Electricity Restructuring: A Review of Efforts around the World and the Consumer Response

The structure of today's ''organized markets'' is neither competitive nor sustainable. If stakeholders and policymakers collectively do not choose to fix the problems, all alternative approaches – including a return to traditional regulation, as difficult as that might be – must be considered.

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I. Introduction

When the electricity industry began to develop over 100 years ago, providing power to end-use consumers was viewed by policymakers worldwide as a service that was not suitable to competition. In many areas, integrated companies comprised of generation, transmission, and distribution functions were either given or assumed monopoly status, almost always subject to governmental regulation. In other areas, governments themselves served as electric utilities, providing power as yet another government service.

Roughly 20 years ago, some electricity stakeholders, mostly on the consumer side but also including a few suppliers, began to question whether the existing regulated monopolies were in fact the best vehicles to provide low-cost electricity as well as new products and innovative technologies to large and small consumers. These stakeholders believed that competition, particularly in the generation of

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electricity, could in fact reduce electricity prices and stimulate technological innovation, new products and services, and a customer focus. Around the world, policymakers in many industrialized countries took significant action to change the structure of their electricity industries.

In common parlance these efforts in support of competition were frequently described as ''deregulation,'' while in truth the more accurate term would be ''restructuring.'' The objective of those seeking more competition was not to end regulation but to change regulation so that it fostered more efficient markets. It was believed that consumers, voting with their wallets, would encourage and reward more efficient suppliers, with less efficient suppliers being forced to leave the market.

For a number of reasons, achieving more efficient electricity markets was extraordinarily difficult. In fact several countries took one path toward restructuring, then changed course and took another. But now, after we have seen several nations attempt to restructure markets, we can make judgments about its effectiveness. And that judgment – from the perspective of large and small consumers in nearly every industrialized country – is that restructuring as implemented has not worked. It has not provided the sought after consumer benefits. Indeed in many areas prices have risen. While some claim that these price increases are in response to higher fuel prices, a much more important reason is the new market structures we see operating – market structures that are in fact less efficient than their predecessors, with the result being higher prices and no net consumer benefits.

Many articles and studies have been prepared on electricity restructuring. This article is not intended to duplicate those efforts. Rather, this article briefly reviews both (1) restructuring efforts in the United States, the European Union (EU) and several EU nations, and Australia, and (2) the responses of consumers in those markets.

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II. A Review of Restructuring Efforts

A. The United Kingdom

The UK was one of the first EU counties to liberalize gas and electricity markets through privatization and open access to networks. Prior to privatization the structure of the UK electricity system consisted of three state-owned electricity transportation grids (England and Wales, comprising roughly 90 percent of the total grid; Scotland, interconnected; and Northern Ireland, not connected); one main generation and transmission company (the Central Electricity Generating Board, or CEGB); and 12 regional distribution and retail companies (regional electricity companies, or RECs).

The UK issued a White Paper calling for electricity restructuring in 1988 and implemented the Electricity Act in 1989. The national government ''privatized'' the nationally owned electricity assets and vertically unbundled ownership of generation, transmission, and distribution.[1] Stephen Littlechild was appointed the first director-general of the Office of Electricity Regulation (OFFER). OFFER was charged with overseeing the entire electric industry.[2]

In 1990, the CEGB was split into four companies: the fossil generators were transferred to National Power and Powergen; the nuclear generators went to Nuclear Electric; the transmission grid was transferred to National Grid Company, or NGC; and the 12 regional distribution and RECs were privatized and given joint ownership of NGC.

In 1995, the RECs were required to sell their shares in NGC to form an entirely independent NGC. Restrictions against takeovers of the RECs expired. Between 1995 and 1997, 11 of the 12 RECs changed ownership (seven were bought by U.S. companies).

In 1998, the policy on vertical integration was reversed and National Power and PowerGen were allowed to take over retail businesses. The New Electricity Trading Arrangements (NETA) was created in 2001. NETA implemented a security-constrained, single-price, bid-based auction where generators bid into the ''market'' on a day-ahead and hourly basis, NETA constructed a ''bid stack'' from lowest to highest bid, estimated the load for each hour, and dispatched enough generation (starting from the lowest bid) to assure that load was met. All accepted bidders were then paid the ''market clearing price'' no matter their bid.

In the 2003 timeframe, substantial re-concentration took place. Nearly all (roughly 99 percent) of the residential market became controlled by companies that also owned generation. Four companies owned all 12 RECs: RWE (National Power), E.ON (PowerGen), Électricité de France (EdF), and Scottish Hydro each owned three. The five main generators without retail supply businesses were all in or near bankruptcy and, in fact, one did go bankrupt. The nuclear generators were not allowed to fail due to waste issues.

