Electricity: Today and Tomorrow

A presentation by:
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What Is ELCON?

- The national association for large industrial users of electricity in the U.S.
  - Founded in 1976
  - Members from a wide range of industries from traditional manufacturing to high-tech
- The views today are mine alone

What I Plan To Do Today

- Very briefly discuss the state of the Congress
- Then touch on a variety of non-EPA issues that are expected to have a significant impact on industrial electricity consumers
  - Assert that EPA issues are far from the only threats to industrial electricity consumers
- Do not discuss, but assert that EPA regulations are proceeding and may or may not have a significant impact on electricity costs
- Mention that GHG regulations may be the wild card
- Conclude that industrial electricity consumers must take significant actions to protect themselves from perhaps significant electricity cost increases

Last Year I Emphasized

- Traditionally, electricity was more a regional than partisan issue:
  - Usually based on a combination of price, fuel sources and utility reputation
- However, things have been changing:
  - The 2006 election brought a huge Democratic victory
    - Dems took control of both the House and Senate (1st time since 1994)
    - No Democratic House, Senate, or gubernatorial seat lost to Republicans
    - Energy/environmental objectives became: Boost renewables, regulate GHG emissions, and attack big oil companies

As We All Know

- In 2008, Barack Obama succeeded "W" with a tremendous margin
  - Henry Waxman ousted John Dingell:
  - Democratic expectations continued
- Recession hits in the end of 2008:
  - Took focus off of energy – to economic recovery
  - Some began to realize that environmental objectives may jeopardize jobs
    - Partly through higher electricity prices
- The public became upset with:
  - Little (if any) economic recovery
  - Congress' inability to act
  - Growing opposition to health care legislation
  - GHG emissions decline in importance

Then: The 2010 Election

- "Throw the bums out":
  - Major anti-Washington sentiment
  - 60 vote Republican majority in the House
  - Narrow 3-vote Dem majority in the Senate
  - Very partisan environment on the Hill
- However, the Administration (esp. EPA) actually increased activity:
  - Even though much energy policy has not always been partisan, environmental policy issues clearly became partisan
  - House on EPA attack – But Senate blocks
  - Legal challenges may bring more change

Congressional Actions 2010 – 2012

- The Senate and House are on different tracks
- House (large R majority):
  - 1st priority – repeal health care (”Obama-care”)
  - 2nd priority – rein in EPA (avoid “train wreck”)
- Senate (3 vote D majority):
  - Blocked or ignored most House actions
  - Attempted smaller bills with bipartisan support (e.g., energy efficiency, loan programs, energy “jobs”, studies, etc.), but were not successful
  - But concerned over amendments to restrict EPA
- Little got done – other than a lot of blaming and finger pointing
  - Nothing significant on energy is expected – at least until after the November election

Romney Proposes

- North American Energy Independence
  - Remove EPA of authority to regulate GHG
  - Rely on states for drilling permits wherever possible
  - Open many federal lands and waters for drilling
  - Eliminate PTC for wind
  - Maintain federal mandate for ethanol
  - Keep tax incentives and tax breaks for oil and gas drilling
  - Approve Keystone XL pipeline
  - Remove obstacles and EPA regulations that are impeding the development of coal

Obama Continues To Support

- An "All Of The Above" strategy
  - Sharply raised federal standards for fuel efficiency of cars and light trucks
  - Maintain EPA's authority to regulate GHG
  - Seek to reduce GHG emissions from fossil fuels because of climate change concerns
  - Maintain incentives for renewable energy
  - Eliminate the $4 billion / year of oil and gas tax breaks
  - Open more offshore areas for drilling
  - Federal safety standards for hydraulic fracturing
  - But is undecided about the Nebraska portion of Keystone XL

What Can We Expect From Congress After The Election?

