

PROFILES ON ELECTRICITY ISSUES

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REGIONAL TRANSMISSION ORGANIZATIONS

Overview. In March 1997, ELCON issued a position paper entitled *Profiles on Electricity Issues: Independent System Operators*. That document stated that the emerging competitive market for generation and merchant services required an impartial “traffic cop” with the authority to enforce grid reliability and operate the grid on a nondiscriminatory, common-carrier basis. This was needed to eliminate, or at least minimize, market power resulting from the industry’s continued vertical integration. The *Profile* supported 11 principles for the establishment of “independent system operators” or ISOs that were adopted by the Federal Energy Regulatory Commission (FERC) in its landmark 1996 rulemaking, Order 888.

Since then, several so-called ISOs have been approved by FERC and most are now operational. What is clear to ELCON and other industry groups is that these ISOs are inadequate for the needs of a truly competitive market. They are either too small, too bureaucratic, too parochial, or too unfriendly to the needs of traders, suppliers, and customers. All too often these new organizations exhibit the same mind set as the utilities or power pools they were intended to replace.

The inevitable reaction to the failure of ISOs to fulfill their promise is a search for an alternative institution. FERC has given the whole range of options the generic name *regional transmission organizations* (RTOs). Examples of two such alternatives to ISOs are independent scheduling administrators (ISAs) and independent transmission companies (also called transcos).

In this *Profile*, ELCON reexamines the essential needs of large regional electricity markets and recommends the desired geography of RTOs and the basic operational, technical, and organizational features and responsibilities that will ensure that these needs are satisfied.

PROFILES ON ELECTRICITY ISSUES are published to promote a better understanding of the economic and social impact of

Profiles on Electricity Issues

REGIONAL TRANSMISSION ORGANIZATIONS

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SUMMARY OF ELCON'S RECOMMENDATIONS FOR REGIONAL TRANSMISSION ORGANIZATIONS

The ownership and operation of the huge North American electric grid is incompatible with two overarching objectives of electric industry restructuring: (1) the establishment of the largest possible commercial markets for electricity and (2) the development of nondiscriminatory and competitively-neutral reliability standards. The grid is, in reality, three separate grids (or "interconnections"), and there are over a hundred owners each trying to operate its small portion of the grid as if it were a separate, isolated network. By acting in their own self-interest, owners jeopardize both the reliability needs of the interconnection and competition in interconnection-wide bulk-power markets.

RTO GEOGRAPHY & CONTROL AREAS

The Federal Energy Regulatory Commission (FERC) should establish as a matter of policy a rebuttable presumption that the three interconnections are the optimal size and scope for RTOs. These RTOs should replace both the 10 regional councils and the ISOs that have been established. Each RTO should enforce FERC-approved reliability standards, including acting as security coordinator for the inter-connection. The formation of RTOs is a structural requirement of competitive bulk-power markets. If properly implemented, RTOs replace the need for more expansive regulatory oversight in the future.

Each RTO should have single control area responsibilities for the purposes of providing transmission services and maintaining reliability, but not for economic dispatch. Replacing the essential functions of multiple system operators, regional councils, security coordinators, and existing "ISOs" with a single RTO promotes efficiency by eliminating redundant layers of bureaucracy, needlessly complex operating practices, and the potential for human error. Those who would argue for more than three RTOs have the burden of proof to demonstrate that more RTOs will enhance reliability and competition.

RTO GOVERNANCE & ROLE OF TRANSCOS

Each RTO, at least initially, should be a non-profit organization because its enforcement responsibility would conflict with a for-profit motive. This policing function is necessary to mitigate the market power resulting from vertical integration. Each RTO should have an independent board. These conditions can be relaxed, and the RTO may be replaced with an investor-owned transmission company (or transco), if and only if it can be demonstrated that: (1) a working secondary market for transmission capacity rights and other conditions, as necessary, adequately eliminate transmission market power and (2) the ownership of each interconnection's transmission assets are sufficiently consolidated into a single transco unaffiliated with any generation, power marketing, energy services, or local distribution company or utility. Even if these conditions are met, the need remains for continued regulatory oversight and an independent dispute-resolution process. Whether such huge transcocs can replace RTOs, the desired corporate structure of a *transmission owner* is an independent, unaffiliated profit-making entity. The grid's value in a large regional market is greater than the sum of its parts. This alone should create the economic incentive to create transcocs and join an RTO. Finally, an interconnection-wide RTO provides the benefits of a large, reliable market without the requirement or risk of private ownership of such a huge essential facility.

RTO RESPONSIBILITIES

Each RTO should have adequate control over transmission facilities so as to fulfill its essential responsibilities. These include calculating the amount of transmission capacity available in the market, posting that amount on the FERC-mandated transmission reservation system (OASIS), administering a single grid-wide transmission tariff and the OASIS, processing requests for and scheduling transmission services through participating control areas, providing congestion management services, and monitoring and ensuring that ancillary services are being adequately provided and scheduled. The degree of operational control RTOs have over transmission facilities should be commensurate with the amount of market power retained by transmission owners. This should be determined on a case-by-case basis.