There certainly are positive implications to the UK's efforts. As recently as January 2008, the UK Department of Business Enterprise & Regulatory Reform (BERR) said that the ''UK energy markets are the most competitive in the G7/EU.''[3] However, it is important to note that the BERR has a public service agreement (PSA) target that requires it to ensure that the UK is among the three most competitive energy markets in the EU and G7 in each year. Further, the Office of Gas and Electric Markets (Ofgem) stated in 2007 that ''Competition in the wholesale [as well as retail] energy markets has brought considerable benefits to industrial, commercial and domestic customers.''[4] Ofgem states that: ''Protecting consumers is Ofgem's first priority.''

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However, The Energy Intensive User's Group (EIUG), an association of large industrial energy users, stated[5]:

- ''EIUG disagrees with BERR's assertion, as recently as January of this year [2008], that the UK energy markets are the most competitive in the G7/EU'';
- UK electricity prices are around 30 percent 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 (BSC, CUSC) are now major barriers to new entrants and smaller players, including auto-generators and demand-side participants;
- EIUG remains unconvinced that Continental energy markets will be fully liberalized within the near future;
- ''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.''

Further, the Consumers Union Program for Economic Justice stated[6]:

- The experience of residential consumers in the UK calls into question the benefits of deregulating retail electricity service, especially for residential customers, and
- By any yardstick – service, price, equity, even competition itself – the deregulation or residential retail service appears to have had no benefits for consumers.

And, the Energy Business Review reported on July 2, 2008[7]:

- Competition in the UK is being hampered by wholesale prices, and

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• Rather than encouraging competition in electricity supply, the fluctuations in the market are making it increasingly difficult for new players to enter the sector. While companies with upstream assets are able to generate the bulk of their profit there, wires-only businesses are finding it more difficult to prosper.

In October 2008, Ofgem put the electric industry on notice to improve its competitiveness to all customers or face a referral to the Competition Commission. Ofgem had just completed a seven-month investigation into the energy industry and said that it was disturbed that some consumers had no choice but to pay more for their energy. Alistair Buchanan, Ofgem's chief executive, said:

> These are hard times and we are taking a hard line on behalf of disadvantaged consumers. We accept that global influences are pushing up costs but the suppliers must change their behaviour and cement consumer confidence. If they fail to satisfy our requirements voluntarily, then we can move to a Competition Commission reference.
> Initial findings from our energy market probe give us grounds to demand that companies end practices that hinder customers, especially the vulnerable, from getting the best deal.[8]

Ofgem put forward proposals to guard against market abuse in the wholesale markets and called for the removal of barriers to small suppliers and new entrants, who complained of the difficulty of buying electricity at competitive prices due to poor liquidity.

However, even this strong reaction was not enough for some. Ecotricity, an independent green electricity supplier, accused Ofgem of not doing enough to encourage competition. It said that the regulator was stifling innovation and thus limiting customer choice. Dan Vince, managing director of Ecotricity, said: ''The big six have run rings round Ofgem in the creation of the 'competitive regime' and have created for themselves a comfortable oligopoly with considerable barriers to entry and innovation.''[9]

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And further, the pro-environmental group Friends of the Earth and pensioner's campaign body Help The Aged are seeking a judicial review against the Government, citing a big rise in the numbers of households struggling to pay their fuel bills.[10]

B. Spain

Law 54/1997 was enacted in 1997 to create an electricity wholesale market and requiring objectivity, transparency, and free markets. This was followed by a Royal Decree (2019/1997) that established both a Spanish electricity pool (that began operation in 1998) and a ''Protocol'' stating that the electricity companies would receive a fixed payment during a transition period which would be computed as the difference between the average revenues of the tariff and the regulated costs.[11] The Protocol established a mandatory decrease in prices for 10 years (2 percent per year for three years, then 1 percent per year for the rest of the transition). It further stated that if generation costs exceeded a specified amount, the excess would be deducted from the amount specified. In 1985, 12 vertically integrated utilities transferred their assets to form an independent transmission company Red Eléctrica.[12] The Law for the Organization of the Spanish Electrical Sector (LOSEN) was enacted in 1994.

Spain and Portugal signed an agreement in 2001 calling for complete integration of their electricity markets (Mercado Ibérico de Electricidade, or Mibel). In early 2004, the two countries agreed that Spain's Compañia Operadora del Mercado de Electricidad (OMEL) would operate the spot market and its Portuguese counterpart, OMIP would operate the futures market. Mibel commenced operations in 2006.

The electricity market has evolved with a continuously high level of regulation and political

involvement. Spain continues to have a high concentration of large electricity companies (in 1998 Endesa and Iberdrola controlled 71 percent of the capacity and 84 percent of the generation in the total market).[13]

Several academic studies have concluded that Spain's electricity market is not adequately competitive due to a high degree of inelasticity of demand and high concentration on the supply side, is still highly regulated regardless of the market prices, and fails to attract new entrants. As an example, Crampes and Fabra argued[14]:

> . . .the so-called market, as it has been implemented, is not such. Regardless of market prices, what consumers end up paying and firms receiving is ultimately determined by regulated tariffs, which are set by the government on an annual basis, and in a non-transparent manner. Also, the new system has failed in attracting new entry, and in promoting the efficient amount of investment needed to guarantee adequate reserve margins.