- ***Perhaps*** some form of energy tax credits (wind or solar PTC, others?) in Lame Duck
- Energy certainly is not a top priority in Congress – and the country faces a dreaded "fiscal cliff"
  - If Romney wins and Rs take over the Senate, Rs will block actions (including energy) until he is sworn into office
  - Even if Obama wins but Rs win the Senate, Rs will stall tax & spending "fixes" until they hold the gavel
  - If it is a "status quo" election (Obama wins and Congress remains divided) negotiations may begin, but it is difficult to imagine real results soon
  - Electricity may – or may not – be that important in Congress
- Since I have been clear about what will actually happen
  - Let's go to other issues

But Even Without Congressional Action …

- Just before Labor Day, President Obama signed an Executive Order calling for additional CHP (40 GW by 2020) and EE:
  - CHP installations peaked in 2001/02 @ > 5 GW installed each year
  - It has fallen to < 1 GW per year from 2006/10
  - FERC lauded the EO – and suggested "feed-in tariffs"
  - Although, greatest potential for CHP is in refineries
- This simply is one example (here positive) of how the Administration can bring about change w/o legislation
- Further, such action may cut many ways:
  - Feed-in tariffs certainly make sense if they truly reflect avoided costs
  - But others may try to "piggy back" on the effort
    - As an example, Duke Energy is trying to tie tax credits for utility-built CHP plants

Let's Us Move On To What MIGHT Happen in the Electricity Space

- I mention only a few (and only briefly describe each):
  - FERC actions – Increasingly very significant
  - CHP and Energy efficiency – Cuts both ways?
  - Decoupling – Collect for outages?
  - Cyber security – Is the grid adequately protected? – Can it be?
  - DOE efforts to "modernize" PMAs – Simply re-allocate costs?
  - Gas / electricity interdependence
  - Nuclear – Will there be a revival?
  - NERC (a whole new set of requirements)
  - And of course EPA – air, coal ash, cooling water and possibly fracturing regulations

FERC Activities: Transmission Cost Allocation

- Transmission will become even more important as renewables grow
  - NREL concluded: 20% wind in East is "technically feasible" – but requires $93 B in T and the establishment of large regional operating pools
- FERC's Final Order 1000 in July 2011:
  - Requires consideration of "public policy requirements"
  - Veers away from "cost causation" and would allow the socialization of costs
  - Fails to recognize that the costs of low capacity factor energy resources (e.g., wind) should be allocated based on capacity (rather than on energy)
  - ELCON filed for clarification and rehearing

FERC Continues To Try To Integrate Variable Generation

- A primary FERC objective is to "socialize" the costs of new transmission that are "caused" by "state-sponsored policy goals"
  - This could involve the reallocation of many billions of dollars
  - ELCON has opposed socialization – costs should be allocated based on cost causation principles
  - Opposition to socialization is growing
    - The Organization of PJM States, Inc. supported language stating: "no public policy project costs may be allocated for recovery from the residents of non-sponsoring states"
    - But DE, MD, and DC opposed this language saying that it would create a free-rider problem by prohibiting the recovery of costs from non-sponsoring states for public policy projects, even if the projects relieve significant transmission constraints for those parties

FERC Activities: Transmission "Incentives"

- EPAct 2005 allowed FERC to grant "incentives" for transmission construction
  - FERC consistently has allowed billions of dollars in "incentives" for new transmission
- FERC initiated a NOI on transmission incentives in May 2011:
  - ELCON urged FERC to establish a rebuttable presumption that there is no need for "incentives"
    - Incentives should be tailored to the risk profile of the project
- Several FERC Commissioners now are questioning the need for such "incentives"
  - But there is a lot more that needs to be done

The Fight Over Demand Response Continues

- In 2011, FERC issued a final rule (Order 745) requiring ISOs & RTOs to pay DR "full LMP" – the same as generators
  - ELCON strongly supported (most of) FERC's proposal
  - Generators and other suppliers are strongly opposed to these proposals
  - ISOs & RTOs made "compliance filings" as required by the Rule -- **But the opposition continues**
- PJM is a clear example:
  - 14 GW of DR cleared in the PJM RPM for 2015/16
  - The Brattle Group said that a significant problem is DR providers that offer into the RPM and do not produce
  - PJM is considering audits to confirm contractual commitments

The Fight Over Demand Response Continues (Cont.)

- Clearly, DR is a very valuable (and perhaps profitable) resource
  - Barriers to "legitimate" DR should be removed
  - DR should be compensated in a manner equivalent to payments to generators
- However, I raise a few questions about the future of DR:
  - Is DR needed to offset occasional extreme conditions (e.g., weather) on an appropriately planned and constructed system?
  - Is DR expected to counter the wide swings in production from variable generation (e.g., wind and solar)?
  - Will DR always be voluntary – or will DR become a mandatory rationing system?

