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Annex 1

Constraints on electricity that make competition dysfunctional

Electricity is a public service and a social good

The starting point of the EPSU position is that electricity services should be reliable, safe, affordable and sustainable. Electricity and Gas market reform should be judged on its contribution to realizing these objectives. The problems and even disasters resulting from market reform in many places in the world occur because these reforms have not been linked to the ultimate outcome. The reforms have lost sight of the social component of electricity services: their essential nature, contributing to development of economies and social and regional cohesion.⁵

The social component has political consequences as pointed out by South Australian Independent regulator Lewis Owen.

The market mechanism means passing on to consumers price increases of 50 or 100% or more, and saying this is a good and efficient outcome. Is naivete a necessary characteristic of being a market economist he wonders.⁶

To some extent the Directives have recognised this social characteristic by recognising that electricity is a public service, that Member States can impose public service missions and have to ensure affordable prices and that protection is to be provided for vulnerable customers.

The current discussion on the future of the internal market is not focused on how they will effect these principles.

Dogmatic use of economic theory ignores established criticisms

Secondly, much of the problems of electricity reform result from a faulty application of economic theory. The current neo-liberal theory questions the interventionist role of the state, and as a consequence state and municipal companies as instruments to realise the state's objectives. It seeks to undermine such models of economic management. There is an underlying mistrust of the state, ignoring that different states (and its agents such as state and municipal companies) actually have acted to the benefit of their citizens.

Policy conclusions drawn from models ignoring these facts are at best misleading and at worst pseudo-scientific renderings of the model-builder's ideological conviction against the state.⁷

Neo-liberal theory is a return to old laissez-faire thinking of a bygone age. It postulates that goods are traded in a competitive market. All information concerning such goods should be public knowledge between producers and users. We all know this is not the case in electricity. Producers know more about quality and quantity than do users. Information is asymmetric. The costs are very high for users to obtain full information. Users will be afraid that the companies, driven by profit-maximising behaviour, will cheat on consumers. That is

⁵ Ha-Joon Chang of the Faculty of Economics and Politics of the University of Cambridge points out that distributional considerations should be addressed more explicitly in the design of reform as well as the impact of regulation on dynamic efficiency (not just stopping at static efficiency (see also annex), Ha-Joon Chang' seminal work on The Economics and Politics of Regulation, in Globalisation, Economic Development and the Role of the State, Chapter 5, 2003.

⁶ Lewis W. Owen, Mysteries of electricity pricing, speech to the Economic Society, 3 April 2001

⁷ Ha-Joon Chang, p.33

why users prefer public companies where the profit maximising is either eliminated or reigned in.⁸

The critique of the laissez-faire thinking was well voiced by Keynes. John Maynard Keynes identified in the 1920s cost and demand conditions under which competition doesn't emerge. This seems largely forgotten. Keynes goes further, to explain how economists move from simplifying assumptions to abandonment of the actual facts, and to conclude that reality is what their model says it is.

"The beauty and the simplicity of such a theory [competition producing economic efficiency] are so great that it is easy to forget that it follows not from the actual facts, but from an incomplete hypothesis introduced for the sake of simplicity. Apart from other objections to be mentioned later, the conclusion that individuals acting independently for their own advantage will produce the greatest aggregate of wealth, depends on a variety of unreal assumptions to the effect that the processes of production and consumption are in no way organic, that there exists a sufficient foreknowledge of conditions and requirements, and that there are adequate opportunities of obtaining this foreknowledge. For economists generally reserve for a later stage of their arguments the complications which arise -- (1) when the efficient units of production are large relatively to the units of consumption, (2) when overhead costs or joint costs are present, (3) when internal economies tend to the aggregation of production, (4) when the time required for adjustments is long, (5) when ignorance prevails over knowledge, and (6) when monopolies and combinations interfere with equality in bargaining -- they reserve, that is to say, for a later stage their analysis of the actual facts. Moreover, many of those who recognise that the simplified hypothesis does not accurately correspond to fact conclude nevertheless that it does represent what is 'natural' and therefore ideal. They regard the simplified hypothesis as health, and the further complications as disease." (Keynes 1972)⁹

A report of a Dutch governmental advisory body (see below) has argued that the damage for users and business resulting from network problems are much larger than the value of the product. There are therefore macro-economic reasons to strive towards optimal reliability. This is a faint echo of the position of Keynes and again largely ignored.

Physics of electricity

Another set of reasons, and certainly not the least, why competition in electricity can not function is related to the physics of electricity. It is not a product that can be stored. To ensure that the system can function demand and supply need to balance at all times. Electricity can also not be stored. There are no stocks. Engineers are therefore usually quite skeptic about introducing competition in the electricity sectors.

Large Industrial Users: Wholesale markets have failed

The particularities of the electricity market are finally recognized by the large industrial users. They argue that the wholesale markets have failed. And if you do not have wholesale competition what is left is retail competition which makes up between 2-6% of the electricity bill. This margin has to be compared also to the costs to compete and to acquire new clients.

