



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

- Discuss briefly my views on possible Congressional actions (or inactions) this year
- Emphasize that electricity consumers are threatened with substantial increased costs from a variety of other sources
- Conclude that industrials should be prepared for electricity price increases
 - The questions are when and how significant

Congressional “Drivers”

- Republicans are advocating:
 - Reduced oil imports through increased domestic drilling
 - Nuclear
 - Perhaps EE
- Democrats are continuing to pursue the same objectives they have advocated for the past two years:
 - Perhaps their best chance is to get Energy Efficiency (EE) and/or a “Clean Energy Standard” (CES)
 - Especially after President Obama call for an 80% renewables by 2035
- Cyber security of the grid is gaining bipartisan attention

Congressional Actions (or Inactions) – Short Run

- Congress is pre-occupied with the budget
 - The fiscal year ended on September 30
 - There would have been a shut-down unless action was taken
 - The Senate approved two Continuing Resolutions (CRs) keeping the government open until November 18th
 - The House will probably follow today (October 4th)
 - The “Super-Committee” is charged with identifying \$1.5 in deficit reductions
 - But by November 23rd
- Thus, the conventional wisdom:
 - No significant new Federal energy legislation enacted and signed into law in 2011
 - Although the debate regarding the “pay for” in the CR highlights the fact that energy issues are highly politicized

Congressional Actions (or Inactions) – “Long” Run

- The Senate and House are on different tracks – this is an election year:
- In the Senate:
 - Sen. Bingaman says smaller bills with bipartisan support:
 - Could include: energy efficiency, loan programs, studies
 - Business support from: manufacturers of insulation and efficiency materials, technology vendors
 - Several R Senators supported – so ready to go to the Senate floor
 - Sen. Reid wants an “energy jobs” bill
 - But concerns over amendments to restrict EPA
 - Solyndra bankruptcy after very high-level support will slow future loans and stimulate great debate

Congressional Actions (or Inactions) – “Long” Run

- In the House:
 - 1st priority – repeal health care “Obama-care”
 - 2nd priority – rein in EPA (avoid “train wreck”)
 - Examples of how extreme:
 - HR 2250 – “Provides that the following rules shall have no force or effect and shall be treated as though they had never taken effect.”
 - HR 2584 – “Mother of all anti-environment bills” – : would prohibit funds for the promulgation or implementation of any regulation requiring a permit for emissions resulting from the biological processes of livestock production”
 - Many bills expediting permitting for oil and gas exploration

However, No Congressional Action Does NOT Mean No Cost Increases

- There are many issues with very significant impacts on electricity costs – and thus on electricity consumers
- A few significant examples include:
 - FERC is pushing very hard in a variety of ways:
 - The integration of “green energy” is of high priority
 - However, renewables are very expensive and often are not available when and where they are needed
 - NERC is taking actions that can add substantial costs
 - And EPA is moving aggressively on many clean air and other issues
- And expected actions by each of these groups may (will?) have significant electricity costs

Electricity Costs Can Increase In Many Ways

- I mention only a few:
 - FERC actions – Potentially very significant
 - Energy efficiency – Cuts both ways
 - “Clean energy” – Integration of renewables, the need for transmission and backup, failures, gas/wind alliance
 - “Smart grid” – and cyber security
 - NERC (a whole new set of requirements)
 - And last, but far from least -- EPA

FERC Activities:

Integration of Variable Generation

- FERC issued a NOPR in 2010 to:
 - Reform the OATT to require transmission providers to offer services to ease the integration of VG
 - Several entities have been raising concern over reliability as VG grow
 - The NOPR would require:
 - Scheduling at 15-minute intervals
 - Better meteorological and operational data
 - New generator regulation service
 - ELCON called for:
 - Strict “cost causation” principles
 - “Source neutrality”
 - Cost recovery on a demand and energy basis

FERC Activities:

Transmission Cost Allocation

- In 2009, the 7th Circuit overturned FERC's approval of PJM's method of allocating costs for EHV transmission (a "postage stamp" type of tariff)
 - The Court ruled that the record did not justify rejecting the traditional "beneficiary pays" method of cost recovery
- However:
 - FERC issued a NOPR in 2010 that has raised significant cost "socialization" concerns
 - FERC called for "public policy" to be considered as benefits
 - FERC approved transmission tariffs from MISO (MVPs) and SPP that (basically) spread transmission costs throughout the regions
 - FERC stated that the courts have said that rates and costs must be related "to some degree" but does not require "exact precision"

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 “participant funding” 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
 - ELCON filed for clarification and rehearing

FERC Activities: Transmission “Incentives”

- EAct 2005 allowed FERC to grant “incentives” for transmission construction
 - In 2006, FERC issued Orders 679 & 679-A to implement EAct 05
 - These Orders provided “incentives” to numerous projects that were already slated to be built
 - They failed to protect consumers
 - 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

FERC Activities: Demand Response

- In July 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
 - FERC:
 - Issued a “supplemental NOPR” on August 2 seeking additional comments
 - Held a Technical Conference on September 13
 - Very recently, ISOs & RTOs have made “compliance filings” as required by the Rule
 - There is still a lot to be done



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?