If That Is Not Enough

- **A few other FERC issues that will impact industrial electricity consumers:**
  - Are consumers getting net benefits from ISOs/RTOs?
    - At a minimum, will we get better metrics?
  - Behind the meter generation issues
    - Will ISOs / RTOs reach through the meter to control industrial generation?
  - Frequency response
    - A problem or an opportunity?
  - Priority of transmission property rights
    - Another problem or an opportunity?
  - FERC Penalty Guidelines
    - What are the penalties based on?

Decoupling

- Decoupling is intended to break the link between the amount of energy a utility sells and the revenue it collects or earnings it makes
  - Over 20 states have implemented some form of decoupling (some just for gas)
- ELCON has expressed considerable concern over decoupling for many years
  - We feel that decoupling:
    - Eliminates the incentive for regulators to set appropriate price signals; addresses lost revenues, not lost profits; shifts business risk from shareholders to consumers; eliminates the incentive for economic development; and reduces the need for good management in the utility
- Yet another concern about decoupling surfaced this past summer
  - Decoupling allowed utilities in MD to recover revenue lost from reduced power sales due to outages during major storms!

Grid Improvements and the Cyber Security

- The U.S. Congress is considering legislation focusing on cyber security (broader than just electricity):
  - It is motivated by arguments such as:
    - Our Nation has a real and present concern
    - The concept has bipartisan support
    - Our concerns relate to the grid and grid security
- There are real questions regarding the legislation such as:
  - How great are the threats or vulnerabilities?
  - Which entity should have authority? (Homeland Security, DOE, FERC, etc.)
  - What will it require?
- But we know that whatever is done will be very expensive

DOE Efforts To "Modernize" PMAs

- Secretary Chu issued a memo in March 2012:
  - Calling on the 4 PMAs to "modernize" the way that they do business
  - PMAs control much of the nation's hydropower and associated transmission lines
  - Much of the PMA power goes to "preference customers"
- The proposal:
  - Required rate structures that provide "incentives" for grid improvements and Administration priorities – showcase renewables
  - It immediately brought great criticism from public power and cooperative utilities
  - 166 lawmakers, both Ds and Rs, expressed concern
- The effort could result in considerable cost shifting
  - Those presently served by PMAs might be hurt

Gas / Electric Interdependency

- Our country increasingly is relying on natural gas for power generation:
  - Many coal generators are being closed
  - VG is growing, but is not able to fill the void
  - If the economy revives, industrial demand may increase (significantly???)
- Several efforts are underway to address possible concerns:
  - Examples include: NAESB (released a study) and FERC (held 5 regional hearings)
  - There appears to be plenty of gas (although new regulations may restrict production)
  - But can it get to where it is needed? New pipe is needed – but who pays?
- ELCON's "Members Only" Workshop will be held next week in Washington focusing on this issue

NERC Issues: Background

- The North American Electric Reliability Corporation (NERC):
  - Is the FERC-designated "ERO"
  - It develops mandatory reliability standards with up to $1 million / day penalties
  - Any entity that is on NERC's "Compliance Registry" must:
    - Comply with all applicable standards
    - Make required compliance filings
    - Be subject to periodic audits
- If you have not yet been placed on NERC's Compliance Registry
  - You are lucky

NERC Issues: Concerns

- Industrial Facilities can become NERC-Jurisdictional in at least three ways:
  - BES Definition
    - Defines the specific assets that make up the BES
    - Therefore makes them subject to Standards
    - FERC and NERC staff want more, rather than less, jurisdictional
    - ELCON is actively involved in this process
  - Statement of Compliance Registry:
    - Defines the "users, owners and operators" of BES assets
  - Specific reference in a standard:
    - Standards that specifically reference an asset or facility require them to be compliant until "excluded"

NERC Issues: Concerns

- Current Risk to Industrial Facilities:
  - Behind-the-meter-generation is at perhaps the greatest risk
  - Large (>100kV) interconnection facilities
  - Interconnections with the BES
    - That do not have utility-controlled protection devices
  - Any "utility-like" behavior
- Potential NERC scope creep:
  - Large loads
  - Demand response
  - Contiguous path between behind-the-meter-generation and the BES
  - Control centers (e.g., EMS)

