Two Challenges Facing Large Electricity Consumers

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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

What I Plan To Do Today:

- Address two significant challenges to large industrial electricity consumers efforts to:

  (1) Restructure the electricity industry

  (2) Control greenhouse gases – and the costs associated with various efforts

- In each case, I compare the actions between the EU and the US
  - And outline a few lessons learned

Challenge #1: Restructuring Electricity Markets

- For years, it was thought that regulation would protect consumers from monopolies
  - However, policy makers in many parts of the world felt regulation increasingly was ineffective (and dominated by the entrenched monopolies); intrusive and distorting (trading the regulators' views for consumers' views); costly (and providing the opportunity to "gold plate"); and discouraging innovation and creativity
  - Advocates of restructuring thought that real competition would:
    - Bring discipline to artificially high prices
    - But it would also bring technological innovation, new products and services, and a customer focus
- As the end of the 20th century approached, many policy makers and stakeholders throughout the world thought that a healthy dose of competition would be good for consumers
  - The EU and the US have been in the forefront of this effort
- I briefly review the industrial reactions to restructuring

Significant Milestones In US Restructuring

- California was one of the first to act:
  - 1996 California state law implementing electricity choice
  - But by 2000, 25 States took action to offer choice (TPA)
- 1999 FERC ordered the establishment of independent system operators (ISOs) & regional transmission organizations (RTOs) as market operators with single-price, bid-based, auctions
  - This eliminated any need for generators to sell directly to end-user customers as they would all receive the highest bid price that cleared the market
- Summer 2000 – The California debacle – Prices spiked – One utility declared bankruptcy – Very high priced contracts signed

Results of Restructuring in the US

- Restructuring brought some regional markets:
  - ISOs/RTOs: PJM, ISO NE, NY ISO, MISO, ERCOT and CA ISO
  - Most ISOs and RTOs implemented single-price, bid-based, "markets"
- Most restructuring took place in high-cost areas and were accompanied with mandated price reductions and/or freezes
- Many states required the divesture of generation
  - However, it was usually divested in "blocks" that carried with them market power
- Large consumers generally were pleased with the initial restructuring
  - But small consumers had serious concerns from the beginning

Some Areas Did Not Restructure

- Much of the West (except California and Montana) and the Southeast have not restructured
  - These are relatively low cost areas
  - And there was very strong political opposition to restructuring
- These areas are still characterized by vertically-integrated utilities, traditional state regulation, and state-approved tariffs for consumers
  - And customer satisfaction is much higher in these areas than in the restructured areas

Results Of US Restructuring

- Many unregulated generators selling into the restructured markets are making very significant profits – literally billions of $s
  - These generators, along with other supply-side stakeholders, strongly assert that the ISO/RTO markets are performing well:
  - Several unregulated generators funded the establishment of the COMPETE Coalition that asserts that customers are benefiting from today's competitive market structure
- The Chairman of FERC has stated numerous times that U.S. wholesale power markets are working well
  - Competition policy is a success

US Industrial Consumers' Concerns

- ELCON has issued several papers and many filings at FERC pointing out fatal flaws in today's electricity markets including:
  - Almost complete lack of demand response
  - Administratively-determined capacity payments that significantly increase prices (e.g., $26 billion in NY ISO alone) and simply don't work
  - Above market prices paid to many generators for "reliability" reasons
  - A lack of long-term contracts
  - Inadequate transmission infrastructure
  - Exercise of market power
  - Artificial price caps and bid mitigation
- ELCON stated that if today's markets can't be fixed, we must explore all options including a return to traditional regulation

Other US Consumers' Concerns

- Residential consumers in most states in an ISO or RTO footprint have been very vocal in opposing the prices determined by the "markets"
  - Prices rose in MD by 72%; 59% in DE; 40% in IL
- General and many legislators have expressed great concern The Governors, Attorneys
  - States include: Connecticut, Delaware, Illinois, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, Ohio, Pennsylvania, ,Rhode Island, Virginia, and Vermont
- Public power is so concerned:
  - That it established an entire program – the Electric Market Reform Initiative – to document the many problems with today's "markets" – and the Campaign for Fair Electric Rates – to build public support for electric reform
- Lengthy and very critical articles have been published in such publications as: *New York Times, Wall Street Journal, Washington Post, Electricity Journal*, etc.

