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**REGULATORY GUIDELINES FOR THE REVIEW OF  
ENERGY SECTOR MERGERS AND ACQUISITIONS IN THE  
NEWLY INDEPENDENT STATES**

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Re CCN-Q-00-93-00152-00 Armenia – Legal and Regulatory Reform

Dear Mr Archer

Enclosed you will find two copies of a white paper prepared by Hagler Bailly entitled *Regulatory Guidelines for the Review of Energy Sector Mergers and Acquisitions in the Newly Independent States*. Copies of this paper have also been sent directly to Messrs Weynand and McPhie

This paper was prepared as part of Delivery Order 15 of the referenced contract which requires the preparation of three brief regulatory issue papers

I welcome any questions or comments you may have

With Regards,

  
Dean S. White

cc G Weynand  
W McPhie  
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# REGULATORY GUIDELINES FOR THE REVIEW OF ENERGY SECTOR MERGERS AND ACQUISITIONS IN THE NEWLY INDEPENDENT STATES

## INTRODUCTION

The New Independent States (NIS) face a daunting task in restructuring their electricity industries. They must construct new regulatory institutions at the same time encouraging privatization and the establishment of electricity markets. These seemingly contradictory policies are necessitated by the unique nature of the electricity industry, combining a generation sector which is potentially competitive with transmission and distribution segments that are almost certainly natural monopolies. Merger policy is an important tool to preserve the value of competitive markets while preventing interference with efficient and socially beneficial regulation of noncompetitive sectors.

The electric industry around the World is evolving towards an unbundled structure with generation provided competitively, and transmission and distribution remaining as regulated monopolies. In this context, the following issues are emerging as significant in the context of mergers within the industry.

### Horizontal mergers

- ▶ **Generation markets** Increasingly, the object of regulators is to promote effective competition in generation markets. When generating firms merge, the primary concern tends to be whether the merger will reduce competition to the detriment of consumers. Issues include whether the merging companies offer the same types of products (e.g., baseload, or peaking power), the size of the markets affected, particularly when transmission constraints are taken into account, and whether the merged entity will control the bulk of marginal units for various products such that it may have the ability to manipulate market clearing prices.
- ▶ **Transmission and distribution markets** Horizontal mergers of transmission and distribution entities are seldom of concern, since transmission and distribution entities remain regulated monopolies. Particularly in the case of contiguous utilities, horizontal mergers of transmission and distribution utilities can often be beneficial, producing efficiencies and minimizing regulatory burdens.

### Vertical mergers

- ▶ Generation entities with transmission and distribution entities Such mergers can give rise to significant concerns including (1) the possibility of cross subsidies between regulated and competitive entities that improperly increase costs of regulated entities and unfairly enhance the competitive position of unregulated entities, and (2) preferential treatment by the transmission and distribution entities of related generating entities
- ▶ Generation entities with fuel producing or transmission entities Such mergers may allow differential pricing to subsidiaries and competitor's generating units, or, if generation is regulated, transfers to generation subsidiaries at above market prices

The guidelines presented in this paper were derived from the historical experience of the United States Federal Trade Commission (FTC), the Antitrust Division of the Department of Justice (DOJ), and the Federal Energy Regulatory Commission (FERC) The FTC and DOJ have traditionally possessed the authority and responsibility to oversee mergers in the United States This authority was granted by the Clayton Act of 1914 The FERC also has the power to oversee mergers between firms in the electricity industry, along with the state regulatory commissions The numerous and overlapping authority of the different agencies and commissions has not presented a problem due to general deference by DOJ and FTC to FERC, and by FERC to the state commissions

FERC traditionally concerned itself with wholesale power competition (at the transmission level), leaving retail competition and the final impact on ratepayers to the state commissions However, when a merger threatens to circumvent the authority of state regulatory commissions, FERC considers itself obligated to review the transaction In the case of a merger which threatened to remove FERC's authority to regulate the new company resulting from a transaction, the potential gap in regulatory oversight could be grounds to deny of approval of the merger

Electricity industry merger policy should be simpler to implement in the NIS, as these countries have a more centralized administrative structure However, many of the issues that arise in U S merger regulation are applicable to the NIS For example, the sharing of authority over mergers between the "Antimonopoly" or other market regulatory agency and the electricity regulatory authorities must be resolved Concentrating the authority over electricity mergers in the electricity regulatory agency will allow concurrent review of regulatory, competition and rate issues The most important contribution the U S experience can offer the NIS is the substantial knowledge of regulatory and merger economics developed over decades of antitrust and regulatory experience in numerous industries

Market based reform efforts in the NIS will likely result in increased energy sector merger and acquisition activity in the foreseeable future as state owned enterprises are restructured by private owners to rationalize their organization Regulatory commissions in the NIS will be

called upon to review and approve these transactions. In order to make such decisions, and to grant these decisions legitimacy, the commissions will require a set of guidelines governing mergers and acquisitions. These guidelines should balance the goals of administrative feasibility, consumer protection, and promotion of efficiency and market competition.

## ECONOMICS OF ANTITRUST

### Oligopoly Theory

All mergers affect competition, some by creating superior competitors and others through the removal of a competitor. The key to merger policy becomes maintaining competition in generation markets, and preventing abuses of the relationship of competitive electricity generation markets with regulated monopolistic transmission and distribution markets.

To define a workably competitive market we need to turn to an area of economics known as Oligopoly Theory. An oligopoly is a market where a few firms have a disproportionate amount of the total sales of that market. If the oligopolists (the dominant firms) can form a cartel and coordinate their activities, they will collectively follow the same strategy as a monopolist. Therefore, under United States antitrust laws, forming a cartel and actively coordinating behavior is illegal. There are some strategies which oligopolists can follow which are more difficult to ban, since they mimic the behavior of a competitive firm. A company must be able to make decisions concerning the amount it would produce and the price it will charge without constantly reporting to a regulatory agency. The whole point of a market economy is to avoid the incredible information collection, analysis, and monitoring problems which beset a command economy. Therefore, merger policy attempts to prevent the formation of oligopolies as an alternative to the regulation of oligopolists.