Energy Efficiency

- There is strong Administration and Congressional support for energy efficiency:
 - Many utility-implemented EE programs bring few, if any, benefits to industrials, but they cost a lot
 - However, there is a growing “recognition” that there are significant opportunities for additional EE in industry
 - Example: The ACEEE states that the “key target” for EE should be manufacturing firms who “are poised to make major new capital capacity investments” as the economy recovers
 - ACEEE states that the so-called “coal train wreck” can be avoided with EE
 - There may be opportunities for manufacturers to benefit from new EE “incentives”
 - But care must be taken as there are possible downsides



Clean Energy – Renewables

- Many states have implemented RPS/RES-type standards
- The federal government has:
 - Strongly encouraged renewables and
 - Has issued billions of dollars in subsidies and load guarantees
- Increasingly, it is recognized that integrating large amounts of “variable generation” is difficult
 - It requires new transmission, back-up generation and changes in operating systems and procedures
 - The Solyndra bankruptcy will slow DOE funding
- Recently, the natural gas industry has proposed an alliance with the wind industry
 - Advocating that gas turbines can compensate for the intermittent nature of wind
- There are many, many dollars in play that industrials may be asked to pay

Grid Improvements and the “Smart Grid”

- The stimulus bill contained \$4.5 billion for grid improvements
 - These are matching grants
 - Most for “smart meters”
 - There are now about 25 million advanced meters installed
 - It is projected that there will be 65 million by 2016
 - The electric industry has suggested that a fully functional “smart grid” would cost over \$1 trillion
- Consumers are beginning to question the net value of a smart grid
 - Several utilities have raised cost issues
 - Gov. Pat Quinn (D-IL) vetoed legislation supporting a smart grid initiative
 - Some consumer advocates have expressed strong opposition to mandatory “real time pricing” that may result from advanced meters

Grid Improvements and the “Smart Grid”

- Two-way communication associated with advanced meters raises cyber security concerns:
 - Army General Keith Alexander, commander of the U.S. Cyber Command, recently escalated the concerns
 - FERC reports that there are hundreds of attempts to hack the bulk electric system each week
- The U.S. Congress is considering legislation that could be very costly
 - Could be on the floor of the House before November
 - Argument:
 - Nation has a real and present concern
 - Bipartisan support
 - Get this done for the good of the nation before the “silly season” begins

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
 - 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 assure 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 to comply with audits

And Then:

EPA Electricity Activities

- EPA is in the process of proposing rules that will impact both consumers and the electric power sector including (but not limited to):
 - National Air Quality Standards (NAAQS) – ozone
 - Cross State Air Pollution Rule (CSAPR) – SO₂ & NO_x
 - Maximum Achievable Control Technology (Utility & Industrial MACT) – mercury and other heavy metals
 - Cooling Water Intake Structures (CWIS)
 - Coal Ash Rule
 - GHG Tailoring Rule
- I only briefly mention each

National Air Quality Standards (NAAQS) – The Ozone Rule

- Air quality standards for six criteria pollutants (called the ozone standard)
 - The CAA requires EPA to set and review such standards every 5 years
 - The Bush EPA set standards (75 ppb) in 2008 and was immediately taken to court
 - The Obama EPA proposed both a new 2010 standard and a 2013 standard (70 ppb) instead of litigating, leaving the 1997 standard (84 ppb) in effect
 - In Sept. 2011, President Obama (directly?) ordered EPA to withdraw the proposed 2010 standard -- Until after the 2012 elections???
 - EPA Administrator Lisa Jackson has stated that EPA will implement the 2008 standard
- Reactions:
 - Sen. Inhofe welcomed the decision saying that it would have destroyed 7 million jobs
 - Friends of the Earth said it will mean more asthma and permanent lung damage

Cross State Air Pollution Rule (CSAPR)

