

**Special Session:
Retail and Wholesale Transmission Markets:
Can They Be Unified? Defining the Issues and the Ramifications**

**Harvard Electricity Policy Group
Grand Hyatt Hotel
Washington, DC
March 19, 1999**

Rapporteur's Summary*

There is a curious divergence between the debate over how to provide access and price transmission services, and the real source of the bulk of transmission revenues. The fact is that a small component of the revenues derived from transmission comes from unbundled, discretely priced transmission services. The preponderance of the revenue comes from bundled retail rates, the amount of which is determined in the traditional, cost-based, rate of return manner. The net effect of the relationship between wholesale and retail transmission ratemaking is that retail customers bear the ultimate, residual responsibility of meeting the transmission revenue requirements of the utilities which own transmission assets. Any revenues derived from non-retail sources go to offset that residual revenue responsibility, thereby rendering transmission investment a zero sum game for utilities. They are, setting aside regulatory lag considerations, neither able to profit from efficient use of their assets, nor to lose from inefficient use. The gains and losses are exclusively those of the retail ratepayers, the market participants who arguably have the least to say about the deployment and use of assets. At the same time, the majority of power use is in the retail sector. Hence, efficient transmission access must merge or provide comparability for both the smaller, but growing, number of wholesale transactions and the predominant use in meeting native load requirements.

A number of issues necessarily arise from the divergence between efforts to set efficient access and pricing for transmission services and the fact that the actual mechanism by which the predominant revenue flow is determined has remained almost universally unchanged from traditional rate of return methodology. Some of these issues are as follows:

- 1. How can transmission pricing signals be sent to retail customers, particularly large ones? If such signals cannot be sent, then what benefits remain of an efficient pricing regime? What is the connection between congestion management issues and pricing to recover embedded costs?*
- 2. With the divergence between retail and wholesale transmission pricing regimes, how can FERC truly judge issues related to comparability?*
- 3. How will TLR work for retail customers?*
- 4. Should existing transmission assets be removed from retail rate base? How will such a transition take place?*
- 5. Should a single access regime apply to both retail and wholesale markets?*
- 6. Should sunk costs be treated differently than new investments? If so, who should bear what costs? What benefits, if any, should accrue to those customers who bear a disproportionate share of the costs, in exchange for bearing that burden?*
- 7. What jurisdictional issues are there in trying to manage wholesale and retail transmission services?*

Morning Session: Identifying Problems with the Current Situation

* HEPG sessions are "off the record." The Rapporteur's Summary captures the ideas of the session without identifying the speakers.

Speaker One

Historically, utilities planned to meet their native load requirements, and transmission was just the vehicle for moving energy from generation sources to load centers. Recently, however, as wholesale markets have changed, people have started to pay attention to transmission issues, although not a lot has actually happened. Indeed, most states continue to pass transmission costs on to retail customers using bundled, cost-of-service regulation, which fails to send price signals to the end users.

If a utility company builds a transmission line, and the state commission deems it a prudent investment, all of the revenue requirements will be met by the retail customers. That is, the customers bear the residual revenue requirement. For utilities who own transmission assets, this creates a zero-sum game. They can't gain or lose too much, because any revenue derived from wholesale transmission activities is offset against the revenue responsibility borne by retail customers. For example, if a utility doesn't allow access, that doesn't affect its bottom line because the retail customers will pay whatever revenues are required. On the other hand, if a utility does provide access, the revenues they derive from that efficient use of their system are again just offset against the retail customers' revenue responsibility. In the past, this regime was not terribly problematic because there was no mandatory access at the wholesale level. But now that has changed, so why should retail customers continue to bear the residual revenue responsibility?

Very few states are really looking into this question in a serious way, even though the National Association of Regulatory Utility Commissioners passed a resolution in the early 1990s suggesting that a more efficient transmission pricing regime be found. Why has there been such inactivity at the state level? One reason is lethargy. Another is that state regulators never thought about transmission separately, partly because it only represents a small fraction of overall costs, and so was ignored in the big battles over energy prices in the 1970s and 1980s. A third reason is just that it's a daunting challenge to figure out how to unbundle transmission, price it, allocate costs, and so on.

There are also some legal reasons for the states' inactivity. One is the fear that state jurisdiction over transmission applies only to bundled retail service. Although the courts have never addressed this issue, there seems to be a common view — which I'm not

sure is accurate — that once you unbundle transmission it falls under FERC jurisdiction. Another legal reason is that state certification and siting laws frequently require that the benefits of the lines being sited accrue to ratepayers within the boundaries of the state. So, if sites are approved, the lines are by definition prudent, and therefore get put into the rate base, with the residual revenue responsibility on the retail ratepayer. A third legal problem is the question of stranded assets — if states remove transmission from rate base, either setting up their own pricing regime or acquiescing to FERC jurisdiction, then utilities might not be able to recover the full cost of their prudent transmission investments.

