

Australian Electricity Reform: A Regulatory Quagmire

By Deepak Sharma*

Abstract

The electricity industry in Australia is in the throes of significant and fundamental change in its structure, ownership and mindset. Much of the industry has been functionally unbundled and placed under public-corporate or private ownership. The competitive segments of the industry have progressively been exposed to competition and the choice has gradually moved towards the consumer. The rationale behind this change is essentially economic. The competition and choice offered by the new order, it is argued, will result in higher economic productivity, lower electricity prices, and increased domestic and international competitiveness. A sound regulatory framework is, however, a prerequisite for the realization of such economic benefits, as the link between reform policy and its expected benefits is not a direct one. It is the regulatory framework which will determine actual benefits, not just the broad policies on reform. The design of such framework will depend on the country's history, politics, institutional structures, decision process mechanisms, policy dogmas and planning philosophies. This paper investigates the evolving nature of regulatory processes in the context of the Australian electricity industry. The investigation reveals that the Australian federal system; the state stewardship of the electricity industry; the legal arrangements; the apparent preoccupation - by the architects of the market - with the design of the wholesale market and a neglect of the (politically difficult) retail market; the general lag between the designs of market and regulatory structures; and a lack of clear focus has resulted in a regulatory framework which is typified by a high degree of jurisdictional overlap, ambiguity, confusion, inconsistency and unaccountability. Further, it seems to be following rather than guiding the evolution of the electricity industry. This, clearly, has the potential to seriously jeopardize the expected gains from electricity industry reform.

Introduction

The electricity industry in Australia has been in the throes of reform for a considerable time now. The motivation behind this reform is quintessentially economic - the reform will improve the domestic and global competitiveness of the Australian economy. The public approval for this reform has generally been sought through a mix of simplified arguments - lower electricity bills and significant savings for residential consumers; empowering the people; improved profitability for businesses which will create more jobs; private ownership of industry will free government money which will then be spent on schools, hospitals and roads; moreover, reform is

*Deepak Sharma is Associate Professor, Energy Planning and Policy Program, University of Technology, Sydney, Australia. He can be reached at deepak.sharma@uts.edu.au This is an edited version of his paper presented at the 24th Annual IAEE Conference in Houston, TX, April 25-27, 2001.

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good for the environment.

'Competition' and 'choice', preferably under private ownership, are considered to be the essential prerequisites for achieving the objectives of reform. Accordingly, much of the Australian electricity industry has been functionally unbundled, competition has been introduced in the competitive segments of the industry, the monopoly segments of the industry have been restructured as regulated corporate entities, and the 'choice' has gradually moved towards the consumer. Substantial segments of the industry have been privatized, and the pressure for privatization weighs heavily on the rest.

The rules for the governance of the electricity industry have been developed in the form of a National Electricity Code (simply called - the Code). The Code - rules, institutions, decision mechanisms and other associated accouterments constitute, in the context of this paper - the regulatory framework for the electricity industry. This regulatory framework - in consonance with the ever changing dynamics of the reform process and the body politic - is an evolving entity.

In recent times, concerns have emerged among the electricity industry participants and the community at large about the inherent complexity of the regulatory framework. While the concerns of the industry generally relate to the excessive economic burden imposed by such complexity, the community disquiet is due to the apparent subjugation of their interests and rights to an economic agenda. It is therefore argued that the present framework is unlikely to be able to satisfactorily guide the evolution of the electricity industry in a balanced and socially desirable manner.

There is, clearly, a need for a reassessment of the suitability of the existing regulatory framework in Australia. This paper is an attempt in that direction. The following sections contain: a) a brief overview of evolution of the electricity industry in Australia, b) a description of the existing regulatory framework, and c) an examination of the main regulatory issues. This paper does not debate the merits of individual regulation. Instead, it draws together the various strands of the regulatory framework in Australia with a view to identifying the sources and causes of its complexity and associated regulatory issues.

Electricity Industry in Australia

This section provides a brief overview of the evolution of the Australian electricity industry. This will enable a better appreciation of the subtleties of the regulatory issues.

Australia is a confederation of six states and two federal territories (for simplicity of exposition, the territories are referred to as states in this paper). The electricity industry in each state developed around the state capitals and rural activity centers in the late 19th century. The electricity generation was typically distributed, and the industry ownership consisted of a mix of private and public enterprises (Sharma and Bartels, 1997). The earlier decades of the 20th century witnessed a rapid expansion of the electricity industry, and a move towards vertical integration, centralized planning and operation, public ownership, and command-and-control type of governance.

