

# ***Today's New Transmission "Game"***

## ***A Guide for Cogenerators/IPPs***

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### ***ABSTRACT***

This article is directed to cogenerators/independent power generators who seek to export excess power generation to the grid for market sale.

The issues discussed are valuable reading for any form of generation project which is, or will be, connected to the grid. Whether a project requires grid access for purchasing back-up or standby power, for operating in synchronous parallel for ongoing supplemental site supply, or for exporting excess generation onto the grid for sale, it is imperative that project developers address grid interaction issues early on and as a priority project consideration.

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At the large end of these generators are "IPPs"—Independent Power Producers, often with utility-size generation plants.

Farther down on the scale would be what are called "Inside the Fence" generation projects, typically cogeneration ("CCHP" combined cooling, heat & power) plants, ranging from large industrial, commercial, and institutional installations to city-wide district heating and cooling projects.

Small-scale and micro cogen systems are potential players in the new game.

Although the more complex, problematic issues generally pertain to larger projects planning to export power at higher, transmission voltages (generally at or above 69,000 volts), similar consideration issues are valid for lower voltage (distribution grid supply) projects which will have a need for utility system interconnection.

**In today's evolving and competitive electric energy markets, the power generators' "relationship" with the electrical transmission system can make or break a project. While the issues are complex and sometimes highly specific to a particular region, the ability to effectively interface with the transmission grid will be a key issue in determining a potential project's viability.**

## ***SOME BACKGROUND: HOW THE RULES WERE SET***

Except in rare circumstances, prior to 1978, utility (transmission and distribution) systems were the sole domain of utility operations. Customers were allowed to connect to the utility grid for their power purchases as long as they abided by the appropriate "service standards." Otherwise, non-utility entities had basically no "rights" beyond obtaining power supply service. Utilities operated their grids to ensure their operational protection and for the safety and consideration of all customers. Typically they interconnected with neighboring utility grids, and in some cases were participants in regional supply and reliability organizations, usually on a voluntary basis.

In most cases, a site which chose to generate its own power was at the mercy of stringent utility service regulations which did not promote or, in some cases even allow, such activity. To preserve their control and protect their system, most utilities did not allow active interconnection from an independent generator, or they required extensive interface equipment, which was typically not cost effective.

Even in the few circumstances when interconnection was possible, utilities required prohibitive control over the connection to "protect" their system and there was rarely any economic value in selling excess power to a utility.

Supporting the utility ownership and control issues was the fact that the technology and control monitoring systems available in those days did not readily allow the seamless interconnection that is available today. Basically, before 1978, industrial customers who could cost-justify

site generation implemented their projects in isolation from the utility grids; everyone else just bought their power from the utility.

## ***THE FIRST “ENERGY CRISES”***

Along came the “energy crises” of the mid-1970s and by 1978 Congress had passed the Public Utilities Regulatory Policy Act, PURPA, regulations which opened the door for the propagation of cogeneration to more efficiently utilize the nation’s energy resources.

Among other things, PURPA required that cogeneration facilities which met certain qualification criteria be allowed to interconnect to the utility’s grid without unreasonable restrictions or punitive costs. While PURPA allowed mandated access for a select few, it paved the way for future open access to utility grid systems.

With the Energy Policy Act (EPAAct) of 1992, the Federal Energy Regulatory Commission (FERC) was authorized to permit bulk wholesale electricity trading and set the stage for future “open access.” Finally, in 1996, FERC ORDERS 888 and 889 opened the grids for wholesale power trades, mandated open and fair transmission service, required utilities to make available certain “grid status” information to non-utility users, and established certain standards of conduct pertaining to the utility’s dealings with these issues.

Most recently, on December 20, 1999, FERC issued ORDER 2000 which implies strong action to encourage utilities which own, operate, or control interstate transmission facilities to initiate a process for future “voluntarily” participation in a regional transmission organization, RTOs. Specifically, under ORDER 2000 all affected utilities were required by October 15, 2000 to file:

- a proposal for a Regional Transmission Organization (RTO), or, alternatively,
- a description of any efforts made by the utility to participate in an RTO,
- the reasons for not participating and any obstacles to participation, and
- any plans for further work toward participation

Under ORDER 2000, all transmission-owning utilities are expected to voluntarily join a RTO by Dec. 15, 2001.