WHAT RTOs MUST NOT DO

For any unregulated electricity product or service, the RTO should not make the market, guarantee market outcomes according to preconceived technical or economic rules or myths, or interfere in any way such as to prevent market clearing prices from reflecting the combined economic behaviors of buyers, sellers, and independent market intermediaries. The RTO should not operate a spot market (or power exchange) in any electricity commodity or service.

TRANSMISSION PRICING & CONGESTION MANAGEMENT

RTO formation should not be held hostage to the need for transmission pricing reform. It is far easier to evolve to a more efficient pricing regime after a few large RTOs are created. An RTO should administer a single grid-wide, open-access transmission tariff on a nondiscriminatory basis. The tariff of an interconnection-wide RTO should internalize loop flows and eliminate the "pancaking" of rates.

The redispatch costs associated with most occurrences of congestion, wherever located, should be averaged across all users in the postage-stamp rate. Alternatively, but only after interconnection-wide RTOs have been created, pricing "zones" may be established within the RTO grid where congestion conditions are relatively severe and failure to address such costs results in one group of market participants being unduly discriminated against for the benefit of another. Capacity rights across congested interfaces should be established and subject to an auction that ensures an efficient and fair allocation of capacity reservations. A secondary market for these reservation rights should be allowed to develop independent of the RTO. This market would establish valuations of specific congested interfaces and provide an important "price signal" for new investment decisions.

INCENTIVES TO BUILD NEW FACILITIES

The claim that transmission owners do not receive adequate economic incentives to build needed new transmission capacity is overstated. The divestiture of generation, the creation of stand-alone "wires" companies, the entry of third-party owners of assets, and other ongoing restructuring activities are creating new opportunities in the industry. These opportunities to serve a larger, more dynamic market are adequate incentive for any rational business, perhaps even a monopoly. This new industry structure needs to be tested before regulators rush to propose additional incentives. The need may not be there.

Profiles on Electricity Issues

REGIONAL TRANSMISSION ORGANIZATIONS

A. INTRODUCTION

In March 1997, ELCON issued a position paper entitled *Profiles on Electricity Issues: Independent System Operators*. That document stated that the emerging competitive market for generation and merchant services required an impartial “traffic cop” with the authority to enforce grid reliability and operate the grid on a nondiscriminatory, common-carrier basis. This was needed to eliminate, or at least minimize, market power resulting from the industry’s continued vertical integration. The *Profile* supported 11 principles for the establishment of “independent system operators” or ISOs that were adopted by the Federal Energy Regulatory Commission in its landmark 1996 rulemaking, Order 888.

Since then, several so-called ISOs have been approved by FERC and most are now operational. What is clear to ELCON and other industry groups is that these ISOs are inadequate for the needs of a truly competitive market. They are either too small, too bureaucratic, too parochial, or too unfriendly to the needs of traders, suppliers, and customers. All too often these new organizations exhibit the same mind set as the utilities or power pools they were intended to replace.

The inevitable reaction to the failure of ISOs to fulfill their promise is a search for an alternative institution. FERC has given the whole range of options the generic name *regional transmission organizations* (RTOs). Examples of two such alternatives to ISOs are independent scheduling administrators (ISAs) and independent transmission companies (also called transcos).

In this *Profile*, ELCON reexamines the essential needs of large regional electricity markets and recommends the desired geography of RTOs and the basic major operational, technical, and organizational features and responsibilities that will ensure that these needs are satisfied.

B. THE NEEDS OF COMPETITIVE ELECTRICITY MARKETS

It is a truism that markets improve with size. Large markets are more efficient than smaller markets and provide greater opportunities for investment, returns on investments, and customer value. In fact, we are currently witnessing the globalization of markets in many competitive industries. Competitive electricity markets should be no different, and the objective of any public policy in support of electric industry restructuring should be the establishment of the broadest possible regional markets, consistent with physical limitations.

However, the ownership and operation of the huge North American electric grid is incompatible with that objective. The grid is, in reality, three separate grids (or “interconnections”), and there are over a hundred owners each trying to operate their small portion of the grid as if it were a separate, isolated circuit. By acting in their own self-interest, owners jeopardize both the reliability needs of the interconnection and competition in the interconnection-wide bulk-power market.¹

Multiple, vertically integrated utilities will likely continue to control transmission assets in each of the interconnections for the foreseeable future. As a result, an institutional framework is needed to support interconnection-wide commercial transactions ensuring the following:

- P All market participants have equal and nondiscriminatory access to transmission services at just and reasonable rates approved by FERC;
- P The interconnection’s transmission pricing practices eliminate rate pancaking, provide simple one-stop shopping for all transmission services, and facilitate a secondary market for transmission capacity rights;
- P Operational practices, *e.g.*, congestion management and emergency curtailment procedures, are carried out in a transparent, nondiscriminatory, and competitively-neutral manner;
- P Every viable effort is made to maximize available transfer capability (ATC) and total transfer capability (TTC);²
- P Loopflows are adequately internalized and not a source of contention among transmission owners;
- P Barriers to independently-owned generation are removed; and
- P New or enhanced transmission facilities, including those using innovative new technologies, are planned for and built in a timely manner without duplicating layers of regulation.