C. Germany

The 1998 Energy Act implemented EU Directive 96/92/EC (addressed below), but it went beyond the Directive by completely opening the energy market – at least in theory.[15] There were three main features of the restructuring: (1) a mandated immediate and full customer liberalization, so that all end-users could choose their retailer, (2) no restriction on vertical integration, which was prevalent and increasing in the German electricity market, and (3) ''negotiated'' third-party access (nTPA) where large consumers negotiate with suppliers in contrast to the rest of Europe.[16]

A significant number of new electricity providers entered the market in 1999. There was a strong increase in market concentration due to mergers and acquisitions in 2000. However, most of the new entrants exited in 2001.[17]

Flaws in negotiated TPA were documented in a report of the Monopolies Commission in 2003.

While some authorities have given the public impression that the electricity market was working well, in an April 2001 review the Cartel Office (Bundeskartellamt) said that the institutional framework was unsatisfactory.[18] The Cartel Office pointed out two main criticisms: (1) access charges were too high and (2) there were a number of practices of discrimination.

A strongly criticized merger occurred in 2002, when E.On merged with Ruhrgas.[19] Because access to gas is increasingly critical to competition in electricity generation, the Cartel Office prohibited the merger. However, the Minister of Economic Affairs overruled the Cartel Office as well as his own advisors in the Monopolies Commission and approved the merger.

Flaws in negotiated TPA were documented in a report of the Monopolies Commission (Monopolkommission) in 2003 and shortly after that by the *Monitoring Report* of the Ministry of Economic Affairs (BMWA).[20] Regulated TPA was required shortly after these reports.

The National Energy Act was enacted in 2005. Underlying regulations of the act included: the installation of a regulatory authority, the implementation of stricter control of grid access conditions, a requirement for clearer and more binding regulations calculating access charges, the implementation incentive-based regulation within two years, the abolishment of barriers to entry in the balancing market, and the establishment of ''regulated'' TPA. However, even today, the market is quite concentrated (RWE owns 28 percent of generation; E.ON owns 22 percent; Vattenfall owns 13 percent, and EnBW (EdF) owns 6 percent).[21]

The regulator (Bundesnetzagentur – BNA) asserts that the market is completely open and all electricity consumers can choose their supplier, but less than 10 percent of consumers have switched.

The Verband der Industriellen Energie und Kraftwirtschaft (VIK), the association of large industrial energy consumers,

strongly questions the assertions that the markets are competitive. VIK stated that (in 2005)[22]:

- There is no effective competition;
- The separation of national markets continues;
- Grid access fees are high and rising;
- Substantial cross-subsidization and discrimination continues;
- The regulatory framework is only beginning to change;
- Investment in the grid has decreased significantly;
- Prices remain high and are not explained by fuel price increases;
- Market power is prevalent (the German market is dominated by 4 big producers controlling about 90 percent of generation capacity and their associated trading sister-companies);
- Cross-border trade is severely restricted; and
- There is inadequate unbundling and inadequate transparency.

D. France

The electric industry in France was nationalized in 1946 creating EdF. Today, 55 percent of French electricity generating capacity is nuclear, generating 79 percent of all electric energy. EdF controls more than 85 percent of both total generation capacity and generated electricity.[23] Powernext, a power exchange, was established in 2001.

Theoretically, the electricity market opened for non-residential customers in 2004 and for residential customers in 2007. End user electricity prices are substantially lower than the EU average.

In 2007, the European Commission opened a formal antitrust proceeding against EdF for possible breaches of the EC Treaty's rules on abuse of a dominant market position (Article 82).[24] The Commission believed that EdF introduced

long-term exclusive purchase obligations in their supply contracts with industrial consumers that make it difficult for new entrant electricity suppliers to acquire these consumers, thus delaying a competitive market.