- Proposed in July 2010
 - Scheduled to go into effect on January 1, 2012
- Applies to large generators (> 25 MW) in 31 states and DC
 - Requires a 71% reduction in SO₂ and 52% reduction in NO_x by 2014
- Replaces the 2005 Clean Air Interstate Rule (CAIR)
- Proposes a “cap and trade” program with trading – up to 10% (although there are options)
 - Allowances would be distributed based on emission “budgets” for each state
- EPA estimates that the annual direct costs to the power sector is \$2.8 B and the projected benefits range from \$120 – 290 B
 - However, the Brattle Group estimated the costs at \$130 billion by 2015
 - And NERC projects it could result in the premature retirement of more than 85 coal units by 2015
 - Retrofit expenditures will be enormous

Cross State Air Pollution Rule (CSAPR)

- Legislation has been introduced to delay enactment for a decade and revive CAIR
 - But the chances for passage are slim
- Several court challenges have been filed:
 - Homer City, GenOn, and Luminant have filed for stays
 - Alabama, Florida, Kansas, Nebraska, Oklahoma, South Carolina Texas, and Virginia have filed for either a review or a stay
 - Basically arguing that:
 - It is inappropriate to replace SIPs with FIPs
 - State budgets are not appropriate
 - The final rule is dramatically different from the proposed rule
- However:
 - EPA and Exelon, Calpine, the American Lung Association and NRDC have filed supporting CSAPR saying that the “harm” is entirely the generators’ fault

Maximum Achievable Control Technology (Utility MACT)

- Final rule expected by November 2011 and compliance within 3 -4 years (2015?)
 - Applies nationally to new and existing coal and oil-fired utility generators
 - Sets Maximum Achievable Control Technology (MACT)
 - The CAA states that the performance standards for existing sources must be:
 - As stringent as the average emissions achieved by the best performing 12% of sources in that category for existing generators
 - Equal to the best controlled existing source for new
 - A performance standard for National Emissions Standards for Hazardous Air Pollutants (NESHAPs – mercury and over 180 other heavy metals, acid gases, etc.) and
 - A New Source Performance Standard (NSPS) for particulates, SO₂, and NO_x

Maximum Achievable Control Technology (Utility MACT)

- EPA estimates that the rule will cost \$10 billion by 2015
 - And increase electric bills by \$3 – 4 per month
 - However, the benefits will be worth more than \$100 billion per year
 - And it will create 31,000 short-term jobs and 9,000 long-term jobs
- However, many entities are expected to say that the costs are greatly underestimated:
 - As an example, the Electric Reliability Coordinating Council said the proposal is “one of the most expensive rules in the history of [EPA].”

Maximum Achievable Control Technology (Industrial Boiler MACT)

- On February 23, 2011 EPA issued a suite of final rules addressing National Emissions Standards for Hazardous Air Pollutants (NESHAPS) for NON-UTILITY industrial sources
 - Will apply to over 200,000 industrial boilers and commercial and institutional solid waste incineration units
 - The rules contain 15 subcategories of boilers
 - Several parties have requested “reconsideration”
- EPA said these rules are required to meet a court order
 - But EPA Assistant Air Administrator Gina McCarthy stated publicly that the proposed rules are possibly unachievable
 - 115 House members and 40 senators sent letters to the EPA last fall raising concerns

Cooling Water Intake Structures (CWIS)

- Proposed rule on Cooling Water Intake Structures (CWIS) was expected on March 14, 2011
 - Final action by July 27, 2012
- The rule is expected to apply to all existing power plants and manufacturing facilities that withdraw more than 2 million gallons/day
 - It is expected to require the closing of open loop cooled systems and retrofit with cooling towers
 - EPA could give states the primary decision-maker and make cooling towers an option, but not a requirement
- Concerns
 - Retrofitting a coal generation plant with cooling towers could cost \$200 – 300 million and perhaps \$700 million for nuclear plants
 - Many generators do not have the physical area to accommodate cooling towers
 - Downtime to retrofit could take over a year
 - NERC projected retirement of 32 – 36 GW of power capacity
 - DOE has stated that it could cost \$38 billion

Coal Ash Rule

- Proposed in June 2010
 - No schedule for a final rule
- Long history:
 - The Clinton administration proposed regulation under the Resource Conservation and Recovery Act (RCRA)
 - As either a hazardous or non-hazardous waste
 - Many landfills have accepted ash for years – would become hazardous waste dumps
 - And many industrials buy and sell coal ash
- Will establish nationwide protective controls such as liners and groundwater monitoring at disposal sites
- EPA estimates that the costs will be up to \$1.5 B/yr while the benefits will be up to \$7.4 B/yr
 - Although the proposed rule estimates that the regulations could impact almost half of U.S. coal capacity (156 GW)
 - And EPRI suggests that as many as 350 coal-based facilities may be shuttered

