DuaneMorris

Technical Assistance To The Energy Regulatory Commission Of The Republic Of The Philippines For The Investigation Of Market Power Abuse

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Glossary

ACCC	Australian Competition and Consumer Commission
AER	Australian Energy Regulator
CAISO	California Independent System Operator
DOJ	U.S. Department of Justice (or its Antitrust Section)
EPAct	U.S. Energy Policy Act of 2005
EPIRA	Republic Act No. 9136, An Act Ordaining Reforms in the Electric Power Industry, Amending for the Purpose Certain Laws and for Other Purposes
ERC	Philippine Energy Regulatory Commission
ERCOT	Electric Reliability Council of Texas
FERC	U.S. Federal Energy Regulatory Commission
FPA	U.S. Federal Power Act
FTC	U.S. Federal Trade Commission
HHI	Herfindahl-Hirschman Index
IMM	Independent Market Monitor
ISO	Independent System Operator (U.S.)
ISO-NE	ISO New England, Inc.
MAG	PEMC's Market Assessment Group
MISO	Midwest Independent Transmission System Operator, Inc.
MSC	Market Surveillance Committee
NECA	Australian National Electricity Code Administrator
NEM	Australian National Electricity Market
NYISO	New York Independent Transmission System Operator
PEM	Philippine Electricity Market

PEMC	Philippine Electricity Market Corporation
PJM	PJM Interconnection Inc.
PUCT	Public Utilities Commission of Texas
RTO	Regional Transmission Organization (U.S.)
SPP	Southwest Power Pool (U.S.)
WESM	Philippine Wholesale Electricity Spot Market

Report

1.0 Introduction

This paper ("Report") has been prepared as part of the Technical Assistance to the Energy Regulatory Commission of the Republic of the Philippines ("ERC") for the Investigation of Market Power Abuse ("Project"). The Terms of Reference for the Project required the Consultants to prepare a "report defining the conditions, behavior, information required, criteria and studies to determine market power abuse or anti-competitive behavior of a WESM trading participant and legal advice and experiences regarding assessment and determination of market power abuse or other anti-competitive behavior."

The instant Report reviews how market power and market power abuse are defined and addressed in three countries: the United States, Australia and New Zealand. The Report is not intended to serve as either a comprehensive academic exposition of market power issues or an exhaustive review of legal precedent. Instead, the primary purpose of the Report is to provide appropriate background and practical guidance to the ERC, within the scope established by the Project's Terms of Reference, on various approaches the ERC could take to address certain immediate market power issues in its purview.[1]

In preparing this Report, the Consultants have held a number of meetings and discussions with the ERC, its members and staff, as well as the President and staff of Philippine Electricity Market Corporation ("PEMC"). The Consultants have been provided and relied upon the following Philippine materials for purposes of their analysis:

- Republic Act No. 9136, An Act Ordaining Reforms in the Electric Power Industry, Amending for the Purpose Certain Laws and for Other Purposes ("EPIRA");
- ERC Competition Rules and Complaint Procedures;
- ERC Competition Guideline;
- Wholesale Electricity Spot Market ("WESM") Rules
- WESM Dispatch Protocol, Issue 1.0, Revision 2.0 (January 19, 2005);
- WESM Market Surveillance, Compliance and Enforcement Market Manual, Issue 2.0 (November 17, 2006);
- Price Determination Methodology Presentation (undated);
- The Price Determination Methodology for the Philippine Wholesale Electricity Spot Market (revision January 23, 2006); and
- Tristan A. Catindig, "The ASEAN Competition Law Project: The Philippines Report" (March 31, 2001).

[1] The Consultants are not authorized to practice law in the Philippines and nothing in this Report should be construed as legal advice.

The Consultants have not reviewed or evaluated any pending or completed investigation of market power abuse or other anti-competitive behavior undertaken by either the ERC or the WESM. Accordingly, this Report does not contain any recommendations or conclusions with respect to any such investigation.

2.0 Defining Market Power and Market Power Abuse in Electricity Markets[2]

Electricity as a product has characteristics that individually and in combination make it singularly unique among all other commodities. These characteristics not only directly affect the design and operation of electricity markets but also necessitate new approaches to defining and identifying market power.

Specifically, there are three major aspects of electricity that make the so-called "structural" approaches to defining market power of limited use. The first aspect is a very high degree of integration existing in the electricity industry. While the delivery of most commodities usually requires a degree of vertical integration (*e.g.*, a producer must use transportation to bring the commodity to market), electricity is unique in this regard for two reasons. One reason is that the integration between production and transmission cannot be separated, *i.e.*, the path that the electricity takes to get to the consumer cannot be distinguished from the energy itself. Energy produced at different locations, while it may look and feel the same, is a different commodity because of the laws of physics. The other reason is that the integration between producers (*i.e.*, horizontal integration), as well as between elements of the transmission system, cannot be ignored. Unlike other commodities where the effects of decisions made by individual producers are largely internalized to those making the decisions, the integrated nature of the electricity system means that no producer or transmission element is an island. Since this characteristic is so fundamental to the nature of electricity production, it must be included in any methodology by which market power is defined if the measure is to have meaning.

The second aspect that separates electricity from other commodities is the physical necessity for supply and demand to be in balance (within certain tolerances) at every moment in time, *i.e.*, there is no practical time lapse between when electricity is produced and when it is consumed. If the two are not in equilibrium, then frequency will either rise or fall from the desired state and the reliability of the system will be jeopardized. Maintaining this balance is a second-to-second exercise, which means that market power can occur for very short periods of time, but with potentially dramatic consequences.

The third aspect flows directly from the first two and represents the defining feature of competitive electricity markets: price volatility. Electricity markets are highly volatile in the short term. Given the relative inflexibility of both demand and, beyond certain limits, supply and the need to keep the two in constant balance, prices can spike to extremely high levels. In practice, it may be difficult to relate such price spikes to notions of underlying cost bases during

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[2] This Report is limited to what is commonly known as "horizontal market power," *i.e.*, the ability of one or more power suppliers to raise prices above the competitive level. The Report does not address issues pertaining to "vertical market power," *i.e.*, the ability to raise prices above the competitive level by controlling downstream or upstream inputs (*e.g.*, transmission, delivery or fuel supply). We also ignore the potential existence of market power on the buyer or demand side. In markets where the market operator is required to purchase electricity (*e.g.*, for voltage support, operating reserves, ramp capability, *etc.*), the analysis should be extended to include this source of market power.

periods of market volatility. As a result, most electricity markets have established safety price or bid caps (as the Philippines has done), since there may otherwise be little effective constraint on the price at which a critical generator can bid during such high volatility periods. The volatility aspect has also led to varying degrees of regulatory intervention to restrict the use of market power during these periods. This Report looks at certain aspects of such interventions in the United States, Australia and New Zealand and provides guidance for the ERC that may be drawn from this experience.

2.1 Market Power – General Definition and Measurement

In the simplest possible terms, market power refers to the ability of a market seller to influence price. In the stylized world of perfect competition no individual seller has the "power" to raise or lower prices by their actions. Generically, anytime – for whatever reason – that a supplier has the ability to influence price through its production decisions, then it has, from an economic perspective, market power. In the textbook world of perfect competition, market power is limited because: (1) suppliers produce identical goods; (2) each supplier's individual output is insignificant relative to the market supply; (3) there are no barriers to entry or exit; and (4) buyers and sellers have perfect information. As a practical matter, however, these conditions do not hold in the real world for any commodity and, in particular, they do not exist for electricity.

In order to define market power it is first necessary to define the market itself – both geographically and by product.[3] Once the market has been defined, the next step is to evaluate the degree of concentration within the market, *i.e.*, determine whether or not an individual supplier or subgroup of suppliers produces a significant portion of the market supply. The higher the degree of concentration the greater the market power held by those firms.

2.2 Market Power – Specific Caveats for Electricity

Unfortunately, the standard textbook economic approach to defining market power, while providing some insight into the problem, does not recognize several unique aspects of electricity as a commodity. These aspects include:

- For all but a limited number of end-use consumers, the demand for electricity is almost perfectly inelastic in real time. That is, the ability for a consumer, over a short period of time (*e.g.*, less than one hour), to see a price and take immediate actions in response is very limited. This means that a supplier with market power can reap tremendous financial gains by exercising that power over very short periods of time.

- When constraints in the transmission system arise, they have the economic effect of conferring market power on a subset of generators. These constraints are

[3] Over time investment and technological progress may alter the definition of the geographic and product markets.

dynamic and can come and go very quickly. Depending on the market design, suppliers can often influence where, when and for how long constraints in the transmission system will arise.

- Generating units can and often do supply products into several integrated markets. For example, energy, capacity and ancillary services are all markets where a generator could sell their output. It is possible that a specific generator or subset of generators may have market power in one market (*e.g.*, reactive support, black start, ramp, *etc*.) but not in another market. Accordingly, they may take actions in one market to influence outcomes in related markets.

- Competitive electricity markets often experience substantial price volatility, particularly in gross-pool, energy-only markets.

Consequently, the situation in electricity, relative to more "normal" goods, is that the definition of market power requires a special methodology and a recognition that an instance of market power abuse can be very short lived, but with dramatic effects. At the same time, electricity markets are often volatile and this volatility may result in price spikes that are not necessarily a reflection of market power or its abuse. Any assessment of market power in volatile electricity markets needs to distinguish between its illegitimate use and legitimate pricing. This requires a cautious approach to regulatory interventions, recognizing that there are costs to both types of regulatory "errors," that is, not intervening when intervention may be necessary and intervening when it is not. While the costs of not intervening may be readily apparent in the short term (*e.g.*, rents for generators that take advantage of their market power), they need to be weighed against the less obvious, but often very significant, costs of inappropriate interventions (*e.g.*, dampened price signals and loss of investor confidence resulting in inadequate investment in new capacity and higher prices and less reliable supply in the medium to long term).

2.3 Assessing Market Power in Electricity Markets[4]

Economists have recognized that there are three basic empirical approaches to identify market power in an electricity market, each having its own shortcomings and limitations. The first approach is to focus on whether any firms have the ability to exercise market power. A number of measures, which are discussed in more detail in Section 2.4 of this Report, assess each firm's share of the total supply (usually expressed as megawatts of generating capacity) in a given market or country. The idea behind these measures is straightforward: a market dominated by a few large firms will be more susceptible to market power than a market with numerous relatively small firms. To enable meaningful comparisons, the market shares can be aggregated into a Herfindahl-Hirschman Index ("HHI"), with higher values of this index indicating greater concentration and scope for market power. As further discussed below, some studies look

[4] The discussion in this section is principally based on Max Dupuy, *Electricity Generation: Competition, Market Power and Investment*, New Zealand Treasury, Policy Perspectives Paper (July 2006)(internal acknowledgments omitted).

instead at various "pivotal supplier" measures, which generally indicate how often a given firm has to run at least some of its capacity, *i.e.*, look at each firm's capacity relative to demand. While there are other more complex variations, the basic idea is the same: evaluate whether any firm is large enough relative to the market to allow it the ability to change its own output in a way that will affect the market price. The principal shortcoming of this approach is that concentration measures can give an incomplete picture of the ability of firms to exercise market power. First, these measures generally do not reflect the effect of transmission constraints, which effectively change the size of the market by limiting the amount of competition at various locations on the network. Second, concentration measures do not consider the scope for entry by new firms. For a given level of concentration, a market where new investment is very slow (e.g., due to heavy permitting procedures) will be more susceptible to market power compared to a market where entry is relatively easy.

The second approach focuses on whether any firms actually have exercised market power in a given period. To answer this question, regulators and economists look at detailed data on plant characteristics and input prices, and attempt to estimate a marginal cost curve for each generator. These estimates of marginal costs are compared to each generator's actual bid prices. Deviation of bid prices from estimated marginal cost indicate market power, provided that the estimate is correct. This approach requires significant amounts of data and is sometimes controversial because estimates of marginal costs will always carry a degree of imprecision.[5] A related method evaluates data on unplanned plant outages. If a given firm owns plants that are out of service more frequently than is statistically typical for the relevant plant age and type, then this may be considered evidence of market power (again, depending on the accuracy of the estimate).

The third approach focuses on whether the performance of the actual wholesale market matches the predictions of a simulation model with competitive characteristics. Some economists build complex simulation models that model the characteristics of a given wholesale market. They simulate market prices, bids and other output under the assumption that the market is highly competitive. These modeled outputs can then be compared to actual data from the real-world market. If it can be assumed that the market can be reliably modeled, this may be a useful approach, although it can be time consuming and the results can be difficult for a non-specialist to assess.

It can be said that energy regulators in the United States have often relied on the first two approaches by using various market concentration and pivotal supplier measures, as well as price/cost based benchmarks, to assess and, where necessary mitigate market power. In contrast, the Australian Energy Regulator ("AER") (and before it, the Australian National Electricity Code Administrator – NECA) has not established such market power criteria and price/cost-based benchmarks. Instead, the AER has focused on investigating whether the behavior has involved collusion or has had an anti-competitive intent.

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[5] For example, getting an accurate estimate of marginal cost can be particularly problematic in the case of hydro generation where the marginal cost of an extra unit of production includes complex considerations about future prices.