¹Within the Eastern and Western Interconnections, some states have also enacted laws or rules for their jurisdictional utilities that are incompatible with the broader multi-state nature of each interconnection and interstate commerce.

²As defined by the North American Electric Reliability Council (NERC), TTC is the amount of electric power that can be transferred over the interconnection in a reliable manner while meeting all of a specific set of defined pre- and post-contingency conditions. ATC is a measure of the transfer capability remaining in the physical transmission network for further commercial activity over and above the already committed uses. Specifically, ATC is equal to TTC less the transmission reliability margin (TRM), less the sum of existing transmission commitments (which includes native load) and the capacity benefit margin (CBM). TRM is defined as the amount of transmission transfer capability necessary to ensure that the interconnection is secure under a reasonable range of uncertainties in system conditions. CBM is defined as that amount of transmission transfer capability reserved by the load-serving entities to ensure access to generation from interconnected systems to meet generation reliability requirements.

C. THE FAILURE OF EARLY ISOs

In Orders 888 and 889, FERC attempted to promote many of these objectives by mandating the use of pro forma tariffs, OASIS, and behavioral rules embedded in standards of conduct to prevent discrimination and other abuses of market power. FERC also required vertically integrated utilities to “functionally unbundle” the wholesale merchant function from regulated transmission rather than require full operational unbundling or divestiture. Finally, the Commission hoped that utilities would voluntarily commit to form ISOs.

Unfortunately, Orders 888 and 889 did not require true comparability of access to transmission services. Most uses of the transmission system were exempted from the pro forma tariff and OASIS requirements.³ Absent something stronger than mere encouragement, utilities had little incentive to voluntarily join an ISO that serves to check their market power. Of the ISOs that were established, the three Northeastern ISOs were created primarily to preserve established tight power pools. The California ISO was mandated first under a state commission order and later by state law. To its credit, only the Midwest ISO was motivated to expand open access in as broad a region as possible.

Resistance to RTO formation persists in industry pleas for “flexibility” and equally vocal opposition to any “one-size-fits-all” mandate, often with the tacit—or not so tacit—support of some state regulators who also wish to preserve the status quo. Reforms that are forthcoming from many incumbent utilities are incremental efforts that largely preserve balkanized markets and the market power given to them under the old regulatory regime.

D. RECOMMENDATIONS FOR ESTABLISHING RTOs

1. RTO GEOGRAPHY

RTOs should replace both the 10 existing regional reliability councils (RRCs) and the ISOs that have already been established, and there should be fewer of them. There should be a rebuttable presumption that each interconnection can be a single RTO. Those who would argue for multiple RTOs within a single interconnection have the burden of proof to demonstrate that having more (rather than fewer) RTOs will more effectively: (1) enhance reliability and (2) foster greater competition.

Large RTOs give consumers several important benefits that multiple, smaller RTOs cannot. First, interconnection-wide RTOs can more efficiently manage grid reliability because grid control for reliability purposes would be centrally controlled and not fragmented among multiple, self-interested owners. After all, the primary focus of NERC

³In Order 888, the FERC’s open access requirement was not extended to transmission services used to serve “native load” customers, notwithstanding the popular adage of a former FERC Chairman that: “Everybody is somebody’s native load.” This exclusion has created two conflicting classes of transmission service. The upshot of this inconsistent policy is that native load customers served under unbundled service in competitive bulk-power markets receive an inferior quality of service compared to native load customers that continue to be served under traditional bundled service.

reliability standards is the security of each interconnection.⁴ Larger RTOs have more resources to draw from to meet contingencies. Simply stated, there is security in numbers. Parallel flows are also more easily internalized within a larger network with top-down control, as opposed to the bottom-up control of fragmented ownership. The loopflow problem is further minimized as market pressures encourage the consolidation of control areas for purposes of economic dispatch. Replacing the essential functions of multiple system operators, regional councils, security coordinators, and existing “ISOs” with a single organization promotes efficiency by eliminating redundant layers of bureaucracy, the needless complexity of operating practices, and the potential for human error.