In the post-war years, there was a further consolidation and indeed an entrenchment of this model of industry structure, ownership and governance. An interesting feature of electricity development in Australia is that each state developed its electricity industry in complete isolation from another. Reasons include: electricity is constitutionally a

state matter; fierce interstate rivalries have traditionally existed between Australian states; Australian states have a penchant for state sovereignty.

Consequently, the Australian electricity industry comprised distinct state-based electricity systems with contrasting technical standards and benchmarks, voltage systems, structures, and governance philosophies, and virtually no interconnection between them. Each state planned, established, operated and governed its industry exclusively according to its priorities and interests, e.g., promoting the use of state resources, creating employment within the state, ensuring complete independence from other states for meeting electricity needs of the state.

In the early 1980s, concerns began to be expressed about the inefficiencies of the electricity industry in Australia. A number of reform initiatives – focusing mainly on better management and control of the industry – were undertaken by the state governments and the state electricity utilities. These initiatives resulted in appreciable efficiency gains (Sharma, 2000).

A further impetus, and a different character, to the reform process was provided in the late 1980s by the interplay of forces unleashed by the globalization of the world economy and the ascendancy of the faith in free market principles. The Australian response to these pressures included the introduction of a series of reforms under the broad banner of ‘microeconomic reform’. The reform of the electricity sector was an integral aspect of this reform program (Sharma and Beardow, 1999).

In the early to mid 1990s, several agreements were reached between various governments in Australia to reform the electricity industry. A central element of this reform was the creation of a National Electricity Market (NEM) in accordance with the precepts of the National Competition Policy (NCP). The NCP emphasized efficiency gains through the creation of competitive markets.

In order to comply with the requirements of the NEM, the Australian states which were party to the NEM, restructured their electricity industries. As electricity is constitutionally a state matter in Australia, each state followed a different approach to restructuring with regards to the shape and size of its restructured industry and the speed of restructuring. Notwithstanding these differences, the general nature of structural change in each state included the separation of generation, transmission, distribution and retail segments of the industry; introduction of competition in generation and retail, re-orientation of transmission and distribution to support and encourage competition. Additionally, each state has adopted a different model of industry ownership – private, de-facto private, private/public, tenuously public, and public.

The NEM encompasses a competitive wholesale market for generation, regulated transmission systems with legislated access rights and a system controller. The regulated distribution networks and the retail supply market remains within the jurisdiction of the state governments.

In the NEM, all generators greater than 30MW compete by lodging bids to supply electricity to a common pool on a half-hourly basis. Bids are ranked by a central grid operator and dispatched by regional centers based on economic criteria. The pool price for any half hour is the price of the marginal generator that is scheduled, i.e., its short-run marginal cost. All generators that run during a particular half hour receive remuneration at the pool price for that half hour (Sharma and Sproule, 1998).

In the fully operational version of the NEM, wholesale traders (licensed retailers, wholesale electricity customers and independent traders) will be able to purchase electricity directly from the pool and manage price volatility with bilateral hedging (Sharma and Sproule, 1998). Licensed retailers have access to transmission and distribution networks on equal terms, and compete for the non-franchise market. It is planned that the regional retail franchises will progressively be abolished in all states, and by the end of 2002, all customers will be able to choose their own retail suppliers.

Regulatory Framework

The electricity industry in each state has traditionally been regulated through state regulation with no federal interference. The general character of this regulation was prescriptive, and its implementation was of the command-and-control type. However, the adoption by the states of the NCP, and the creation of the NEM has resulted in the emergence of a new regulatory framework. The principle elements of this framework include:

General Market Regulation: This regulation aims to ensure that electricity as a market commodity, and electricity networks as monopoly assets, comply with the provisions of the federal Trade Practices Act (TPA). The TPA is a Commonwealth law meant to enforce the NCP. The TPA achieves this through a system of ‘authorizations’ of structure and trade related issues and ‘acceptances’ for network pricing and network access arrangements. The TPA is administered by the Australian Competition and Consumer Commission (ACCC) – a federal regulator. The specific responsibilities of ACCC include: the authorization of the Code and any changes to it, and acceptance of the access undertakings under the TPA; regulation of network access and network pricing; supervision of market conduct behaviour, especially the prevention of the abuse of market power; and arbitration of disputes arising from access declaration (PC, 1996; Trimmer, 2000).