2.4 Measures of Market Power

2.4.1 Structural Measures of Market Power

Traditional economic analysis of market power originates from the "structure-conduct-performance" paradigm where structure refers to the degree of competitiveness (*i.e*., the lack of market power) in the industry. The conduct of firms in the industry is linked to the structure and performance is typically measured by the extent that market clearing prices exceed the marginal cost of production. The more competitive the industry is, the less ability firms have to influence price (*i.e*., conduct) and the closer the market price will be to marginal cost (*i.e*., performance).

The starting point for this methodology is to construct an *N-firm concentration ratio.* There are a number of different attributes of market outcomes that can be measured, *e.g*., revenues, profits, sales, capacity, etc. In an electricity market it might be useful to construct the 2 and 4-firm concentration ratios for output. The greater the concentration ratio the more economic power held by the *N-firms.*

The HHI is a more sophisticated and complex measure of concentration. The HHI equals the sum of the squared market share of all the firms in the market. That is, HHI = $\sum_i (S_i)^2$ where S_i represents the market share of firm *i.* For an industry where each of 5 firms has market share of 5%, 10%, 10%, 20%, and 55% respectively, the HHI would be 3650. In comparison, if all 5 firms had equal market share (i.e. 20%) the HHI would be 2000.[6]

Either of these measures is easy to calculate and provides an insight into the likely performance of industry. Given the construction of the HHI, it is more sensitive to the relative size of the largest firms and provides more information in industries that have high concentration ratios.

Unfortunately concentration ratios and the HHI, while of some use in electricity, are not granular enough to capture many of the unique aspects of electricity production. As a result, additional measures of market power have been developed specifically for the electricity industry.

2.4.2 Behavioral Measures of Market Power

In contrast to structural measures of market power, behavioral measures rely on observable actions in the market. These measures focus primarily on withholding rather than size or concentration as indicators of market power. In particular, there are three types of withholding that are examined as part of a behavioral analysis. They are:

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[6] Industries with an HHI of 1800-2000 or less are typically defined as competitive. An HHI between 2000 and 6000 is indicative of a oligopolistic while an HHI above 6000 indicates a monopoly.

- Physical withholding, which occurs when a generator does not offer to sell their output even though price is above the marginal cost of production;

- economic withholding, which occurs when a generator submits bids that are unjustifiably high relative to its known operational characteristics or cost, so that the generator is not dispatched or the bids set the clearing prices; and

- uneconomic production, which occurs when a generator offers their output at a price below the marginal cost of production.

If a generator has market power and executes one or more of these offering strategies (*i.e.*, "conduct"), then it will be able to influence price (*i.e.*, "impact"). The basic methodology has been to implement various "screens" that are designed to identify instances where a supplier or set of suppliers is essential to meet the market demand. Should the supplier fail the screen, *i.e.*, their output is necessary, then a presumption of market power arises.[7] The fact that the supplier has failed the screen does not automatically mean, however, that it has to be mitigated or that sanctions need to be imposed

2.4.2.1 Supply Margin Assessment ("SMA") Screen

In the United States, the SMA screen was proposed by the U.S. Federal Energy Regulatory Commission ("FERC") in 2001 and was known as a pivotal supplier test. Passing the test was proposed to be a condition before an individual power supplier may be permitted to sell electric power at market-based rates. The basis for the test was to determine whether or not a given supplier's production was necessary or "pivotal" to meet the market demand. While this specific screen was not adopted by the FERC,[8] its basic premise – that of establishing the "necessity" of a given supplier or set of suppliers in meeting the electrical load – underlies most of the behavioral assessments that have been developed and implemented.

2.4.2.2 The Uncommitted Pivotal Supplier Screen and the Uncommitted Market Share Screen

In response to the criticisms of the SMA screen, the FERC proposed and adopted two more refined screens.[9] A generator failing either screen results in the presumption of market power on the part of the FERC. The first screen, the Uncommitted Pivotal Supplier Screen first measures the uncommitted capacity of a generator. This capacity is defined as the total generating capacity owned by the supplier plus any capacity under long-term contract. To arrive at the uncommitted capacity, obligations to "native" load, requirements for the provision of operating reserves and any long-term sales of energy are subtracted from the total available

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[7] It is worth noting that to the extent demand for electricity is price sensitive, *i.e.*, the demand curve is elastic, then the problem of defining market power becomes more complicated.

[8] The reason it was not adopted arose largely because of the difficulty in defining and accounting for obligations to serve "native" load.

[9] These screens are discussed in more detail in Section 3.1.2.2.1 of the Report.

capacity. The resulting amount is termed the uncommitted capacity. A generator passes the screen if the uncommitted capacity of all other generators is sufficient to serve wholesale load. In other words, as long as the uncommitted capacity of a generator is not essential to meet load then that generator passes the screen. For this screen, the wholesale load is defined as the markets' annual peak load less all native load.[10]

In order to account for markets where there may be a high variation in load across seasons or where plant outages may temporarily confer market power, the FERC adopted a second screen, the uncommitted market share screen. Similar in concept to the previous screen, the uncommitted market share screen allows for two differences. First, rather than use the annual peak load as a proxy for wholesale load native load is allowed to vary seasonally. Thus the market is defined for each season. Second, planned outages are deducted from capacity. The rationale for allowing this is that generators on planned outages are unavailable to serve load and cannot be used to manipulate the market. A firm passes this screen if for all seasons it has less than 20% of all firms' uncommitted capacity.

These screens are not without some criticism. First, the market share screens fail to take into account actual supply and demand conditions in the market. Suppose that a supplier has a large market share but most of the capacity is "out of the money", *i.e.*, it is priced substantially over the market clearing price then in what sense to that generator have market power? Second, along a given supply curve a specific generator may have market power. For example, it is quite possible that a generator may have a small market share but could own a majority of peaking units or equivalently base load coal or nuclear units. Third, the choice of a 20% threshold is seen as arbitrary and either too high or too low.

As mentioned above, failure of either screen constitutes a presumption of market power on the part of the FERC. However, if a generator fails one of these screens they have the right to perform an additional test, known as the Delivered Price Test, to remove the presumption of market power.

2.4.3 Delivered Price Tests ("DPT")

There are three delivered price tests:

(1) A pivotal "economic capacity" screen;

(2) a concentration test for economic capacity (Delivered Price Test HHI); and

(3) a concentration test for "available economic capacity" (HHI for available economic capacity).

[10] Native load, is a term unique to the United States electricity industry and refers to the load within a utilities' franchise area that is not able to choose an alternative supplier.

For purposes of the DPT, "economic capacity" is capacity that has a marginal cost of no more than 105% of the "prevailing" market price. Moreover, "available economic capacity" is economic capacity less native load obligations. A generator will pass the first hurdle as long as the economic capacity of all the other generators in the market is sufficient to meet wholesale load requirements. Passing the second test requires a DPT HHI of less than 2500 *and* a market share of economic capacity of less than 20%. Similarly, the third test is passed if the HHI for available economic capacity is less than 2500 *and* the generator has a market share of less than 20% of such capacity.

2.5 Distinguishing Market Power Abuse From Legitimate Pricing Strategies

While defining market power is a relatively academic exercise, determining when market power exists and whether there has been an abuse of the position can be difficult – particularly in electricity markets. As mentioned above, electricity is a unique commodity for a number of reasons and these must be taken account of in determining whether an abuse of market power has occurred. For example, acquiring gas on the spot market in a very short time frame may result in very high offer prices but in no way indicates an abuse of market power. Likewise, the physical characteristics of many baseload generating units are such that it is efficient for them to continue running rather than shut down overnight or in periods of low demand but this resulting "excess" of generation will necessarily force the spot price to very low or even negative prices and the generators will need to recover revenues in times of higher demand. Again, this behavior is entirely rational, completely defensible and in no way represents an abuse of market power. These examples highlight the benefit, and even necessity, of having a market monitoring function that is fully versed in not only the law but the unique physical characteristics of electricity.

3.0 Selected Legal Precedent Relating To Market Power Abuse Or Other Anti-Competitive Behavior In Organized Electricity Markets

3.1 United States

In the United States, market power issues arising in the electricity industry have been addressed under two parallel federal legal regimes. One regime involves federal antitrust laws, such as, for example, the Sherman Act.[11] These laws usually apply to all persons and companies, and across various industries. They have particular significance in the context of electric utility mergers.

The other federal regime, which is more important for purposes of this analysis, is centered around the Federal Power Act ("FPA"), a comprehensive regulatory statute that provides the basis for the FERC's jurisdiction over the electricity industry. Although electric companies are not exempt from federal antitrust law, the FERC historically has relied on the FPA to address market power abuse and mitigation issues, particularly in the context of organized markets similar to the WESM.

Finally, because the transmission system and energy markets administered by the Electric Reliability Council of Texas ("ERCOT") are physically separate from the U.S. interstate power grid, they are not regulated by the FERC. Instead, the regulatory oversight with respect to the ERCOT is exercised by the Public Utilities Commission of Texas ("PUCT"), which supervises the market monitoring scheme in the ERCOT markets. In the recent years, the PUCT has attempted to define the terms "market power" and "market power abuse" in the context of its market monitoring obligations.

3.1.1 Federal Antitrust Law

An important preliminary point about federal antitrust law is that the FERC, the electricity industry's primary federal regulator, has no authority to enforce antitrust statutes. Although the FERC considers antitrust laws in the performance of its regulatory duties, it is not required to strictly follow them.[12] This is because,

> "regulation" and "antitrust" typically aim at similar goals -- *i.e.*, low and economically efficient prices, innovation, and efficient production methods -- but they seek to achieve these goals in very different ways. Economic regulators seek to achieve them directly by

[11] Many individual States have their own antitrust statutes. These statutes often parallel federal antitrust laws and are not discussed here, particularly in light of the interstate nature of the electricity industry.

[12] As one federal court of appeals put it, the FERC is not "strictly bound by the dictates of these laws, for [the FERC] can and [does] approve actions which violate antitrust policies where other economic, social and political considerations are found to be of overriding importance" and "the antitrust laws are merely another tool which a regulatory agency employs to a greater or lesser degree to give understandable content to the broad statutory concept of the public interest." *Northern Natural Gas Co. v. FPC*, 399 F.2d 953, 961 (D.C. Cir. 1968).

controlling prices through rules and regulations; antitrust seeks to achieve them indirectly by promoting and preserving a process that tends to bring them about. An antitrust rule that seeks to promote competition but nonetheless interferes with regulatory controls could undercut the very objectives the antitrust laws are designed to serve. Thus, where regulatory and antitrust regimes coexist, *see, e.g.,* (bank mergers), antitrust analysis must sensitively recognize and reflect the distinctive economic and legal setting" of the regulated industry to which it applies.[13]

Consequently, the FERC has relied primarily on the FPA, rather than on federal antitrust law, to address market power issues in organized electricity markets. Nonetheless, federal antitrust law does apply to the electricity industry[14] and is considered by the FERC in administering its key regulatory duty under the FPA to ensure that all rates, terms and conditions remain "just and reasonable."[15] While keeping the focus of our analysis on the FERC's administration of the FPA scheme, we also provide a short review of pertinent federal antitrust provisions and issues, to the extent relevant to the subject matter of this Report.

3.1.1.1 Major Federal Antitrust Law Prohibitions Affecting the Electricity Industry

Sherman Act

The U.S. Congress passed the Sherman Antitrust Act in 1890 to prevent monopolies from creating restraints on trade or commerce and reducing competition. It is the main source of antitrust law in the United States. The Sherman Act applies to all transactions and business involved in or affecting interstate commerce and has two substantive provisions that are of particular relevance to market power abuse issues.

- Section 1 of the Sherman Act states that "every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal."[16] In general, to show a violation of this provision, the existence of an agreement which unreasonably restrains trade must be shown. By its own terms, Section 1 applies only to concerted action; unilateral conduct is excluded from its purview. As the U.S. Supreme Court noted long ago, an illegal agreement requires "a unity of purpose," "a common design and understanding," or "a meeting of the minds in an unlawful arrangement."[17] While this requirement involves no difficulty where direct evidence of unlawful collusion exists, a more difficult situation is presented

[13] *The Town of Concord, Massachusetts v. Boston Edison Co*., 915 F.2d 17, 17-18 (1st Cir. 1990).

[14] *Otter Tail Power Co. v. United States*, 410 U.S. 366, 372 (1973).

[15] *Conway Corporation v. FPC*, 426 U.S. 271 (1976).

[16] 15 U.S.C. § 1.

[17] *Am. Tobacco Co. v. United States*, 328 U.S. 781, 810 (1946).

where an unlawful agreement must be inferred from "parallel" conduct by rivals. In such circumstances, the courts usually have been unwilling to infer collusion merely from parallel behavior, without additional evidence of certain "plus factors," defined as activity that "tend[s] to exclude the possibility that the defendants merely were engaged in lawful conscious parallelism."[18] Such "plus factors" might include, for example, "actions contrary to a defendant's economic self-interest, product uniformity, exchange of price information and opportunity to meet, and a common motive to conspire or a large number of communications."[19]

- Section 2 of the Sherman Act states that "any person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony."[20] This section involves three prohibited actions: monopolization, attempt to monopolize, and conspiracy to monopolize. The offense of monopoly under Section 2 consists of two elements: the possession of monopoly power in the relevant market, and the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident. Specifically, the monopoly power concerns the power to control prices and exclude competition.