⁸ Is the government failure theory still relevant, Matsunaga and Yamauchi, p. 227-263, *Annals of Public and Cooperative Economics*, 75:2 2004. In addition companies argue, as does the Directive that certain information needs to be confidential for commercial reasons. The US Supreme Court has argued that society has a great interest in the free flow of information. It is the postulate on the basis of which competition theory is build. Allowing companies (that deliver essential services !) to keep information secret is in direct contradiction with the free market theories.

⁹ Keynes, J. M. "The End of Laissez-faire" in The Collected Writings of John Maynard Keynes, Vol. 9, Essays in Persuasion, London, The Macmillan Press, 1972

What does the European organization of large industrial users IFIEC say in an electricity market design report¹⁰:

- Competition between European power generators and suppliers has virtually disappeared. Even large industrial users have no negotiating power when seeking new supply contracts, let alone domestic users
- The wholesale price has gone up with 50% on average since 2002.

IFIEC states that these price developments are harmful for competitiveness, especially because of risks and uncertainties related. IFIEC concludes that the wholesale market is dysfunctional. IFIEC members are now confronted with the same situation as domestic users and individual and small and medium-sized enterprises: the only part on which there is competition is the retail part (or trading margin). It has always been unrealistic to expect that individual users would have an effect on the price of balancing and supply contracts.

IFIEC complains of market dominance where producers and traders are often the same. The price signals are erratic, and there is insufficient liquidity in the forward electricity market. There are hardly any new producers. The existing producers use the wholesale trading market price as the reference point for contracts with industrial users. IFIEC claims that the electricity producing companies engage in price-setting. Financial institutions have not become more active. IFIEC claims this is due to the lack of a price reference like there would be in a commodities market. All kinds of contracts for risk management could then be linked to this price reference. And then comes the clincher: electricity can not be stored. Electricity spot markets serve to balance the actual physical supply needs (the market always needs to be in balance) There are thus no possibilities for arbitrage. Trading companies without physical assets have encountered catastrophic results and disappeared. IFIEC concludes that :

“the failure to introduce electricity contracts on the important commodities exchanges is a good indication that the nature of electricity goods does not lend itself to tradition risk management. As a consequence, electricity trading exchanges do not, and will not in the near future, provide financial instruments in a manner that allows consumers sufficient options to manage and hedge their risks, as in the case of other commodity markets.”

IFIEC states a *“total lack of predictability and the impossibility to anticipate and budget costs.”* There is *“excessive risk”* of users. Not just industrial ones as IFIEC focuses on, but also for domestic users in fully opened markets. And IFIEC warns us that there is a direct threat for the survival of a large number of industrial sites, and future investment in the manufacturing industry has to deal with risks and uncertainties.

One would expect that IFIEC would draw the conclusion that it is better to return to the regulated model with predictable prices including for large industrial companies.¹¹ But it prefers to prescribe us more of the same medicine.

Conclusion

These powerful arguments against competition in electricity services have been ignored, and, as predicted by EPSU, the Commission and Member States now scramble to regulate in more detail.

¹⁰ “Electricity Market Design”, 29 September 2004, www.ifiec-europe.be See also “Wholesale markets have failed”, Power in Europe, issue 436, 25 October 2004, p.4

¹¹ EPSU has received information from its affiliated trade unions that an increasing number of large industrial users feels similar: a return to regulated tariffs is preferable. We are told that many dare not come out public on this.

Annex II

**CONTRIBUTIONS OF THE RESTRUCTURING OF THE
ELECTRIC POWER INDUSTRY TO THE
AUGUST 14, 2003 BLACKOUT**

By Jack Casazza
Frank Delea
George Loehr

Members, Power Engineers Supporting Truth

August 2005

III. *Executive Summary*

Deregulation and the concomitant restructuring of the electric power industry in the U.S. have had a devastating effect on the reliability of North American power systems, and constitute the ultimate root cause of the August 14, 2003 blackout. Specifically, deregulation and restructuring have led to:

- Changes in focus from long-term optimization and inter-system coordination and reliability to total dependence on immediate profits and the efficacy of “the market”.
- Change in technical qualifications of those holding management positions in electric power organizations and government policy makers and regulators; this change affects entire organizations.
- Reductions in personnel at electric power organizations and companies.
- Failure to make adequate technical analyses including risks when setting government policies.
- Increased complexity of operations because of separation of generation and transmission functions, the large increase in the number of organizations involved, and the establishment of additional levels of responsibility in the operation/control process.
- Dilution of management responsibility, including too many entities in the management structure with veto power.
- An almost fundamentalist reliance on markets to solve even the most scientifically complex problems.
- Decreased emphasis on the importance of strong reliability standards, and a trend toward lower standards; this is most pronounced in the very organization charged with maintaining reliability –NERC – aided and abetted by FERC.
- Dispersed, fragmented control of the bulk power system in the Midwest.
- A patchwork quilt of overlapping jurisdictions among marketing areas, Independent System Operators/Regional Transmission Organizations (ISOs/RTOs), and regional reliability councils in the midwest.
- Reductions in, or outright elimination of, training including training of operators.
- Continuation of the historical problem of geo-electrically small control areas in the Midwest, despite the creation of the MISO, which, in the context of operations on August 14, 2003, appeared to be little more than a toothless shell.