National Electricity Market (NEM) Regulation: The regulatory provisions for the NEM are set out in the Code. The Code was developed by the National Grid Management Council (NGMC), in consultation with a cross section of industry and community interest groups. The membership of the NGMC was, however, drawn exclusively from the participating states. The Code was approved by the Ministers in all participating states and authorized by the ACCC. The Code is an all encompassing document containing the rules for participation in the wholesale market, market operations, system security arrangements, network connection and access arrangements, network pricing, metering, market administration, and transitional arrangements (NEMMCO, 1997).

The Code is administered by the National Electricity Code Administrator (NECA). The NECA is a ‘limited company’, funded by participant fees. Its membership comprises energy ministers of the participating states, and its board is made of ministers’ nominees. The NECA is expected to lead the existing market towards a competitive market in an efficacious manner. Its roles include: maintaining and reporting on Code compliance; enforcing the Code and civil penalties for minor Code breaches; facilitating changes to the Code; granting derogations from the Code; registering metering providers; and providing means of effective dispute resolution (Trimmer, 2000).

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The conduct of the wholesale power pool and system operation are administered by the National Electricity Market Management Company (NEMMCO). The NEMMCO is also a 'limited company', funded by participant fees, with membership comprising of the energy ministers of participating states working through a nominated board.

The legal force to the Code is provided by the National Electricity Law which has been enacted at the state level in all participating states to ensure regulatory consistency across the NEM (Roarty, 1998). Changes to the National Electricity Law can only be achieved through the unanimous support of the participating states. The National Electricity Law also gives legal imprimatur to the National Electricity Tribunal, defines funds for NECA and NEMMCO, establishes certain requirements for registration with NEMMCO, and defines civil penalties (Trimmer, 2000).

The National Electricity Tribunal is a judicial body of part time members with skills relevant to the electricity industry. It reviews decisions of NECA and NEMMCO identified within the Code as reviewable decisions and determines applications by NECA alleging breaches of the Code. The Australian Securities and Investment Commission (ASIC) determines whether an exempt futures market declaration should be granted to market participants under the Commonwealth law. This declaration will affect the ability of the market participants to trade in hedge contracts (NEMMCO, 1997).

Monopoly Network Regulation: The economic regulation of monopoly networks for aspects relating to pricing, access, security, and performance is presently within the jurisdiction of the state regulators, except for the NSW transmission network which is regulated by the ACCC. And there are significant regulatory contrasts across the state jurisdictions. The regulation of transmission networks in all states will progressively transfer to the ACCC.

Retail Market Regulation: The retail market in each state is regulated by the state regulators through a variety of licensing and approval arrangements. Considerable contrasts exist between the states.

Other Regulation: The Commonwealth Office of Regulation Review (ORR) vets and reviews regulations to ensure that they are properly formulated and do not impose undue costs on business and the community. The National Competition Council (NCC) monitors compliance in all jurisdictions including the Commonwealth in accordance with the Competition Principles Agreement. The ACCC sponsors a Public Utility Regulators Forum which acts as a focal point for regulators in various jurisdictions. The NEM entities are also regulated by the Corporations Law for aspects relating to tax, accounting standards, and management behaviour. A variety of federal and state environmental regulation also applies to market operations.

Figure 1 provides a snapshot of the current regulatory framework in Australia. It is evident that the regulatory framework in Australia is indeed complex. It is typified by a multiplicity of institutional involvement, jurisdictional contrasts and overlaps. This complexity is primarily due to the legacy of the Australian constitution that assigns the responsibility – to the state – for the supply of electricity to the end consumer. Electricity has a deep-rooted societal connection and – in a parliamentary democracy like Australia – a political

connection. Moreover, electricity is big business. Any major reform of the electricity industry will, therefore, invariably create economic, social and political tensions. A good regulation should be able to manage these tensions in a professionally responsible, socially desirable and politically acceptable manner.

A review of the Australian experience suggests that the focus of federally-driven industry reform has been preponderantly global and economic. The ramifications of industry reform are however largely state specific and political. There is, therefore, a natural conflict between these two. The states have attempted to manage this conflict by orchestrating a state capture of the regulatory process. For example, the 'state only' membership of NGMC (market designer), NECA (market administrator), and NEMMCO (market operator) has ensured the continuation of state stranglehold of their electricity industries (also see Booth, 2000). The preoccupation, by the architects of the market with the design of the wholesale segment and the deferment of the design of the politically sensitive retail segment with the reasoning that retail issues fell within state jurisdictions; the nature and volume of Code derogations; and the ever sliding time schedules for market implementation – are testimony to the state influence on industry regulation.