Another benefit of interconnection-wide RTOs is that they solve many critical market power problems. This improves the efficacy of competition within the largest possible regional market. In smaller markets, a single supplier (or oligopoly) can more readily dominate the market, if given the chance, and drive up prices or reduce service quality. Larger RTOs greatly minimize the need for new regulatory controls to mitigate market power associated with vertical or horizontal concentration. By diluting the potential market power of large suppliers within a bigger market, they obviate the need for mandatory divestiture, particularly in the context of new mergers. Hence, the larger the RTO, the less the need for government intervention to correct abuses that are often endemic to smaller markets.⁵ Policy makers who perceive RTO formation as a needless form of regulatory intervention should be mindful of this fact. The formation of RTOs is a structural requirement of competitive bulk-power markets. If properly implemented, RTOs replace the need for more expansive regulatory oversight in the future.

The formation of RTOs is a structural requirement of competitive bulk-power markets. If properly implemented, RTOs replace the need for more expansive regulatory oversight in the future.

Finally, an interconnection-wide RTO provides the benefits of a large, reliable market without the requirement or risk of private ownership of such a huge physical asset that is also an essential facility. This principle accounts for the success of the air traffic controller system in the airline industry. Many utilities are aware of the merits of large RTOs, and they are often the champions of efforts to create them. But other utilities are strongly resisting these efforts. Their motives are the preservation of their market power and the continued dominance of their captive retail markets. Unfortunately, FERC’s inconsistent open-access policies give them license to pursue that agenda.

⁴In the *Operating Manual* of the North American Electric Reliability Council (NERC), the relationship between an Interconnection and the control areas within the Interconnection is defined as follows: “All control areas share the benefits of interconnected systems operation and, by their participation in NERC, they recognize the need to operate in a manner that will promote reliability in interconnected operation and not burden other interconnected control areas.” (page I-1) “... [A] control area is an electric system that meets the following two requirements. It can: directly control its generation to continuously balance its actual interchange and scheduled interchange, and help the entire Interconnection regulate and stabilize the Interconnection’s alternating-current frequency.” (page I-3).

⁵This assumes that an RTO has sufficiently mitigated or eliminated intra-regional transmission congestion that might also create market power problems. See discussion below on “RTO Management of Transmission Congestion.”

2. RTO GOVERNANCE

Each RTO, at least initially, should be an independent, non-profit organization because its enforcement responsibility would conflict with a for-profit motive. This policing function is necessary to mitigate the market power resulting from vertical integration. The RTO's responsibility to preserve reliability and enforce the grid's common-carrier status, including the management of congestion, requires that all its actions be carried out on a transparent, nondiscriminatory, and competitively-neutral basis. Other important functions a non-profit organization can provide are auditing compliance with established rules and standards and dispute resolution. The RTO should have binding processes for resolving claims of discriminatory treatment by control area operators in their exercise of reservation services, scheduling, pricing, tagging, managing congestion, curtailing transmission services, and determining TTC and ATC. The RTO should itself be subject to a binding, independent dispute-resolution process for resolving claims of its misbehavior.

Each RTO should be created with the opportunity for full participation by all potential market participants. Each RTO should have an independent board of directors. Each RTO should allow all market participants to be members of any committee or working groups, and membership and voting procedures should require that no two constituency groups constitute a majority vote of a committee or working group and no single group may veto an action.

The day-to-day administrative activities of the RTO, including the management of such activities, may be assigned to a private contractor under a performance contract. Such contracts should provide incentives for efficiency improvements.

These governance requirements may be relaxed if and only if it can be demonstrated that: (1) a working secondary market for transmission capacity rights and other conditions, as necessary, adequately eliminates transmission market power, and (2) the ownership of each interconnection's transmission assets are sufficiently consolidated into a single transco that is unaffiliated with any generation, power marketing, energy services, or local distribution company or utility. Even if these conditions are met, the need for continued regulatory oversight and an independent dispute resolution process remain.

3. RTO OPERATIONAL FUNCTIONS

P CONTROL OF GENERATION & TRANSMISSION ASSETS

The RTO should not control generation for purposes of economic dispatch. That function is reserved to the owners of generation and the market.

The RTO must have adequate control over all transmission facilities and, where necessary, any local distribution facilities with transmission-like characteristics. The degree of control RTOs have over transmission facilities should be commensurate with the amount of market power retained by transmission owners. This should be determined on a case-by-case basis. Transmission owners should enter into contractual arrangements such that the necessary control of transmission and transmission-supporting generation assets is assigned to the RTO. The generation assets subject to such control should be the minimum necessary for real-time

system balance, to service load pockets, to redispatch generation to maximize ATC and mitigate congestion, and to comply with and enforce FERC-approved reliability standards.

For the purpose of providing reliable, open-access transmission services, the current industry structure has too many control areas.⁶ This fact exacerbates loopflow problems and, to a lesser extent, rate pancaking that stifle efficient transmission pricing and greatly complicate the development of operating practices for maintaining reliability. Control area boundaries are historical artifacts that only occasionally coincide with the real operational needs of the grid. In a restructured industry, control areas continue to perform both regulated (transmission) and unregulated (generation) functions. This poses significant market power risk which must be eliminated by assigning adequate operational control over each control area to the RTO. While this might be more readily achievable within the Western Interconnection (WSCC) or ERCOT, the Eastern Interconnection poses somewhat greater political and technical hurdles to such an outcome.⁷ FERC can help move this process by requiring all control areas within an interconnection to begin adopting common transmission-access protocols and standards for determining TTC and ATC, redispatch, and other operational practices.

