

Federal Legislation and Regulation: Challenges and Opportunities

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

- Provide a little background to put the presentation into perspective
- Point out that while electricity prices are (relatively) low today, cost increases could come from:
 - Congress
 - FERC
 - NERC
 - Administration including EPA
- I conclude that we have placed a lot of confidence in natural gas from fracking
 - That's great as long as this great supply option is available
- But there are some significant potential pitfalls
 - And the impacts may not be uniform for customers

Background

- ☐ At this time, electricity prices, relative to other areas, are quite good:

Country	¢/kWh
Australia	22 – 47
Brazil	34
France	19
Germany	31
Italy	28
Portugal	25
Spain	23
UK	18
US	8 - 17



Background

- Closer to home:
 - Kentucky appears to have adequate capacity to meet future demand for several years
 - Even after retiring more than 2,000 MW of coal fired capacity
 - Although KY HB 46 aims to jump start renewable energy development – in this instance biomass
 - Average industrial electricity prices:
 - US: +/- 7 ¢/kWh
 - KY: 5 – 5½ ¢/kWh

Why Are Prices Relatively Low?

- The US has abundant supplies of natural gas
 - US prices +/- \$3 mmBTU
 - Europe prices roughly 2 to 3 times US
 - Asian prices up to 5 times US
- And electricity demand has not yet rebounded (although hopefully it is beginning to)
 - Will it rebound to previous levels?
 - How much new generation will be needed – and at what cost? (more on this later)

Congressional Actions (or Inactions)

- Front burner issue for Congress, at least through March
 - economy and deficit reduction
 - Three prongs:
 - Sequestration (debate is spending vs taxes)
 - Continuing Resolution
 - Raising debt ceiling (actually later than March, but still part of debate)
- Each is as much political battle as policy battle
 - Tend to sharpen partisan lines, partisan debate
 - Finding other issues where compromise is possible becomes more difficult

Congressional Actions (or Inactions) -- House

- First priority of House Republicans:
 - To demonstrate that Clean Air Act is not appropriate vehicle to reduce greenhouse gases
 - Passed variety of bills to rein in EPA last Congress – Not just GHGs
 - Examples: air transport, coal ash, heating and cooling towers, Utility MACT, Boiler MACT
- Will pass some similar bills this Congress:
 - This will be a fiercely partisan effort
 - Will be debated in: Energy and Commerce Committee, Natural Resources Committee, floor of House
 - As was true in House last Congress – It may be easy to pass anti-EPA bills
 - But nothing happens to them in Senate



Congressional Actions (or Inactions) -- House

- What **could** pass?
 - Energy Efficiency
 - Final days of last Congress, Senate added EE provisions to a narrow House bill
 - Primarily focused on buildings and appliances, esp. federal buildings
 - Also included study of industrial efficiency by DOE
 - Enacted into law
 - This year possible larger EE bill
- Why could this pass?
 - Three major drivers:
 - Environmental community (Democratic support)
 - EE community (Alliance to Save Energy, American Council for Energy Efficient Economy (Democratic and Republican support))
 - EE Manufacturers – Johnson Control, Siemens, Ingersoll Rand, ABB, others (Republican support)



Congressional Actions (or Inactions) -- House

- Fred Upton, chairman of the Energy and Commerce Committee:
 - Has background in supporting EE
 - Was original sponsor of bill to phase out light bulbs
 - Then later backtracked, but still EE supporter
 - At recent House Subcommittee hearing on EE
 - Upton: “Energy Efficiency is not only a bipartisan issue, but there is bicameral interest as well. Energy efficiency measures are some of the simplest and most affordable ways to address US energy demand.”
 - At that House hearing:
 - Sens. Murkowski (R-AK) and Shaheen (D-NH) testified for EE, but AGAINST federal EE mandates

Congressional Actions (or Inactions) -- Senate

- Segue to the Senate:
 - Sen. Murkowski and new Chairman Ron Wyden (D-OR)
 - Both talking about working together
 - Murkowski and former Chairman Bingaman did not work well together
 - Major differences were resource, not energy, issues
 - Time will tell how long this period of friendship lasts
 - First Committee hearing this year was on LNG exports – Wyden & Murkowski differed:
 - Murkowski – let's expedite permitting
 - Wyden – let's take our time, no hasty decisions
 - Murkowski issued energy report:
 - "Energy 20/20: A Vision for America's Energy Future"
 - Blueprint for discussion, not an energy plan
 - Upgrade delivery system, including pipelines and transmission lines
 - Eliminate dependency on government subsidies
 - Technology neutral, cost effective, private investments