The FERC believes that appropriate RTOs can successfully address the existing impediments to efficient grid operation and competition and can consequently benefit consumers through lower electricity rates and a wider choice of services and service providers. In addition, FERC anticipates substantial cost savings as the result of the formation of RTOs.

The clear “intent” of this order is for the future ownership and control of the transmission grid system to be placed under these RTOs in order to ensure that the system provides for open, transparent, efficient, and nondiscriminatory access and operation. While initial RTO filings were made in mid-October, 2000, details of recent activity regarding these RTO issues was not available at the time of this writing.

Due to recent concerns of grid over-capacity issues, combined with increasing power demands, lawmakers passed the Electric Reliability 2000 Act, which is intended to transition the North American Electric Reliability Council (NERC) into a self-regulatory reliability organization. The “Act” is to address, among other things, power outages, system margin issues, and prohibitive price spikes in spot markets. Compounding the problematic issues is the fact that most utilities have not invested in significant grid improvements for at least the past 10 years because of the uncertainty of regulatory changes and questionable investment returns.

## ***THE BASIC “GAME”***

Technically, wholesale transmission access is “open” today, at least within the system’s design limitations. In reality, actual access comes with a mirage of regional, regulatory, and utility operational “red tape.” While real problems do exist and need to be addressed, a slew of phantom problems seem to cohabitate and are propagated by current system owners/operators (typically utilities) who would seem to benefit from delays in opening the systems and divesting their control and/or assets.

In fact, Virginia congressman Tom Bliley who has spearheaded legislation to open the nation’s electricity markets to competition reportedly contacted various public utilities last year, asking them to immediately cease all efforts to undermine the proposed federal energy deregulation bill. It was rumored that these utilities were supposed to have funded many millions of dollars into lobbying efforts to scuttle ongoing

deregulation legislation.

Regulation issues are changing almost daily, and as if big business politics were not enough to contend with, elaborate and dynamic processes to access the grid change regularly as new technical considerations and legal regulations evolve. What is the "official" process and requirements today, could well be quite different 18 months later when a project is completed and ready to start-up.

**Independent developers around the country have protested unrealistic, cumbersome processes with excessive time delays being managed by grid operators, which again, are typically regulated utilities with vested interest in the regional grid areas they control.**

FERC's "intentions," as stipulated in its Order 2000, seem to indicate that they prefer to "regionalize" the grid and move the control to entities with no direct regulated utility ownership in order to improve reliability, provide non-discriminatory access, and provide for system investments (something not done by most utilities for the past 10 to 15 years) to increase reliability and accommodate the nation's growth and future energy requirements.

*[Although slightly outside the scope of this article, the following is a note to QF projects. A project which can achieve FERC 'Qualified Facility,' QF status (which requires a high level of thermal recovery for useful process needs and is typically a cogeneration project instead of the gross power export merchant plant project) still maintains PURPA rights to mandated utility interconnection and a "must buy" for all excess power from the local utility at "approved avoided costs rates." Keep in mind that most market players today are looking for higher sale opportunities than "avoided costs." However, it is unclear how long these QF 'rights' will continue as deregulation progresses. A good assumption is that they will phase out at some point coincident with full, national deregulation and the phase out may not grandfather previous interconnection agreements. The QF project manager should stay abreast of these developments and make contingent plans to access the grid in a deregulated market without QF "protection." Early planning here could save costly adjustments in the future.]*

As a note on a related topic, it is important to keep in mind the potentially unstable price and delivery issues associated with grid power transactions. Price spikes at almost ridiculous levels have plagued the spot markets for over 3 years now. The recent California

situation serves as a model of just how bad things can get.

The federal government and regulatory agencies have considered “price caps” under certain circumstances and some operators have imposed trading price “ceilings” of sorts. Complicating these matters is that even firm contracted delivery can be ‘shut down’ due to certain declared “emergency” grid conditions which could “potentially impact” the safety and integrity of the grid.

The system control and policing operators currently have full authority in these matters and in a disputed circumstance it could take months before a clear (or unclear) “reason” for certain actions is made available to affected parties. A party who is ‘shut down’ could stand to lose plenty if his alternative is to turn to spot markets or alternative delivery options to replace his supplies.