P RESERVING & SCHEDULING TRANSMISSION SERVICES

An RTO calculates ATC and TTC; posts ATC on the OASIS; administers the interconnection transmission tariff and OASIS; processes requests for and schedules transmission services; processes tags; manages grandfathered transmission agreements (*i.e.*, “committed uses”) as necessary; and monitors and ensures that ancillary services are being adequately provided, scheduled, and employed. All bulk-power users of the transmission system, including the affiliates of transmission owners, must use OASIS to reserve transmission services anywhere in the interconnection.⁸

P ANCILLARY SERVICES

The RTO should not impede the competitive provision of any ancillary service consistent with FERC rules and regulations. The RTO should specify the amount of each ancillary service required for reliability subject to NERC rules and manage the deployment of these resources. If necessary, the RTO may be the “provider of last resort” of ancillary services at least until such time as the markets are capable of providing these services on a competitive basis independent of the RTO. Operating reserves, voltage control, and, in some cases, regulation and frequency response services are each “costs of doing business” to generators. These services are necessary to interconnect generators with the grid and their markets. As such, the costs of these services should not be directly charged to transmission users. The costs of ancillary services that cannot be provided on a competitive

⁶This is not true for another traditional “control area” function, economic dispatch.

⁷The major “political” hurdles to RTO formation are state fears over loss of jurisdiction (notwithstanding the potential benefits to consumers of broader competitive markets), the perception that RTOs are a precursor to reforms at the retail level, and the fear that a broader market will jeopardize preferential access to below-market resources.

⁸Nobody, even a small end-use customer, should be precluded from reserving their transmission requirements on the OASIS. Most small users are likely to procure bundled electrical services through an intermediary marketer or broker.

basis should be directly assigned to transmission users on a cost-of-service basis. The price of energy-imbalance services should reflect actual market opportunity costs and not be imputed as an artificially inflated penalty charge.

P RELIABILITY

Each RTO should enforce FERC-approved reliability standards, including acting as security coordinator for the interconnection. The RTO should facilitate the provision of redispatch services to manage transmission congestion and maximize ATC, thereby minimizing the need for curtailments in emergency situations. The RTO should also be responsible for establishing guidelines for scheduling maintenance of all transmission facilities and for directing the restoration of the grid after any emergency condition. Generators should inform the RTO of their maintenance schedules to help the RTO mitigate any potential reliability concerns.

P MARKET SUPPORT RESPONSIBILITIES

The RTO's primary market support responsibilities are limited to the calculation of ATC on an interconnection-wide basis, making that and other FERC-mandated information available to all participants by posting it on the interconnection OASIS, and promptly responding to service requests. The RTO supports market trading activities by providing on-line, real-time access to information on network conditions, ancillary services, and other market support data and services.

For any unregulated electricity product or service, the RTO should not make the market, guarantee market outcomes according to preconceived technical or economic rules or myths, or inter-fere in any way such as to prevent market clearing prices from reflecting the combined economic behaviors of buyers, sellers, and independent market intermediaries.⁹ The RTO should not attempt to design, implement, or operate a spot market (or power exchange) in any electric commodity or service. The RTO should be strictly prohibited from engaging in any market activities for its own benefit.

4. PRICING OF TRANSMISSION SERVICES & CONGESTION MANAGEMENT

Competitive markets require simple pricing mechanisms. More complex pricing schemes increase transaction costs. As in other competitive markets, delivery services are generally of secondary concern to consumers. The primary concern is the product or commodity. The development of RTOs should not be held hostage to the need for a new industry pricing regime for transmission services. RTOs should be formed and, as a point of departure, allowed to use the pricing mechanisms in the pro forma tariffs. It will be far easier to evolve to a different, more efficient pricing regime once a few large RTOs have been established. Efforts to simultaneously solve these problems—establish working RTOs and a more efficient transmission pricing regime—will only defeat both purposes.

⁹Arguably, an exception is the market for ancillary services. In some instances, the RTO would be the only buyer of ancillary services and its “monopsony” role would have the effect of “making” the market. The point here is that the RTO’s monopsony power should not be allowed to interfere with the competitive provision of ancillary services, *i.e.*, dictate terms and conditions that suppress competition for those services.

P RTO OPEN-ACCESS TRANSMISSION TARIFF (OATT)

An RTO should administer a single, grid-wide, open-access transmission tariff on a non-discriminatory basis. The tariff should be FERC-approved. If the RTO is properly structured as an interconnection-wide entity, its tariff should adequately internalize loop flows and eliminate the pancaking of rates throughout the interconnection. License-plate rates may be established on a transitional basis to avoid cost shifting. However, such rates should be replaced with region-wide postage-stamp rates by a date certain. Rates for transmission services should be posted in advance and not retroactively determined and assessed. The cost of new network transmission facilities should be recovered on a rolled-in embedded basis and not directly assigned to the incremental user(s).