Congressional Actions (or Inactions) -- Senate

- Wyden said Murkowski had some good ideas
 - They are not looking for home runs, "looking for singles and doubles"
- And, in spirit of cooperation, Wyden and Murkowski will have regular meetings with Upton and Whitfield
 - First one was mostly boilerplate
 - Time will tell if bipartisan, bicameral spirit will prevail

Congressional Actions (or Inactions) -- Senate

- Also in Senate – Committee on Environment and Public Works:
 - Barbara Boxer (D-CA) still Chairman (wants to be called Chairman)
 - Sen. David Vitter (R-LA) is the new ranking Republican
 - Replaces Sen. Jim Inhofe (R-OK) – was the Senate's leading climate change denier
 - Though he worked very well with Sen. Boxer on other issues, eg, transportation
 - Sen. Vitter will be very active – not just on climate change but generally anti-EPA regulations
 - But, like Inhofe on climate change, will get nowhere in Committee



However, Congressional Inaction Does NOT Mean No Pressures on Costs

- There are many issues with very significant impacts on electricity costs – and thus on electricity consumers
- A few significant examples include:
 - At FERC:
 - The integration of “green energy” is of high priority
 - However, renewables are quite expensive, often are not available when and where they are needed, and often are not located near load
 - And \$15 B of new transmission investment is planned
 - NERC is taking actions that can add substantial costs
 - And EPA is moving aggressively on many clean air and other issues
- You must watch carefully legislative, regulatory, Administrative and court proceedings
 - Many of the expected actions may significantly increase electricity costs
 - And not necessarily in the same manner for industrial consumers

FERC Issues: Order 1000

- FERC initiated a major new rulemaking in 2010 driven by the goal of encouraging usage of (primarily) wind energy
- ELCON concerns with the rule include:
 - Broad socialization of costs
 - Broad discretion to planning authorities to include “public policy” considerations
 - Failure to allocate costs on a capacity basis to low capacity factor resources
 - Rejection of participant funding
- ISOs & RTOs have made their compliance filings
 - FERC is just beginning to issue its Orders

FERC Issues: Integration of VER

- In late 2010, FERC issued a NOPR
 - That would require transmission providers to change procedures to better integrate variable energy resources (VER)
 - The stated purpose was to improve situational awareness and reduce the amount of reserve products needed to maintain system reliability
- ELCON had considerable concerns:
 - Primarily over cost allocation (cost causation) and a "missed opportunity" to allow DR to respond
- In June 2012 FERC issued a final rule (Order 764):
 - Schedule at 15 minute intervals instead of hourly
 - VER providers must provide transmission owners with certain data
- In December 2012 FERC issued Order 764-A with "clarifications":
 - Two requests for rehearing or clarifications are pending



Transmission Issues: MISO MVP Tariff

- MISO proposed a tariff for “Multi Value Projects” (MVPs)
 - Costs for MVPs would be socialized throughout MISO
 - Costs would be allocated on a “usage” (or energy) basis
- FERC approved the tariff and rehearing was sought by many parties
- FERC denied rehearing on October 21, 2011 stating:
 - The tariff is consistent with a Seventh Circuit decision requiring “roughly commensurate” cost allocation
 - There was no need to explicitly weigh projects costs against benefits
 - Since MVP benefits will accrue during both peak and off peak hours which justifies a usage rate
 - Since all MISO members benefit, it would be unfair to exclude anyone
- The rule is under judicial review in the Seventh Circuit
 - ELCON is a party in the case



FERC Issues: Transmission Rate Incentives

- FERC issued a Notice of Inquiry (NOI) in May 2011 regarding its transmission incentive policies
 - ELCON's concerns and recommendations:
 - Current policies have contributed to an "alarming escalation in the costs of transmission service" and failed to protect consumer interests
 - FERC should distinguish between rate policies that reduce utility risk (such as CWIP and abandoned cost recovery) and incentives that enhance developer returns (such as ROR adders and hypothetical capital structures)
 - FERC should favor risk reducing incentives and tie incentives to risk
 - FERC should adopt a "but-for" test that would require developers to make a showing that their projects would not be built absent the incentives
 - In November 2012, FERC issued a Policy Statement
 - Redefining the "nexus test"
 - Will now require an applicant to take all reasonable steps to mitigate risks, including seeking incentives designed to reduce those risks, such as construction work in progress, pre-commercial cost recovery and abandoned plant cost recovery
 - FERC no longer will consider a separate ROE adder for an advanced technology.
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FERC Issues: Demand Response