It is questionable whether France actually restructured. A 2008 JP Morgan report states that France: ''[a]ccepted the requirements of the EU Electricity Directive but liberalization [is] more in theory than in practice.''[25]

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 percent of its electricity coming from nuclear power to start paying for electricity at gas prices plus the CO_2 emission costs – as would happen with single-price, bid-based auctions. To calm industrials, the government launched two initiatives: (1) forcing EDF to sign with a group of very large users (Exeltium) long-term contracts (up to 25 years) based on nuclear costs, and (2) creating a regulated public tariff for other industrials (called TRTAM), beginning in July 2007 and running until July 2010.[26]

E. European Union

The EU issued a paper in 1985 calling for a ''single EU market'' and another in 1988 calling for an ''internal energy market'' (IEM). The first set of EU Commission proposals for liberalizing the electricity and gas markets was issued in 1991, introducing ''third-party access'' (TPA). The 1st Commission Directive (96/92/EC) was issued in 1996. Electricity liberalization was adopted in 1998 opening the market for consumers greater than 40 GWh in 1999, followed by greater than 20 GWh by 2000; greater than 9 GWh by 2003, and all load in 2007.[27]

The 2nd Commission Directive (2003/54/EC) – containing common rules for the internal market, strengthening the regulatory setting and a system for mandatory regulated TPA – was issued in 2003.[28] The Commission's Directorate-General for Energy and Transport

(DG TREN) issued the final draft guidelines in 2004 (addressing congestion management, cross-border trade – system operators would use the same assumptions and mechanisms to manage their networks and network users would face a single interface – functional separation between the network operators and the owners).

In 2005, the European Regulators Group for Electricity and Gas (ERGEG) published a paper entitled ''The Creation of Regional Electricity Markets'' calling for action in four areas (availability of transmission capacity, availability and control of information, cooperation among network operators, and compatibility of wholesale market arrangements).[29] Also in 2005, DG Competition (DG COMP) and DG Energy and Transport (DG TREN) issued a report on problems in reaching the single market. The problems included a lack of market integration and insufficient and inadequate interconnection infrastructure.

In 2007, DG COMP studied in detail the effects of concentration in six Member States (Belgium, France, Germany, UK, Netherlands, and Spain) and concluded: prices are significantly above relevant generation costs due to a lack of competition; markups are systematically greater when concentration rises, and a number of operators may have withdrawn capacity to raise prices. Later in 2007, DG TREN said (at the 14th Florence Forum) that action was urgently required to remove the following obstacles to competition: vertical integration, lack of independence of system operators, different powers and competences of national regulators, lack of transparency, lack of integrated operation of the networks (TSO cooperation), and a high degree of market concentration.

The Council of European Energy Regulators (CEER) in its 2007 Annual Report stated that[30]:

- Competition is not working in EU energy markets and the problems run deeper than a few large companies not playing by the rules;
- CEER's concerns lie with the regulation of networks and in particular with the role and interrelationship between the proposed new EU Agency (ACER) and the new European Network of Transmission System Operators (ENTSOs);
- EU legislation is needed to effectively separate the TSO from the production and supply businesses;
- There must be European Commission commitment to strong competition law enforcement, and
- There is a need for mandatory transparency rules.

At the 14th European Electricity Forum in Florence, Sept. 24–25, 2007, DG-TREN stated that ''Progress and benchmarking reports of the Commission and results of DG COMP Sector Inquiry in 2006 made clear that action was urgently required to remove obstacles to competition.''[31] DG-TREN said that the main shortcomings monitored included:

- Vertical integration, lack of independence of system operators;
- Different powers and competences of national regulators;
- Lack of transparency;
- Lack of integrated operation of the networks (TSO cooperation); and
- High degree of market concentration.

The EU issued its 3rd Commission Directive (Sept. 19, 2007) requiring[32]:

- Regulators (1) must be truly independent – even independent from governments, (2) must have their authority strengthened, and (3) must cooperate with each other (other Member States);
- Record keeping to protect against market abuse;
- The creation of the Agency for Cooperation of European Regulators (ACER) to deal with interstate issues;

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• Creation of the European Network Transmission System Operator (ENTSOs) bodies;

• ''Ownership unbundling'' of supply and production from network utility operations;

◦ But, as a compromise, EU countries may avoid ownership unbundling through the creation of an independent system operator;

• Transparency rules; and

• Expected complete market opening to TPA.

At the Sept. 24–25, 2007, Florence Forum the European unit of the International Federation of Industrial Energy Consumers (IFIEC Europe) stated that the 3rd package went a long way in addressing the problems which industrial consumers currently face.[33] In particular, IFIEC said that it was supportive of ownership unbundling. However, IFIEC 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; and

• Position in decision-making limited to consultation.

In 2007, the European Chemical Industry Council (Cefic) said[34]:

• 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, and

• Unbundling provisions have to ensure non-discriminatory, transparent grid access for all market participants on a cost basis.

Cefic stated in December 2007 that legislative proposals should be made in seven key areas[35]:

• Market integration;

• Transparency;

• Rules on ancillary services;

• Consultation of consumers;

• Industrial sites;

• Unbundling; and

• Access to gas storage.

Early last year (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, and

• Non-discriminatory access to the grids and to cross-border connections has not been sufficiently established in practice.