Clayton Act

The Clayton Antitrust Act was adopted in 1914 to strengthen the Sherman Act. The following provisions of the Clayton Act have particular relevance for the electricity industry:

- Section 2 of the Clayton Act prohibits price discrimination between different purchasers if such discrimination substantially lessens competition or tends to create a monopoly in any line of commerce.[21]

- Section 3 of the Clayton Act prohibits sales on the condition that the buyer or lessee not deal with the competitors of the seller or lessor ("exclusive dealings"), or that the buyer also purchase another different product ("tying"), but only when these acts substantially lessen competition.[22]

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[18] *City of Tuscaloosa v. Harcros Chems*., 158 F.3d 548, 572 (11th Cir. 1998).

[19] *Wallace v. Bank of Bartlett*, 55 F.3d 1166, 1168 (6th Cir. 1995).

[20] 15 U.S.C. § 2.

[21] 15 U.S.C. § 13.

[22] 15 U.S.C. § 14.

- Section 7 of the Clayton Act prohibits a merger the effects of which "may be substantially to lessen competition."[23] Section 7A of the Clayton Act, as added by the Hart-Scott-Rodino Antitrust Improvements Act of 1976, further provides for a wait and notification period for certain mergers.[24]

Federal Trade Commission ("FTC") Act

Section 5 of the Federal Trade Commission Act prohibits "unfair methods of competition in or affecting commerce, and unfair or deceptive acts or practices in or affecting commerce."[25] It does not define, however, what the term "unfair" means in this context. To our knowledge, there has been no application of this provision to organized electricity markets and.

3.1.1.2 Definition of Market Power

Perhaps the most influential legal definition of market power in federal antitrust law is set forth in the "Horizontal Merger Guidelines" that the U.S. Department of Justice ("DOJ") and the FTC use to evaluate market power issues arising in the merger context under Sections 7 and 7A of the Clayton Act and Section 1 of the Sherman Act.[26] These Guidelines define market power (as to sellers) as ***"the ability profitably to maintain prices above competitive levels for a significant period of time."*** To determine the existence of market power, the Guidelines generally rely on an HHI/DPT analysis.[27]

While the definition of "market power" set forth in the DOJ/FTC Horizontal Merger Guidelines is widely accepted in federal antitrust law, at least for purposes of merger analysis, the U.S. Supreme Court and other federal courts also have used slightly different definitions, such as, for example, **"the ability to raise prices above those that would be charged in a competitive market**" or as "**the power to control prices or exclude competition**."[28] It should be noted, however, that under any definition, a high degree of concentration generally creates a presumption of market power. As one federal court noted, "sufficiently large HHI figures establish the FTC's *prima facie* case that a merger is anti-competitive."[29]

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[23] 15 U.S.C. § 18.

[24] 15 U.S.C. § 18A.

[25] 15 U.S.C. § 45.

[26] In addition to the Clayton Act prohibitions, a merger may be prohibited under Section 1 of the Sherman Act if it constitutes an agreement "in restraint of trade or commerce."

[27] FTC/DOJ Horizontal Merger Guidelines § 0.1. A copy of the DOJ/FTC Horizontal Merger Guidelines is attached hereto at Appendix A (with official commentary).

[28] *See, e.g.*, *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 391-92 (1956).

[29] *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 716 (D.C. Cir. 2001).

3.1.2 Federal Power Act

The FPA provides for federal regulation of the electricity industry by the FERC, to the extent it involves "jurisdictional transactions."[30] Perhaps the most important feature of this statute is that it gives the FERC the exclusive authority to approve and, when necessary, modify "the rates, terms and conditions of service" by jurisdictional "public utilities," as well as all contracts relating to such jurisdictional rates, terms and conditions of service.[31] This statutory language traditionally has been broadly interpreted by the courts to grant the FERC the direct approval and modification authority over all market rules, practices, protocols and tariffs of regional electricity market administrators, including their market power mitigation and monitoring rules. Once such rules, practices, protocols and tariffs are approved by the FERC, they become "filed tariffs" and acquire the legal force of FERC regulations. Any violation of these "filed tariffs" is deemed to be a violation of the FERC regulations, and hence of the FPA, and FERC is invested with broad enforcement powers to remedy such violations. These enforcement powers were further enhanced by the Energy Policy Act of 2005 ("EPAct), which introduced a number of new provisions in the FPA.

There are several key provisions in the FPA that the FERC has used to remedy market power abuse and manipulation in electricity markets, both prospectively and retroactively. These include:

- control over mergers, acquisitions and disposition of facilities by public utility and holding companies;
- prohibition of "unjust and unreasonable" rates, terms and conditions of service;
- prohibition of energy market manipulation; and
- prohibition of violations of FERC rules and filed tariffs and various civil and criminal penalties for such violations.

These core statutory powers establish the basis for more detailed tariffs regulations that the FERC has adopted or approved to address market power issues.

3.1.2.1 Prospective Mitigation of Market Power

In the recent years, the FERC has emphasized prospective market power mitigation rather than retroactive correction of market power abuse. The primary reasons for this preference is that retroactive corrections are usually disruptive to the markets and often involve rate

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[30] 16 U.S.C. § 824. In general, the FERC has jurisdiction over the transmission of electric energy and its sales for resale in interstate commerce, as well as over all entities or persons (*i.e.*, "public utilities") that are engaged in such activities. *Id.*

[31] 16 U.S.C. § 824d and e.

resettlements that may be limited under the FPA. The FERC has used prospective market mitigation in the following three major contexts: (1) review of utility mergers, acquisitions and consolidations; (2) market-based rate authorizations for power suppliers; and (3) monitoring of organized power markets administered by regional transmission organizations ("RTOs") and independent system operators ("ISOs"). We address these three functional contexts below.

*3.1.2.1.1 Review of Utility Mergers, Acquisitions and Consolidation*s

Section 203 of the FPA (as amended by the EPAct)[32] vests in the FERC the authority to approve a public utility's disposition of its facilities exceeding ten million dollars, or merge or consolidate such facilities with those of another person, or purchase or acquire any security with a value in excess of ten million dollars of another public utility, purchase or acquire an existing generation facility that has a value in excess of ten million dollars and is used for jurisdictional sales. It also grants the FERC the power to authorize certain mergers and consolidations of, and acquisitions of securities by, utility holding companies. The FERC is required to approve the proposed disposition, merger, consolidation, acquisition or change in control if it is "consistent with the public interest."

In performing its Section 203 review, the FERC generally relies on its 1996 Merger Policy (as clarified by subsequent rulemakings), which sets out the following three factors to be considered when analyzing whether a proposed transaction is consistent with the public interest: (1) effect on competition; (2) effect on rates; and (3) effect on regulation. Effect on competition is the key factor in this analysis, and the FERC Merger Policy generally adopts the 1992 DOJ/FTC Horizontal Merger Guidelines as the analytical framework for examining horizontal market power concerns. In addition, the Merger Policy Statement uses an analytical screen to allow early identification of transactions that clearly do not raise competitive concerns, which is known as the Competitive Analysis Screen.[33] As part of this analysis, applicants must define the relevant products sold by the merging entities, identify the customers and potential suppliers in the geographic markets that are likely to be affected by the proposed transaction, and measure the concentration in those markets. Using the DPT to identify alternative competing suppliers, the concentration of potential suppliers included in the defined market is then measured by the HHI and used as a screen to determine which transactions clearly do not raise market power concerns.

3.1.2.2 Market-Based Rate Authorizations for Power Suppliers

Under Section 205 of the FPA, all rates, terms and conditions of service for sale of wholesale power must be "just and reasonable."[34] As a result, power suppliers do not have an automatic right to sell wholesale power at market rates. Instead, they must obtain prior

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[32] 16 U.S.C. § 824b.

[33] The FERC's Competitive Analysis Screen is attached hereto at Appendix B.

[34] 16 U.S.C. § 824d.

authorization from the FERC before they are allowed to do so. In the recent years, the FERC has moved to formalize its market-based rate application process to provide for a comprehensive review of market power issues before an authorization to sell electric energy at market rates can be issued. The FERC also has adopted certain "market behavior rules" applying to all sellers that obtain market-based rate authority. [35]

3.1.2.2.1 Market Power Analysis

The FERC currently uses an interim generation market power analysis adopted in 2004 to evaluate market-based rate applications.[36] While the FERC has not formally defined the term "market power" in the context of its market-based rate analysis, it uses two indicative screens for assessing whether a particular seller raises any generation market power concerns, each with its own specific focus and attributes: a pivotal supplier analysis based on uncommitted capacity at the time of the market's annual peak demand and a market share analysis of uncommitted capacity applied on a seasonal basis. ***If a seller passes both screens, there is a rebuttable presumption that the seller does not possess market power in generation***. ***If a seller fails either screen, a rebuttable presumption that the seller possesses generation market power is created.*** In this instance, the seller may: (1) file a more robust market power study, the DPT; (2) file a mitigation proposal tailored to its particular circumstances that would eliminate the ability to exercise market power; or (3) inform the FERC that it will either adopt cost-based rates and submit cost support for such rates. In addition, a seller that owns, operates or controls transmission is required to conduct simultaneous transmission import capability studies for its home control area and each of its directly-interconnected first-tier control areas. These studies are used in the pivotal supplier screen, market share screen, and DPT to approximate the transmission import capability.

The default relevant geographic markets under both screens are first, the control area market where the seller is physically located, and second, the markets directly interconnected to the seller's control area market (first-tier control area markets). In this default analysis, the FERC considers only those supplies that are located in the market being considered (relevant market) and those in first-tier markets to the relevant market. Sellers located in and a member of RTOs/ISOs that perform functions such as single central commitment and dispatch with a single energy market and FERC-approved market monitoring and mitigation may consider the geographic region under the control of the RTO/ISO as the default relevant geographic market for purposes of completing their analyses.[37] Both the pivotal supplier analysis and the market

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[35] As explained below, some of these Market Behavior Rules were subsequently superseded by even broader provisions set forth in the EPAct to prohibit market manipulation.

[36] In May 2006, the FERC issued a notice of proposed rulemaking proposing to modify and finalize this analysis. *See Market-Based Rates for Wholesale Sales of Energy, Capacity and Ancillary Services by Public Utilities*, Docket No. RM04-7-000 (May 19, 2006).

[37] The FERC allows sellers and intervenors to present additional sensitivity runs as part of their market power studies to show that some other geographic market should be considered as the relevant market in a particular case. However, applicants presenting evidence that the relevant market is larger or smaller than the default relevant market must first complete the screens based on the default market as discussed above. To the extent

(Continued…)

share analysis recognize utilities' obligations to serve native load by using proxies to represent the amount of generation that is needed to serve native load.[38]

In the pivotal supplier screen, a market participant's uncommitted capacity is determined by adding the total nameplate capacity of generation owned or controlled through contract and firm purchases, less operating reserves, native load commitments and long-term firm sales. To calculate the net uncommitted supply available to compete at wholesale, the wholesale load proxy (annual peak load less the native load proxy discussed above) is deducted from total uncommitted capacity in the market. ***If the seller's uncommitted capacity is equal to or greater than the net uncommitted supply, then the seller fails the pivotal supplier analysis, which creates a rebuttable presumption of market power.***

In the market share analysis, uncommitted capacity is defined similarly to the pivotal supplier screen, with the additional deduction for planned outages that were done in accordance with good utility practice. ***Under the market share analysis, a seller that has less than a 20 percent market share in the relevant market for all seasons is considered to satisfy the market share analysis. A seller with a market share of 20 percent or more in the relevant market for any season has a rebuttable presumption of market power but can present historical evidence to show that the seller satisfies the FERC's generation market power concerns***.

Sellers failing one or more of the initial screens will have a rebuttable presumption of market power. If such a seller chooses not to proceed directly to mitigation, it must present a more thorough analysis using the FERC's DPT. As noted, the DPT is used to analyze the effect on competition for transfers of jurisdictional facilities in section 203 proceedings, using the framework described in the Merger Policy Statement. Under the DPT, to determine whether a seller is a pivotal supplier in each of the season/load periods, sellers are required to compare the load in the relevant market to the amount of competing supply. The seller will be considered pivotal if the sum of the competing suppliers' economic capacity is less than the load level plus a reserve requirement for the relevant period. The analysis using available economic capacity to account for sellers' and competing suppliers' native load commitments is also required. Each supplier's market share is calculated based on economic capacity, the DPT's analog to installed

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(Continued…)

some other geographic market is studied, the proponent of using that alternative market must adhere to including all monitored lines/constraints and critical contingencies that were historically applied during the seasonal peaks in assessing available transmission for nonaffiliate transmission customers. Sellers and intervenors may also provide evidence that, because of internal transmission limitations (*e.g.*, load pockets), the relevant market is smaller than the control area.