P RTO MANAGEMENT OF TRANSMISSION CONGESTION

An essential responsibility of an RTO is the management of transmission congestion. By its very nature and size, an independent RTO is ideally suited to be the “traffic cop” of the grid. All users of transmission services are entitled to the same service regardless of location. End-use consumers do not “incur” congestion costs in the normal sense of the word. Causation is more circumstantial and often the result of factors beyond their control such as load growth, shifting loads, and the siting policies of other states. Therefore, the costs associated with mitigating most occurrences of congestion (*i.e.*, redispatch costs) should be averaged across all users in the postage-stamp rate. Also, to the extent redispatch is a substitute for curtailment (or “transmission loading relief”), these costs should be spread over all users to be consistent with FERC policy. Under the pro forma tariffs, transmission providers are required to mitigate potential transmission overloads via pro rata curtailment of firm point-to-point, network, and native load customers. This, in effect, spreads the burden across all users.

After interconnection-wide RTOs have been created, an alternative pricing mechanism should be adopted that includes an additional approach to congestion. This approach would more explicitly manage congestion by establishing a secondary market for capacity rights. Pricing “zones” within the RTO grid should be established where congestion conditions are relatively more severe and where the failure to address such costs results in one group of market participants being unduly discriminated against for the benefit of another. Capacity rights across adjacent zones (*i.e.*, the congested interfaces) should be subject to an auction that ensures an efficient and fair allocation of firm capacity reservations. This would require the elimination of load-based, inter-zonal network service. A secondary market for these reservation rights would be allowed to develop independent of the RTO. This market would establish valuations of specific congested interfaces and provide an important input for investment decisions in new transmission or generation assets.

Complex pricing regimes are often proposed to send “efficient price signals” that encourage generating companies to better site new generation facilities to relieve transmission congestion. For example, two existing ISOs have implemented forms of nodal pricing with this objective in mind. Certainly, where generation is a more cost-effective option than construction of new transmission facilities, the cheaper option should be built. But a simple pricing signal will work as well as or better than a complicated one—all else equal—without otherwise burdening the market. The more difficult problem is *who* makes the tradeoffs between new transmission and new generation. Traditionally this role was performed by state regulators. In the new industry, markets should be given the

opportunity to make these choices. But this will require that the markets have access to the costs of redispatch or congestion valuations from a secondary market for capacity reservations, and other data on grid conditions, information that a disinterested independent RTO is capable of providing as compared to a self-interested transco or generation company.

5. RTO PLANNING RESPONSIBILITIES

An ongoing administrative function of the RTO should be responsibility for assessing the long-term planning needs of the grid. The RTO should monitor and publish information regarding the grid's adequacy, e.g., the status of facility maintenance and the need for new facilities to improve reliability and throughput. But an RTO can only do so much to encourage the construction of new facilities. Third-party developers must be allowed to enter this market, and this requires the elimination of state and federal restrictions.¹⁰ The RTO should help transmission owners and new developers work with state and local government agencies and public interest groups to identify their concerns and expedite the siting of any new facilities.

RTOs do not prevent transmission owners from making new investments or exercising any other acceptable business practice to maximize shareholder value.

As population densities increase and, with it, the demand for the preservation of public lands and recreational areas, the siting of major new transmission facilities will become even more problematic. In such instances, an RTO may need to resort to a model for the development of similar, high-profile "public" facilities such as new airports, highways, or bridges. This would require the focused

coordination of the many local interests involved to negotiate a solution appropriately balancing public and private objectives. Proposals to form more expansive regional regulatory bodies and multi-state compacts, by adding a redundant layer of regulation, are not likely to be as successful.

E. TRANSMISSION ASSET CONTROL AND OPERATIONAL EFFICIENCIES

A fair argument is often raised that when ownership is disconnected from control over economic assets, the incentive to seek operational efficiencies is removed. This criticism is often applied to RTOs that do not also own the transmission assets they control. Yet, the fundamental responsibility of an RTO is to "police" the use of the interconnected grid. This is no different from the control exercised by air traffic controllers over even more expensive assets, airplanes.¹¹ While the air traffic controller system has its inefficiencies, no argument has been widely publicized that they impair the ability of airlines to efficiently plan for and operate their fleets for the benefit of shareholders. The policing function cannot be done

¹⁰A federal restriction is the Public Utility Holding Company Act.

¹¹For example, by way of analogy, few people would want the air traffic controllers at Chicago's O'Hare Airport to be employees of United Airlines, the dominant carrier serving that airport.

by the airlines themselves—for obvious reasons—or by the airports. Almost by default, the task is performed by an impartial government agency.