The many plausible economic theories of oligopoly include models of dominant firms, price leadership, market-share growth strategies, rivalry in producing innovations, and various strategies designed to discourage competitors from entering markets.

The theory of oligopoly commonly used to determine the permissible level of concentration in a market is Cournot oligopoly. In a Cournot oligopoly each firm sets its level of output at the profit maximizing level taking into account the amount it thinks the other firms in the market will produce at each price. Since the output of the other firms determines the residual demand curve for the firm (the quantity demanded at each price which other firms won't supply) it can easily determine its profit maximizing level of output and the related price which it should charge. Each firm engages in the same exercise, and eventually they will all agree on a set of outputs which will deliver the equilibrium price in the market. The key to the Cournot oligopoly is that no firm coordinates its activity with any other firm.

It can be shown that a Cournot equilibrium price will decline as the number of companies in the market increases. Since many markets can only support a limited number of firms, the tradeoff is between the amount of market power remaining in the market (the ability to raise price above the theoretical competitive level) and the minimal scale required for cost efficiency. A firm operating under a Cournot oligopoly still has an incentive to reduce costs, since it would receive a larger market share and more profits. Thus a weak oligopoly may result in lower prices due to lower costs than a perfectly competitive market with many inefficient firms.

Oligopoly theory also provides an explanation why a market with a dominant firm and many small firms may be less than optimal. Under a Stackelberg equilibrium, the dominant firm will assume the small firms will produce at marginal cost, determine its residual demand curve, and act as a monopolist with respect to its residual demand. The market price will be higher than the competitive price, but less than if the market was controlled by a pure monopolist. Both the number of firms and the size distribution of firms in a market are important.

In order to try to measure concentration in markets (which is considered a proxy for market power) various concentration indexes have been developed. The Hirschfield-Herfindahl index (HHI) is the index used by United States antitrust authorities to determine the concentration in a market. The HHI operates by summing the squares of the market share percentages in a market.

For example, if there are five firms with ten percent and one firm with fifty percent, the

$$\text{HHI} = 5 \cdot 10^2 + 50^2 = 3,000$$

Or if there are five firms with ten percent and ten firms with five percent

$$\text{HHI} = 5 \cdot 10^2 + 10 \cdot 5^2 = 750$$

Or if there is one firm with thirty percent and fourteen firms with five percent

$$\text{HHI} = 1 \cdot 30^2 + 14 \cdot 5^2 = 1,250$$

The HHI is designed so that it is higher if there are fewer firms in the market and if a few firms have a disproportionate share of the market. Therefore, it measures both the extent of concentration and the distribution of market shares.

### **Horizontal Mergers**

Horizontal merger policy is predicated on the theory that excessive concentration in markets can lead to market power, both by facilitating collusion between firms, and through unilateral effects such as Cournot behavior. Other things being equal, market concentration affects the likelihood that one firm, or a small group of firms, could successfully exercise market power. The larger the share of the market that a firm controls, the more likely it is that it can raise price by restricting its own output. As the number of firms required for a successful agreement to control the market decreases, the difficulties and costs of reaching and enforcing such an understanding also decrease. Institutional characteristics that are conducive to forming and enforcing an anticompetitive agreement include the public visibility of prices and transactions, the

homogeneity of products, and the existence of contract terms that might facilitate overt or tacit collusion

Horizontal mergers can have the beneficial effect of increasing operating efficiencies if the two companies have functions which can be consolidated, or facilities which can be replaced by more efficient units. More efficient (lower cost) production benefits both the merging companies and society because it reduces the resources necessary to produce a unit of output. In this case it may be advisable to weigh the value of the more efficient company against the increased market power engendered by the merger. In the case of smaller companies merging, the increase in efficiency may actually increase competition by putting greater pressure on larger competitors.

To prevent the creation and exercise of market power, mergers which increase market concentration past a critical level should be prohibited, or at least carefully examined to ensure they pose no threat to a competitive market.

### **Vertical Mergers**

Vertical mergers occur between two companies in different but related markets. Usually one market is "upstream" from the other market. For example, an oil producer might merge with an oil pipeline company, an oil refining company and an oil products marketer. The world's major oil companies developed in this fashion. The producer would be upstream, that is, providing inputs for the oil pipeline, which in turn is upstream from the oil refinery and so on. If the company possesses subsidiaries in all the markets necessary from raw material to final product it is considered to be vertically integrated. If the company is in some interlinked markets it would be considered to be partially integrated. Vertical integration can produce efficiencies by allowing coordinated planning, especially in capital intensive industries.

The danger of vertical mergers is limited if all sectors operate in competitive markets. The market will discipline the company at each level of operation, for attempts to sell to oneself at an above market price at one level to gain profits will result in higher operating costs at the downstream market, reducing profits by the same amount. However, when a regulated and an unregulated company engage in a vertical merger, the company may use regulation to earn excess profits.

If the regulated subsidiary is upstream, and sells output to both the company's downstream subsidiary and its competitors, the company has an incentive to raise costs by shifting joint and overhead expenses to the regulated subsidiary, thus decreasing the costs for its unregulated subsidiary, and increasing profits. If the regulated subsidiary is downstream, the unregulated subsidiary will want to sell to its regulated subsidiary at above market prices and transfer costs to that subsidiary. Since regulators usually allow cost recovery, the unregulated subsidiary will earn excess profits while the regulated subsidiary receives normal profits. This sort of cross-subsidization will not only be a problem with companies within the electricity sector, but also

between generation companies and fuel suppliers, and distribution or transmission companies and customers such as aluminum plants

### **Conglomerate Mergers**

Conglomerate mergers involve the combination of two or more companies operating in distinct industries without a direct link between their activities. The logic driving conglomerate mergers is a corporate organization that sees benefits in the application of financial and operational management skills to diverse industries. There are potential economies of scope in some combinations, involving synergies between seemingly unrelated activities. For example, electric transmission and distribution companies often own right of ways for their power lines which can also be used to lower the cost of developing a telephone or cable television network. Conglomerate mergers rarely pose a direct threat to competition.