[38] Because utilities generally use the same generating units to make off-system wholesale sales and to serve native load, and because the amount of generation needed to serve native load can vary from hour to hour, some reasonable proxy is needed to represent the amount of generation that is needed to serve native load. Accordingly, the pivotal supplier analysis, for both sellers and competing suppliers, uses the average of the daily native load peaks during the month in which the annual peak demand day occurs as a proxy for native load obligation. The market share analysis for both sellers and competing suppliers uses the native load obligation on the minimum peak demand day for a given season.

capacity. The market shares for each season/load period reflect the costs of the seller's and competing suppliers' generation, thus giving a more complete picture of the seller's ability to exercise market power in a given market. Sellers preparing a DPT also must calculate the market concentration using the HHI based on market shares. For the DPT, a showing of an HHI less than 2,500 in the relevant market for all season/load periods for sellers that have also shown that they are not pivotal and do not possess more than a 20 percent market share in any of the season/load periods would constitute a showing of a lack of market power, absent compelling contrary evidence.[39] Where a market-based rate seller is found to have market power in generation (e.g., after reviewing a seller's DPT), the FERC either rejects such rates or directs such mitigation measures as necessary to ensure that the rates are just and reasonable.[40]

Finally, the FERC considers whether the seller would have transmission (or vertical) market power as part of its market-based rate analysis.[41] It also evaluates barriers to entry other than transmission, considering, for example, whether a seller or its affiliates could erect other barriers to entry through ownership or control of sites for new capacity development, key inputs to generation, or the transportation of key inputs to generation or through control of major engineering and consulting firms, control of fuel supplies, ownership or control of equipment, and the control of transportation or distribution of fuel supplies in the relevant markets. In addition, the FERC examines whether there is evidence involving the seller or its affiliates that relates to affiliate abuse or reciprocal dealing.[42]

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[39] The FERC, however, considers all relevant facts and circumstances in reviewing a DPT (including native load obligations) and will balance the record evidence in determining whether or not the seller has generation market power. Thus, even sellers that exceed the foregoing thresholds may receive market-based rates under appropriate circumstances. Sellers and intervenors may present evidence such as historical wholesale sales data, which can be used to calculate market shares and market concentration and to refute or support the results of the DPT.

[40] The FERC provides default cost-based rates to ensure that wholesale rates are just and reasonable. If a seller does not pass the generation market power screens, or foregoes the screens entirely, the FERC sets the just and reasonable rate at the default cost-based rate unless it approves different mitigation based on case-specific circumstances.

[41] In general, the FERC required that any seller that proposes to sell power at market rates and that owns or operates transmission facilities (or such facilities are owned or operated by its affiliates) adopt a non-discriminatory open access transmission tariff.

[42] The concern with the potential for affiliate abuse is that a utility with a monopoly franchise may have an economic incentive to exercise market power through its affiliate dealings. Potential abuses could include such practices as affiliates selling products to a utility with a franchised service territory (franchised public utility) at excessive prices, or a franchised public utility providing inputs to an affiliate at preferentially low prices. The FERC views these practices as examples of market power that is exercised to the disadvantage of captive customers. Also, there may be a potential for affiliate abuse through means such as the pricing of non-power goods and services or the sharing of market information. To ensure that such affiliate abuse does not occur, the FERC currently uses the following two principal means: restrictions on sales between a franchised public utility and its affiliates, and requiring a code of conduct that governs the relationship between franchised public utilities and their affiliates.

3.1.2.2.2 Market Behavior Rules

Subsequent to its investigation of the 2000-01 California market meltdown, the FERC adopted a set of "market behavior" ("MB") rules as a response to particular market abuse practices that became widely publicized during its California investigation. These rules apply to all market participants with market-based rate authority and proscribe both generic anti-competitive behavior and certain specific market abuse practices identified during the California investigation. Because of the adoption of even broader anti-manipulation prohibitions in the EPAct, however, the FERC subsequently repealed MB 2 and MB 6. As initially adopted, the market behavior rules were as follows:

> MB 1 Unit Operation**.** MB 1 requires sellers to operate and schedule generating facilities, undertake maintenance, declare outages, and commit or otherwise bid supply in a manner that complies with the FERC-approved rules and regulations of the applicable power market. Compliance with MB 1 does not require sellers to bid or supply electric energy or other electricity products (unless such requirement is a part of a applicable separate tariff or requirement).
>
> MB 2 Market Manipulation (repealed in 2006)**:** MB 2 prohibited actions or transactions that are without a legitimate business purpose and that are intended to or foreseeably could manipulate market prices, market conditions, or market rules for electric energy or electricity products. (Actions or transactions undertaken by sellers that are explicitly contemplated in FERC-approved rules and regulations of an applicable power market or taken at the direction of an ISO or RTO were not deemed in violation of MB2). Prohibited actions and transactions included, but were not limited to:
>
> (a) pre-arranged offsetting trades of the same product among the same parties, which involve no economic risk and no net change in beneficial ownership (sometimes called "wash trades");
>
> (b) transactions predicated on submitting false information to transmission providers or other entities responsible for operation of the transmission grid (such as inaccurate load or generation data; or scheduling non-firm service for products sold as firm), unless sellers exercised due diligence to prevent such occurrences;
>
> (c) transactions in which an entity first creates artificial congestion and then purports to relieve such artificial congestion (unless sellers exercised due diligence to prevent such an occurrence); and
>
> (d) collusion with another party for the purpose of manipulating market prices, market conditions, or market rules for electric energy or electricity products.
>
> MB 3 Communications**:** MB 3 requires a seller to provide accurate factual information and not submit false or misleading information, or omit material information, in any

communication with the FERC, FERC-approved market monitors, RTOs, ISOs or transmission providers, unless the seller exercised due diligence to prevent such occurrences.

MB 4 Reporting: MB 4 provides that to the extent a seller engages in reporting of transactions to publishers of electricity or natural gas price indices, the seller must provide accurate and factual information, and not knowingly submit false or misleading information or omit material information to any such publisher and adhere to such other standards and requirements for price reporting as the FERC may order.

MB5 Record Retention**:** MB 5 requires sellers to retain, for a period of three years, all data and information upon which it billed the prices it charged for the electric energy or electric energy products it sold pursuant to this tariff or the prices it reported for use in price indices.

MB6 Related Tariffs (repealed in 2006): MB 6 requires a seller not violate or collude with another party in actions that violate the seller's market-based rate code of conduct or standards of conduct, as they may be revised from time to time.

3.1.2.3 Monitoring and Mitigation in Organized Electricity Markets

There are four organized, FERC-supervised, bid-based regional electricity markets that currently function in the Unites States. These markets are administered by ISO-NE, NYISO, PJM and MISO, with each of these market administrators and system operators having RTO status. In addition, FERC has approved the proposed market design for SPP and has initiated the reform of the currently suspended CAISO markets.[43] In these markets, the FERC has used two broad approaches to address market power issues prospectively: (1) across-the-board price or bid caps; and (2) review/mitigation of individual supplier behavior.

3.1.2.3.1 Price or Bid Caps

Price or bid caps on some or all products either were in effect during certain periods or continue to be in effect in all of the organized markets. It is well recognized that price or bid caps have several advantages, such as:

- the regulator's ability to tighten or loosen them depending on market conditions without detailed review of supplier behavior;
- the relative effectiveness of price/bid caps as a transitional measure to maintain confidence in the performance of competitive markets; and

[43] There is also one non-FERC supervised regional market, which is administered by the ERCOT. To the extent pertinent, it is discussed in Section 3.1.3 of this Report.

- the regulator's ability to set them at a level that would not overly discourage investment.[44]

The major disadvantages of price caps is that they distort market signals and are too crude a measure to address market power issues and gaming by individual market participants without necessarily punishing the rest of the market. While price or bid caps have been widely used during transitional periods in many regional markets, as well as to address emergencies, such as the California market meltdown, they have been supplemented or supplanted by more granular monitoring programs geared to individual supplier behavior.

3.1.2.3.2 Market Monitoring and Mitigation Programs

All entities that administer regional electricity markets in the United States have been required by the FERC to establish a market monitoring program.[45] While there are differences in how these programs are structured, all of them have certain key features and similarities that are summarized below.

Independent Market Monitor

All monitoring programs provide for the establishment of an independent market monitor ("IMM"). In some RTOs, the market monitoring function is contracted out and is performed by an outside entity. In others, a market monitoring unit or department is organized under the auspices of the Board for a particular RTO. In both cases, however, the market monitor must be independent from the market administrator and market participants.

The IMM usually has the following key rights and obligations:

- may obtain all needed data from market participants and enforce its data requests;
- develops anti-competitive behavior indices and "screens" to monitor market power abuse and anticompetitive behavior;
- applies mitigation measures; and
- refers cases of market power abuse and anti-competitive behavior to the FERC.

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[44] *See, e.g.*, William H. Hieronymus, J. Henderson & Carolyn A. Berry, *Market Power Analysis of the Electricity Generation Sector*, 23 Energy L. J. at 46 (2002).

[45] Appendix C hereto includes detailed descriptions of these programs as adopted in: CAISO, ISO-NE and MISO as representative examples. Appendix D also includes a sample market monitoring and mitigation manual from one of these organizations.

Regulatory Supremacy

Although IMMs conduct primary monitoring and mitigation in organized electricity markets, they are subordinate to the FERC in performing this function. The mitigation rules and various "screens" adopted to monitor market behavior must be approved by the FERC, and the IMMs are required to refer all significant cases of market power abuse and anti-competitive behavior to the FERC, which possesses the ultimate enforcement and penalty authority with respect to any violations of these rules.

Market Monitoring Screens

One of the key IMM duties is to develop, subject to FERC approval, various anti-competitive behavior indices and "screens" to monitor market power abuse and anticompetitive behavior in the region. The essence of these "screens" is that when a particular market participant fails them, it is presumed to have exercised market power, which may require mitigation. **By accepting these screens as part of the RTOs' tariffs, the FERC effectively accepted their view of market power as the ability to raise prices above the competitive level by engaging in tactics, such as withholding of generating capacity (physical or economic) or uneconomic production**.[46]

While the specifics of these screens differ from region to region, all of them include the following core elements:

- a "conduct test" to determine participant conduct subject to mitigation, including certain "reference" levels or prices that serve as a benchmark to measure a participant's bidding behavior;
- an "impact test" to determine whether a particular exercise of market power or other anti-competitive behavior has a material effect on prices; and
- mitigation measures that may be imposed if a participant fails both the conduct test and the impact test.

Conduct Test

In general, the conduct test attempts to determine categories of conduct that would not be in the economic interest of a market participant but for its market power. There are several recognized categories of such conduct: physical withholding, economic withholding, uneconomic production or other anti-competitive conduct, such as, for example, exploiting a market rule or software defect.

[46] Indeed, in its 2002 Standard Market Design ("SMD") initiative, the FERC proposed a generic definition of market power as "the ability to raise prices above the competitive level." SMD NOPR at P 393. The SMD rule was not adopted, however.

Physical withholding. Physical withholding means not offering to sell from an electric facility capable of serving the market, including: falsely declared outages; refusing to bid when it would be in the economic interest, absent of market power; or declining to operate a generator in accordance with the dispatcher's instructions.

Economic withholding. Economic withholding means submitting bids that are unjustifiably high (relative to a generator's known operational characteristics or cost) so that the generator is not dispatched or the bids set the clearing prices.

Uneconomic production. Uneconomic production means increasing the level of output of generating facility to levels that would be uneconomic in order to obtain benefits from a transmission constraint.

To determine whether economic withholding or uneconomic production has occurred, the IMM uses a set of reference levels or prices. ***Generally, the reference levels reflect a generator's marginal costs, including justifiable risk and opportunity costs, or justifiable technical characteristics, and there is no requirement that they necessarily be cost-based***. There are several methods used by the IMMs to calculate reference levels, such as: (i) the lower of the mean or the median of a generator's accepted offers in competitive periods over the immediately preceding time period (*e.g.*, 90 days), separately for on-peak and off-peak periods and adjusted for changes in spot fuel prices; (ii) the mean of the LMP at the generator's location during a set percentage (*e.g.*, 25%) of the lowest-priced hours dispatched by the generator over the immediately preceding time period, separately for on-peak and off-peak periods and adjusted for changes in spot fuel prices; or (iii) a consultative level determined in consultation with the generator, based on its marginal costs or justifiable technical characteristics of the generating facility.

Impact Test

The logic behind the impact test is the recognition that, even if there is a conduct warranting mitigation, mitigation should be imposed only if there is a material impact on prices. The determination of whether there is a "material impact" on prices often depends on how severely an area is constrained. To that effect, the IMM may define certain flowgates or areas as "narrowly constrained" and apply particularly severe impacts thresholds in such cases. For less constrained areas, more lenient impacts thresholds may apply.

Mitigation Measures

Where a generator fails both the conduct test and the impact test, the IMM may apply mitigation measures. The principal mitigation measure is the automatic substitution of the portions of a generator's offer with a "default offer," which is set at the applicable reference level. Where the behavior triggers penalty provisions, the IMM may seek approval at FERC for imposition of penalties.

3.1.2.2 Retroactive Investigations of Market Power Abuses or Market Manipulation

In the recent years, the FERC has conducted a number of investigations of market power abuse or market manipulation. By their nature, retroactive investigations of market power abuse are case specific. The FERC takes various issues under consideration, such as, for example, the existence of market power, the evidence of collusion, if any, the general supply and demand conditions in the market, the applicable operational conditions, or any violations of market rules and practices. The last factor is particularly important as the primary legal basis for these investigations often has been the FPA's prohibitions on unjust and unreasonable rates, terms and conditions of service and on violation of filed tariffs.[47] Significantly, the FERC is not required to make findings of market power under this inquiry, and its most famous recent investigation of market abuses, the California investigation, was centered on whether sellers violated certain specific provisions in the CAISO tariff prohibiting "gaming" and "anomalous market behavior," as defined in the tariff.[48] We have attached at Appendix E the FERC Staff's investigation report and a FERC order dealing with the California markets crisis as an example of investigatory activities performed by the FERC.