RTOs do not prevent transmission owners from making new investments or exercising any other acceptable business practice to maximize shareholder value. The owners retain the right to plan for and perform maintenance on their assets or to plan for and add new facilities, especially innovative technologies, that maximize ATC and/or TTC or cut costs, and hence, increase their net revenues.

F. CORPORATE STRUCTURE OF TRANSMISSION OWNERS

1. INDEPENDENT TRANSMISSION COMPANIES (TRANSCOS)

Government-owned utilities control approximately 21% of the transmission lines (in circuit miles, 22 kV and above); the rest is owned and operated by vertically integrated investor-owned utilities. Arguably, the desired corporate structure of a transmission owner is an independent, unaffiliated, for-profit transmission company. Some proponents of these so-called “transcos” offer them as a substitute for independent, non-profit RTOs. These proponents have the burden of proof to demonstrate that interconnection-wide transcos can be established within a reasonable period of time to meet the needs of a rapidly changing industry.

Large transcos must be incapable of exercising their considerable market power even though they remain “natural monopolies.” Also at issue are the political and economic feasibility of privatizing government-owned transmission assets, the voluntary (or mandatory) divestiture of transmission assets by over 100 investor-owned utilities, and the merger of the resulting entities into a few large transcos. The tax consequences of divestiture and the conditions imposed by existing bond covenants will make the industry-wide transformation a truly daunting task.

The merits of transcos can be easily exaggerated. Transcos are investor-owned utilities, *i.e.*, regulated monopolies, and they will suffer all the shortcomings of their predecessors. Transcos will have a natural disincentive to allow more efficient non-transmission solutions to transmission problems such as generation redispatch or the construction of new generation. While transcos have a role to play in resolving these tradeoffs, they cannot make those tradeoffs. Nonetheless, as truly stand-alone “wires” businesses transcos avoid many of the market power problems associated with vertical integration and for that reason alone should be encouraged.

2. INCENTIVES FOR CREATING TRANSCOS

A variety of regulatory incentives have been proposed as inducements for the voluntary creation of transcos. These include: upward revaluation of rate-based assets, more favorable treatment of depreciation, increased rate of return, and allowing “And” pricing (*i.e.*, charging customers the incremental costs of new facilities *and* the average costs for using the existing grid).

Such incentives are unnecessary and inconsistent with efforts to make all industry entities more accountable to market forces. The grid's value in a large regional market is greater than the sum of its parts. This alone should create the economic incentive either to join an RTO or to create a large transco. Government agencies are ill-equipped to design the perfect market, to pick winners and losers, or to hand out the "right" incentives for the purpose of influencing market outcomes. While this is especially true in unregulated, competitive markets, regulation in general has a similarly poor track record in regulated industries. However, there are significant regulatory disincentives to joining RTOs or creating transcos that should be eliminated. These disincentives are the FERC's inconsistent open-access policies that allow utilities to profitably engage in discriminatory behavior.

G. CONSTRUCTION OF NEW TRANSMISSION FACILITIES

In recent years, vertically integrated utilities have not aggressively planned for and constructed needed new transmission facilities. Any new transmission facility risks siting problems and public opposition. But as long as the transmission function remains part of a vertically integrated utility, transmission will never be treated with the same commitment as a stand-alone business.

The claim that transmission owners do not receive adequate economic incentives to build needed new transmission capacity (or maximize ATC in other ways) is overstated and flies in the face of other recent investments made by utilities. Utilities have rarely had to compete for the right to build new transmission facilities. This market has traditionally been closed to third-party developers, and the behavior of incumbent owners once the market is opened remains to be tested. The industry is also being radically transformed by widespread divestiture of generation. This will create stand-alone "wires" companies who should be eager to build without the need for artificial incentives. This new industry structure needs to be tested before regulators rush to propose new incentives. The need may not be there.

When policy makers suggest that monopolists are not given appropriate "incentives" to change their behavior, the logical utility reaction is to hold out for an even better offer.

Even if a more compelling argument is made for the use of regulatory incentives in this context, they do not work. Nearly a century of regulatory experimentation has demonstrated that monopolists can-not be induced to behave as competitive enterprises in free-market situations. The economic incentives to do otherwise are simply too powerful as any economics textbook will

teach. Regulation is not adept at simulating market outcomes. Utilities control access to too much essential data, and their other resources will overpower any regulatory agency. When policy makers suggest that monopolists are not given appropriate "incentives" to change their behavior, the logical utility reaction is to hold out for an even better offer. Monopolists will always seek monopoly rents if given the option, or unwittingly encouraged to do so.

But a limited application of incentives for good behavior may have a role to play in rate-of-return regulation as long as they are applied on a symmetrical basis with punishment for bad behavior. With carrots, there must also be sticks. Regulators at the federal or state level were never precluded from applying a bandwidth around the allowed rate of return that rewards for extra-ordinary productivity gains, and imposes penalties (a lower return) for failure to achieve expected gains. If the focus is exclusively on incentives, there is no guarantee that consumers will benefit. The benefits of incentives are prone to overstatement and very difficult, if not impossible, to prove. As commonly structured, the gains from such reforms are more certain for the utility and its shareholders than for consumers. From a customer perspective, premium prices should only be allowed for premium service.