**Make no mistake: the “game rules” are by no means set in concrete.** Problems such as those seen in California will likely result in modifications to the “game” such that current strategy may need to be revised. To say this will be a dynamic “game” is certainly an understatement. Be prepared to adapt to rule changes as your project develops and operates.

## ***THE TRANSMISSION “GAME” STRATEGY***

The following is offered as a “beginner’s guide” to assist in the transmission access process. It is by no means comprehensive. Keep in mind that the “game” is dynamic, and changes are to be expected, especially as problems are encountered and resolved. Key “gaming tips” include:

- Be aware of the potential problematic issues
- Stay abreast of dynamic developments at national and regional levels impacting these issues
- Keep communication open and active with your local utility or TSO and document all understandings and changes
- Be careful in paying for services and considerations which may not prove useful or valid by the time your project starts up

Keep in mind that there are at least three distinct issues affecting transmission access:

1. PHYSICAL ACCESS FACILITIES AND EQUIPMENT includes having the geographical location to “get on the grid” with the appropriate tie-in and safety systems. Primary considerations include line extensions, substations, synchronous operational control, and the standard high voltage protection and safety systems.
2. INTERCONNECTION REQUIREMENTS AND AGREEMENTS may require that “grid impact studies” be performed and investments could be required to upgrade the system in order to accommodate the new capacity at that location. Be aware that there could be a time value in “getting in line” as the earlier petitioners may have access to the excess, “free” capacity left in the existing system, where latecomers may have to ante up for system improvements to accommodate their needs.
3. TRANSMISSION SERVICE AND CONTRACTS to actually be able to move power from point A to point B once your plant is up and running and interconnected. This process involves reserving capacity along a particular delivery route, which ensures that the system will have the available capacity to move your power. Again, waiting lines could form and costs could be incurred to get this access depending on where, when and how much power you plan to move.

**It is important to note that completing steps 1 and 2 but not actively addressing step 3 could have you “all dressed up with no place to go!”** A project may have the physical connection and the approval to interconnect, but without a contract to actually reserve system capacity to move the power, there may not be any open capacity to allow the actual movement when desired.

#### THE TRANSMISSION ACCESS “GAME”

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Physical Access: Facilities & Equipment

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Interconnection: Requirements & Agreements

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Transmission Service: Rates & Contracts

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It is critical to allow for project planning time and costs associated with the above issues, which could become excessive and reduce your project's value. Assess the issues early on, legally document your activities, and secure contracts and agreements whenever appropriate. However, be careful about any payments before you are comfortable with both the entire access process and the total costs inclusive at all levels. It is highly recommended that project managers address all 3 levels simultaneously at the project's initial phases and as an ongoing project activity.

## ***FINAL TIPS***

The issues facing transmission access will vary as a function of the exact location, the transmission operator involved, and the exact circumstances of the project. There is no "cookie-cutter" approach to this problem as yet nor is there one anticipated in the near future. Unfortunately, each project will likely have its own "process." However, awareness of the issues presented in this article should go a long way in assisting in that process.

While the local transmission operator may be viewed as a "obstacle" to your project's success, the recommendation is to avoid this type of relationship at all costs. Operators will have a formal process established to gain appropriate access to their system and most will be willing to support you in navigating their process. It is important to identify the appropriate contact person and to keep an open communication channel throughout all phases of the access negotiations, especially in the beginning.

Because this whole transmission "game" is evolving as it is played, it is also advisable to keep abreast of recent transmission system rulings and orders as issued by FERC or addressed by other regulatory agencies. Accordingly, awareness of your project's "rights to fair transmission access" is important as well as your recourse should you reach an impasse or feel you are not being dealt with fairly. This is especially true if you suspect that a local operator may have direct or indirect "ties" to a regulated utility or its unregulated entity such that these "other entities" may be the beneficiaries of certain "questionable practices or procedures" that you find hinders your project's success.

In this same vein, it has been recently suggested that there exists

the possibility for established utilities to use their “influence” over local transmission grids to benefit their own objectives (even at the expense of new generation project development). Again, just the simple awareness of the possibility for such activity may prove valuable.

**Eventually, it is the goal of regulators and lawmakers to make this entire transmission access issue a “non-issue” of sorts. The future will see well-established processes for transmission access with appropriate guidelines in place to facilitate smooth compliance. In the future...**

**But for now, the “game” will play on.**

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#### ABOUT THE AUTHOR

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