## **U S MERGER POLICY IN THE ELECTRIC INDUSTRY**

### **Historical Experience**

The economic rationale for regulation of the electricity industry is the existence of economies of scale. Economies of scale occur when the marginal cost (the cost of producing one additional unit of output) of production is lower than the average cost of production. In this case, a company will continue to expand output, since this lowers its average cost of production. If these economies of scale persist as production increases, the company will control a significant share or even all of the market. When this will cause one company to control the entire market the market is categorized as a "natural monopoly."

The problem with monopoly is the monopolist's optimum strategy is not optimal for society or consumers. To maximize profits, the monopolist will raise prices above the competitive price until the additional profits from the higher price just equaled the decline in profits from reduced sales. The more inelastic consumer demand (the less consumers reduce purchases in response to higher prices) the higher the monopolist will raise price. The result is the monopolist produces fewer goods than is socially optimal, and transfers wealth from consumers.

The only alternative to regulating a natural monopoly will raise costs and hurt both consumers and economic efficiency. If the regulator forces the monopolist to split into a number of firms, each company will have higher costs than the monopolist. In this case the competitive price will exceed the monopolist's marginal cost of producing the same quantity. The best solution is for the regulator to set prices to allow the natural monopolist to just recover its economic costs. This solution raises complex issues of monitoring costs and incentives, since the regulated company lacks an incentive to minimize costs and has an incentive to exaggerate its expenses. For this reason, regulation is inferior to competition when there is no market failure.

Traditionally, all electricity markets were considered to have economies of scale that led regulators to treat them as natural monopolies. It is obvious that a distribution company tends to be a natural monopoly in its service area, since it would be highly expensive to duplicate the distribution network and then share customers with the incumbent firm. The same reasoning applies to transmission companies. In both cases it is less expensive to build the system to a size to handle the entire market than building two or three systems, each handling a share of the market. Generation was also considered to be a natural monopoly since the perceived scale of the most efficient plants was substantial relative to the markets they supplied.

The U.S. electricity industry consisted primarily of over one hundred vertically-integrated investor-owned utilities (IOUs) for the last century. Each IOU was subject to cost-of-service regulation by a combination of one or more state public utility commissions and the FERC. Regulation of prices left little need for antitrust regulation of the industry.

FERC had an obligation under the Federal Power Act to consider antitrust policies in determining whether a merger satisfied the Act's "public interest" standard. The Commission weighed antitrust effects along with other important public interest considerations. Since there was little potential for meaningful competition among IOUs, the FERC approved virtually any proposed merger or acquisition that was accompanied by a claim of expected cost savings. At the same time, the inability of customers to turn to competitors for relief encouraged FERC to review of the effects of the merger on rates.

Unexpectedly high construction costs for large plants suggested that economies of scale were exhausted by smaller plants than had been previously thought. The realization that generation markets were not natural monopolies led the FERC to modify its approach to mergers in the 1980s to encourage competition with respect to the generation and wholesale of electricity. Because transmission was controlled by the IOUs, the FERC focused on vertical constraints on competition. Mergers were approved if (1) the merger would yield cost savings, and (2) the parties to the transaction agreed to provide competitors equal access to their transmission lines.

In 1992, Congress enacted the Energy Policy Act. That statute empowered the FERC to require any IOU to provide third parties access to its transmission lines. Each IOU was also required to separate its transmission, distribution, and generation functions and to perform each function as if they were being performed by a separate firm. The focus shifted to horizontal market power, as vertical restraints were administratively eliminated. The advent of the natural gas fired combined cycle plant, which allowed full exploitation of economies of scale in the 200-300 MW range, made it clear that a competitive generation market was feasible.

The FERC refocused its antitrust attention on horizontal market power issues in the new functionally unbundled environment, and the agency began focusing on market concentration and market shares. By a unanimous vote, on December 18, 1996, FERC issued Order No. 592, which updated and clarified the "procedures, criteria and policies" for determining whether mergers in the electric utility industry are consistent with the public interest. The FERC adopted

the antitrust standards of the FTC and the DOJ, and explicitly accepted the market power analysis set forth in the 1992 Merger Guidelines (see Appendix A for a description of the Merger Guidelines)

The FERC now focuses on three issues: rates, regulation, and competition. The Commission examines the effect of the proposed merger on the applicants' operating costs and rate levels, the effect the merger may have on competition, and whether the consolidation will impair effective regulation either by the Commission or the appropriate state regulatory authority.

### **FERC Merger Policy**

#### **A The Analytic Screen**

Appendix A of Order 592 describes the FERC analytic screen and data specification, designed to expedite the merger review process. There are three components to the screen analysis:

- (1) Identify the Relevant Products
  - (2) Geographic Markets: Identify Customers and Potential Suppliers to Each Identified Customer
  - (3) Analyze Concentration
- 1 Identify Relevant Products

The FERC views non-firm energy, short-term capacity (firm energy) and long-term capacity as products to be used in defining the relevant markets. Other product definitions may be acceptable. The FERC has chosen to avoid retail competition issues unless requested by a state regulatory authority, respecting the division of authority in a federal system.

#### **2 Delineate Geographic Markets**

Under the FERC analytic screen, all customers potentially affected by a merger should be identified, including all entities directly interconnected to either of the merging parties, and additional entities who have been trading partners with one of the merger parties. These customers are then used to define the relevant antitrust markets.

The next step is to identify those suppliers that can compete to serve a given market or customer. This requires determining whether the potential supplier could serve the market at a competitive delivered price, and if so, whether there were any physical constraints on that supply. The FERC proposes a delivered price test, including only those suppliers in the market who can deliver the product at a price no greater than 5% of the competitive price to that customer.

The delivered cost for each potential supplier is the sum of variable generation costs and all transmission and ancillary service charges that would be incurred to make the delivery. The analysis should also take into account the effect of transmission line losses on the cost for a distant trader.