Following these formal comments, Hans Grünfeld, president of IFIEC Europe, summed up in a personal communication the views of industrial consumers throughout Europe in the following manner[36]:

> Today, the experiences of industrial energy consumers throughout Europe differ. In France, industrial consumers are obviously very unhappy with an electricity market dominated by one player and by price formation based on fossil fuel plus CO_2. In the Netherlands, although the price level is even higher than in France, industrial consumers are happy with at least some of the results of deregulation, particularly the increased opportunities for optimizing one's costs. Obviously, they are far from happy with the price level, which is considered to be uncompetitive both in

a global as well as in a European context. Consumers in Scandinavia, Germany, and the UK share basically similar experiences. Deregulation has resulted in increased consumer choice, both in terms of suppliers, as well as in products. The functioning of day-ahead markets is generally satisfactorily, and so are ways and means to act as market participant, including demand-side management. Grid tarification has benefited from regulatory control. What European industrial energy consumers share is a concern about the problems of market power and market design, as well as a lack of European integration. This, in combination with a flawed [Emissions Trading Scheme] design, has led to unacceptable high costs.

The European Consumers' Organization (Beuc) stated in 2008 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.''[37] Beuc stated that it welcomes the 3rd Energy Package, with ownership unbundling, but it 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.

UEAPME, the employers' organization representing more than 12 million crafts, trades, and small and medium enterprises (SMEs), in 2008 said: in many countries crafts and SMEs are still confronted with monopolistic structures and no real choice, the price is too high and increasing, and the market liberalizations were not successful.[38] According to UEAPME, the main shortcomings or barriers include: vertical integration, missing capacities for cross-border trade, weak national regulators, and ownership unbundling will not be enough.

Even Eurelectric (Union of the Electricity Industry, the

association of electricity producers, suppliers, traders, and distributors from the EU) has problems.[39] Eurelectric said that the 3rd Energy Package lacks a vision, needs to integrate markets, allows ISOs to reinforce the prevailing national focus and delay integration, and does not require TSO cooperation fast enough. Regional integration should have been a ''must be'' instead of a ''nice to have.'' Eurelectric concludes that the Package does not require effective, transparent and democratic consultation.

But perhaps the strongest negative reaction came from several EU Member States. Ministers from eight European nations, led by France and Germany, wrote a letter to EU Energy Commissioner Andris Piebalgs criticizing the 3rd Directive's requirement for either ownership unbundling or the creation of ISOs.[40] They expressed ''several crucial doubts ... concerning the legality, opportunity, proportionality, and efficiency'' of the unbundling directive. They offered as an alternative ''effective and efficient unbundling'' where the management of the two sectors would be ''strictly separated'' but remain in the same corporate structure. Those signing the letter included the economy ministers from Austria, Bulgaria, Germany, Latvia, Luxembourg, and Slovakia; the French ecology minister, and the Greek development minister.

And finally, the European Commission said it will launch an investigation of the block's retail electricity market after a series of complaints from consumers. Fewer than two-thirds of customers are satisfied with their energy supplier, said Meglena Kuneva, the EU's commissioner for consumer protection. Retail prices differ widely in neighboring countries, and customers find it difficult to switch providers, hampering competition, she said.[41]

F. Australia

Australia has a federalist form of government with each state taking individual actions. Victoria and South Australia (SA) fully

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privatized their electric utilities, while others states only partially privatized.[42] Most states were able to eliminate large deficits through the sale of electricity assets. All continue to have regulated tariffs for households and small businesses.

An agreement was reached in 1991 by the Council of Australian [Federal and State] Governments (COAG) to: create a National Electricity Market (NEM) to be operational in 1998, create a new policy framework and regulatory regimes for the NEM, and eliminate (either partially or completely) the retail franchises. The National Electricity Market Management Company (NEMMCO) was created to implement a single spot market and system operator. The centerpiece of the NEM is a security-constrained, single-price, bid-based market with prices determined every five minutes, commercial energy trading on 30-minute average spot prices and associated derivative instruments.

In 2006 COAG established the Australian Energy Market Commission (AEMC, the national rulemaking body) and the Australian Energy Regulator (AER, the national rule-enforcing body). With the exception of small customers in some NEM states, COAG states:

- All but a few very large energy consumers currently interface with the NEM via a retailer;
- All but one State in the NEM have full retail competition;
- Average real electricity prices fell nearly 20 percent since the early 1990s, but then rose 50 percent in 2007 due to a drought and ''opportunistic bidding'' in areas not affected by the drought;
- The business sector is the major beneficiary, but households have gained; and
- Other restructuring objectives such as reduced environmental

impacts and greater end-user participation have been less successful.