Experiences With Restructuring Around The World

- Consumer in the US are far from alone
  - Many other advanced nations also restructured
  - And the reactions from consumers has been similar to that in the US
  - I offer a few reactions from the EU and Australia

UK Industrial Consumers' Concerns

- The Energy Intensive User's Group (EIUG) states:
  - UK electricity prices are around 30% higher than those in France or Germany
  - The current structure of the electricity market discourages effective competition
  - There are few independent players left, especially retailers
  - Money is largely being made at the wholesale end of the market, especially by the generators that have been handed an opportunity to make windfall profits, at the expense of consumers
  - The complexity and overhead costs associated with the code structures are now major barriers to new entrants and smaller players, including CHP and demand side participants
  - **"Industrial consumers in the UK are therefore facing a substantial competitiveness gap in the cost of both their gas and electricity supplies. Energy intensive industries are most at risk if this competitiveness gap is allowed to persist."**

Industrials In The UK Are Not Alone

- The Consumers Union Program for Economic Justice stated:
  - The experience of residential consumers in the UK calls into question the benefits of deregulating retail electricity service, especially for residential customers
  - By any yardstick – service, price, equity, even competition itself – the deregulation or residential retail service appears to have had no benefits for consumers
- The Energy Business Review reported on July 2, 2008:
  - Competition in the UK is being hampered by wholesale prices
  - While companies with upstream assets are able to generate profits, supply only businesses are finding it more difficult to prosper

Recent Events in the UK

- In October 2008:
  - Ofgem (the electric regulator) put the electric industry on notice to improve its competitiveness or face a referral to the Competition Commission
    - Ofgem proposed measures to guard against market power
    - And called for the removal of barriers of entry
  - But even this strong reaction was not enough for some:
    - An independent green supplier said that Ofgem was not doing enough
    - And a green lobby has taken the Government to the High Court
- Is this an indication of good things to come for consumers?

German Industrial Consumers' Concerns

- Verband der Industriellen Energie und Kraftwirtschaft (VIK)'s concerns (in 2005):
  - No effective competition
  - Continued separation of national markets
  - Grid access fees are high and rising
  - Cross-subsidization and discrimination
  - Regulatory framework is only beginning to change
  - Investment in the grid has decreased significantly
  - High prices – not explained by fuel price increases
  - Market power (the German market is dominated by 4 big producers controlling about 90% of generation capacity and their associated trading sister-companies)
  - Cross border trade is severely restricted
  - Inadequate unbundling
  - Inadequate transparency

France Presents A Different Situation

- France really did not restructure
  - A 2008 JP Morgan report states France: “Accepted the requirements of the EU Electricity Directive but liberalization [is] more in theory than in practice.”
- French industrial customers strongly opposed restructuring when they realized what liberalization really meant for them
  - It was unacceptable for industrials living in a country with 75% nuclear to start paying for electricity at gas prices
  - Plus the CO_2 emission costs,
- To calm industrials government recently launched 2 initiatives
  - The government forced EDF to sign with a group of very large users (Exeltium) a long term contract (up to 25 years) based on nuclear costs
  - And, secondly, the ministry created a regulated public tariff for industrials (called TRTAM) which started in July 2007 and will run until July 2010.