Unless the root causes of the August 14, 2003 blackout are addressed and the trend toward lower standards reversed, the likelihood of future blackouts will increase.

The DOE/Canadian report demonstrates the dominance of market participants and lack of government concern about the root causes of the blackout.^{12, 13} Both are also clearly illustrated by the almost two-year delay in the investigations, and discussions that are taking place through the competition and reliability study of which this paper is part.

Despite its “spin”, the Energy Policy Act of 2005 does nothing to address the root causes of the 2003 blackout, and hence will do nothing to enhance reliability.

XI. Recommendations¹⁴

The authors have been asked to provide recommendations, a difficult assignment. In the massive effort to “deregulate” and “restructure” the electric power industry, the Laws of Physics were ignored, replaced by a blind conviction that the Laws of Economics could provide all things – including a reliable system. Unfortunately, this has been proven to be a tragic mistake. The problem with correction, however, is that a fundamentalist market philosophy has so permeated the entire industry, from the Federal Government and its regulatory officials to the industry’s own organizations, that to undo the damage will likely take an effort well beyond a few simple recommendations. The problem cannot easily be fixed since the problem is an innate attitude or belief system, not an error or two in procedures or protocols. An indication of this is the fact that, despite such evidence as the California Meltdown, unprecedented price spikes, the criminal actions of Enron and others, and the most devastating blackout in our history, policy makers still steadfastly deny that deregulation and restructuring had anything at all to do with any of it. Sociologists call this “cognitive dissonance.”

Recognizing this difficulty, there are a number of steps that could be taken to start the nation on its difficult corrective path:

- Before approving any new ISO/RTOs, ensure and demonstrate that the entity is fully functional.
- Investigate and recommend guidelines for the geo-electrical characteristics of control areas.
- Require NERC to roll back the reductions in reliability standards implemented since 1998.
- Prohibit NERC from implementing any further reductions in reliability standards.
- Permit any state or reliability entity to mandate more stringent reliability standards than NERC’s. In other words, make sure that NERC standards are a floor, but not a ceiling.
- Before implementing a new market design, ensure and demonstrate that the design’s impacts on the reliable operation of the power system have been fully evaluated.
- To make markets work more efficiently and effectively, emphasize in policy standards the need to foster cooperation between organizations

¹² DOE personnel have indicated in correspondence with the authors they had more important things to look into. Kevin Kolevar, March 8, 2005, attachments to letter to J.A. Casazza (see pages 12 and 13).

¹³ The Congressional Research Service Report to Congress on Electric Utility Reform update of April 21, 2005 does not discuss such issues as industry behavior and its impact on reliability.

¹⁴ These recommendations were prepared prior to recent Congressional action that made making reliability standards mandatory. They have since been reviewed and remain unchanged, since the problem is not whether the process is mandatory, but how strong the standards are, how our recommendations are implemented, and how competent those implementing them are. In any case, since the Energy Policy Act of 2005 does not address the underlying causes of the 2003 blackout, it will have no effect in improving the reliability of the bulk power system.

- Develop standards for technical qualifications required for key government and industry positions, including those responsible for establishing electric power policies, and for management, design and operation of the transmission grid.
- Require that appointments to FERC and the new DOE Office of Electricity of Delivery and Energy Reliability, and to the NERC Board and senior management positions, have demonstrated expertise and experience in electric power and are vetted by the National Academy of Engineers, with input from the Institute of Electrical and Electronic Engineers (IEEE), Edison Electric Institute (EEI), the American Public Power Association (APPA) and National Rural Electric Cooperative Association (NRECA).
- Mandate that DOE, in consultation with FERC, NARUC, and NERC, undertake a biannual “National Power Survey” modeled after the 1964 survey. This survey should give emphasis to reliability risks, including such incidents as the loss of major gas pipelines, as well as economic constraints.¹⁵
- Investigate and develop new programs for encouraging and improving the transfer of technical experience and expertise in the electric power industry and universities; such efforts could be enhanced by utilizing experienced retired engineers from the electric power industry.
- Investigate the effects that extensive labor reductions have had on overall national reliability, and on the ability to cope with national disasters and acts of terrorism.
- Require that marketing areas and reliability council areas be consistent.
- Support the reporting and exchanging of information related to system reliability. (Concerns exist about the consistency of some information, and the availability of data to the entire electric power industry.) The Federal Government could play an important role in enhancing the definition, collection and sharing of information.
- When adjusting generation because of transmission economic constraints, insure that such adjustments minimize reliability risks.
- Investigate and monitor reductions of maintenance expenditures as indicated in reports to FERC as a part of FERC’s reliability monitoring function.

Additional references can be obtained at the following web sites:

www.PEST-03.org
www.ameredinst.org

¹⁵ “It’s Time to Challenge Conventional Wisdom”, Harrison Clark, Transmission and Distribution World, Oct 2004.