Once eligible suppliers have been identified, it is necessary to determine the quantity of product which they can supply to the market. Economic capacity is the capacity to generate electricity which can be delivered to the market at no more than 5% of the competitive price. Energy which can be produced and delivered at a price 5% greater than the competitive price should be excluded from the market. Available economic capacity consists of the economic capacity which is available for sale, after native load and other firm contractual obligations have been subtracted.

FERC also refers to non-cost based measures of capacity, uncommitted capacity and total capacity. Uncommitted capacity is calculated by subtracting native load and firm contractual obligations from total capacity. Total capacity is merely the supplier's ability to generate without regard to cost.

The temporal nature of electricity markets is reflected both in identification of potential suppliers and in the treatment of transmission constraints. FERC asks for separate analyses of market conditions for each of the major periods when supply and demand conditions are similar, by grouping together hours with similar supply and demand profiles, such as peak, shoulder, and off-peak hours. These must then be further subdivided to account for periods when transmission constraints will limit the ability of economic suppliers to reach the market. During these periods, suppliers should be included in the market only to the extent of the transmission capability available to them.

The FERC requires merger applications to present data regarding whether and how the proposed merger would change transmission line loadings and the consequent effect on transfer capability. Applicants will provide maps showing the location of transmission facilities where binding constraints currently occur or are expected to occur as a result of the merger.

### 3 Analyze Concentration

The FERC requests that HHIs and single firm market shares be calculated for both pre-merger and post-merger conditions. These calculations should also be performed for each relevant market and for transmission constraint related time differentiated markets. In calculating HHIs and market shares, the relevant generation capacity of customers in each market should be included.

The FERC applies the standards set by the Merger Guidelines regarding the determination of market concentration. The Guidelines establish three regions of market concentration: unconcentrated ( $HHI < 1000$ ), moderately concentrated ( $1000 < HHI < 1800$ ), and highly concentrated ( $HHI > 1800$ ).

Mergers resulting in an HHI below 1000 are unlikely to be challenged, while those with an HHI between 1000 and 1800 (a moderately concentrated market) are unlikely to be challenged if the increase in the HHI was less than 100. For mergers which result in an HHI over 1800 (a highly concentrated market), an increase in HHI of less than 50 meant the merger was unlikely to be challenged, an increase of 50-100 suggested a possibility of challenge, and greater than 100 meant that the merger would receive serious scrutiny.

The Commission has declined to develop definitive rules concerning the combination of the level of concentration and its temporal duration that would trigger concern. This reflects the difficulty of establishing a de minimis test concerning short-term market power. Because of transmission constraints, a merger may allow the new firm to have significant market power for a brief period of time. Periods of peak demand may also result in situations where market concentration at the prevailing price is far greater than during other periods. The pertinent question is what combination of the degree of market power and its duration will result in sufficient welfare losses (and/or income transfers) for FERC to take action. This reflects a larger issue, involving the policy tradeoffs between potential efficiencies, the welfare loss due to exercise of market power, and the economic cost of overzealous enforcement.

## B Second Stage Review

The FERC has made it clear that the screen was merely the first stage in the merger review procedure, paralleling the Guidelines approach. The analytic screen is merely the first of five steps for merger analysis:

- (1) Define markets and measure the concentration and the increase in concentration in those markets
- (2) Evaluate whether concentration measures and other factors raise concerns of potential market power
- (3) Assess whether entry would be timely, likely, and sufficient to deter such concern
- (4) Assess any efficiency gains that cannot be achieved by other means
- (5) Assess whether the failing firm defense applies to the merger

### 1 Concentration Measures

One reason for the establishment of "safe harbor" provisions is to reduce the burden on the regulatory agency. This is especially important for an agency dealing with a chaotic transformation phase with limited experience with competitive markets. Safe harbors eliminate the candidates with the lowest potential welfare loss from the review process, permitting scarce

regulatory resources to be focused on mergers which present significant threats to competition. FERC continues to hold to the Guideline thresholds to define its safe harbor, ignoring proposals to set the safe harbor concentration level at a higher value.

For mergers which do not fall into a safe harbor, examination of various factors which may lead to the exercise of market power is required. A number of characteristics of a market, in addition to its degree of concentration, can effect sellers' ability to exercise market power. These factors include economies of scale, elasticity of demand, product homogeneity, customer size and scope, extent of sellers' knowledge of each other's prices and costs, and the transparency of any exercise of market power.

Product homogeneity increases concern about potential exercise of market power because it eliminates marketing strategies, such as product differentiation, that impede collusion by increasing the difficulty of monitoring competitor behavior.

A highly concentrated buyer market can reduce concerns about potential exercises of market power by sellers because buyers have countervailing monopsony power. Buyer scope also matters since customers who have the option to self-generate or substitute other energy forms or capital for electricity will be less vulnerable to the exercise of market power.

General availability of data from membership in a power pool or Poolco will permit electricity wholesalers to draw accurate inferences with respect to competitor's pricing strategies and cost structures. This data could provide sellers with the opportunity of explicit or implicit collusive pricing. However, electricity markets with this sort of data availability will be highly transparent. That increases the risk of exercise of market power but it also increases the ability of consumer groups, journalists, politicians, the public, and the regulatory agency to monitor market behavior. The ability to detect exploitation of market power reduces the likelihood that generating companies will exercise market power.

## 2 Entry

Barriers to entry are a key to the determination of whether market power exists, since easy entry with no sunk costs would block the exercise of market power by a dominant firm or group of firms. A number of barriers to entry in the electricity industry have been suggested: existing laws and regulation, economic incentives created by competitors, the lag between planning and operation of new facilities, capital requirements, favorable location and access to raw materials, and access to distribution channels.

The most important barrier is probably the lag between proposing a facility and completion of a new unit. All phases of entry must occur within the two-year period, including planning, design, permitting, licensing and other approvals, construction and actual market impact. The FERC position is that entry will not be significant for most electric power merger cases because it may take more than two years due to lags in regulatory approvals and construction.