- ELCON has been a strong supporter of DR
 - But DR must be carefully measured and verified
 - DR should be paid amounts commensurate with generators
 - DR offerings should be “reasonably” consistent across markets – but they don’t have to be identical
- Last month FERC approved:
 - “Business practice standards” proposed by NAESB for DR
 - Intended to help DR participate in wholesale electricity markets
 - FERC said that the standards would require accurate measurement and verification of DR resources’ participation
- The standards were opposed by:
 - The PJM independent market monitor said that they do not reference peak load and would result in “double counting”
 - The ISO/RTO Council said that the standardized measurement and verification evaluation could lead to the exclusion of resources

FERC Issues: Geomagnetic Disturbances

- FERC issued a NOPR in October 2012 directing NERC to develop standards to address GMD
 - GMD emanate from the sun and disrupt the Earth's magnetic field causing Geomagnetic Induced Currents (GICs) that may damage electrical equipment
 - The impacts are far greater in northern areas
 - Classic case of a "high-impact, low probability" (HILP) event
- The NOPR has two stages requiring owners and operators of BES facilities:
 - Stage 1: To develop and implement operational procedures
 - Stage 2: Assess the impact of GMDs on the Bulk-Power System and on equipment and develop a plan to mitigate impacts
- NERC's RISC recently ranked the priority of issues:
 - And GMD received a "Low" ranking



Continuing FERC Issues

- A few other FERC issues that may 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?
 - Natural Gas / Electricity Interdependency
 - What role will FERC take?
 - Smart Grid / AMI
 - EEI has said that "it" could cost \$1.5 – 2 Trillion
 - FERC Penalty Guidelines
 - What are the penalties based on?
 - ELCON monitors these (and many other) FERC issues for its members
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NERC Issues: Background

- The North American Electric Reliability Corporation (NERC):
 - Is the FERC-designated “ERO”
 - 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 very lucky



NERC Issues: Redefining the BES

- FERC directed (Order 743) NERC to redefine the “Bulk Electric System” (BES) within one year:
 - The bottom line: many more industrial facilities may be subject to the “compliance registry” based on the revised BES definition
 - Once an entity is placed on registry, you will REALLY care about NERC
 - The FERC-suggested definition includes “bright line” requirements:
 - All transmission facilities > 100 kV
 - All generators > 20 MW and all generating plants > 75 MW

NERC Issues: Redefining the BES

- NERC has established a “Standards Drafting Team” that:
 - Crafted a new definition of the BES
 - ELCON has a staff member on the SDT – the only voting industrial SDT member
 - In December 2012 FERC issued Order 777 – its “final rule” – but the SDT continues to work
 - Core definition – all facilities operated or connected at >100 kV are included
 - Regional entities must all use the same definition
 - Approved 5 “inclusions” and 4 “exclusions”
 - 12 “includes” individual generators >20 MVA and plants >75 MVA
 - Radials are excluded – but tie lines for BES generation are included
 - “Local distribution” is excluded but not well defined (7 factor test)
 - Rehearing requests:
 - Primarily challenged FERC directives as beyond the scope of §215 of the FPA
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NERC Issues: Redefining the BES

- The BES drafting team:
 - Originally thought that I 2 should be much higher
 - However, FERC has approved I 2 as drafted
- The BES very recently tried to raise the individual generator threshold to 75 MVA
 - NERC's planning Committee strongly opposed:
 - No technical justification
 - Would remove 34 GW (3.3%) of generation from the BES
 - Remove about 6,000 generating units (over 50% of what is excluded today)
 - Smaller units may be needed to satisfy local reserve margins
 - Other BES Issues:
 - Radials, ring busses, others

NERC Issues: Redefining the BES

- The BES Drafting Team explored (and rejected) several proposed issues such as excluding:
 - Elements that are owned and operated by an industrial end-user to serve its load
 - Industrial facilities served by multiple feeds through the E 1 exclusion provision
 - Industrial facilities used to serve loads to third parties
- The BES DT said:
 - The definition is “ownership neutral”
 - Decisions are made on engineering interpretations – not jurisdictional interpretations
 - There was no “technical justification” for the proposals
- This process is still a work in progress

Other NERC Issues:

- Reform of the Standards Process:
 - 181 and FFT – Burden reducing efforts
 - Reliability Assurance Initiative (RAI)
 - Overall intent – move to risk-based standards
 - Will it replace FFT?
 - Will it bring benefits to registered entities?
 - Communications Protocols:
 - All too often mis-conveyed routine instructions are involved in outages
 - But the “fix” may cause a lot more effort and not bring reliability gains
 - Three-Year Strategic Plan:
 - While a step in the right direction, lacks sensitivity to costs of registered entities
 - ELCON is the only manufacturing association active at NERC
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Cyber Security

- Cyber Security has become a very hot topic in Washington
 - Congress has been considering legislation for the past several years
 - The President very recently issued an Executive Order and a Policy Directive containing some "voluntary" provisions
 - On February 21, 2013 the **Wall Street Journal** reported that certain companies have been hacked and individuals have been convicted of the crimes including:
 - General Motors, L-3 Communications, CME Group, Motorola, DuPont, Sanofi-Aventis, Alcamal Technologies, Valspar Corp., and Ford Motor Company
 - The **Washington Post** recently reported that MANY companies have experienced "distributed denial of service attacks" (DDOS)
 - So far – only business affected – not operations
 - Mandiant Corp. said a clandestine Chinese military unit has conducted sophisticated cyber espionage operations against dozens of American and Canadian companies
 - The White House recently threatened China and other countries with trade and diplomatic action over corporate espionage



Cyber Security

- There is no doubt – a cyber attack that crashed the bulk power system would cause devastating harm
 - However, is the grid really that vulnerable?
 - And how much “harm” would a Congressional “fix” bring?.
 - Cyber attacks are directed at far more than the power grid – corporate trade secrets, military, water companies, pipelines, telecom, etc. may be of even more interest
 - Would Congress enact a “small” bill to protect only the electric grid or a “large” bill affecting all components of the US infrastructure?
- Cyber legislation raises many questions:
 - What is to be protected? The electric grid? Corporations? The military?
 - What government entity would be charged with the responsibility? Homeland Security? Department of Defense? Department of Energy? FERC? Each would approach the issue differently.
 - What would be required? Mandatory information reporting?
- ELCON is working closely with a broad coalition of entities attempting to shape any legislation



And Then: EPA Electricity Activities

- EPA proposed rules that are receiving a lot of attention include (but are far from limited to):
 - Transport Rule (CSAPR)
 - Toxics Rule (Utility MACT)
 - Cooling Water Rule
 - Coal Ash Rule
 - Utility NSPS for GHG
 - PSD and GHG Tailoring Rule

EPA Electricity Activities

- The next speaker is Marc Chupka who I suspect will present a detailed status report of EPA activities
- I will simply ask a few questions including:
 - Will Administrative climate policies regulations accomplish what legislative action could not?
 - Do we know the costs of EPA regulations?
 - Coal plants are closing and reliability may be maintained – but at what cost?
 - Have we learned from either California or Europe?
 - What about a carbon tax?

Will Administrative Actions Accomplish What Legislation Could Not?

- In his Inaugural Address, the President promised to “respond to the threat of climate change”
 - However, legislative action seems unlikely
- Gina McCarthy, nominated to be the new EPA Administrator, has specifically mentioned:
 - NSPS for new power plants
 - Increased use of renewables, energy efficiency, and combined heat and power
 - She proposes to:
 - Address multiple issues at once – e.g., ambient air quality goals as a complement to traditional air pollution control equipment
 - We should not think about climate, but think about what matters to people in every aspect of their lives
 - She stated that EPA’s approach for stationary sources has been so successful that little is heard about it

Will Administrative Action Accomplish What Legislation Could Not?

- More recently, Heather Zichal, the President's top energy advisor said:
 - EPA is still reviewing the vast comments received on the rules for new power plants
 - The Administration may focus on further aggressive energy efficiency standards, clean-energy research, planning renewables on federal lands, and making the PTC permanent
 - Regarding regulations for existing power plants: "We can't put the cart before the horse."
 - But: "This administration has demonstrated time and time again our ability to think creatively about our authorities and use them."
 - She also said that the Administration plans to finalize its fracking fluid disclosure regulations – and that the Administration is not, as a general rule, opposed to the notion of exports of LNG
- So you call it!

Do We Know the Costs of EPA Regulations?