EPA's GHG Rules

- A 2007 Supreme Court decision:
 - Affirmed that “green house gases” (GHGs) are a “detriment to human health” and subject to EPA regulation under the CAA (endangerment finding)
- EPA issued the final rule in May 2010
 - Regulation began on January 2, 2011
 - However, reporting was postponed “indefinitely” – although expected soon
- New Source Review requires regulated stationary sources with emissions exceeding specified limits to obtain Prevention of Significant Deterioration (PSD) and Title V Operating Permits
 - The CAA thresholds are 100 or 250 tons per year
 - The EPA Rule raised these limits to 75,000 tpy (called the Tailoring Rule)
 - To obtain a PSD permit, regulated emitters have to put in place BACT

EPA's GHG Rules – Concerns

- ❑ BACT for GHG has not been defined
 - Strategies: reduce carbon intensity, reduce energy intensity, or capture carbon emissions
 - Post-combustion, pre-combustion or oxy-combustion
- ❑ There are no clearly established control technologies that capture, compress and sequester CO₂ for industrial sources
 - Unproven technologies have unknown costs
- ❑ What is (will be?) “cost effective”?
- ❑ Plant upgrades can trigger PSD
 - Efficiency upgrades may be foregone to avoid PSD
- ❑ How much of the plant is the “source”?
- ❑ Little (no?) consistency between regions
- ❑ Lack of certainty – EPA has the authority to overturn a state’s determination
- ❑ EPA may use “life-cycle” analysis – with a lot of unknowns
- ❑ All BACT guidelines are subject to litigation

Overall Impacts of These EPA Actions

- The EPA initiatives just mentioned are presently under development
 - While a lot of folks would like to see them stopped or slowed down, the Administration does not seem ready to do so
- It is very difficult to estimate the costs
 - But from the scarce information available, the costs (and thus rate impacts) will be substantial
- EPA has stated that the costs are much less than the benefits
 - OMB estimated that the rules would cost between \$43 and \$55 billion but the benefits are between \$128 and \$616 billion
- But EEI has said that the EPA non-GHG costs
 - Will add up to \$200B annual CAPEX by 2015 on top of the existing \$80 B annually
- NERC stated that between 441 and 761 generating units would be “economically vulnerable for accelerated retirement” by 2018
- And an analysis conducted for the NAM and API concluded:
 - The annual attainment costs is \$1.013 trillion between 2020 and 2030
 - By 2020, GDP is reduced by \$676.8 billion and 7.3 million jobs are lost

Overall Impacts of These EPA Actions

- ❑ Credit Suisse last September concluded:
 - 50+ GW of coal plant closures is “realistic”
 - ❑ Of the total coal fleet of 340 GW, 103 GW have no environmental controls and an additional 58 GW lack scrubber units key to mercury emission reductions
 - \$70 – 100 billion capex for compliance or replacement to maintain a 15% reserve margin
 - Uneven impacts
 - ❑ With MISO, SERC, PJM-West and SPP hardest hit
 - ❑ Merchant plants in Eastern MISO and PJM-W the biggest winners
 - Credit Suisse stated that EPA rules should boost rate base and earnings per share growth opportunities for regulated utilities

So Where Are We?

- The U.S. has experienced a very difficult and severe recession
 - Unemployment is still above 9%
 - Electric demand is still significantly below the level of just a few years ago
- There appeared to be a “light at the end of the tunnel”
 - The opposition to the EPA activities is growing
 - Several labor unions have weighed in
 - The Small Business Administration warned that 1,200 small entities would be swept in
 - And EPA seems to be listening – at least a little
 - The Administration “blinked” regarding ozone
- There was even talk of the need for new electricity supplies
 - Starting a real discussion of the type of new supplies – coal, nuclear, renewables, EE, DR, etc.

But Then ...

- The turmoil in the Mid East and the Japanese 9.0 earthquake and tsunami have caused tremendous unknowns
- What now are realistic options for future electricity supplies?:
 - What are the prospects for nuclear?
 - Is “clean coal” a real option?
 - It is still an unproven and untested option
 - What is the future role of shale gas?
 - What are the prospects for renewables?
 - Clearly renewables represent a growing proportion of the supply mix
 - Though concerns are growing regarding the possible reliability impacts of variable resources
 - It is interesting that many in the renewables industries are concerned that the legislative focus will shift to the domestic economy to the detriment of renewables

Conclusions

- These truly are “interesting times”
- There is little on the horizon to suggest lower electricity costs
 - And there is much to suggest higher electricity costs – perhaps substantially higher
 - The only question is when and by how much
- We all struggle with how to make policymakers more aware of the impact on manufacturers
 - What more can be done?

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