### 3 Merger Efficiencies

The efficiency argument is subsumed into the examination of the impact on rates. Given the FERC's mandate to protect ratepayers, approval of a merger which provided efficiencies but raised rates is unlikely to occur. The FERC believes that the most expeditious means of addressing ratepayer protection is for the parties to negotiate an agreement on ratepayer protection mechanisms.

The FERC is adamant that the burden of proof be placed on merger parties to show that any future rate increase will have no connection with the merger. Applicants would be required to make an affirmative showing in their initial case that their proposed rates did not reflect merger-related costs unless such costs were offset by merger-related benefits. FERC has not accepted the argument that it need not be concerned with rates because in a competitive environment prices will be set by market forces.

The Commission suggests that such protection could be provided by a moratorium on increases in base rates or even rate reductions. Setting a post-merger rate which exceeds the rate which would prevail under a more competitive market simply institutionalizes market power. However, rate freezes or reductions which set price at competitive levels will encourage efficient operation of the new firm since it can capture the benefits of merger efficiencies.

The advantage of focusing attention on consumer benefits is both economic and administrative. From an administrative point of view, ignoring claims of efficiencies permits the Commission to avoid an extensive review of the merger parties' evidence supporting merger cost savings. While theoretically, a merger could increase social welfare if it created sufficient efficiencies to outweigh the loss in consumer surplus due to higher prices, restraining price is a more efficient solution. Ex ante estimates of merger efficiencies have historically been less than reliable. A prohibition on merger related price increases ensues that only efficient mergers will be pursued, and creates a stronger incentive to maximize efficiencies.

### 4 The Failing Firm Defense

The failing firm defense would follow the DOJ/FTC standard: the acquired firm must be on the verge of bankruptcy and good faith efforts were made to elicit reasonable alternative offers of acquisition which would be less harmful to competition. Since the failing firm would soon be removed from the ranks of competitors, acquisition by a dominant firm in the market will have only a limited impact on competition. However, if the firm were to be acquired by a smaller firm it might result in a stronger competitor to the dominant firm, increasing competition.

### 5 Mitigating Factors

Mitigation strategies may be employed to allow the approval of mergers as consistent with the public interest which would otherwise be anticompetitive. Included among the potential

strategies were the transfer of control of assets, divestiture of assets and elimination of transmission constraints. Some mitigation measures can be shown to directly lower market concentration, such as generation divestiture that broadens the geographic market. Applicants may propose specific mitigation measures but the application must include an analysis demonstrating how the proposed measure will protect competition in markets where the screen analysis shows a significant adverse effect on concentration.

Allowing an Independent System Operator (ISO) to dispatch generation on a marginal cost basis could mitigate certain sources of market power. Membership in an ISO with the authority necessary to mitigate market power could allow reliance on the ISO to identify and remedy market power problems. The ISO would need to have access to information on costs and possess operational independence from its clients. The ISO would have the incentive to mitigate problems if the ISO's governing body is broadly comprised of market participants, including distribution companies and industrial customers. Balanced ISO governance is critical if ISOs are to prevent the strategic manipulation of generation dispatch. An ISO would also mitigate market power to the extent that it attracts new entrants into a market.

#### C Transmission and Distribution

Transmission is a natural monopoly which will continue to be subject to exclusive regulation by the FERC. Competition may supplant or supplement regulation of this function at some time, but this can occur only through creation of a secondary market in transmission capacity. The FERC should encourage maximum consolidation of transmission assets as such transactions are likely to yield substantial gains in efficiency, and will not harm competition.

Distribution is subject to exclusive regulation by state PUCs. Like transmission, distribution remains a natural monopoly. The potential for retail competition is unaffected by the pattern of ownership of distribution assets. Thus, a proposed consolidation of distribution systems raises no concerns with respect to potential creation or increase of market power by any seller. However, consolidation of distribution systems might raise monopsony concerns if it would have the effect of creating a highly concentrated wholesale market on the buyer's side.

#### D Vertical Mergers

Vertical mergers were not explicitly addressed in the FERC Merger Guideline statement, though the agency did express concern with potential problems. The FERC issued a statement on vertical merger policy in April 1998, as part of a revision of the merger filing requirements.

Vertical mergers may create an incentive for the merged firm to adversely affect prices and output in the downstream electricity market. This effect on prices and output can occur in a number of ways, including foreclosure and raising of rivals' costs, facilitating coordination, and evasion of regulation.

A vertical merger may create an incentive for the upstream firm to exclude the merged firm's downstream generation competitors from access to inputs. The upstream firm can accomplish this through pricing, marketing and operational actions that would raise input costs or restrict supplies to competitors of the downstream firm. For this strategy to be effective the upstream company must have market power in the input market so that generators could not turn to alternative suppliers to avoid an increase in input prices.

A vertical merger can facilitate anticompetitive coordination in downstream markets if the merger enhances the ability of competing firms to agree to raise prices or restrict output or dampens the incentive for firms to compete aggressively on price or service. Anticompetitive coordination can be increased if information must be shared between the upstream firm and its non-affiliated downstream customers.

Vertical mergers involving electric utilities may encourage regulatory evasion. The merger can provide an incentive for the upstream firm to inflate the transfer prices of inputs sold to the downstream regulated utility to the extent it can evade regulatory scrutiny. Profits would increase for the vertically-integrated firm and accrue to the unregulated affiliate. Higher electricity prices could result from such a strategy.

The Commission proposed an analytic framework comprising four elements: (1) define the relevant products traded by the upstream and downstream merging firms, (2) define the relevant downstream and upstream geographic markets, (3) evaluate competitive conditions using market share and concentration HHI statistics in these markets, and (4) evaluate the potential adverse effects of the proposed merger on competition in the relevant geographic markets.

A merger cannot impair competition in downstream electricity markets if it involves an input supplier that sells an input used to produce a de minimis amount of the relevant product in the downstream geographic market. If such a showing is made, an applicant is not required to file additional information regarding a vertical merger.