Rule	EPA's Estimate	Industry's Estimate
Utility MACT	\$9.6 B annualized cost \$35 B upfront capital	\$11.9 B annualized cost \$84 B - \$130 upfront capital
CSAPR – Clean Air Interstate Rule	\$3.6 B annualized No capital estimate	\$14 - \$18 B annualized No capital estimate
Boiler MACT	\$1.9 B annualized \$5.1 B upfront capital	\$2.7 B annualized \$14.3 B upfront capital
CCR	\$1.5 B annualized \$5.1 upfront capital	\$2.7 B annualized \$14.3 billion upfront capital
Cooling Water Intake Structures	\$0.3 - \$4.6 annualized No capital estimate	\$8 B annualized \$149 B upfront capital
Ozone NAAQS	\$19 - \$90 B annualized	\$1 Trillion annualized

Source: Pham, Nam D. and Ikenson, Daniel, "A Critical Review of the Benefits and Costs of EPA Regulations on the U.S. Economy" ndp consulting, conducted for the National Association of Manufacturers, November 2012, pages 12 & 13.

Do We Know the Costs of EPA Regulations?

- Why the differences in cost estimates? NAM suggests:
 - Aggressive assumptions about the capacity to comply:
 - Limited domestic companies that manufacture the necessary equipment
 - High surge in demand for control technologies, equipment and skilled workers
 - Technological innovation may not be realized
 - Amortization masks the true costs:
 - EPA amortizes capital expenditures over 30 – 50 years
 - This downplays the upfront capital requirements
 - Compliance costs assumed away:
 - EPA does not always account for compliance costs with a particular rule that it deems attributable to compliance with another rule
 - Cumulative, macroeconomic costs are not fully considered:
 - With compliance costs projected by some up to \$1 Trillion, there may be declines in economic growth not recognized by EPA

Coal Plants Are Closing and Reliability May Be Maintained – But At What Cost?

- Due to EPA regulations:
 - NERC projects that 71 GW of fossil fuel-fired capacity is likely to close over the next decade
 - However, this is offset by 32 GW of new gas-fired capacity and 65 GW of renewables
- Replacement capacity may be reasonably priced
 - New, gas-fired CCCTs now can produce power at very economical costs
- But it could be very expensive:
 - It appears unlikely that new coal plants can be built
 - New nuclear appears to be several times the cost of gas
 - Renewables costs are coming down, but are still expensive
 - The big unknown – what will happen to fracking?
- We have a lot of eggs in the natural gas basket

Have We Learned From Either California or Europe?

- CA is home to 1 in 9 Americans and would be the 8th largest economy in the world
 - CA implemented a “cap-and-trade” scheme including a GHG trading program -- Is the CA program a model for EPA?
 - CA’s first auction was on Nov. 14, 2012 – expected to bring in between \$650 million and \$1 billion – The State legislature set aside \$500 million to “backfill” the stat’s General Fund
 - However, the auction prices sold at the lowest possible price of \$10 per ton and fell considerably short of the state’s expectations
- The EU also implemented a carbon-trading market
 - But an oversupply of emissions permits and slackening demand for electricity has resulted in the cost of carbon falling to less than €5 – a third of what it was a year and a half ago and far from its high of €28.70 before the financial crisis

Have We Learned From Either California or Europe?

- What do these experiences tell us?
 - Are compliance costs so low that auctions don't work?
 - Or – are emissions low because electricity demand is low?
- Will time tell?

What About A Carbon Tax?

- Can approach in 2 ways:
 - Raise revenues (and can raise big amounts)
 - A \$20 per ton of CO₂ could raise over \$1 Trillion in 10 years
 - Non-starter with Republicans
 - Reduce carbon emissions
 - If the tax is low – little CO₂ reductions
 - If the tax is high – non starter with Republicans
 - Host of sub-issues such as: double regulation, harms competitiveness, low income impact, international implications
- Thus, no real constituency
 - Except for a few economists
 - And a few utilities (with large nuclear portfolios)
- I do not expect a carbon tax in this Congress

What Can We Make Of All Of This?

- These truly are “interesting times”
- Legislatively -- look forward to very busy year
 - Although in end, not much may be accomplished
 - The year is still young
 - More major events may occur – like hurricane Sandy
 - Rightly or wrongly such events precipitate calls for action on environment/climate change/energy
 - The price of gasoline is back up (but going back down?)
 - High gas prices are always good for partisan criticisms
 - Lots of “major event” possibilities
 - Could result in call for action by Fed government
- Additionally, FERC, NERC and the Administration are all poised to take action
 - Any of which may have significant impact on any of you
 - And the impacts may well be different for each of you



Conclusions

- So even though electricity prices presently are relatively low:
 - You must protect your relative competitive positions through individual and vigilant actions
 - That's why belonging to groups like KIUC and ELCON are so important
- Thanks for your attention

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