Another issue, which is partly legal and partly about equity, is the priority given to native load customers when retail transmission service is unbundled. One might argue that they'll get what they're willing to pay for but, on the other hand, these are the people that built the system and supported it financially for years — why should they suddenly be deprived of priority access to those assets? If they are, what kind of compensation should they get?

The fact that states have done almost nothing about changing the residual revenue requirement on retail customers causes problems for FERC, which has staked its access regime on the notion of comparability. Utilities have to provide access to the grid to anyone who wants it, but wholesale customers don't bear a residual revenue responsibility, so if you want to argue that native load retail customers should get a higher priority, because they are bearing an inordinate amount of the financial risk associated with the transmission system, that's not entirely unreasonable.

There are some who argue that there ought to be for-profit transmission companies (transcos), but it's difficult to understand how they could exist without pre-empting the states' current transmission pricing regimes. As long as the retail customers bear the residual revenue responsibility, the profits utilities can earn from transmission are going to be capped at a level decided by the states, not FERC. Those arguing in favor of sending price signals with for-profit transmission need to think carefully about whether they are also in favor of states being pre-empted.

So what do we do? I have two suggestions. The first is to continue improvising. For example, some argue that the long-term solution is what PJM is doing.

Although they may provide a long-term model for making the transition, I think that in the short run there are a lot of fairness issues they haven't dealt with. The second is to figure things out through dialogue between FERC and the states. States have to decide what they are going to do with retail transmission — the retail market has changed fundamentally, and the pricing regime for transmission needs to be changed with it. Otherwise we are going to be left with a lot of inefficiencies.

Speaker Two

The legal status quo makes three distinctions that are both counterintuitive and counterproductive, namely those between wholesale and retail sales, between native and competitive loads, and between FERC and state regulation. None of these distinctions is connected to economic efficiency, to the implementation of competition, or to inter-ratemaker equity, and, as states enact retail competition legislation, the difficulties that occur because of these three dichotomies is getting worse.

Let me give you three examples. The first is the question of how one assures comparability when state ratemaking departs from cost-of-service ratemaking. As the previous speaker pointed out, there's a premise in state ratemaking today that the retail ratepayer is the residual guarantor of transmission costs, which, by itself, creates a comparability issue. But when states pass laws saying they're so insecure about the benefits of competition that they need to have an artificial rate cap, they're actually making it impossible to get a transmission price signal. And anyway, when there are legislated discounts for large customers, you've lost any chance of making transmission price signals relevant.

The second area of uncertainty comes with the concept of default service. States which are implementing competition are saying that customers who can't find a supplier, or who get thrown out by the supplier they have, need a last resort service. Some states plan to have a competition to determine who's going to provide that default service, while others say the incumbent utility will have to provide it. Either way, the uncertainty as to the transmission pricing regime for customers who stay with the default service, as opposed to shopping around, is so great that even FERC isn't clear about it.

Are customers who don't shop native load for purposes of Order 888? Do they have higher priority of use? Do they enjoy the transmission pricing regime that goes along with traditional bundled retail

service, or are they considered unbundled retail transmission customers, subject to the comparability rule? If the latter is the case, i.e., if every state that passes retail competition legislation creates a default service that sends customers into the FERC regime, much of the problem will slowly be eliminated. But if there's going to be a fight about whether default customers are considered native load, then we'll get significant political battles, because a state commission about to award default service to someone other than the incumbent will be accused of plunging retail customers into the pricing and access uncertainties of Order 888, instead of keeping them in the secure, bundled, retail regulated service.

The third example is phase-ins. Some of the new state statutes give customers the option to shop, but don't require them to do so. Thus, you've got a situation in which customers are told by the incumbent, "Don't shop because that'll send you to the FERC pre-empted area, where your access and cost recovery are unclear, and the pricing is this new congestion cost. Why not just stay with us?" It seems utterly inconsistent for a state legislature or commissioner to be committed to retail competition, yet be opposed to the unification of transmission pricing. Even under Order 888, the notion of comparability is incomplete — on paper, it seems that a utility's use of its own transmission system has to have the same priority as the use of that transmission system by others, but in practice, because of differences in transmission loading relief procedures and pricing, we don't have comparability.

Now let me discuss some solutions, initially without regard for their political implications. What we're trying to achieve isn't disputed. The three goals I've heard most frequently are: fair compensation for ratepayers who've historically been the cost supporters of the transmission system, comparability of access and price between shoppers and non-shoppers (without regard to whether their use is retail or wholesale, bundled or unbundled), and finally, efficient price signals.