There have been positive reactions to Australia's restructuring. As an example, in a 2007 report to the Essential Services Commission of South Australia (ESCOSA), NERA stated that: ''. . . firms were competing on both price and non-price basis and that competition was expected to become stronger as the market evolved.''[43] Further, two professors from the University of New South Wales stated: ''In traditional economic efficiency terms, the Australian electricity restructuring process has been very successful, with COAG recently stating that average real electricity prices have fallen by 19 percent since the early 1990s, with the business sector being the major beneficiary although households also have gained.''[44]

However, consumers have a different view. In 2006, the Energy Users Association of Australia (EUAA), the association of large industrial energy users, stated its ''key concerns'' including[45]:

- Concentration as the result of failure of some States to disaggregate sufficiently, reaggregation 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, and
- The need to remove institutional, policy and regulatory impediments to ensure the performance of financial markets is optimal.

In 2007, EUAA stated[46]:

- Average prices in the spot market have increased by 120–270 percent and in the wholesale contract market by 40–100 percent;
- The prices are far removed from the underlying cost of producing power in Australia;
- There is 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; and

• Major structural issues need attention including an absence of strong competition in generation and market power created by a lack of interconnections.

In 2006, IndustryEdge released a report entitled ''The Stationary Energy Industry in Australia'' concluding[47]:

• Initial disaggregation 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; and

• The playing field is tilted very much in favor of the supply side.

In 2007, the Energy Reform Implementation Group (ERIG) issued a report to the COAG calling for[48]:

• Better coordination of the national transmission grid including a strategic national planner under a reformed NEMMCO;

• Disaggregation 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; and

• Develop a more national approach to energy issues.

G. United States

The U.S. has a federalist form of government with a very long history of both state and federal electricity regulation. There are roughly 240 investor-owned utilities (IOUs) that constitute roughly three-fourths of all retail electricity sales. Their retail sales are regulated by states. There are over 2,000 municipals and cooperative utilities that are ''self-regulated.'' There have been very significant price differentials between the states. This continues today. The transmission grid is divided into three ''interconnections'' – the East, West and the majority of Texas. There are only limited transactions between the interconnections.

Individual states began regulating retail electricity sales in the very early 1900s. Two major national laws were enacted in 1935 the Federal Power Act (FPA) and the Public Utility Holding Company Act (PUHCA). These acts established federal regulation over wholesale sales and interstate transactions and created what is now the Federal Energy Regulatory Commission (FERC). The Public Utility Regulatory Policies Act (PURPA) was enacted in 1978 establishing a new form of generator, ''qualifying facilities'' (QFs), which are primarily industrial combined heat and power facilities and renewables. The Energy Policy Act, enacted in 1992, created ''exempt wholesale generators (EWGs) and ''market-based rates'' (MBRs). Roughly 850 companies received MBR authority in the 1992–2002 period.

State restructuring basically began when California issued two reports in 1993 and 1994. In 1996, California enacted a state law (AB 1890) implementing electricity choice. California began operation of its Power Exchange and the Independent System Operator (ISO) in 1998. Prices spiked in the summer of 2000 and a ''meltdown'' occurred in 2000–2001. Before the California meltdown, 25 states took action to offer some form of retail choice (TPA).

FERC issued Orders 888 and 889 in 1996. These Orders

mandated non-discriminatory pro forma open-access transmission tariffs (OATTs) and the one-stop shopping OASIS platform. Orders 888 and 889 were supposed to create a decentralized bilateral, physical market under the control of an independent grid operator. FERC issued Order 2000 in 1999. This Order basically required ISOs and RTOs to be market operators with single-price, bid-based ''markets,'' thus eliminating any need for generators to sell directly to end-use customers as they would all receive the highest bid price that cleared the market.

FERC issued a Notice Of Proposed Rulemaking (NOPR) in 2002 that was intended to create ''standardized market designs'' (SMD) for all ISOs and RTOs. However, the political opposition to SMD was so intense from utilities in the Southeast (especially from the Southern Company) and the West that FERC issued a White Paper in 2003 essentially backing down from the SMD proposal. Congress enacted the Energy Policy Act (EPAct) in 2005. The EPAct increased FERC's authority over market manipulation, repealed PUHCA, and severely amended PURPA.

Seven regional markets developed from the restructuring including: PJM, ISO NE, NY-ISO, MISO, ERCOT, SPP, and CA ISO. These ISOs and RTOs were developed in relatively high-cost areas and usually were accompanied by state-mandated price reductions and/or freezes. Many states required the divesture of generation, but it was usually divested in ''blocks'' that carried with them market power. Most ISOs and RTOs implemented single-price, bid-based, ''markets.''

Large consumers generally were pleased with the initial restructuring – although small consumers had serious concerns from the outset. The West (except

California and Montana) and the Southeast have not restructured. These areas are still characterized by traditional state regulation with state-approved tariffs for consumers.

