The Commission’s efforts to develop competitive electricity markets in the United States has gone through four principal stages:

- **Stage 1 – Pre-Order 888:** Integrated utilities were required to allow third parties open and non-discriminatory – or “comparable” – access to their monopoly transmission systems.

- **Stage 2 – Order 888:** Integrated utilities were required to publish Open Access Transmission Tariffs (OATTs) that provide both utility and non-utility users “the same” access to monopoly transmission services.

- **Stage 3 – Order 2000:** Integrated utilities were required to create independent Regional Transmission Organizations (RTOs) to define and administer OATTs, and to assure market-based management and pricing of energy imbalances, ancillary services, congestion and transmission rights.

- **Stage 4 – A Standard Market Design based on LMP and FTRs:** RTOs are required to be “large enough,” and will – one hopes – soon be required to use locational marginal prices (LMPs) and financial (or firm) transmission rights (FTRs) to manage and price energy imbalances, congestion and (ultimately) ancillary services in an integrated dispatch/spot market process.

At each stage in this decade-long evolutionary process, the Commission has acknowledged that its earlier policies were inadequate to create effective and efficient competition in electricity and has taken steps to correct the situation. This willingness to experiment, and then to acknowledge and remedy shortcomings in the resulting policies, is very much to the Commission’s credit. But any such trial-and-error evolutionary process inevitably produces concepts and processes in earlier evolutionary stages that are unnecessary or even counterproductive later. At some point, the unproductive growth from earlier stages must be acknowledged and pruned away if the new ideas and processes are to thrive.

The purpose of this Technical Conference is to discuss the allocation of RTO characteristics and functions among separate organizations within an RTO region, with particular emphasis on the role of the RTO itself relative to the role of an Independent Transmission Company (ITC) or Transco. This is a difficult and contentious issue for several reasons, including the lack of clear and generally accepted definitions of basic terms such as “RTO,” “ITC” and “Transco.” But a more fundamental problem is that many of the RTO characteristics and
functions themselves are vestigial left-overs from earlier – and unsuccessful – stages in the evolution of competitive electricity markets.

It will not be possible to develop a clear understanding of or consensus on the allocation of RTO characteristics and functions until these characteristics and functions are defined in terms relevant to the successful market institutions and designs that are now emerging – all of which are some version of the Standard Market Design based on LMP. For example, we now know that truly nondiscriminatory access cannot be provided by an integrated monopoly using an OATT that looks like a traditional tariff, but requires detailed rules defining an integrated dispatch/spot market process operated by an entity independent of any market participants. For this reason, the list of functions to be allocated among the RTO and other entities should include the design and administration of a physical access tariff as one function, and the design and administration of an integrated dispatch/spot market process as a very different function, not a single “tariff administration and design” function covering both.

As another, closely related example, it is now widely accepted that Total Transmission Capacity (TTC) and Available Transmission Capacity (ATC) between two points on a looped system cannot be defined or measured independently of the dispatch, and that managing congestion, parallel path flows, energy imbalances and interregional coordination are all parts of a single system control or dispatch problem that must be solved in real time, ideally using a full system model. The list of functions to be performed by an RTO should include this integrated dispatch/imbalance/congestion management process as a single function, not calculation of TTC/ATC and management of congestion, parallel path flow and interregional coordination as multiple separate functions that might be performed by different entities.

If the basic RTO functions are defined as the logically integrated functional modules that are necessary in the Standard Market Design based on LMP and FTRs, the problem of allocating RTO functions becomes much more manageable. The most essential condition is that the RTO must define, and either the RTO itself or an independent system operator (ISO) must operate, the integrated dispatch/spot market/LMP process. Once this essential condition is met, the other required functions can be allocated among various entities based on pragmatic considerations of independence, cost-effectiveness and consistency of incentives with socially desirable outcomes.

The real issues here concern the division of responsibilities among the RTO, possibly an ISO under RTO oversight or contract, and any ITCs or Transcos in the RTO region. In terms of the functions listed in the matrix of RTO responsibilities distributed by the Commission with the February 14th Notice of this Technical Conference, the RTO – itself or through an ISO – should perform those functions related to defining real-time operations and prices, such as: making transmission control decisions (based on information from the transmission owner/operator; implementing TLRs and interchange schedules; redispatching for emergencies, congestion, parallel flows and imbalances; and procuring and deploying most ancillary services.
An ITC or Transco should physically maintain and operate its grid assets, provide interconnection services and take the lead in defining and seeking Commission approval for the tariff and rates designed to recover its costs (including reasonable profits) and provide incentives for performance. Such incentives may include payments based on the availability or performance of assets relative to some expected levels, or the right to sell (or obligation to buy) incremental FTRs resulting from increases (or decreases) in transmission capacity. But other than such clearly defined incentives, an ITC or Transco should not, and in an LMP world logically cannot, be responsible for managing real-time congestion, “maximizing transmission service,” or selling “non-firm services,” because all of these functions are performed as an integral part of the dispatch/spot market/LMP process.