It also should be noted that the Congress amended the FPA in 2005 providing for a generic prohibition of electric energy market manipulation. The new provision prohibits any person, in connection with the purchase or sale of energy or transmission service subject to FERC jurisdiction, "(1) to use or employ any device, scheme, or artifice to defraud, (2) to make any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, or (3) to engage in any act, practice, or course of business that operates or would operate as a fraud or deceit upon any entity."[49] Submission of false information to federal regulators pertaining to electricity prices was also specifically prohibited.[50] These broad prohibitions allow the FERC to address fraud and manipulation in the U.S. electricity markets even when those situations do not directly raise market power abuse concerns.

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[47] Because the FPA bars retroactive adjustments to filed rates, the FERC is generally required to find a violation of a filed tariff or regulation before it can impose remedies other than prospective modification.

[48] The CAISO tariff in effect at the time defined "gaming" in part as "taking unfair advantage of the rules and procedures set forth in the PX or ISO tariffs, Protocols or Activity Rules . . . to the detriment of the efficiency of, and of consumers in, the ISO Markets. "Anomalous market behavior" was defined, in part, as "behavior that departs significantly from the normal behavior in competitive markets that do not require continuing regulation or as behavior leading to unusual or unexplained market outcomes." Evidence of such behavior could be derived, among other things, from "unusual trades or transactions" or "pricing and bidding patterns that are inconsistent with prevailing supply and demand conditions, e.g., prices and bids that appear consistently excessive for or otherwise inconsistent with such conditions."

[49] 16 U.S.C. § 824u.

[50] 16 U.S.C. § 824v.

3.1.3 ERCOT

3.1.3.1 Relationship between PUCT and ERCOT IMM

Because the FERC has no jurisdiction over the ERCOT grid, the regulatory setup for market monitoring and mitigation in ERCOT differs from the models used in the rest of the United States. The PUCT has a more direct relationship with the ERCOT IMM than the FERC has with the IMMs in the major RTOs. Specifically, the PUCT selects the IMM and then the ERCOT and PUCT contract with the selected entity.[51] The PUCT is responsible for ensuring that the market monitor has the resources, expertise, and authority necessary to monitor the wholesale electric market effectively. The PUCT also adopts rules and performs oversight of the IMM and retains all enforcement authority.[52] The IMM acts as the PUCT's wholesale market monitor and is not subject to supervision by ERCOT with respect to its monitoring and investigative activities.[53]

3.1.3.2 Definition of Market Power and Market Power Abuses

The Texas Utilities Code gives the PUCT the authority to monitor and mitigate market power and remedy market power abuses, but does not define the term "market power."[54] ***The PUCT rules, however, define "market power" as "the ability to control prices or exclude competition in a relevant market."***[55] The rules further provide that a single generation entity that controls less than 5% of the installed generation capacity in ERCOT, excluding uncontrollable renewable resources, is deemed not to have ERCOT-wide market power.[56]

The Texas Utilities Code defines the term "market power abuses" as "practices by persons possessing market power that are unreasonably discriminatory or tend to unreasonably restrict, impair, or reduce the level of competition, including practices that tie unregulated products or services to regulated products or services or unreasonably discriminate in the provision of regulated services."[57] ***Among other things, "market power abuses" include "predatory pricing, withholding of production, precluding entry, and collusion," as well as a violation of the PUCT code of conduct that "materially impairs the ability of a person to compete in a competitive market shall be deemed to be an abuse of***

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[51] Tex. Util. Code § 39.1515.

[52] *Id*.

[53] *Id*.

[54] Tex. Util. Code § 39.157(a).

[55] PUCT Rules § 25.504(b)(2).

[56] PUCT Rules § 25.504(c). Controlling 5% or more of the installed generation capacity in ERCOT does not, of itself, mean that a generating entity has market power.

[57] Tex. Util. Code § 39.157(a).

market power."[58] However, the possession of a high market share in a market open to competition may not, of itself, be deemed to be an abuse of market power.[59] The PUCT rules further provide that prices offered by a generation entity with market power may be a factor in determining whether the entity has withheld production.[60] A generation entity with market power that prices its services substantially above its marginal cost may be found to be withholding production; offering prices that are not substantially above marginal cost does not constitute withholding of production.[61]

3.2 Australia

3.2.1 Regulation of the Australian Electricity Market

Economic regulation of the Australian wholesale electricity market and electricity transmission networks in the National Electricity Market ("NEM"), is the responsibility of the Australian Energy Regulator ("AER"). The AER is a constituent part of the Australian Competition and Consumer Commission ("ACCC"). It was established under Part IIIAA of the Australian Trade Practices Act of 1974 and operates as a separate legal entity.

Under the Australian National Electricity Law and National Electricity Rules, the key responsibilities of the AER include:

- regulating the revenues of transmission network service providers by establishing revenue caps;
- monitoring of the electricity wholesale market;
- monitoring compliance with the national electricity law, national electricity rules and national electricity regulations;
- investigating breaches or possible breaches of provisions of the national electricity law, rules and regulations;
- instituting and conducting enforcement proceedings against relevant market participants;
- establishing service standards for electricity transmission network service providers;

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58 *Id*.

59 *Id*.

60 PUCT Rules § 25.504(d).

61 *Id*.

- establishing ring-fencing guidelines for business operations with respect to regulated transmission services; and

- exempting network service providers from registration.

3.2.1.1 AER's Oversight Powers

The AER is currently responsible for compliance monitoring, reporting and enforcement in the NEM.[62] In addition to its economic regulation powers, the AER has a range of compliance monitoring and enforcement functions under section 15 of the National Electricity Law. The AER is required to monitor compliance with the National Electricity Law, the National Electricity Regulations and the National Electricity Rules. The AER may investigate breaches or possible breaches, and may enforce the law, the regulations and the rules. The *National Electricity (South Australia) Variation Regulations 2005* set out the provisions of the National Electricity Rules that are civil penalty provisions.

Under section 59 of the National Electricity Law, the AER has sole responsibility for initiating proceedings in relation to an alleged breach of the National Electricity Law, the National Electricity Regulations or the National Electricity Rules. Criminal offences exist for various breaches of the National Electricity Law.[63] In addition, a civil penalty may be imposed by the court.

Under section 74 of the National Electricity Law, the AER may issue an infringement notice in relation to any civil penalty provision (other than a rebidding civil penalty provision). An infringement notice can be served on a registered participant and any other person prescribed by the regulations as a "relevant participant", where the AER has reason to believe they have breached a civil penalty provision, that is not a rebidding civil penalty provision. A person who receives a notice may either pay the infringement penalty, or defend, in court, any formal proceedings in respect of the breach. The AER is able to seek remedies in the state or territory supreme court of the relevant NEM jurisdiction, or the Federal Court. The AER may apply to the court for an injunction where a person has engaged in, is engaging in or is proposing to engage in conduct in breach of the National Electricity Law, the Regulations, or the Rules. Under section 61 to 63 of the National Electricity Law, the courts may make a range of orders including a direction that a participant's load be disconnected, and that the participant be suspended from purchasing or supplying electricity through the wholesale exchange.

As discussed below, the AER has used its powers under the National Electricity Law to investigate violations of the rules, including withholding of capacity and price spikes.

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[62] Prior to July 1, 2005, these functions were exercised by the Australian National Electricity Code Administrator ("NECA").

[63] The prosecution of criminal offences occurs under the general prosecution regimes of the Commonwealth, states and territories.

3.2.1.2 AER's Approach to Market Oversight

The NEM has been in operation for nine years and in that time NECA and the AER have developed and approach to market monitoring that has allowed the market to operate with much less regulatory intervention and constraints than the U.S. markets. NECA and the AER have not mandated the type of market screens that the FERC has issued nor have they mandated default responses where there is a presumption of abuse of market power. The bid cap in Australia is generally much higher than the bid caps in the U.S. (AUD10,000, or around US$7,800, c.f. typical caps in the US of $1,000 per MW), and the these caps will be approached during a trading year. The AER's practice is to conduct detailed reviews of significant events identified by its ongoing monitoring activities, including its weekly market reports and its incident reports on events which resulted in prices of over $5000/MWh. This may then trigger a formal investigation, but there is not a presumption that all price events over $5000/MWh will do so.

NECA/AER have undertaken 13 investigations so far.[64] A number of these were in response to problems in the operation of the market not centrally related to behavior by market participants and concerns about the abuse of market power.[65] Where market behavior and possible abuse of market power have been at issue the focus has primarily been on re-bidding of generation capacity. Typically, this has involved re-bidding capacity as must-run generation or changing the capacity offered under the various price bid bands during periods of expected tightness in supply and demand.

The NEM allows re-bidding of capacity up to the time of dispatch, but re-bids are required to be made in good faith and based on changes in material conditions or circumstances upon which the original bid was based. The review by the AER/NECA has typically focused on the reasons for the re-bids and whether the re-bid reflects a material change in circumstances. These investigations have accepted re-bidding to reflect contract positions and improve profitability. As a general matter, the reports of investigations do not look at the underlying cost of the generators in those periods. In some cases, NECA looked at the impact of a high price event on the average price in the market for, say, a week or longer in considering the impact on customers. However, this did not appear to be used as a test for the reasonableness of the bids or assessing whether there has been an abuse of market power or anti-competitive behavior.

While re-bidding has been associated with price spikes up to or near the bid cap and there have been concerns that generators have used this to exercise market power, the cautious approach of NECA and AER is illustrated in the following statement:

There has been a vigorous debate surrounding bidding and rebidding, including about the

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64 Reports summarizing these investigations are available at: www.aer.gov.au, under "monitoring , reporting and enforcement."

65 These have included investigations triggered by transmission outages, communications failures that disrupted the operation of the market and errors in forecasts of reserve capacity by the market operator.

strategies adopted by some generators and the extent of the rules that should properly apply to those strategies, since even before the launch of the market. The events of 25 January both provide ammunition, and present difficulties, for those on each side of that debate. We have consistently made clear our view that rebidding represents an essential flexibility to enable generators to respond to changes in physical, and legitimate commercial, circumstances. Efficient prices represent crucial signals for much-needed new investment and for demand-side responses. Artificially constraining prices that properly reflect the underlying dynamics of the market will distort those crucial signals and jeopardize essential new investment. That essential flexibility, however, can and has in the past been abused. It would be wrong, to snatch at supposed solutions.[66]

3.2.1.3 ACCC's Jurisdiction Over Violations of General Competition Law

While the AER (and before it NECA) is responsible for ensuring compliance with the National Electricity Law and National Electricity Rules, the ACCC retains its jurisdiction to police compliance with and enforce Australia's general competition law, which is principally set forth in Part IV of the Trade Practices Act of 1974 and prohibits the following anti-competitive practices:

- most price agreements;
- primary boycotts (an agreement between parties to exclude another);
- ssecondary boycotts whose purpose is to cause substantial lessen competition (actions between two persons engaging in conduct hindering 3rd person from supplying or acquiring goods or services from 4th);
- misuse of market power – taking advantage to eliminate or damage an actual or potential competitor, preventing entry into a market, or lessening competition;
- exclusive dealing – an attempt to interfere with freedom of buyers to buy from other suppliers, such as agreeing to supply a product only if a retailer does not stock a competitor's product;
- third-line forcing: supply goods or services on condition that acquire goods/services from another supplier (including a related company); and
- resale price maintenance – fixing a price below which resellers cannot sell or advertise.

[66] NECA, Investigation into the events in the electricity market on Saturday 25 January 2003 (available at www.aer.gov.au).

As briefly discussed below, Part IV of the Trade Practices Act defines the term "market power" and some judicial precedent exists as to its meaning and what should be deemed a misuse thereof. It should be noted, however, that the ACCC so far has chosen not to intervene and seek to challenge behavior in the electricity market as a misuse of market power. This could reflect the recognition that the AER is expected to play the primary role as the Australian market regulator and/or that the AER powers under the National Electricity Law are sufficiently comprehensive to investigate and punish a broad variety of violations, including those resulting from misuse of market power.

3.2.2 Definition of Market Power and Misuse of Market Power in Trade Practices Act

Section 46 of the Trade Practices Act defines market power and prohibits its misuse. Paragraph (1) of Section 46 provides that "***a corporation that has a substantial degree of power in a market shall not take advantage of that power for the purpose of: (a) eliminating or substantially damaging a competitor of the corporation or of a body corporate that is related to the corporation in that or any other market; (b) preventing the entry of a person into that or any other market; or (c) deterring or preventing a person from engaging in competitive conduct in that or any other market***."