What are some of the options for unifying the retail and wholesale transmission regimes? Once you realize that unification is really just preemption, it focuses the debate on the three dichotomies I mentioned at the start. I think the solution we're slowly heading towards is some combination of the four elements needed to get to a competitive retail market that operates efficiently, namely:

- Making all transmission subject to a single access and pricing regime (I don't know how productive it is to call it wholesale or retail).
- Compensating the native load customers who have been the historic cost supporters of the transmission system (this is a small cost in terms of dollars, but seems to have the highest political priority).
- Phasing out native-load priority — having come up with, e.g., a one-time charge, unrelated to transmission usage, by which all non-native-load ratepayers compensate native-load ratepayers for their historic cost support, the native load should be charged the same as all load for prospective usage (the fact that native-load ratepayers have historically been cost supporters shouldn't mean they permanently get to be at the front of the line).
- Focusing on ways to reconcile revenue requirements with economic efficiency — there must be some way to use excess revenues from congestion management to produce the proceeds for the one-time payoff to the native load ratepayers who made the historic contribution to sunk costs.

Finally, let me address some next steps. First, on a jurisdictional level, I think there's only one way to interpret the Federal Power Act on the issue of unbundled transmission, and FERC has it right: "Transmission service" in the Power Act means unbundled transmission service, so the present statutory scheme — not the state commissions, not FERC, not Congress — is the direct cause of our problems. Unless FERC orders every utility to shift control of transmission to a regional entity that would implement a unified pricing and access regime, the only option is to change the federal statute. I doubt that FERC has the authority to do this directly, and even if they do, the transfers still have to be passed by the states who presently have jurisdiction over the utilities, because there's nothing in the Power Act that preempts the states from exercising their historic jurisdiction over transfers of control. So nothing can happen unless the states volunteer to transfer control, and there's a mixed record on that.

Finally, let me note that some of the most thoughtless opposition to multi-state control comes from people who are about to leave the state commission. What happens is a form of musical chairs, in which people talk about states' rights when they rotate into a state commission slot, but as soon as they leave it doesn't seem so important anymore. So the states' rights flag gets raised, often with willing accomplices in state commissions, by utilities who want to protect a

revenue base obtained through government grant rather than through merit. Indeed, I've been struck by how little argument about the preservation of states' rights is seen in state legislatures, who instead tend to be focused on questions of who's going to get stuck with stranded costs, which utilities are going to hold on to their trade names, and so on.

Speaker Three

The federal-state split, though reflecting political reality, is one of the primary reasons why restructuring is so hard in the United States, because no regulatory body is in charge of the full range of issues. Some might argue that this is a good thing, because the division of regulatory and policy responsibility operates as a political check and balance, much like Congress checks the president. But it means that we need to approach these issues intelligently, with federal and state policymakers respecting each other's legitimate concerns.

I believe that FERC did the right thing in conducting extensive consultations with state regulators on whether the federal agency should move forward with its transmission policy. After all, 80 to 90 percent of transmission revenues are under the control of the states right now, so they have a huge role to play.

Order 888 dealt primarily with wholesale market issues, based on the philosophy that FERC has the responsibility to root out discrimination on the grid. But questions immediately arise: What is discrimination? Does resolving the issue of discrimination merely involve looking at competing wholesale uses? For the most part, Order 888 limits FERC's comparability determinations to wholesale uses, but that's not really satisfactory because the bulk of uses are retail native load. The Commission did declare that unbundled retail users authorized by state policy are subject to FERC jurisdiction with respect to rights, terms, and conditions. That policy is on appeal to the D.C. Circuit, but I think it's on solid legal ground.

In Order 888, FERC made no attempt to measure wholesale use against bundled retail native load, because it was striving to respect the federal-state split and not exceed its jurisdictional authority. Nevertheless, it's virtually impossible to weigh comparability in a meaningful way so long as native load uses are excluded from the calculations. Since native-load users bears the residual revenue responsibility, perhaps they should have superior rights, and comparability is not the right standard.

On the other hand, everyone is someone's native load, so everybody has paid the residual revenue requirement on someone's transmission system.

Along with Order 888, the Commission proposed a capacity reservation tariff, which had a number of goals, among them a bold step toward comparability: In theory, all bundled users and unbundled retail customers would reserve and pay for transmission capacity on a comparable basis. But the capacity reservation concept as proposed by FERC expressly excluded bundled retail uses in an effort to respect state prerogatives, and ended up being shelved because municipals, co-ops, and other transmission-dependent entities pilloried it for not, in their view, matching the quality of network service. But now may be a good time to revive it, so that the concept of paying for the capacity you reserve — no more, no less — can be given a full airing.