EU Industrial Consumers' Concerns

- **In September 2007** IFIEC Europe specifically pointed out "experiences" including:
  - Electricity price increase
  - Non-transparent price formation
  - No level playing field
  - High transportation and connection fees
  - Grid and capacity access problems
  - ETS with perverse price effects
  - Lack of choice of suppliers
  - Concerns about security of supply
  - Ineffective regulation and enforcement

EU Industrial Consumers' Concerns

- 2008 IFIEC Europe said:
  - IFIEC is convinced that market power and market design constitute major problems in the electricity market
  - The market dominance of few energy suppliers in each regional market is a major obstacle to real competition and competitive prices
  - Competition authorities shall vigorously investigate any indication of abuse of dominant position
  - Non-discriminatory access to the grids and to cross-border connections has not been sufficiently established in practice

EU Industrial Consumers' Concerns

- 2007 the European Chemical Industry Council (Cefic) said:
  - Lack of cross border and transmission capacity is a severe obstacle towards integration of the EU markets
  - Cooperation between TSOs on a regional and European level must be improved
  - Transparency is crucial to create a functioning market
  - Today's balancing rules often discriminate in favor of incumbents
  - Financial incentives should be introduced for demand response
  - The involvement of stakeholders should be guaranteed by legislation
  - The creation of the regulatory agency is an important step
  - Unbundling provisions have to ensure non-discriminatory, transparent grid access for all market participants on a cost basis

Other EU Consumers' Concerns

- 2008 the European Consumers' Organization (Beuc) stated that
  - "Consumers are not benefiting from real competition and are still facing higher prices, complicated bills, difficulties to switch or a lack of information on their actual consumption."
- Beuc states that it welcomes the 3rd phase proposal, but:
  - Ownership unbundling will fall short of opening the energy markets
  - Providing consumers with better information and having better rules on settling accounts in case of switching is a positive step, but much more needs to be done

Other EU Consumers' Concerns

- 2008 UEAPME (the employers' organization representing more than 12 million crafts, trades and small and medium enterprises (SMEs)) said:
  - In many countries Crafts and SMEs are still confronted with monopolistic structures with no real choice
  - Prices are too high and increasing
  - Market liberalizations were not successful
  - The main shortcomings or barriers include:
    - Vertical integration
    - Missing capacities for cross-border trade
    - Weak national regulators
    - Ownership unbundling will not be enough

Australian Industrial Consumers' Concerns

- 2006 the Energy Users Association of Australia (EUAA) stated its "Key Concerns" including:
  - Concentration as the result of failure of some States to disaggregate sufficiently, re-aggregation and vertical integration
  - The manifestation of generator market power in the NEM, as evidenced by withholding capacity and price spiking
  - The exploitation of transmission constraints leading to higher prices for end users in the absence of a fully national transmission grid
  - Weakness in the regulatory and legislative framework for preventing anti-competitive merger and acquisition activity
  - The need to remove institutional, policy and regulatory impediments to ensure the performance of financial markets is optimal

Australian Industrial Consumers' Concerns

- 2007 EUAA stated:
  - Average prices in the power spot market have increased between 120 – 270% and in the wholesale contract market by 40 – 100%
  - The prices are far removed from the underlying cost of producing power in Australia
  - We are aware of some evidence that generators have changed their bidding behavior to take advantage of the situation
  - Key recommendations in a report to COAG by the Energy Reform Implementation Group (ERIG) should be implemented– particularly for a more national transmission system – we created the NEM but failed to create a national electricity grid
  - Major structural issues need attention including an absence of strong competition in generation and market power created by a lack of interconnections

Other Australian Consumers' Concerns

- 2006 IndustryEdge released a report titled "The Stationary Energy Industry in Australia" concluding:
  - Initial dis-aggregation of the electricity sector did not go far enough – Natural monopolies can engage in retail activities and have an unfair advantage
  - The NEM "gross pool" system is flawed and permits generators to manipulate the power price by stimulating excessive volatility
    - Industry is "re-aggregating" to combat the risks of excessive volatility
  - A fully articulated national grid is required, but lacking
  - States should depart the energy sector to de-politicize the provision of energy
  - The method of regulating natural monopolies is inadequate
  - The playing field is tilted very much in favor of the supply side