Paragraph (3) of Section 46 further provides that ***"in determining . . . the degree of power that a body corporate or bodies corporate has or have in a market, the Court shall have regard to the extent to which the conduct of the body corporate or of any of those bodies corporate in that market is constrained by the conduct of: (a) competitors, or potential competitors, of the body corporate or of any of those bodies corporate in that market; or (b) persons to whom or from whom the body corporate or any of those bodies corporate supplies or acquires goods or services in that market." This effectively defines market power as the ability to behave unconstrained by competitors in a market. Indeed, in applying Section 46, the courts defined market power as "the ability of a firm to raise prices above the supply cost without rivals taking away customers in due time, supply cost being the minimum cost an efficient firm would incur in producing the product"*** [67] ***or as "the capacity to behave in a certain way (which might include setting prices, granting or refusing to supply, arranging systems of distribution), persistently, free from the constraints of competition.***" [68]

Under Section 46, a misuse of market power occurs when a corporation (1) has a substantial degree of power in a market; (2) takes advantage of that market power; and (3) does so for a prohibited purpose. The courts have provided some guidance as to how these elements can be established.

To determine whether a corporation has a substantial degree of market power, the market must first be defined. The courts generally have defined the market as the area of close competition, determined by the substitutability of goods both on the supply and demand side and

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[67] *Queensland Wire Industries Pty Ltd v. Broke Hill Co. Ltd*, (1989) 167 CLR 177, at 188.

[68] *Melway Publishing Pty Ltd. v. Robert Hicks Pty Ltd*., (2001) 205 CLT 1, at 27.

as "the area of actual and potential, and not purely theoretical, interaction between producers and consumers where given the right incentive – a change in price or terms of sale – substitution will occur."[69] Once the relevant market is defined, the courts look whether there is a "substantial degree of market power." One indicator of the existence of a "substantial degree of market power" is a high market share although a low market share is not necessarily indicative of the absence of market power.

The courts have held that "the expression 'take advantage of' does not mean anything materially different from 'use', and does not require conduct which is predatory or morally blameworthy" and that Section 46 "requires, not merely the co-existence of market power, conduct, and proscribed purpose, but a connection such that the firm whose conduct is in question can be said to be taking advantage of its power."[70]

Section 46 will only be breached if the business has used its market power for a prohibited purpose. Where there are multiple purposes, Australian courts will look at the corporation's substantial purpose for engaging in the conduct. If the substantial purpose is anti-competitive, it will be sufficient to contravene section 46, irrespective of the existence of other substantial purposes. It is not necessary to show that the purpose was achieved, provided purpose is established as a question of fact. Finally, a causative link between the proscribed purpose and the exercise of market power. A business will not have a proscribed purpose if it undertakes conduct with a legitimate purpose, irrespective of whether the conduct has the effect of damaging a competitor.

3.3 New Zealand

3.3.1 Regulation of the New Zealand Electricity Market

Regulation of the New Zealand Electricity Market is accomplished by two entities: the Electricity Commission and the Commerce Commission. The Electricity Commission was established in 2003, in part, as a result of the failure of the industry to agree on issues related to common quality and security of supply. It is a Crown entity set up under the New Zealand Electricity Act to oversee the country's electricity industry and markets. The Electricity Commission regulates the operation of the electricity industry and markets (wholesale and retail) in accordance with the Electricity Act and government energy policy.

The Electricity Commission's principal objective, as set out in the Electricity Act, is to ensure that electricity is produced and delivered to all classes of consumers in an efficient, fair, reliable and environmentally sustainable manner. The Electricity Commission is also required to promote and facilitate the efficient use of electricity and must operate in a manner that is

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[69] *Boral Besser Masonry Limited v. ACCC*, [2003] HCA 5 at [252].

[70] *Melway Publishing Pty Ltd. v. Robert Hicks Pty Ltd*., (2001) 205 CLT 1, at 17and 21.

consistent with the New Zealand government's Government Policy Statement. The Government Policy Statement outlines the government's expectations for the effective operation of the electricity market and identifies three priority areas: (1) security of supply and reserve generation; (2) priority investment in the transmission grid; (3) hedge market arrangements and demand-side participation.

3.3.2 Electricity Commission's Approach to Market Oversight

The New Zealand Electricity Commission has considered abnormally high prices in the context of its "undesirable trading situation" investigations. Under Regulation 55 of the New Zealand Electricity Governance Regulations, an "undesirable trading situation means any contingency or event— (a) that threatens, or may threaten, trading on the wholesale market for electricity and that would, or would be likely to, preclude the maintenance of orderly trading or proper settlement of trades; and (b) that, in the reasonable opinion of the Electricity Commission, cannot satisfactorily be resolved by any other mechanism available under the rules. Among other things, this includes—

(a) manipulative or attempted manipulative trading activity;
(b) conduct in relation to trading that is misleading or deceptive, or likely to mislead or deceive;
(c) unwarranted speculation or an undesirable practice;
(d) material breach of any law;
(e) any exceptional or unforeseen circumstance that is at variance with, or that threatens or may threaten, generally accepted principles of trading or the public interest.

Regulation 56 of the Electricity Governance Regulations further provides that the Electricity Commission can take a number of measures to correct an "undesirable trading situation," including: (a) suspending, or limiting or curtailing, an activity on the wholesale market for electricity, either generally or for a specified period; (b) deferring completion of trades for a specified period; (c) directing that any trades be closed out or settled at a specified price; (d) giving directions to any participant to act in a manner (not inconsistent with these regulations, the rules, or any other law) that will, in the Board's opinion, correct or assist in overcoming the undesirable trading situation.

To date, the Electricity Commission has had five "undesirable trading situation" investigations, all of them involving allegations of abnormally high prices.[71] The investigations have focused primarily on claims of software flaws and rule violations, which were alleged to cause the abnormally high prices. Only in one case, involving an error by the system operator, the price was resettled.

[71] Reports of these investigations are available at www.electricitycommission.gov.nz, in the "rules and regulations" section, under "undesirable trading situation."

The regulations also provide for investigatory coordination between the Electricity Commission and the system operator. Regulation 58 of the Electricity Governance Regulations requires the Electricity Commission to consult with the system operator prior to taking any action to correct an undesirable trading situation while the system operator must maintain procedures that are necessary to enable it to respond immediately and provide information to the Electricity Commission.

3.3.3 Policing Competition in New Zealand

The Commerce Commission enforces the New Zealand Commerce Act of 1986, a comprehensive law that promotes competition in New Zealand markets and prohibits misleading and deceptive conduct by traders. The Commerce Commission's activities include investigation and adjudication of possible restrictive trade practices (*i.e.*, anti-competitive practices). In addition to the anti-competitive practice provisions of the Commerce Act 1986, the Commerce Commission also enforces a number of general and specific regulatory regimes set out elsewhere in the Commerce Act, and in the Fair Trading Act 1986, the Electricity Industry Reform Act 1998 and certain other industry-specific statutes.

The purpose of the Commerce Act is "to promote competition in markets for the long-term benefit of consumers." The Commerce Act applies to all individuals and businesses, including state-owned enterprises, local government and government departments, in so far as they engage in trade. In relation to anti-competitive practices, it prohibits behavior that restricts competition; allows the Commerce Commission to authorize on public benefit grounds proposed anti-competitive practices that would lead to the substantial lessening of competition in a market; and allows the Commerce Commission to recommend to the Minister of Commerce that specific goods and services be controlled.

To promote competition in markets, the Commerce Act prohibits a range of anti-competitive practices, that can involve a number of people or businesses ("collective behavior") or a single person or business ("unilateral behavior"). Collective behavior (behavior by two or more people or businesses) that is prohibited under the Commerce Act includes:

- substantially lessening competition – agreements containing provisions that substantially lessen competition in a market (section 27);
- excluding competitors – agreements between competitors containing exclusionary provisions that prevent or limit dealings with a rival (this type of behavior is also referred to as refusals to deal or group boycotts) (section 29);
- price fixing – agreements containing provisions that fix prices among competitors (section 30).

Unilateral behavior (behavior by a single person or business) that is prohibited under the Commerce Act includes:

- taking advantage of market power – a person with a substantial degree of market power taking advantage of that position for an anti-competitive purpose (section 36);

- resale price maintenance by supplier – a supplier specifying the minimum price at which the supplier's goods can be sold by other businesses (section 37).

3.3.4 Taking Advantage of Market Power

Section 36 of the Commerce Act prohibits a person or business with a substantial degree of market power in a market from taking advantage of their market power to prevent competition either in that market or in any other market. The Commerce Act does not prohibit a person or business from having a substantial degree of market power. A substantial degree of market power could have been gained before the introduction of the Commerce Act, or through legislation, or through highly desirable behavior, such as utilizing sound judgment, skill, foresight and innovation to become more efficient than rivals.[72]

Section 36 applies when the following three elements are established: (1) a person or business has a substantial degree of power in a market; (2) that person or business takes advantage of that power; and (3) the purpose of the behavior is to restrict the entry of any person or business into that or any other market, prevent or deter a person or business from engaging in competitive behavior in that or any other market, or eliminate any person or business from that or any other market.

3.4 Conclusions

While the regulatory systems set up to govern electricity markets in the United States, Australia and New Zealand are quite diverse, there are some common trends that should be taken under consideration. First, in all three jurisdictions, enforcement of general antitrust law is separate from market oversight. In the U.S., the FERC may consider antitrust laws in its regulatory activities, but enforcement rests with the FTC and the DOJ. Similarly, in Australia and New Zealand, general competition law is administered by the competition commissions rather than the energy market regulator. We have been apprised that the Philippines currently does not have a general competition statute or an antitrust organ similar to the FTC, the ACCC or the New Zealand Competition Commission. As a result, it would be proper, at least in the short term, for the ERC to have the authority to address standard competition law violations that may arise in the electricity markets, such as price fixing, illegal combinations, collusion or tying.

Second, the three jurisdictions surveyed have different levels of regulatory involvement in the market. While the FERC has been more active in managing the markets, including taking

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[72] In May 2001, section 36 was amended from a "dominance" threshold to a new threshold of a "substantial degree of market power." This change brought section 36 into line with the equivalent provisions in the Australian Trade Practices Act.

various mitigation actions, the energy regulators in Australia and New Zealand have taken a more *laissez faire* approach, exhibiting higher tolerance for price spikes, which could be a reflection of the design features of these markets. While Australian and New Zealand markets have tended to be relatively volatile, with higher regulatory tolerance for price volatility, the U.S. markets have typically been based on "net" pools,[73] augmented by capacity markets, that tend to result in less volatile markets and lower regulatory tolerance for price volatility. As the design of the Philippines market and its market rules appears to draw heavily upon the Australian and New Zealand markets, this distinction between the two approaches to regulatory intervention should be taken into account.

Third, all three jurisdictions establish the primacy of the government regulator in conducting investigations of market power abuse, anti-competitive behavior, rule violations or market manipulation. While market administrators, market monitors or system operators play an important rule in this process, the ultimate enforcement and penalty authority rests with the regulator. Coordination mechanisms are put in place to ensure that overlapping responsibilities over investigations do not result in undue parallelism or interference with regulatory oversight.

Fourth, in the jurisdictions surveyed, the energy and antitrust regulators and market administrators possess formidable institutional resources and capacity that allow them to embark on the complicated tasks assigned to them. In the Philippines, where such capacities and resources may not yet be fully available to the ERC and PEMC, careful prioritization should take place, especially in the short term, to ensure that these entities are able to effectively perform the tasks assigned to them without unnecessarily dispersing their limited resources.

These general observations inform our recommendations, which we discuss in the next section.

[73] The distinction between "net" and "gross" pooling arrangements has several different interpretations. As used here, net refers to energy separate from capacity.

4.0 Application to the Philippines Electricity Market

The purpose of this section is to demonstrate how the economic and legal principles discussed above can be applied to assist the ERC with improving its market monitoring functions and clarifying the division of authority in this important area among the ERC, PEMC and the Tripartite Committee. As part of our analysis, we provide certain recommendations for these entities to consider in their review of the currently effective market monitoring and mitigation scheme.

4.1 Current Distribution of Market Monitoring and Mitigation Functions Among ERC, DOE, PEMC/PEM Board and Tripartite Committee

4.1.1 ERC

The ERC was created pursuant to Section 38 of the EPIRA, with a broad mandate to "promote competition, encourage market development, ensure customer choice and penalize abuse of market power in the restructured electricity industry." Under the EPIRA, the ERC has a number of important functions relating to market oversight. These functions are primarily set forth in Sections 43 and 45 of the EPIRA, which provide that the ERC:

- enforces the rules and regulations governing the operations of the electricity spot market and the activities of the spot market operator and other participants in the spot market, for the purpose of ensuring a greater supply and rational pricing of electricity;[74]

- monitors and takes measures in accordance with the EPIRA to penalize abuse of market power, cartelization, and anti-competitive or discriminatory behavior by any electric power industry participant;[75]

- in the exercise of its investigative and quasi-judicial powers, acts against any participant or player in the energy sector for violations of any law, rule and regulation governing the same, including the rules on cross-ownership, anti-competitive practices, abuse of market positions and similar or related acts by any participant in the energy sector or by any person, as may be provided by law, and require any person or entity to submit any report or data relative to any investigation or hearing conducted pursuant to the EPIRA;[76]

- has the original and exclusive jurisdiction over all cases contesting rates, fees, fines and penalties imposed by the ERC in the exercise of the above mentioned

[74] EPIRA § 43(c)

[75] EPIRA § 43(k)

[76] EPIRA § 43(r)

powers, functions and responsibilities and over all cases involving disputes between and among participants or players in the energy sector;[77] and

- monitors and penalizes any market power abuse or anti-competitive or discriminatory act or behavior by any participant in the electric power industry and upon finding that a market participant has engaged in such act or behavior, stops and redresses the same, including the imposition fo sanctions that include, without limitation, the imposition of price controls, issuance of injunctions, requirement of divestment or disgorgement of excess profits and imposition of fines and penalties pursuant to the EPIRA.[78]

As required by Section 45 of the EPIRA, the ERC also promulgated its Competition Rules and Complaint Procedures ("Competition Rules"). The Competition Rules prohibit a number of anti-competitive practices (such as anti-competitive agreements, misuse of market power, anti-competitive acquisitions, mergers and consolidations), set forth the requirements for obtaining clearances and authorizations, establish penalties for violations, establish procedures for investigating and adjudicating violations of the Competition Rules and contain certain other related provisions. The Competition Rules do not define the terms "market power" or "market power abuse." However, the ERC's Competition Guideline ("Guideline") provides a non-exclusive list of certain practices that may be deemed, under certain circumstances, a "misuse of market power," such as: excessively high prices, price and non-price discrimination, predatory pricing, resale price maintenance, full-line forcing and third-line forcing, and refusal to supply.