Defining the downstream geographic market consists of identifying the customers potentially affected by the merger and the suppliers that can compete with the merging firm to supply a relevant electricity product. The Commission proposed that the relevant downstream geographic market in a vertical merger would be defined similarly as to a horizontal merger, using the delivered price test. The market includes all generating capacity from which energy can be made available and delivered to the market at a price, including transmission and ancillary services, no more than five percent above the market price.

Once the downstream geographic market has been defined, competitive conditions in the downstream market will be analyzed by calculating market shares for suppliers and downstream market concentration using the HHI statistic. The Commission proposes that for a vertical merger, downstream market share statistics reflect the ability of buyers in the downstream market to switch — in response to a price increase — from generation served by the upstream

merging firm. All generation capacity served by the same input supplier would be treated as if it was owned or controlled by a single firm. As a general matter, therefore, the Commission proposes that markets that are "highly concentrated" under the Guidelines standard (i.e., an HHI of 1800 or above) are considered to be conducive to the exercise of market power and therefore should warrant additional analysis.

The Commission proposed to assess competitive conditions in the upstream market by calculating market concentration using the HHI statistic. Upstream geographic markets that are "highly concentrated" under the Guidelines standard (i.e., an HHI of 1800 or above) are considered to be conducive to the exercise of market power and warrant additional analysis.

The second stage analysis looks specifically at the circumstances under which potential adverse competitive effects would materialize. As with horizontal mergers, the Commission examines potentially mitigating factors such as ease of entry, merger-related efficiencies, and whether one of the merging firm's assets would exit the market, but for the merger. Entry, merger-related efficiencies and the failing firm rationale can counteract potential competitive harm indicated by market share and concentration statistics. Applicants may propose mitigation measures. Proposals must be specific, and the applicant must demonstrate that proposed measures adequately mitigate any adverse effects of the merger.

In the event a vertical merger poses competitive concerns, the Commission proposed that the merger may be made acceptable if certain remedial actions are taken. Potential remedies have included a code of conduct, restrictions on affiliate transactions and an electronic gas reservation and information system.

## MERGER POLICY FOR THE NIS

### Overview

While there are many useful lessons for the NIS to be gained from American merger policy, there are also some important distinctions. In the United States electricity sector regulation is a two tier system, with the FERC careful to avoid interference with state regulation. Many of the companies being regulated are integrated electric utilities. This means that merger policy is made simultaneously by FERC at the wholesale level and state commissions concerned with retail competition and rates.

In many NIS countries divestiture has replaced functional unbundling. Since the breakup of the Soviet electricity grid has resulted in unbalanced national electric system, substantial reorganization of divested companies may be required to rationalize electricity sectors. The limited resources available to regulatory commissions makes it advisable to encourage and protect competition where feasible, while supporting consolidation of regulated entities. Since these commissions usually have complete authority over all sectors of the electricity industry the task of monitoring vertically mergers and integration is simplified.

In order to avoid inefficient service territories for distribution companies, it may be advisable to grant the NIS commissions the power to compel, or at least to encourage, efficiency enhancing mergers in this sector. This raises some issues concerning corporate governance and property rights that might arise if private firms are forced to combine, but in the case of municipal and public sector companies the public interest should be paramount over localized control. For privatized firms, the carrot of rate relief could be used to encourage rationalization of service territories.

Regulatory commissions will need to establish application procedures for parties to potential mergers. It may be necessary to modify electricity laws to provide for an explicit grant of authority to the electricity regulatory commission to oversee and prohibit mergers. It is important that the electricity regulatory commission receive predominant authority over mergers involving all companies in the electricity sector. While an anti-monopoly or anti-trust commission might be allowed veto power over mergers, such an agency should not be permitted to approve electricity sector mergers over the objection of the electricity regulatory commission.

Suggested guidelines also depend on the structure of the electricity market in each country, and the size of the market. Merger policy is most important in a deregulated market where market forces are expected to discipline competitors. Under regulation, mergers can have only limited effect on price, and may be beneficial both through increasing efficiency and diminishing the number of companies that the regulatory has to monitor.

### **Horizontal Mergers**

#### **1 Generation**

Mergers between generation companies should be examined closely. It will be important for regulatory commission to maintain accurate data on production and working capacity by each generation unit. The dispatch licensee could be required to supply this data to the commission on a periodic basis. By relying on data derived from dispatch or the generation market the commission can avoid dependence on reports from the parties to the proposed merger. A stripped down version of the FERC guidelines could be applied.

#### **► Identify the Relevant Products**

The product should be proven operational capacity of generation units, ignoring the book capacity of plants. Since there is no dichotomy between wholesale and retail market regulation in the NIS, committed capacity can be ignored. The market is sales by generation plants to wholesale purchasers, be they industrial plants or distribution companies.

There should be a number of generation markets, split crudely by the type of unit in question. This would approximate the FERC's method of grouping similar periods. Given the lack of data in most NIS countries, a simpler approach is advisable. For example, all baseload fossil, nuclear and regulating hydroelectric plants would be in one market, while peaking fossil plants (combustion turbines) would be in another market. Imports would be placed into markets depending on their price and availability. Run of river hydroelectric plants could be ignored since they have no incentive to withhold production (marginal cost near zero).

▶ **Geographic Markets Identify Potential Suppliers to Each Identified Customer**

Unless there is evidence to the contrary, the whole country should be considered one market. There may be cases where customers are effectively isolated from alternative generators, in which case separate markets may have to be analyzed. The regulatory commission should endeavor to identify serious transmission constraints and negotiate investments by the transmission company to eliminate such constraints. Elimination of transmission constraints should be a priority to encourage greater competition. Mergers which do not meet merger concentration standards in the isolated market would be delayed until new transmission facilities are constructed.