Other Australian Consumers' Concerns

- 2007 the Energy Reform Implementation Group (ERIG) issues a report to the COAG calling for:
  - Better coordination of the national transmission grid including a strategic national planner under a reformed NEMMCO
  - Dis-aggregation and privatization of government owned assets in the energy sector
  - Refocus and adequately finance the Australian Energy Market Commission, establish a single national energy market operator, and reform the governance of NEMMCO
  - Remove barriers to demand response
  - Develop a more national approach to energy issues

Lessons Learned From Restructuring

- I offer ten lessons learned:
  - All of these lessons are supported by nearly all consumers throughout the restructured world
  - However, each is rejected by suppliers

Lessons Learned From Restructuring

(1) Overall – and perhaps most importantly

- Restructuring emphasizes and highlights the different perspectives of suppliers and load
  - Suppliers like the results of restructuring
  - Consumers strongly dislike the restructuring
- Nearly every "problem" expressed by consumers is strongly rejected by suppliers
- And consumer resources that could bring about change
  - Are greatly overwhelmed by supplier resources that nearly guarantee no change

Lessons Learned From Restructuring

(2) Restructuring has not resulted in "real" or "true" competition

- At a minimum, there is no (or only very limited) demand side in any restructuring anywhere
  - We cannot have real competition with a "one-sided" market
  - But other serious problems include: "capacity markets," special deals to prop up certain generators, administratively determined prices, etc.
- Suppliers are able to manipulate single-price, bid-based auctions without the demand side
- Clearly, unbundling alone does not bring real competition

Lessons Learned From Restructuring

(3) Restructuring has brought higher prices

- Suppliers assert that increases in prices are due simply to increases in fuel prices
- But consumers point out that fuel price increases can only explain a fraction of the total price increases
- And with no real competition, market forces cannot be expected to truly discipline prices

Lessons Learned From Restructuring

(4) Technological innovation has not be developed

- We are still utilizing old technology (wires, meters, etc.)
- The new technology being proposed will bring services unwanted by consumers (e.g., real time prices at artificially high levels)

Lessons Learned From Restructuring

(5) Significant market power prevails:

- There is high concentration of generation ownership throughout the restructured world
  - It is very difficult to truly disaggregate vertically-integrated entities (e.g., “ownership” unbundling)
  - It is very hard to prevent re-aggregation
  - There are many very significant barriers to entry (e.g., grid access, siting problems, overhead costs, complex code structures, etc.)

Lessons Learned From Restructuring

(6) Single-price, bid-based auctions are easy to game and difficult to police

- Generators can bid into these auctions at any value they wish – the bids are not costs
- Since most sellers know the heat rates of their competitors' units, the weather reports and the cost of fuels, they can guess quite accurately competing bids
- It is very difficult to monitor whether an outage is truly due to an emergency – or to economic withholding
- And the auctions completely remove any benefits of fuel diversity

Lessons Learned From Restructuring

(7) It is very difficult to negotiate reasonable long-term contracts

- The generators are usually very satisfied with the prices from the auctions
- They thus begin their offers with their projections of the auction prices – plus adders for risk and administration
- Consumers know that they can avoid the adders by simply buying from the markets
- The result is a lack of long-term contracts

Lessons Learned From Restructuring

(8) Resource adequacy is NOT assured

- Regulators no longer can order new generation or transmission – and neither can ISOs or RTOs
  - Who is minding the store?
- Single-price, bid-based auctions actually create ***disincentives*** for new infrastructure
  - Owners know where the constraints are located
  - And they know that alleviating these constraints would result in lower prices
  - The constraints make the creation of single markets very difficult – if not impossible
- Inadequate resources means reliability concerns continue

Lessons Learned From Restructuring

(9) Inadequate transparency and cooperation

- Suppliers refuse to release what they call "competitive sensitive" data necessary for consumers
- Network operators do not standardize their structures or operations
- Individual states/countries try to protect their consumers by putting restrictions on low-cost power