1. Positive reactions to U.S. restructuring. Many unregulated generators selling into the restructured markets are making very significant profits – literally billions of dollars per year. These generators, along with many other supply-side stakeholders, strongly assert that the ISO/RTO markets are performing well. A group of unregulated generators funded the establishment of the COMPETE Coalition.[49] COMPETE states that it: ''... helps serve the national interest by advocating policies which promote reliable, low-cost electric power through competitive U.S. electricity markets.''[50]

COMPETE asserts that customers are benefiting from today's competitive market structure, which has empowered them to make more environmentally and economically informed choices. COMPETE asserts that changes that would halt or reverse the evolution of markets overseen by RTOs and ISOs would threaten the proven economic and environmental benefits the organized competitive electricity markets provide consumers. Further, COMPETE has commissioned a number of studies that conclude along the lines of one: ''Retail markets are providing benefits to consumers in the form of new products and services and innovative methods of providing service.''[51] Additionally, the former Chairman of FERC has stated numerous times that the U.S. wholesale power markets are working well and that electricity competition policy is a success.[52]

2. Negative reactions to the U.S. restructuring. Others have found significant problems with restructuring in the U.S. California experienced a significant meltdown in 2000–2001 resulting in the state signing $26 billion of very-high-cost contracts that are still burdening California electricity

consumers today. The state's governor was voted out of office, to a large extent due to the electricity problems. Consumers in the Northeast and Midwest ISOs and RTOs experienced skyrocketing prices once the price freezes expired. As examples, residential prices rose 72 percent in Maryland and Connecticut, 59 percent in Delaware, and 40 percent in Illinois.

Residential consumers in most states in an ISO or RTO footprint have been very vocal in opposing the prices determined by the ''markets.'' The governors, attorneys general and many legislators have expressed great concern. Such 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 the American Public Power Association (APPA) 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 *The New York Times*, *Wall Street Journal*, *Washington Post*, *The Electricity Journal*, etc.

Industrial consumers have found it nearly impossible to negotiate long-term contracts for power at any price other than the estimated future LMP prices plus mark-ups for risk and administrative costs as unregulated generators knew that they could get the LMP prices for simply bidding. While prices in the un-restructured areas rose, they rose far less than in the restructured areas.

ELCON has issued several papers and many filings at FERC

pointing out fatal flaws in today's electricity markets including[53]:

- 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 result in the required amounts of new generation;
- Above-market prices paid to many generators for ''reliability'' reasons;
- A lack of long-term contracts;
- Inadequate transmission infrastructure;
- Exercise of market power; and
- Artificial price caps and bid mitigation.

III. Lessons Learned

Restructuring has brought some positive results. It is often asserted that restructuring has brought significant increases in nuclear generation efficiency (at least in the U.S.). Further, some assert that the development of regional transmission grids (e.g., ISOs and RTOs in the US, NordPool, OMEL in Spain and Portugal) have brought net benefits to consumers. Others assert that restructuring has brought additional benefits including new and innovative pricing options, clean energy products, innovative technological solutions, and customization of offerings. In fact, a recent NERA report states: ''Retail markets are providing benefits to consumers in the form of new products and services and innovative methods of providing service.''[54]

However, real consumers, in nearly all restructured electricity markets, either disagree with such assertions or do not see net value from the restructuring – at least to date. And there is something very wrong when suppliers insist that the restructuring benefits consumers but consumers simply disagree.

I offer 10 lessons learned from electricity restructuring. While these lessons are perhaps based on the U.S. experiences, they certainly seem to be supported in many other areas.

Lesson #1: ***Overall, and perhaps most importantly, restructuring has emphasized and highlighted the different perspectives of suppliers***

and load – or those profiting and those paying the bills. Nearly unanimously, generators and others supplying electricity are very pleased with restructuring to date. However, consumers – both large and small – strongly oppose restructuring. Consumers point out several significant problems they face. But suppliers either reject or ignore the charges. And the resources that consumer representatives are able to spend trying to make significant changes are greatly overwhelmed by the nearly unlimited resources spent by the suppliers to maintain the status quo.[55]

Lesson #2: ***Restructuring has not resulted in ''real'' or ''true'' competition.*** At a minimum, there is no (or only very limited) inclusion of the demand side in any restructured markets. There cannot be real competition in any ''one-sided'' market. The inclusion of even a relatively small proportion of the demand resources would have a tremendous dampening effect on the auctions of the single-price auctions. But while the inclusion of the demand side is a necessary condition, it is not a sufficient condition to assure real competition. The so-called ''capacity markets'' in several of the ISOs and RTOs in the US are actually simply a new form of regulation. Special deals (e.g., reliability must run contracts) also significantly deter competition.

Lesson #3: ***Restructuring has brought higher electricity prices.*** Suppliers argue that the increased prices are simply due to increased fuel prices. However, consumers have demonstrated that increased fuel prices can only explain a fraction of the total price increases. Consumers assert that the higher prices are also a result of structural changes in the way prices are determined. Previously, rates were based on the average cost

of service. In restructured markets, prices are determined by administratively determined ''marginal costs.'' And without real competition, market forces cannot be expected to truly discipline electricity prices for consumers.

