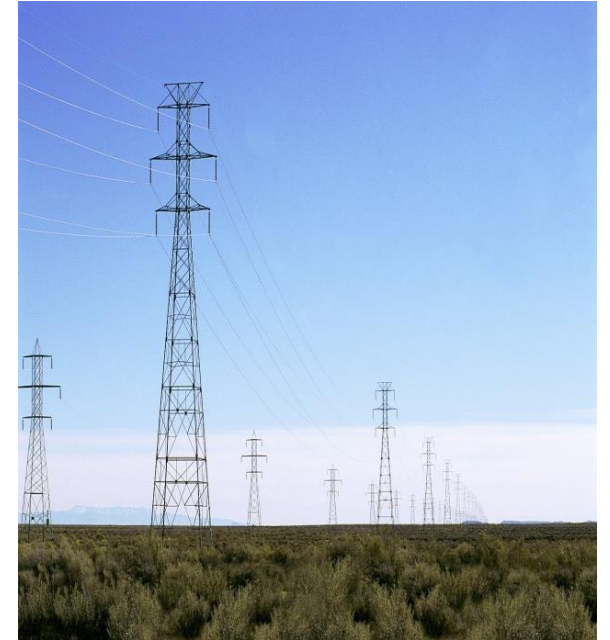


POLICY CHOICES...

The Long and Winding Road...



- Transmission: Built to support major generation projects
- Connect distant generation to load;
Distribution: One way delivery of power to the home
- Grid Costs: Rate-based to the home utility's customers
- ROI: Little focus on transmission as a stand alone business element

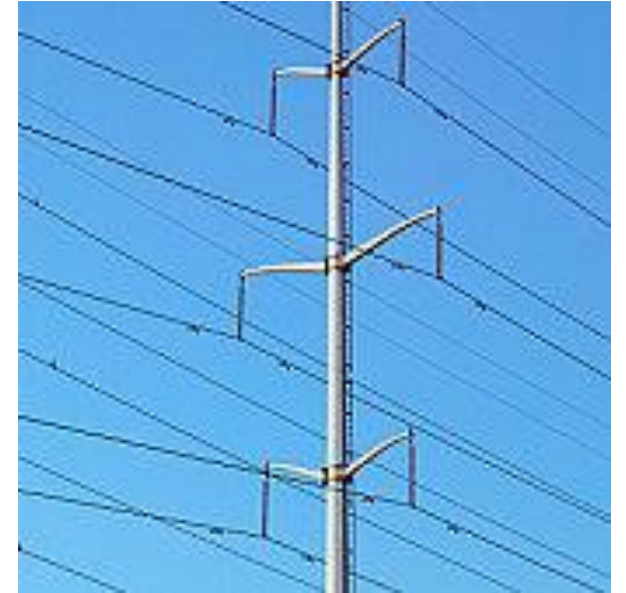


Policy Choice #1

Is the grid an enabler or a competitor?

Grid as an Enabler?

- Accept the grid as a natural monopoly
- Drive solutions through regulation
- Provide incentives for innovation



Policy Choice #1 (cont'd)

Grid as a Competitor?

- Grid development must compete with generation or demand side
- Grid entrepreneurs take risk: no guaranteed ROI
- Grid pricing reflects competitive outcomes: Bid solutions into the marketplace (RPM)

Policy Choice #2: A Strong or Weak Grid?

Characteristics of the “Strong” Grid:

- Generation distance from load
- Meet the needs for future transmission expansion
- Costs socialized to reflect interconnected nature of the grid
- Broad regional approach



Policy Choice #2-The Alternative:

The localized grid...

- Generation closer to load
- Centralized focus on development of DSR, energy efficiency and renewables
- Transmission/distribution grid as an enabler of alternative generation
- Transmission focused on meeting state/local needs



Policy Choice #2: Decision Points

- Siting: Regional vs. Local Needs
- Cost Allocation: Socialization vs. Direct Assignment
- IRP/RPS vs. Competitive Procurement
- Short term procurement vs. long term



Policy Choice #3: Determine the Planning Philosophy

- Transmission decisions driven by generation investment or generation investment influenced by the planned transmission grid?
- Role of the Planning Authority



An Added Complication:

Who Decides?



- States:
 - State Energy Policies: Governors/legislators
 - State PUCs
- FERC
 - FERC Review of Planning
- Environmental Agencies
 - State
 - Federal
- Department of Interior
 - Federal and state land use policy



“Hanging in mid-air”: a dangerous place



The Task Ahead: Blocking, Tackling & Teamwork!



LET'S TALK...



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