Lessons Learned From Restructuring

(10) Up to now, regulators have not protected consumers from restructuring

- Some do not have adequate authority
- Some are not truly independent
- Others simply align themselves with the supply side
- Recent activities by the UK regulator (Ofgem) may be a bright spot, but only time will truly tell

Conclusions Relating to Challenge #1: Restructuring

- ELCON still believes that "real" or "true" competition would best meet the needs of consumers:
  - Real or true competition would allow consumers to "vote with their wallets" ($s, €s, £s, etc.) for:
    - The amounts and types of new generation and transmission that consumers want
    - The energy efficiency and environmental investments that they are willing to pay for
  - Real or true competition certainly would result in a consumer oriented environment
    - Suppliers would have to be sensitive to what consumers want – or they would not be able to sell their products and services
- However, increasingly we are concerned that the barriers to "real" competition are so great that they will not (or cannot) be overcome

Challenge #2: Efforts to Reduce Green House Gases

- There is a growing world-wide sentiment that greenhouse gases (GHG) must be significantly reduced
  - The EU has nearly completed Phase I of its three-phase commitment
  - The US is in the process of implementing several **regional** GHG reduction efforts
  - Many other developed countries are taking – or seriously considering – actions
  - However, the developing countries have not agreed to take actions – and are emitting tremendous amounts of GHGs
- I will very briefly address efforts in the EU and US
  - And make a few observations

The EU Emissions Trading Scheme (ETS)

- The world's first large-scale GHG trading program
  - Involving the 27 EU countries
  - Striving for 20% reduction below 1990 levels by 2020 in 3 phases
- Phase I began in January 2005
  - Covering 12,000 sources involving iron & steel, cement, glass, ceramics, pulp & paper, electric power, and refineries – roughly 50% of total GHG emissions
  - Relies on a "cap and trade"
    - Where a GHG cap is established
    - "Allowances" for that level of emissions are created and allocated to countries and sectors
    - Emitters must be below the specified level, have allocations to cover, or have "clean development credits"
  - 95% of the allowances were allocated and 5% were auctioned

The EU ETS

- Phase II begins in 2009:
  - Industry lobbied hard for exemptions from various aspects of Phase II
    - However, on 7 October 2008, the European Parliament environment committee rejected nearly all of the proposed exemptions
    - The author of the report said: “We can’t wait for the economies to rebound before acting..”
    - But industry representatives said that Europe will simply export jobs and import energy intensive products, with no environmental gains.”
    - And on 15 October 2008, 8 relatively poor EU countries issued a statement calling for a balance between a clean environment and sustainable economic growth
- The member states and the parliament as a whole still have to approve the measures

Lessons Learned From The EU ETS

- The distribution of credits results in wealth transfer
  - Allowances were over allocated in Phase I
  - Then, to protect jobs, credits were over-allocated to some industries (e.g., steel) and under-allocated to generators
    - This increased electricity prices (and gave significant windfall profits to generators)
    - Industries paid the higher electricity prices covered by over-allocations
  - Winners: Generators (esp. Eastern European)
  - Losers: Domestic consumers, railroads, etc.
- Only time will tell what Phase II will bring
  - But it appears that allocations will be substantially reduced
  - While Phase I costs have not been significant, they could be substantial in Phases II & III

Lessons Learned From The EU ETS

- Establishing the baseline is critical
  - Issued allocations exceeded emissions in Phase I
  - Once that was understood, the ETS prices fell to less than € 1 in 2008
- An absolute cap punishes early action
- The auction/allocation methodology is of critical importance
  - The spot price visibly signals the current costs – which are substantial
  - Allocations in Phase I brought significant windfalls to generators at the expense of consumers
- Allocations alter economic incentives
  - Once allocations are made, the distribution of costs is determined by the market, not government
- Strong monitoring and accounting is necessary
- Rules must be clear, as simple as possible, and long term
  - Investment decisions are very long term
  - And the devil is always in the details
- The process has elevated the GHG issue to the CEO level