Why Industrials Should Care About NERC

- Once NERC-jurisdictional:
  - Entities must devote large quantities of resources (both time and money) to ensure compliance and respond to audits, etc.
  - Some industrials have had to:
    - Hire additional staff and spend large amounts of money on lawyers and consultants to attempt to both be in compliance and comply with audits

Then There Are The EPA Activities

- CIBO knows the EPA issues much better than I
  - My concerns relate to the potential costs
- Estimates of the costs are quite varied:
  - Some have said that our nation faces a "train wreck" with costs skyrocketing as coal plants are shuttered
    - As an example, the Electric Reliability Coordinating Council says that prices will rise an average of 20 – 25% reducing U.S. household buying power by $400 to $500 per year
  - But EPA says they are rather minimal – especially when compared to the benefits
  - While EPRI says that costs are presently estimated to be $275 billion in future expenditures
    - But that would be reduced by $100 billion by providing a "flexible path"
- And EPA does not base its decisions on costs anyway

Then There Are The EPA Activities (Cont.)

- Is the "train wreck" argument "real"?
  - The trade press reports that power companies are retreating from using the once-widespread term
  - "Cleaner" power companies (e.g., nuclear) have strongly opposed the term
  - But even the "Stop The Train Wreck" web site has not been updated for well over a year
  - The availability of low-cost natural gas as a replacement for coal has greatly lowered the expected costs of compliance
  - And the depressed demand for electricity due to the recession also has reduced concern
- However, this could change with economic revival and new regulations on hydraulic fracturing

But With Or Without Even More Air Regulations

- EPA is considering hydraulic fracturing "safety" regulations
  - The availability of large quantities of domestic natural gas (along with an economic recession) makes compliance to proposed EPA air regulations feasible air costs that perhaps can be tolerated
  - But it would be a whole different situation if fracturing regulations significantly reduced the use of that technology
  - A significant increase in reliance on VG, even with adequate transmission but without storage or back-up gas generation, would test our economic ability to sustain a reliable electricity supply – to say the least

What To Expect If GHG Regulations Are Implemented

- On June 26, 2011, EPA won a sweeping victory when the DC Circuit upheld all of the GHG vehicle and permitting rules
  - A variety of energy interests, led by the US Chamber of Commerce, sought rehearing
  - Many legal experts consider this a "long shot"
- But the headline on Page 1 of Politico on August 1st states:
  - "Even as D.C. Boils, Climate Change Is on Back Burner"
  - "The planet may be getting hotter, but Washington's debate on climate change isn't heating up" is the lead-in to the article
- Then a key advisor to President Obama stated that in his second term, the President would address GHG with existing authority
  - "There may be space to deal with climate change initiatives in discussing tax policy reform" said Heather Zichal, deputy assistant to the President for energy and climate change.

What To Expect If GHG Regulations Are Implemented

- GHG regulations may be the wild card – and CA may give us some insight on what we might expect
  - AB 32 was enacted in 2006 – but is only now being implemented
  - The first auction is scheduled for November 14th and is expected to generate up $3 billion in the first year
    - 14 D Assemblymen and 2 D Senators on August 27th wrote the Governor calling for 100% free allocation of the allowances to avoid "harm to major industries and institutions"
    - However, "dozens" of economists have argued that the auction is necessary to "…redistribute to households, reduce other taxes, or achieve further environmental goals…"
    - And SB 1018 requires the CPUC to ensure the vast majority of the revenues are "credited directly to [the utilities'] residential, small business and emissions-intensive trade-exposed [EITE] retail customers
    - However, this leaves out: k-12 schools, local governments, courts, hospitals, prisons, mass transit, agricultural entities, colleges, universities, large employers and commercial businesses
- The money chase is on

So Where Are We?

- The U.S. has experienced a very difficult and severe recession
  - Unemployment is still above 8%
  - Electric demand is still significantly below the level of just a few years ago
- The opposition to the EPA activities seems to be declining
  - And the potential electricity cost increases are substantial
  - Although we really don't know the future
- EPA activities are far from the only potential increase in electricity costs
  - Industrial electricity consumers must take significant action to protect themselves
  - Such actions will take a lot of time and money – at a time where both are limited
- These truly are "interesting times"

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