The solution is not more regulation—which is what so-called incentive regulation ultimately requires—but more industry restructuring. The divestiture of generation and the creation of stand-alone “wires” companies, the opportunity for new third-party owners of transmission assets, the potential for

distributed generation, the unbundling of all energy services, and the introduction of new suppliers of those services will create an entirely different industry chemistry from the old. The opportunity to serve a larger, more dynamic market should be adequate incentive for any rational business, perhaps even a monopoly. These opportunities need to be encouraged and relied upon.

H. FERC AUTHORITIES TO ESTABLISH RTOS

Under the Federal Power Act, FERC has ample authorities to establish RTOs. Table 1 outlines the relevant authorities in four sections—202(a), 203, 205, and 206—that could be mined for the task. Perhaps more importantly, FERC should leverage its ability to function as a “bully pulpit” and send an unequivocal message to the industry that failure to take all constructive actions toward RTO formation will be deemed *prima facie* as anticompetitive conduct under section 206.

In 1996, FERC initiated the restructuring of bulk-power markets with its landmark Orders 888 and 889. These Orders came after several years of more piecemeal attempts to instill greater competition in the industry. Orders 888 and 889 were only a first step, and for a number of reasons, mostly political, the Commission has hesitated to take the next steps. The Commission should act now to require full operational unbundling and the use of OASIS for reserving all transmission services— especially services that remain bundled at the retail level. Removing this inconsistency will eliminate a powerful disincentive to joining RTOs.

I. CONCLUSION

The conclusion of ELCON’s 1997 *Profile* on ISOs stated that:

ELCON believes that, properly structured and implemented, ISOs can be essential components of a competitive electricity marketplace. Nonetheless, an ISO as envisioned in this document is an untested entity that is charged with important duties. Policy makers have a responsibility to ensure that the development and implementation of regional ISOs are not used as excuses to delay further advances in making the industry more competitive, *i.e.*, by delaying the introduction of retail customer choice.

Given that an ISO is, by design, a monopoly service, policy makers and market participants must also ensure that the long-term inefficiencies inherent in many monopolies are not duplicated by this new entity. This requires careful attention to the specific responsibilities assigned to the ISO and a requirement that no ISO be granted an exclusive franchise for any service for which a competitive market will readily provide. If something better is possible, it should be allowed and encouraged.

The test of time has proven these warnings to be true. ELCON still believes that independent, regional transmission organizations are “essential components of a competitive electricity marketplace.” However, as experience with ISOs has demonstrated, “properly structured and implemented” RTOs will require a stronger commitment from regulators and other policy makers not just for the establishment of RTOs, but for competitive markets in general. ELCON hopes that the recommendations put forward in this document will encourage that commitment. ###

TABLE 1

FERC AUTHORITIES TO PRESCRIBE RTO STRUCTURE

FEDERAL POWER ACT	AUTHORITY
<p>§202(a) <i>16 U.S.C. §824a(a) (1994)</i> <i>("Regional districts; establishment; notice to State Commissions")</i></p>	<p>The legislative history of this provision empowers the agency "to work out the initial utility map of the United States." This provision established the old regional reliability councils (RRCs). FERC should establish as a matter of policy a rebuttable presumption that the three interconnections are the optimal size and scope for RTOs. FERC should rely on 202(a) to hold an inquiry to work out the details. Although 202(a) is voluntary, FERC can insist on membership in an interconnection-wide RTO as a condition to any utility request for approval.</p>
<p>§203 <i>16 U.S.C. §824b</i> <i>("Disposition of property; consolidations; purchase of securities")</i></p>	<p>Section 203 provides FERC with the authority and the duty to impose conditions on merger applicants to assure that mergers serve the public interest. The Commission can impose a commitment to join an RTO as a condition to a merger approval.</p>
<p>§205 <i>16 U.S.C. §824d (1988)</i> <i>("Rates and charges; etc.")</i></p>	<p>The Commission has used this authority as a condition for approving market-based pricing applications and power pool restructuring. RTOs are an effective and appropriate regulatory tool to assure that applicants do not exercise market power. FERC imposed conditions on the PJM and California ISOs to assure independent governance without which the operational unbundling commitment would be illusory. The same authority can be used to address issues of membership and participation where there are concerns over exercise of market power.</p>
<p>§206 <i>16 U.S.C. §824e (1988)</i> <i>("Unjust or preferential rates, etc.")</i></p>	<p>This section gives the Commission broad authority to remedy undue discrimination and redress anticompetitive conduct in transmission services. Just as FERC has utilized these authorities to assure that ISOs are independent in governance and have appropriate safeguards to avoid utility domination, so too FERC may impose conditions related to size and scope.</p>