US GHG Actions

- The US did not agree to the Kyoto agreement
  - However, several bills are under consideration in the US Congress calling for 60% to 80% reductions by 2050
  - Both presidential candidates have called for GHG emissions reductions of similar levels
  - Estimates (guesses?) of the costs of these proposals vary considerably
    - Some say they can be met with negligible costs
      - **And even result in the creation of millions of "green" jobs**
    - Others assert that: costs will be in the trillions of dollars; GDP may fall by several percent; jobs may fall by millions; electricity prices may more than double – and all for questionable global environmental benefits

Regional US GHG Actions Are Being Implemented

- Regional Greenhouse Gas Initiative (RGGI)
  - 10 NE and Midwest states
  - Mandatory, cap & trade CO_2 emissions reductions program
    - Covers fossil fuel generators > 25 MW – roughly 95% of generation sector
    - Requiring a 10% GHG reduction between 2015 and 2018
    - Nearly all allowances will be auctioned
  - Implemented through individual state regulations (like the EU)
  - First auction 25 September 2008 with a clearing price of $3.07 / allowance
- A couple of examples of concerns:
  - Economic conditions already have reduced emissions
  - New York is considering withdrawing – Others?

Regional US GHG Actions Are Being Implemented

- Western Climate Initiative (WCI)
  - 7 Western states and 4 Canadian provinces
    - Each has its own goals
  - Involves a cap & Trade
    - Including 6 GHG gases (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6)
  - Goal: 15% below 2005 levels by 2020
  - Comprehensive – all sectors
  - Allows offsets and banking, but no borrowing
  - Refined plan released in September 2008
    - Expect implementation in 2009

Regional US GHG Actions Are Being Implemented

- California
  - CA produces roughly 1.4% of the world's, and 6.2% of the total US, GHG
  - Key actions:
    - 2001: Governor signed SB 527 creating a GHG registry
    - 2005: Governor signs an Executive Order that establishes GHG targets: 2000 levels by 2010; 1990 levels by 2020; 80% below 1990 by 2050
    - 2006: AB32 requiring real, quantifiable, cost-effective GHG reductions
    - 2008: CEC recommends 100% auction by 2016
  - CA's goals are very aggressive
    - They are considering many innovative actions (e.g.: car insurance based on miles driven; new urban planning requirements; tried to get an exemption from Federal standards for more stringent MPG standards; strengthened building and appliance standards; etc.)

Most Recently

- On 7 October 2008 Reps. Dingell and Boucher released a "Discussion Draft" covering 88% of US GHG emissions that would:
  - **Targets:** Below 2005 emissions of: 6% in 2020; 44% in 2030; and 80% by 2050
  - **Coverage:** 6 GHG gases – generators, producers and importers of petroleum-based or coal-based liquid fuels, large industrial facilities. Natural gas LDCs, and geologic sequestration sites and provides "options" for vehicles
  - **Cost Containment:** Strategic allowance reserve and allows banking, borrowing, and offsets
  - **Leakage:** Requires "international reserve" allowances
  - **Sequestration:** Requires 60% for new coal
  - **Allocations:** Establish an economy-wide cap & trade regime and require 100% auctions by 2025
  - **Preemption:** Explicitly preempts state and regional GHG programs
  - **Dedicated funds:** For EE, consumer rebates, adaptation, etc.

Lessons Learned from GHG Actions To Date

- The US certainly has not learned enough from the EU
  - The US proposals certainly are not simple
- Current needs for significant new generation, layered on top of mandatory and substantial GHG reductions could bring very high electricity costs
  - Especially since the primary focus of most GHG reductions are on the electric industry
  - Since GHG reductions focus primarily on coal
    - New nuclear and clean-coal units are questionable
    - And renewables are limited (both due to geography and a lack of infrastructure)
  - **The result will be substantially increased natural gas demand**
    - And a very significant increased interest/reliance on demand response and energy efficiency
- The current world-wide financial problems may increase these concerns
- Industrial electricity consumers face real challenges
  - But active management may turn some of these into advantages

Questions?

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