4.1.2 DOE

The DOE established the WESM pursuant to the mandate set forth in Section 30 of the EPIRA. Under that provision, the DOE was directed, jointly with the electric power industry participants, to formulate the detailed rules for the WESM. Among other things, the rules were required to provide procedures for administering the market, including surveillance and assurance of compliance of the participants with the WESM rules.[79]

4.1.3 PEMC/PEM Board

Rule 1.3.1 of the Wholesale Electricity Spot Market Rules ("WESM Rules") sets forth the principal responsibilities of the market operator, whose function is currently performed by PEMC. Among these responsibilities is the duty to "monitor daily trading activities in the market."[80] When performing this function, PEMC: determines whether or not such trading is performed in accordance with the WESM Rules; identifies any significant variations in and

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[77] EPIRA § 43(u)

[78] EPIRA § 45

[79] EPIRA § 30(c)

[80] WESM Rule 1.3.1.1(c))

between trading intervals; identifies and apparent or suspected incidents of anti-competitive behavior by any WESM member;[81] and prepares and publishes a report explaining the identified significant violations within 10 days and provide a copy to the DOE, ERC, PEM Board and WESM members and interested entities on request.[82]

The PEM Board is set up under Rule 1.4 of the WESM Rules to govern the WESM. Among the principal power and duties of the PEM Board is the obligation to oversee and monitor the activities of the market operator and the system operator and oversee and monitor the activities of WESM members to ascertain and determine compliance or non-compliance with the WESM rules.[83] The PEM Board forms a number of standing committees, including the Market Surveillance Committee ("MSC").[84] Among other things, the MSC:

- monitors activities conducted by WESM Participants in the spot market;
- prepares periodic reports, which outline: (1) activities of WESM Participants in the spot market; (2) apparent or suspected incidents of anti-competitive behavior by any WESM Participant; and (3) matters concerning the operation of the spot market generally;
- assists the PEM Board to investigate: (1) unusual or suspicious behavior or activities of WESM Members in the spot market; (2) suspected or alleged breaches of the WESM Rules by WESM Members; and (3) suspected or alleged anti-competitive behavior.[85]

The WESM Market Surveillance, Compliance and Enforcement Market Manual ("Surveillance Manual") further details the responsibilities of the PEM Board, the MSC, PEMC's Enforcement and Compliance Office ("ECO"), PEMC's Market Assessment Group ("MAG"), WESM Members, the Market Operator and the System Operator.

4.1.4 Tripartite Committee

Unlike the ERC and PEMC, the Tripartite Committee is not a statutory entity and it was created pursuant to a joint resolution ("Joint Resolution") by the DOE, ERC and PEMC as an interim committee composed of the DOE Secretary, ERC Chairman and PEMC President to address market price contingencies, such as extreme price spikes or prolonged price volatility, that may arise during the initial stages of the WESM when institutional mechanisms to address

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[81] WESM Rule 1.3.1.2

[82] WESM Rule 1.3.1.2

[83] WESM Rule 1.4.5.2

[84] WESM Rule 1.4.6

[85] WESM Rule 1.6.2

these contingencies are untested. Section 1.2(e) of the Joint Resolution provides that one of the principal functions of the Tripartite Committee is to "formulate and develop a comprehensive mitigating plan for the WESM."

4.2 How Market Monitoring Is Exercised in WESM

4.2.1 Monitoring by WESM

Primary market monitoring is administered by the MAG and the MSC and is described in the Surveillance Manual. The MAG prepares weekly or monthly market assessment reports, collects market data and develops monitoring indices.[86]

Under the Surveillance Manual, the responsibility for primary monitoring of anti-competitive behavior and abuse of market power lies in the hands of the MSC. To that effect, the MSC, among other things, reviews the bidding and offer strategies of trading participants; detects any correlation between bidding strategies and the conditions in the WESM or other market conditions to identify patterns of bidding behavior; and identifies overall market power concerns.[87] The MSC also implements mechanisms and performs the necessary analysis to: assess and identify conducts or anomalous situations in the WESM which could correspond to anti-competitive behavior or gaming of the WESM Rules; identifies instances where abuse market power has or could be exercised; analyzes possible causes of unusually high or low prices in the WESM; and analyzes unusual conditions of generation or reserve not offered to the WESM.[88]

The Surveillance Manual considers the following conduct of a WESM member, among others, to be anti-competitive behavior when such conduct significantly affects prices in the WESM:

- Physical withholding or the refusal to offer to sell, or schedule, the maximum available output of reserve to the WESM, by a facility available and capable of producing such output or reserve. This type of conduct may, among others, include: (i) falsely declaring that a generation facility has been forced out of service, or has otherwise become unavailable or has constraints that limits its output or reserve; or (ii) operating a generating unit in real-time to produce an output level that is less than the system operator's dispatch instruction.

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[86] Surveillance Manual §§ 7.1 and 7.2

[87] Surveillance Manual § 7.4.1

[88] Surveillance Manual § 7.4.2

- Economic withholding or submitting of bids for a facility that are unjustifiably high so that the facility output or reserve is not, or will not, be dispatched, or so that the bid will set the price. [89]

If the MSC decides that a conduct or circumstance could reasonably correspond to anti-competitive behavior, as described above, the MSC informs the party or parties involved and the PEM Board of the conduct; files a request for investigation; and recommends adequate preventive or mitigation measures, when necessary, until the investigation is concluded to protect effective competition and fair prices and outcomes in the WESM. [90] Section 10 of the Surveillance Manual describes the investigatory process and provides that no sanction may be imposed until the results of the investigation and proposed sanctions are reviewed and approved by the PEM Board.

4.2.2 Monitoring by ERC

Our discussions with ERC staff have revealed that the ERC apparently has access to real-time market data provided by the WESM. Presently, the ERC relies on its Competition Rules as the major legal tool to administer its market monitoring responsibilities.

4.3 Issues and Recommendations

4.3.1 Guiding Principle

Our overarching recommendation is that regulatory oversight needs to move lockstep with the development of the market and must always reflect the guiding principles of the market itself. The WESM has been in existence less than a year and is built from an underlying foundation that is unique to the Philippine situation. Accordingly, the goal should never be regulatory or economic purity but rather a market that delivers benefits to consumers and industry participants and provides appropriate consumption, production and investment signals. We believe that this guiding principle provides the context within which regulation should occur and it should be used to guide not only the application of discretionary authority but also the evolution of the electricity regulatory paradigm for the Philippines. This is especially critical in new markets where the learning curve for the participants, the market and system operators and the regulator can be quite steep.

4.3.2 Issues and Recommendations Pertaining to Jurisdictional Aspects of Market Monitoring and Mitigation

As described in the preceding section, the ERC, the DOE, the Tripartite Committee, PEMC, and the PEM Board and its committees – each play an important role in the existing market monitoring and mitigation scheme. Some of these entities, such as the ERC, derive their

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[89] Surveillance Manual § 7.4.3

[90] Surveillance Manual § 7.4.4

authority to investigate market power abuse and anti-competitive behavior directly from the EPIRA, while others, such as the PEM Board and the MSC, derive their investigatory powers from the WESM Rules. Such joint responsibilities with respect to market monitoring and oversight are not uncommon in many other jurisdictions, including those surveyed in this Report.

The challenge lies not in the fact that several entities share the responsibility over market monitoring and mitigation, but in ensuring that they reasonably coordinate their actions and the entire market mitigation scheme runs as a coherent whole rather than a constellation of disjointed and insulated processes. Indeed, where market oversight bodies have unclear, parallel or overlapping responsibilities, market participants may be tempted to engage in gaming, forum shopping or other jurisdictional maneuvers that undermine the certainty and efficiency of the system. We believe that the market oversight setup currently adopted in the Philippines, while fundamentally sound, may nevertheless unintentialy encourage such gaming in certain circumstances.

Under the current system, both the ERC and the WESM bodies (*i.e.*, PEM Board and MSC) have independent powers to initiate and conduct investigations of instances of suspected market power abuse and anti-competitive behavior and to impose sanctions. Such investigations appear to be conceived to run in parallel pursuant to different sets of rules: the ERC uses its Competition Rules while the WESM bodies use the WESM Rules and the Surveillance Manual. This setup may result in certain problems, such as market participants attempting to game the system by engaging in forum shopping by choosing (or even switching from) one forum to another or by initiating investigations with respect to the same incident in parallel fora. The existing division of monitoring responsibilities also involves certain inefficiencies as it may results in uncoordinated and simultaneous investigations of the same incident by the ERC and the WESM bodies. We believe that these issues can be addressed in the short term by promulgating certain modifications to the ERC Competition Rules and the WESM Rules, which we discuss below.

Coordination of Investigatory Activities:

- Recommendation. Amend the ERC Competition Rules to provide that in the event any entity authorized under the WESM Rules to conduct investigations of market power abuse or anti-competitive behavior initiates such an investigation, the ERC may refrain from taking any action, or may suspend or terminate without prejudice any pending action or proceeding, with respect to the matter under investigation until the WESM entity completes its investigation and forwards the investigatory reports, data and other materials to the ERC.

- Recommendation. Amend the WESM Rules to provide for a referral to, or takeover by, the ERC of a pending WESM investigation.

If adopted, these two Recommendations would allow the ERC and the WESM to coordinate their investigation efforts while avoiding unnecessary parallel proceedings. The Recommendations are also consistent with the EPIRA mandate by preserving the primacy of the ERC's investigatory role enshrined in the statute and not diluting the ERC's authority.

Provision of Information:

- Recommendation. Amend the WESM Rules and the Surveillance Manual to provide that the PEM Board shall forward to the ERC all reports, materials and data upon concluding its investigation or when the ERC takes over a WESM investigation under the preceding Recommendation.

As illustrated by Figure B to the Surveillance Manual, the ERC currently is not automatically provided with the pertinent investigatory materials upon conclusion of a WESM Investigation. (Instead, the ERC is merely given a copy of the preliminary notice of investigation issued by the ECO during the early stage of a WESM investigation). It is critical that the ERC is automatically and promptly provided with all pertinent materials upon conclusion of the WESM investigation or upon the ERC's takeover of the investigation to ensure that the ERC can administer its investigatory duties without undue delay.

ERC's Action on WESM Investigation/Appeals:

- Recommendation. Amend the ERC Competition Rules and the WESM Rules to provide that any person aggrieved by the outcome of a WESM investigation may file a complaint with the ERC. To reduce spurious or automatic complaints, the Rules could provide that the ERC will give "due weight" to WESM's factfinding (or apply other relatively deferential standard used in Philippine law).

This Recommendation attempts to balance the ERC's broad role with respect to market power abuse and anti-competitive behavior investigations with the need to reduce repetitive investigations.[91]

Consistency between ERC's Competition Rules and WESM Rules and Manuals:

- Recommendation. ERC's Competition Rules and WESM Rules and Manuals need to be regularly updated to ensure that they are consistent with each other. The WESM Rules must recognize the primacy of the ERC's role in market oversight and that the ERC Competition Rules are binding on all market participants.

The purpose of this Recommendation is to ensure that the ERC's Competition Rules and the WESM Rules complement each other with respect to market monitoring issues.

We further note that the Tripartite Committee may be a particularly suitable forum to discuss and coordinate these jurisdictional amendments.

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[91] One alternative here could be to provide for an appeals process rather than a complaint process, but we are concerned that this could be interpreted by the courts as the ERC's abdication of its statutory responsibilities under Sections 43 and 45 of the EPIRA.

4.3.3 Issues and Recommendations Pertaining to Substantive Aspects of Market Monitoring and Mitigation

4.3.3.1 Structural Issues

Our substantive recommendations are informed by certain distinguishing characteristics of the WESM's design that have direct effect on market monitoring and mitigation. We believe that there are strong reasons to be concerned that there will be frequent periods where generators will have significant market power due to the concentration of ownership of generation, the market design, and the prospects of transmission constraints, especially if the Visayas market opens for commercial operations and is integrated with Luzon. The "first-best" solution is to address these underlying causes of market power rather than the frequent imposition of regulatory controls and constraints.