Lesson #4: ***Technological innovation has not been realized.*** Advocates of restructuring asserted that competition would drive technological innovation, as it did in telecommunications. Unfortunately, this has not happened. The electric industry throughout the world still relies on 20th century technology. And worse, the limited technology that is appearing (i.e., real-time meters) may well only bring services unwanted by consumers (e.g., real time prices at artificially high levels).

Lesson #5: ***Significant market power prevails.*** There is a high concentration of generation ownership and joint ownership of generation and transmission throughout the restructured world. There have been a few attempts to disaggregate. As examples, some state regulators in the U.S. required the sale of generation in several Northeast states and the UK completely separated generation, transmission, and distribution at the beginning of the UK restructuring. However, it immediately became clear that disaggregation (or ''ownership unbundling'') was insufficient on its own to create real competition. Further, in some instances, re-aggregation reduced the initial benefits. As an example, within a few years of the initial disaggregation in the UK, 99 percent of the residential market was controlled by companies that own generation.

Lesson #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 – their bids do not have to reflect 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 single-price auctions completely

remove any benefits of fuel diversity.

Lesson #7: ***It is very difficult to negotiate reasonable long-term contracts.*** The generators are usually very satisfied with the prices from the auctions. Thus, they begin their offers with their projections of the future 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 which are necessary hedges against price volatility and a source of financing for new generation.

Lesson #8: ***Resource adequacy is not assured.*** In theory, profits received from the auctions should attract new investment in generation (and transmission). However, it has become clear that the single-price, bid-based auctions actually create a disincentive to invest as the new resources result in lower prices and less profits. And worse, after restructuring in the U.S., the states no longer have the authority to order the construction of new generation and FERC never had such authority. The failure to build necessary infrastructure leads to concerns over reliability – and a willingness by regulators to change the market design for the benefit of generators.

Lesson #9: ***There is inadequate transparency and cooperation among regional markets.*** Consumers throughout the restructured world complain that they cannot get the data they need to be able to negotiate rates and contracts. Suppliers claim that the desired data is ''competitive sensitive'' and fight to keep it private. Network operators all too often side with the suppliers and agree to release data only after so much time that it is no longer very useful. Further, network operators do not standardize their structures or operations. This results in substantial barriers to

the creation of a single market. And the integration is further hindered by individual states in the U.S. and Australia and countries in the EU as they try to protect their consumers by putting restrictions on the movement of low-cost power.

Lesson #10: ***Up to now, regulators have not protected consumers from the problems of restructuring.*** Some regulators do not have the necessary authorities. Some are not truly independent. Others simply align themselves with the supply side to the detriment of consumers. Very recently, the UK regulator (Ofgem) 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 to entry. Only time will tell if this will actually result in real improvements.

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 and 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.

IV. Conclusions

It is striking that industrial and other consumers from around the world have come to the conclusion that today's ''restructured'' markets are far from the competitive markets that they envisioned and that these markets have failed to achieve the stated goals and provide net benefits to consumers.

ELCON and ELCON members believe that the

structure of today's ''organized markets'' is neither competitive nor sustainable. If stakeholders and policymakers collectively do not choose to fix the problems, all alternative approaches – including a return to traditional regulation, which we recognize would be very difficult – must be considered.

Many now question whether the physical characteristics associated with electricity are so different from other commodities that regulation may be the only realistic alternative. Evidence from around the world indicates that efforts – always made with the best intentions – have never brought about the hoped for results. While ELCON and ELCON members have not concluded that ''real'' competition is impossible to achieve, we have concluded that it has not been achieved in any market we have examined. Thus, we are exploring all alternatives, and we are reasonably certain that consumers around the world are coming to the same conclusion.■

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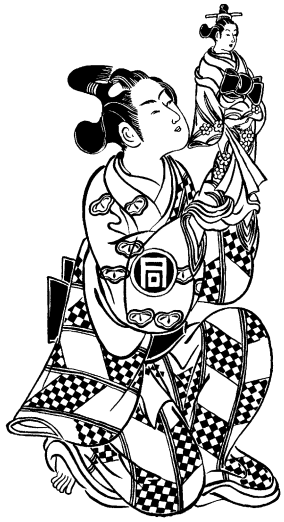

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55. I certainly do not want to leave the impression that *all* consumers oppose the restructuring that has taken place. Some consumers chose not to protect themselves in traditional rate cases – and probably were paying more than they should. Restructuring brought single energy prices to all. These consumers thus may believe that they benefited. Others have rather limited geographical markets. As long as their competitors are not paying less, they are comfortable with the common prices. And still others find that they have buying clout and can negotiate slightly lower rates with aggregated purchasing. My main point is that by far most consumers have not found that restructuring has brought net benefits.