▶ **Merger Power Analysis**

Calculation of the HHIs should follow United States practice, including the Merger Guideline thresholds used by the FERC. Some critics have suggested that these standards are too conservative for the electricity industry. However, there is evidence that concentration above the Guideline thresholds could lead to significant price increases. Since generation is the market in which concentration of facilities will lead to the smallest gain in efficiencies, and the largest threat of market power, a conservative approach seems advisable.

Mitigating factors should be ignored for the most part, since they are vulnerable to manipulation in a society which does not have a strong tradition of rule of law. The efficiencies defense is particularly questionable, as United States experience suggests that estimates of future savings are unreliable. The failing firm defense on the surface seems more defensible, but it raises some questions concerning gaming. The purchase price could easily be used as a bribe to encourage the owners of the target to siphon funds, driving the company bankrupt, disguising a purchase as a bailout. Without stringent accounting standards and securities regulation, the regulatory commission is at a disadvantage trying to identify this sort of manipulation of the merger rules.

Entry should not be permitted as an excuse to allow consolidation past the Guideline limits. Entry is a theoretical question in countries that lack a long history of market behavior, stable investment markets and a predictable regulatory regime. The regulatory commission should simply deny permission for the merger until such time as the projected entry actually occurs.

► Rate Issues

In a competitive market there are no rate issues. However, if the generation sector is still operating under regulated rates, then the commission needs to ensure protection for customers at the wholesale generation level. Under a regulated price regime, the commission should condition approval of a merger upon negotiated reductions in rates, under which a portion of expected savings will be shared with customers. This presumes of course, that rates are already at the full cost recovery level. If the merger partners claim they will experience no savings from the merger, they have eliminated any justification for approving said merger.

## 2 Transmission

If there is more than one transmission company, mergers should be encouraged to ensure a country-wide integrated transmission company. Since the transmission company will be regulated in any case, a merger will simply diminish the workload for the regulatory commission. The regulatory commission, in setting rates for the new entity, should strike a balance between providing savings to consumers and encouraging the new company to fully capture potential efficiencies stemming from the merger.

## 3 Distribution

Distribution companies should be encouraged to merge for the same reasons that transmission mergers would be beneficial. However, in the case of distribution mergers, there will be functional limits to efficiency savings. The merger of distribution firms which are adjacent and which service similar territories will provide potential savings through elimination of excess facilities and personnel. The merger of distribution firms with geographically distant territories or substantially different types of customers (urban v rural) will be less likely to produce significant economies.

In lieu of using efficiency savings to lower rates, an agreement to apply these savings to increased investment in metering or extension of service is a possibility. Given the substantial investment needs of the NIS countries, assigning efficiencies savings to infrastructure investment may make more sense. The commission may want to negotiate merger approval and merger incentives as part of the development of an integrated investment plan for the proposed new entity.

### Vertical Mergers

#### 1 Transmission – Generation or Distribution

This should be disallowed in all cases. Allowing the transmission company to own generation capacity is an invitation to manipulate the transmission system to ensure dispatch of the company's generation units. If the transmission company is also responsible for dispatch, this

potential problem is exacerbated. Since there are no obvious operating efficiencies to be gained by such a merger, there is no reason to approve this class of mergers. Allowing the transmission company to own a distribution company might also encourage manipulation of the transmission system to favor its own subsidiary.

## 2 Generation – Distribution

The primary reason for considering this class of mergers is to allow a potential investor in a distribution company an assured supply of power. Since there are no operating efficiencies to be gained from such a merger, the rationale must lie in the direct purchase of generation capacity, as opposed to purchasing capacity on the market. The regulator should be concerned about the difficulty of ensuring that the merged company does not sell power to itself at a rate above the market price in a competitive regime. Under a regulatory regime where both the generation company and distribution company rates are controlled, there is a smaller threat of price manipulation.

## 3 Generation — Fuel Supply and Transmission

Given the relatively small size of the NIS markets, and the high degree of concentration and government control on fuel supply and transmission companies, it would not be advisable to allow mergers between generators and fuel suppliers. Requiring generating companies to actively seek out fuel suppliers and shop for the lowest price and highest quality will encourage competition in fuel markets. Allowing generation-fuel mergers will threaten competition in both markets. The difficulty of monitoring transfer costs in countries with immature accounting and financial systems rules against allowing mergers which will encourage regulatory evasion and strategic behavior.

### Procedures

The electricity regulators should require the parties to a merger to file an application with the commission detailing the transaction. The application should include

- ▶ The ownership of both companies
- ▶ The various facilities owned by each company and all pertinent detail (capacity, location etc )
- ▶ Operating data for all generating, transmission, and distribution plant
- ▶ The price to be paid for the acquisition or merger
- ▶ The corporate structure of the new company

The commission should provide a set time period during which it will review the application. It will give public notice of the application and ask for comment. The deadline will not go into effect until the commission has informed the merger parties that the application is complete. The commission will perform the necessary analyses to determine if there is a threat to competition or the commission's continuing ability to properly perform its regulatory function with respect to the new company.

The commission will then set a hearing date. At the hearing, the commission will present its findings concerning the merger and accept rejoinders by the merging parties. The commission can negotiate with the concerned parties concerning issues such as divestiture or rates for the new company, within the boundaries set by the commission's mandate to protect the public interest. Thus, suggested divestiture must bring the merger within acceptable concentration limits and proposed rates for the new company must include a significant benefit to ratepayers.

## CONCLUSIONS

A simplified application of the Merger Guidelines as modified by the FERC will provide an easily adaptable methodology for screening mergers in competitive generation markets in the NIS. Given the paucity of trustworthy data and the inexperience of regulators, merger policy with regard to competitive markets should err on the side of caution, since it is far more difficult to eliminate market power than to prevent its creation. Use of a mechanical formula, the HHI and the Guideline thresholds, reduces the necessity to make complex and somewhat arbitrary qualitative judgments concerning the importance of potentially mitigating factors on market power due to a merger.

With respect to the Transmission and Distribution sectors merger policy should be designed to facilitate rationalization and consolidation, with the emphasis on obtaining significant savings for consumers while maintaining incentives for efficiency enhancing combinations.