A direct consequence of this conflict is that the Australian NEM comprises one wholesale market and five distinct and contrasting retail markets. These contrasts relate to market structures, the nature and intensity of institutional involvement, customer contestability schedules, metering provisions, environmental protection measures, contractual arrangements, health and safety aspects, and quality of supply. The regulatory scene has been further complicated by the interplay of forces arising from the superimposition – on the state regulation – of the federal regulation meant to further federal interests at the state, national and international levels.

Regulatory Issues

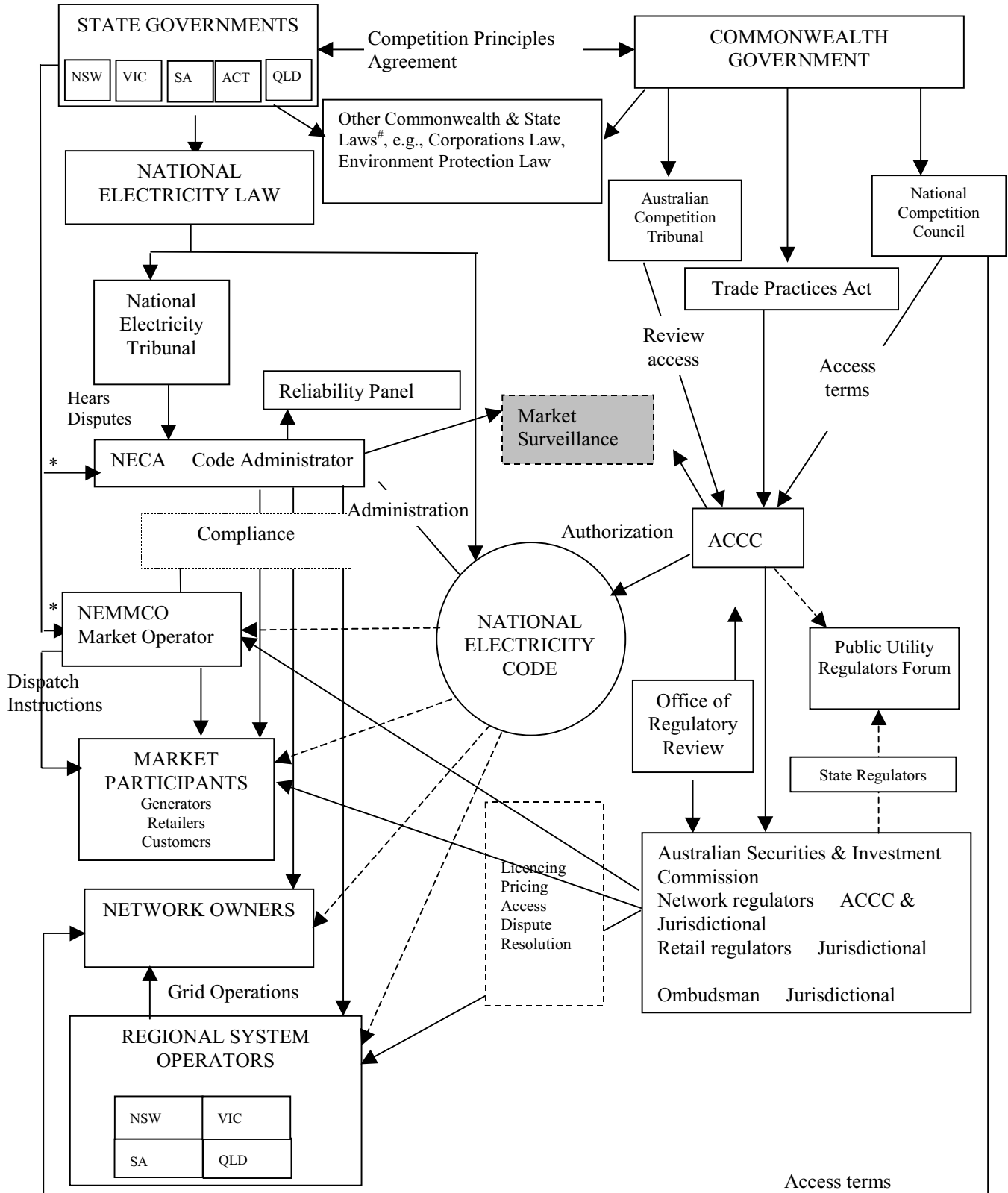
This complexity of the regulatory framework has given rise to a myriad of regulatory issues. A selective list of such issues include:

Regulatory risk – Regulation incurs costs either directly as in compliance costs, or indirectly, through the risks attached to the administration of regulation. There is concern that principles established in one regulatory period, and upon which business bases its long-term investment decisions, are not consistent over time. Regulations are being re-interpreted in the subsequent period or by subsequent regulators. This uncertainty raises the risk level for NEM participants and lifts borrowing costs (Sharma and Beardow, 1999). According to ESAA (1998) '... regulatory risk has become a major commercial concern for the businesses, impacting on profit, shareholder value, and sale price ...'.

Compliance costs – Compliance costs are now emerging as a major barrier to entry. For example, retailers operating in more than one market require a separate license from each jurisdiction. This clearly raises the cost of retailing. In addition, there are several other regulatory costs that could arise from the inherent complexity of the regulatory framework. The ESAA argues that '... the overall cost to electricity supply business and governments across Australia of regulation was of the order of \$100 million per annum, with costs

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Figure 1 Australian Regulatory Framework



Main sources: ESAA (1996), Trimmer (2000)

Notes: # Applicable to all market participants

* States appoint board members

The figure is indicative - it shows major links only.

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to the business being in excess of \$50 million ... actual costs may in fact be higher ... ongoing costs are eroding the benefits of competition to a significant extent ... there are a number of burdens imposed by current regulatory frameworks and approach that are adding to the costs ... they are due to numerous Acts, plethora of orders, regulations, guidelines and codes pursuant to each Act ... more onerous due to inconsistencies, complexity, ambiguity and overlap or duplications across the jurisdictions ...' (ESAA, 1998).

Lack of incentives for dynamic investment – Proposed pricing mechanisms for economic regulation of monopoly networks fail to provide adequate incentives to justify dynamic investment. Without investment to lift efficiency above existing levels, the reforms will not achieve the objective of increasing productivity and providing increased customer service.

Inconsistent approaches to full contestability – The agreement by different states relating to the move towards full customer contestability is not accompanied by an corresponding agreement on the mechanism for its implementation. A discussion with electricity industry professionals suggests that there are serious and growing concerns about this issue which could, in the longer term, militate against efficient pricing (Sharma and Beardow, 1999).

Neglect of social/environmental issues – The principles for the operation of the pool (as discussed earlier) do not clearly encourage any consideration of technical (other than in an immediate sense), social (employment, equity, justice) or environmental (emissions reduction, renewables) factors which will invariably result in higher costs (also see Sharma, 2000).

Inadequate protection of consumer interests - Concerns have emerged that the current regulatory framework does not satisfactorily look after the interests of small consumers. For example, in the context of Victoria, Coyle et al. (2000) have the following to say: '... the transition ... has created enormous complexity in protecting consumer interests ... the existing regulatory regime has no mechanism for allowing consumer interests to be protected from exploitation through unfair discriminatory tariffs ... residential customers are vulnerable to unfair discriminatory pricing ... full retails competition introduces new risks for individual consumers including the loss of privacy and the possibility of being discriminated against in marketing by retailers'. These sentiments are also echoed by Paddon and Small (1999): '... structural changes ... against a backdrop of jurisdictional differences and territoriality ... provide no longer-term basis for consumers to believe that their interests will be protected'. Also, according to ESAA (1998): '... regulations at national levels ... at state levels ... multiplicity of interfaces issues of fairness and equity also arises ... regulators are not sufficiently accountable for their decisions ...'.

Summary

The regulatory framework for the Australian electricity industry is complex. Reasons include: the federal nature of the Australian political system, the historic ownership patterns, state predilection for sovereignty, and the state capture of the regulatory process. This complexity has given rise to a myriad of issues which have the potential to negate the gains expected from electricity deregulation. There is, therefore, a need to acknowledge the criticality of the link between the

deregulation policy and the benefits of deregulation. It is the regulatory reform that bears directly upon economic efficiency (the *raison d'être* of deregulation), not just broad deregulation policies. It is the regulatory framework embodied in the institutional structures, market codes and access and pricing methodologies, which determines to what extent a particular market would achieve responsible, desirable and acceptable outcomes.

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IAEE Headquarters
28790 Chagrin Blvd., Suite 350
Cleveland, OH 44122, USA
Phone: 216-464-5365; Fax: 216-464-2737