As an initial matter, there is no centrally optimized commitment of generation resources in the WESM. The underlying premise is, therefore, that units will be "self-committed." In theory, there is nothing inherently wrong with this design element; it does, however, have consequences for other design elements, as well the operation of the market itself. In particular, this choice leads logically to the second distinguishing characteristic - that generator offers consist of only a "single" part. In markets where the system operator through a Security Constrained Unit Commitment ("SCUC") process can perform commitment, generator offers will typically consist of three parts, *e.g.*, start-up costs, minimum run or no-load costs, and a variable cost component.

Explicit in this design is that when the system operator commits, or starts a unit, then the generator will be guaranteed that their fixed costs (the start-up and no-load costs) from following that instruction will be recovered. Absent the need to recover these costs, under the "text-book model," the offer curve for a generator should, under competitive conditions, be forced to approximate their marginal costs. If so, market power abuse would then be largely a case of determining the extent to which the generator offer exceeds the marginal cost and, if so, whether there was an effect on the market price. In practice, however, price-bid electricity markets often show a far looser relationship between prices and costs than these models suggest. Furthermore, the inherent assumption with a single-part offer design is that prices will be allowed to go high enough to allow generating units – some of which may only run a few hours a year – to recover not only their variable production costs but also their associated fixed costs.

Implicit in this design, therefore, is that prices can be expected to be more volatile and potentially higher. However, under a single-part offer design, uplift costs[92] should be lower and there is no necessary reason why overall costs should be higher. In fact, one factor in favor of a single-part offer design is that a greater percentage of overall costs will be reflected in the market price rather than in uplift charges that are socialized across the industry. A potential benefit arises then from this design because financial and physical instruments exist to effectively hedge

[92] Uplift costs occur, in part, under a three part offer because the system operator will have to recover the start-up and no load costs to the generators that have been committed under the SCUC process.

exposure to price volatility whereas uplift is largely an un-hedgeable risk. Notwithstanding the potential market benefits of single-part offers, this design element is problematic from the perspective of defining market power and determining whether there has been an abuse of market power.

With respect to the WESM Rules we make two general observations that are not specific to defining or detecting market power, but will serve to limit its abuse. Firstly, every effort should be made to facilitate demand-side involvement in the market. Price sensitive demand (*i.e*., an elastic demand curve for electricity) provides a strong mitigation to the abuse of market power. Under the current rules, *ex ante* positions are allowed in the market but there does not appear to be a formalized "day-ahead" market as there is in electricity markets in North America. From the perspective of reliability, the emphasis of the WESM is on real-time dispatch, but without an organized short-term forward market, demand side participation is potentially discriminated against. Under the WESM rules, demand-side participation is primarily limited to dispatchable demand, *i.e*. load that can behave like a generator in real time. Secondly, we note that information transparency is the enemy of market power abuse and the release of bid and offer information as close to real time (see for example Australia and ERCOT) will serve to mitigate the abuse of market power.

Finally, the most fundamental distinguishing characteristic of the WESM is that a large percentage of the generating capacity is controlled by the Government through PSALM and NPC. While ultimately, the Government's policy is for this capacity to be sold and independent IPP administrators to be established, the current institutional structure necessarily confers market power to PSALM/NPC. The reality of the Philippine wholesale market is that there is already a high degree of market concentration, *i.e*., market power is inherent in the market in its current state. While not related to determining whether the abuse of market power has occurred we would recommend that formal "ring fencing" arrangements be put in place. Further, we note that the "take-or-pay" provisions of the current IPP contracts (including those held by Meralco) encourage, and possibly mandate that this generating capacity be offered to the market at zero price in order to force these units to be dispatched. As a result, it should not be surprising to find that the WESM has high price volatility as units offer at zero in order to fulfill their take-or-pay requirements and then at high prices at other times in order to recover their fixed costs of operation.

4.3.3.2 Definition of Market Power

Given this market design, we believe that it would be useful for the ERC and the WESM to adopt an agreed upon definition for the term "market power." As discussed in the Report, a common understanding or definition of market power is the ability to control or influence prices. In the electricity market, the exercise of market power occurs through some combination of: (1) physical withholding, (2) economic withholding and (3) uneconomic production.[93] Market participants will benefit from knowing how the regulator is defining market power.

[93] We have discussed these terms in Section 2 of the Report.

- Recommendation. The ERC and WESM should define market power as the ability to control or influence price through actions related to either physical or economic withholding or uneconomic production.

It should be noted that, since price spikes are a necessary component of the market design, we believe that, at this stage of the market evolution, it is more relevant to evaluate market power in the context of the ability to control or influence the average price level rather a specific period of time. In other words, market power should be defined in terms of the dynamic ability to control prices. We caution, however, that this does not mean that price spikes that occur should not be reviewed as part of the ongoing evaluation of the performance of the market.

4.3.3.3 Definition of Relevant Product and Geographic Markets.

Section 2 of the ERC's Guideline provides a general approach with respect to market definition. The next step should be to provide certainty to the market by describing a specific methodology or methodologies for determining the relevant geographic and product markets in the Philippines context. The various tests discussed in this Report (*e.g.*, HHI, pivotal supplier, DPT) offer a broad range for choosing the right approach that reflects the Philippine market realities.

- Recommendation. The ERC Competition Guideline should provide details of what constitutes the relevant product and geographic markets for purposes of market monitoring and investigation.

We further note that any such test or market definition must take transmission constraints into account. This is because when constraints arise, several independent geographical markets may be "created" and in each case market power can be conferred to a subset of generating facilities. This situation may arise once a year or much more frequently. Typical questions that would need to be answered would include:

- whether a generator is deemed to have market power on every occasion that this situation occurs;

- whether there is some threshold number of hours in which the constraints must be present for the existence of market power; or

- whether this can be defined in advance, *e.g.*, in known load pockets.

While there are any number of ways to establish these thresholds, we recommend using a transparent stakeholder or regulatory process to discuss the various mechanisms.

4.3.3.4 Tests for Existence of Market Power

Currently, Section 3 of the ERC Guideline refers primarily to concentration analysis (and specifically to HHI) as a tool to assess the level of competition in the market. We believe that HHI or other concentration analysis is inadequate, by itself, to test marker power in an electricity

market. In order to control or influence prices, a supplier must be "material" or pivotal, *i.e.*, some portion of the capacity of the supplier must be necessary in order for demand and supply to balance.

- Recommendation. Develop and implement a pivotal supplier screen to test for the existence of market power.

Our Report and the attached materials describe in detail various pivotal supplier screens that have been adopted in the U.S. The exact content of the test, *i.e.*, the relevant definition of capacity, the appropriate time frame, etc., can be determined by the ERC through discussions with market participants. Implicit in the application of the pivotal supplier test is that if this capacity is withheld from the market then prices will rise and the generator will have exercised market power.

4.3.3.5 Studies and Criteria to Determine Market Power Abuse

4.3.3.5.1 Definition of "Misuse of Market Power"

The EPIRA does not provide an exhaustive list of what sort of behavior may qualify as "misuse of market power." It should be emphasized that having market power is not the same as abusing it. The Competition Rules describe the factors that the ERC takes into account in determining whether an entity has misused its market power and describes how such misuse may occur through action, inaction or conditional action. As noted above, the ERC Guideline provides examples of behavior that could be qualified as a misuse of market power, but this list is not exhaustive.

We believe it is prudent for the ERC not to provide an exclusive list of behaviors that are deemed a "misuse of market power." Any such list, even if attempted, would likely to be incomplete and could unduly tie the ERC's hands. Market power abuse inquiries are necessarily circumstantial and none of the jurisdictions surveyed by us has attempted to define "market power abuse" by reference to a exhaustive list of such abusive practices.[94]

[94] We further note that the ERC Rules are confined to the following substantive prohibitions: (1) prohibition on anti-competitive agreements, arrangements and understandings; (2) prohibition on misuse of market power; (3) prohibition on anti-competitive acquisitions, mergers and consolidations; and (4) failure to comply with a condition of a clearance authorization. This limited scope could potentially leave out varieties of anti-competitive behaviors by market participants that do not involve anticompetitive agreements or possession or misuse of market power or anti-competitive mergers and consolidations. Instead, such conduct might include failing to abide by the WESM rules, exploiting the WESM rules' flaws, loopholes or software inadequacies (so called "gaming"), submission or dissemination of fraudulent information, or use of other fraudulent or manipulative devices or practices, all with the intent to obtain advantage in the market or undermine or lessen competition. While Section 45 of the EPIRA broadly prohibits "any anti-competitive behavior," which is defined to include, without limitation, "cross-subsidization, price or market manipulation, or other unfair trade practices detrimental to the encouragement and protection of contestable markets," the ERC Rules do not appear to provide a defined basis for prosecuting such anti-competitive conduct unless it falls within the specific substantive prohibitions discussed above. Consequently, the ERC may want to consider adopting a "catch-all" prohibition on anti-competitive conduct to cover the instances of gaming, market manipulation or other trade practices that lessen competition.

4.3.3.5.2 Determination of Market Abuse

With regard to the process by which market power abuse is determined, we note that the WESM has significant access to data from both market participants and the system operator, which is critical to any evaluation of market power. With that in mind, we set forth certain recommendations with regard to implementing a process for the evaluation of market power abuse. An important caveat for this process is that the mitigation measures described below should be triggered in truly exceptional circumstances with exceptional impacts and the specific "screens" or tests should be relatively generous, particularly in the short term.

Recommendation:

- Step 1: Pursuant to our earlier Recommendation the ERC and the WESM should adopt a common definition for market power.

- Step 2: The WESM, in collaboration with the ERC, should develop a methodology for determining the relevant geographic markets. Ideally, in the end state, this analysis should be performed dynamically for every trading interval. That is, the WESM should take the current state of the system and determine whether transmission constraints and/or outages limited competitive access to all or portions of the grid such that a small subset of generating units (*e.g.*, 2 or 3) were the only units able to serve load. We understand that resources may not be available initially to perform this analysis in real time. Nonetheless, we believe that this analysis should be performed the day after the operating day with the results sent to the MSC and the ERC. Implicit in this step is the fact that the WESM will have to develop a pivotal supplier test in order to determine which generator(s) had market power.

- Step 3: If as a result of Step 2, a generator or subset of generators is found to have market power there should be an automatic analysis of their offering behavior, *e.g.*, whether the market participant changed their behavior. To the greatest extent possible, both Steps 2 and 3 should be automated.

- Step 4: If a generator or subset of generators is found to (1) have had market power and (2) changed their offering behavior, then an analysis should be performed as to whether this change in behavior led to a change in market prices.

- Step 5: If as a result of the previous step, a generator is found to have had an impact on market prices as a result of market power, then the generator should receive a formal notice that their offering strategy is being reviewed and it should be mandated that they justify their actions to the MSC and/or the ERC.

- Step 6: If, after the investigation, the ERC believes that the behavior of the generator constitutes abuse, then various remedies are available.

We also recommend the creation of a reference price that would serve as a benchmark from which to judge conduct in the market. Since market power is defined as the ability to control or influence prices, a mechanism should be in place that would be able to discern when market power has been exercised to affect prices.

Finally, we would like to highlight the difficulty of this exercise under the current WESM market rules that only allow for "single-part" bidding. Unlike the markets in North America and elsewhere which make use of 3-part bidding,[95] under single-part bidding, fixed and variable costs are combined to form a single value. We recommend that the ERC consider creating a range for the reference prices rather than try to estimate a single point. These reference prices can be used both in retroactive investigations of market power misuse and prospective mitigation measures as a foundation for default bids.

4.3.3.6 Adoption of Mechanisms for Prospective Mitigation of Market Power

Currently, the monitoring and potential mitigation of market power in the WESM is done retroactively. In a number of other markets, including those discussed in this Report, this activity has been moved to real time. That is, the existence of market power and an examination of whether there has been an abuse of market power is performed in real time. Prospective mitigation allows for greater certainty in price discovery process – there is no time lag between suspected abuse, a determination and then remedy. This in turn tends to improve the efficiency of the market.

- Recommendation. The ERC and the WESM should explore the desirability prospective mitigation measures, including the adoption of screens and automatic mitigation.

The precedents and market monitoring arrangements discussed in this Report provide useful examples for the ERC and the WESM to consider in thinking how to restructure their current monitoring procedures and interaction protocols. In our experience, many jurisdictions provide for the market operator's role in performing the primary monitoring and mitigation of the market. This role is particularly great when such mitigation is performed prospectively, *e.g.* through various "screens." That being said, the regulator should have a role in the adoption process for such mitigation measures in order to ensure that both the market operator and the regulator apply the same agreed upon mitigation policy to minimize opportunities for participants to game the market monitoring rules. While there are many ways to ensure this uniformity ranging from direct approval of all mitigation protocols by the regulator (*e.g.*, the U.S. model) to "softer" coordination mechanisms, it appears that in the Philippines, the Tripartite Committee may be an appropriate forum for this sort of coordination among the ERC, PEMC and the DOE. Regardless of the forum selected, the ERC must have the ability to meaningfully

[95] With 3-part bidding a generator would provide 3 pieces of information – the costs associated with starting the unit; the costs associated with the minimum level of output; and the variable costs associated with different levels of output. Under single part bidding all of these cost are bundled into a single value.

participate in the process for adopting and subsequently amending such screens or other market mitigation devices employed by the WESM.

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