Vertical merger policy should be highly restrictive. Unfortunately, due to the complexity of vertical mergers, there is no mechanical rule that can be devised to guide the commissions. The best advice is to be suspicious of motives. If there are no obvious efficiency or reliability benefits then the most probable reason for the combination is to facilitate exercise of market power.

The purpose of merger policy is to prevent the development of market power before the fact, rather than attempt to regulate a monopolist or oligopoly. The high degree of uncertainty and turbulence in NIS markets suggests that a conservative approach to merger policy for generation is advisable for the near future. As government institutions and markets mature, regulatory policies should be reexamined for their suitability to a more stable regulatory regime.

## APPENDIX A

### THE DOJ/FTC 1992 MERGER GUIDELINES

In 1968 the Department of Justice issued merger guidelines to inform potential merger partners of the conditions which would trigger a governmental challenge. These guidelines provided various combinations of concentration and changes in market share which would make a challenge a likely event. The primary concern of antitrust doctrine at the time was the preservation of "atomistic" markets with numerous firms.

The Hart-Scott Rodino Antitrust Improvements Act of 1976 required firms to notify the FTC and the Justice Department if a proposed merger exceeded set size limits. The Act required prescreening of proposed mergers to identify those that are likely to adversely affect competition.

On June 14, 1982, the DOJ released drastically revised Merger Guidelines, which themselves were slightly revised two years later, and revised again in 1992. The 1992 Merger Guidelines were jointly released by the DOJ and the FTC. The Guidelines state that mergers should not be permitted to create or enhance market power or to facilitate its exercise. Merger enforcement should interdict competitive problems in their incipiency. Market power is defined as the ability of one or more firms profitably to maintain prices above competitive levels for a significant period of time, resulting in a transfer of wealth from buyers to sellers and a misallocation of resources.

The Merger Guidelines contain prescreening procedures that attempt a compromise between theoretical rigor, limited data, expeditious processing, and consistency. The Merger Guidelines single out for scrutiny those mergers that significantly affect supplier concentration in relevant markets.

An important component of the Merger Guidelines is the definition of the relevant market. The Merger Guidelines define an antitrust market by taking the product of the merging firm as a starting point. Additional products are added to the market if a 5% increase in price would cause a significant shift by consumers to those products within one year, changed to "the foreseeable future" in the 1992 version.

An uncommitted entrant is one who, in response to a "small but significant and nontransitory" (usually 5%) price increase, would enter rapidly (within one year) into production or sale in the market without incurring significant sunk costs of entry and exit. Uncommitted entrants are therefore considered to be market participants. This is a direct reflection of the concept of "contestability," the idea that hit and run entry can discipline even the prices of a monopolist. The Guidelines include all current producers or sellers of the relevant product in the market, even if the firm is vertically integrated and produces only for its internal consumption.

Geographic market definition is determined in a similar manner, adding firms to the hypothetical monopolist until it could profitably raise prices by 5%. All sellers who would supply the product within one year in response to such a price increase would be included in the geographic market.

To aid in the interpretation of market data, the Guidelines use the Herfindahl-Hirschman Index (HHI) of market concentration. The Guidelines establish three regions of market concentration: unconcentrated (HHI < 1000), moderately concentrated (1000 < HHI < 1800), and highly concentrated (HHI > 1800).

Mergers resulting in an HHI below 1000 were unlikely to be challenged, while those with an HHI between 1000 and 1800 (a moderately concentrated market) were unlikely to be challenged if the increase in the HHI was less than 100. For mergers which resulted in an HHI over 1800 (a highly concentrated market), an increase in HHI of less than 50 meant the merger was unlikely to be challenged, an increase of 50-100 suggested a possibility of challenge, and greater than 100 meant that the merger would receive serious scrutiny.

The Guidelines listed a number of potentially mitigating or aggravating factors. Mergers involving leading firms (a firm with a market share at least 35% and double that of the next largest competitor) would be viewed unfavorably. Other factors include homogeneity of products (homogeneity of products makes it easier to establish and enforce collusive agreements), availability of transaction-specific information (information which would permit closer monitoring of cheating in collusive agreements), and the conduct of firms in the market.

Recent or on-going changes in the market, due to new technology or availability of reserves, may mean that a company's current market share is a poor indicator of its future competitive significance. The financial condition of a firm will be considered to the extent that it is relevant to an analysis of the firm's likely future competitive significance. The failing firm defense, which allows mergers if the target firm is in financial distress, required good faith efforts to elicit reasonable alternative offers of acquisition which would be less harmful to competition.

The Guidelines identified potential efficiencies as a defense for challenged mergers. Claims of efficiencies will be rejected if equivalent or comparable savings can reasonably be achieved by the parties through other means. Only merger-specific efficiencies will be considered. These are then further reduced to a subgroup of verifiable efficiencies assessed net of costs produced by the merger or incurred in achieving these efficiencies. Efficiencies most likely to be recognized are those obtained from shifting production among facilities. Efficiencies relating to procurement, management, or capital costs are less likely to be merger-specific or substantial. Some of the efficiencies must be passed on to consumers. Expected net efficiencies must be proportional to the anti-competitive threat presented by the merger.

Easy entry, determined by the likelihood and probable magnitude of entry in response to a price increase, is a favorable factor for merger approval. If entry into a market is easy — that is, if

entry would be timely, likely, and sufficient in its magnitude, character and scope to deter the exploitation of market power —then there is no further need to examine a proposed merger. A three step methodology is employed to analyze entry: (1) determine whether entry can achieve significant market impact in a timely (two years from initial planning to market impact) period, (2) assess whether committed entry would be profitable, determined on the basis of pre-merger market prices, (3) decide if timely and likely entry would be sufficient to return market prices to their pre-merger levels. Likelihood of entry is related to the minimum viable scale of entry, the level of sales that the entrant must achieve for profitable entry. The determination of profitability is calculated using all costs associated with entry, including an appropriate rate of return on invested capital which reflects the risk of losing sunk costs.