The RTO/ISO and ITC should cooperate to perform studies, establish procedures and plans, schedule maintenance outages, etc. Functions related to TTC and ATC should be redefined to be more relevant in an LMP world and then assigned to the RTO/ISO, with information provided by transmission owners/operators. Market monitoring procedures should be defined by the RTO – or, better, some other independent entity, given that the market monitor may need to criticize the RTO’s market design or implementation.

Planning and implementation of transmission expansions is a complex and contentious issue for which there is no perfect answer. The RTO, ITCs/Transcos, market participants and even sponsors of potential “merchant” transmission projects will all play a role in identifying transmission needs and analyzing alternative solutions. Final decisions will almost always be made in some regulatory process. The only thing that is clear is that transmission expansion decisions should not and will not be made unilaterally by an ITC or Transco.

Sponsors of for-profit Transco proposals often strongly object to the type of allocation of functions I have just outlined, saying that it would make their business uninteresting, unprofitable, unable to attract investment or not a real business at all. There is little basis for this position, if only because none of the Transco alternatives have been defined in enough detail to allow anybody to know just how they would compare as businesses. More fundamentally, however, the most boring regulated monopoly business can be very profitable if regulators allow it, and will have no difficulty attracting investment if it is, while the most exciting business can be strangled by its regulators. A Transco performing the functions outlined above can be given strong profit incentives to perform in certain ways. It is never easy to design performance incentives for a monopoly that will always reward and motivate the “right things,” but this is at least as true for a Transco that has larger and more “interesting” functions than those suggested above.

I have said little about whether the RTO, ISO, ITC or Transco should be “for-profit” or “not-for-profit,” because I think this issue is largely a red herring. Any of these entities can be a for-profit company and most of them probably should be, at least eventually. The management of non-profit entities can be given personal financial incentives to perform well. If it is hard to know when the management of a non-profit infrastructure monopoly is performing well, how does it help to make the monopoly a for-profit company? The same regulators or governing body who do not know how to reward non-profit management will also not know how much profit to allow the for-profit company; and the potential mistakes

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February 15, 2002
may be much larger and more costly when setting a profit function than when setting a management bonus function.

Finally, a word about “independence” – what it means and how to assure it. Infrastructure monopolies should be independent, both in the sense that their decisions should not be influenced by any market competitors and in the sense that they should not be affiliated with any market participants who might be affected by their decisions. ITCs, as owners of and potential investors in grid assets, inherently compete with generators, demand-side options and merchant transmission companies, because these entities provide services that can and do compete directly with the existing and/or potential new grid assets of ITCs. For this reason, ITCs should not be allowed to make either operational or investment decisions that affect the value of existing or prospective grid assets – although ITCs may be allowed to compete with other entities to provide grid assets when some other entity such as the RTO is making the final decisions.

Conversely, if grid owners are not in a position to make operational or investment decisions that affect the value of grid assets, it may not be critical that they be totally independent of competitive generators and traders. As long as the dispatch/spot market process and the investment decision processes are managed by someone else, it may be acceptable to allow grid owners affiliated with generators and traders to provide grid services under incentive arrangements and to compete to provide new grid assets.

In summary, the critical issue in allocating RTO functions is to assure that the RTO, itself or through an ISO, defines and administers an integrated dispatch/spot market process based on LMP – what is becoming known as the Standard Market Design. Once this is done, essentially all of the real-time RTO functions will have been allocated to the RTO/ISO. An ITC or Transco can then focus on operating its grid assets under instructions from the RTO/ISO, providing interconnection services and cooperating with the RTO/ISO to provide grid information, perform planning studies, define procedures for coordinating maintenance outages, and similar longer-term matters. If system planning and investment decisions are also made by somebody other than the ITC – as they should be – the ITC can compete to provide new grid assets and may even be affiliated with competitive generators and retailers.

There is no fundamental reason that an ITC or Transco performing the functions and given the incentives outlined above cannot be a viable business that attracts all the investment capital it needs. Indeed, an ITC or Transco that stays out of system operations and planning in this way may have more freedom to compete than one that is more involved in operations and planning matters that should remain with the RTO.