There's a petition pending before FERC to expand Order 888 to place all grid uses under the Order's tariff. The petition's arguments are couched in terms of comparability and non-discrimination, and there's no way to ensure non-discriminatory treatment for any particular use until all uses are on a similar footing. For example, the petitioners argue that at the moment there's no way to be certain that available transmission capacity is calculated in a non-discriminatory manner, and I think they're right. The tough issue is how to get from here to where they want to be.

The issue of comparability and discrimination between wholesale and retail uses also arises in the capacity benefit margin (CBM) debate. CBM is transmission capacity reserved for imports from other generation providers when outages occur, and it allows the transmission provider to lower its own generation reserves. But there are lots of problems — utilities don't pay for transmission in the same way as other users, and marketers argue both that CBM allows transmission providers to lock up capacity, and that utilities should pay for the CBM they reserve. If all uses of the system were on the same tariff regime, they claim, utilities could not play games with regard to CBM.

FERC has muddled through many of these questions with respect to ISO formation — there are a variety of ways in which different ISOs treat native load under their tariffs, or how FERC orders deal with them. FERC has been ambiguous because it wasn't willing to face these issues, but in the long term that will have to change. Even in the ISO context, although the agency hasn't had any transco filing so

far, when it gets one it'll be interesting to see how utilities propose to deal these thorny questions. It is very difficult to finesse a lot of these issues if you're taking all your transmission assets out of the rate base and putting them in a separate corporate entity.

Should native load that is unbundled by the formation of a transco get priority for use? The answer is probably yes. Should they get some compensation because they have paid for the transmission system under the residual obligation? In a transco model, it's hard to justify a separate tariff for retail uses, and there's no logic to a residual revenue requirement because no transmission would remain in the retail rate base, so why should retail consumers have the ultimate obligation to pay for it?

Speaker Four

As a power marketer, we're not tainted by the cost-based regulation of local utilities — we respond to price signals. Our role is to optimize the market by responding to prices, getting power to where it's needed, when it's needed. If prices are high, we bring power to meet that need, which ultimately drives the prices down.

The question posed today is whether retail and wholesale transmission markets can be unified. A better question is: How can they not be unified, if the goal is competitive wholesale and retail markets? The success of retail competition is dependent on a competitive wholesale market, and retail customers must have access to the wholesale transmission grid at competitive prices. About five years before Order 888, most energy was delivered by a local utility in the customer's control area. Today that's changing — power marketers are moving electricity across multiple systems to meet customer needs. If we rely on the same generators to serve the same load, then there are going to be fewer efficiency gains.

I want to address a couple of problems that we've encountered. First, the transmission capacity needed to complete physical trades continues to be controlled by vertically-integrated utilities, remaining out of reach to new entrants because it's bundled with retail sales to the captive native load customers, or held under contract so that it's grandfathered under Order 888, or it's held from the market under the guise of CBM, or (as we're seeing with the new ISOs) rights to the critical capacity are allocated, leaving only the scraps for the rest of us. The partially unbundled structure of the industry is the biggest obstacle to competition, providing incentives for transmission owners to discriminate and underutilize the system's

physical capability. Transmission providers are able to use the preferential status of their native load service to conceal discrimination. For example, one of the things that we've experienced is that the incumbent utility reserves for itself both all the incoming capacity (either as native load or under CBM) and all the outgoing power, with firm point-to-point. By doing this, incumbents can effectively block competitors from using their system.

We're also faced with the fact that there's more transmission capability available than is being released for sale. For example, prices spiked in PJM last summer and since then we've noticed that PJM has been releasing a lot less transmission capacity. In our view, they're controlling the amount of transmission that can be used to move power out in order to keep the prices down.

I want to address a couple of areas related to the lack of full comparability, which remains a critical impediment to competition. The first is pricing. Retail customers are being protected from the price signals of the market through a mechanism under which all the costs are rolled in, so there's very little movement in the price of power from year to year. Retail customers don't want to pay \$7,500 per MWh, they want price certainty, which allows them to budget at the beginning of the year knowing what their energy costs are going to be. Another point is that, in Order 888, FERC had it right when they required utilities to pay for point-to-point transmission service just like marketers. The problem is that the payments are put into an account, but then just sit there without the states taking advantage of them. In effect, the utilities aren't paying real dollars, because they're just making transfers to their corporate parent.

Another area where comparability remains out of reach is access. Through native load capacity, ATC exclusions, inaccuracies, and misuses, new entrants are denied the ability to evaluate market opportunities, and therefore prevented from having reasonable access to the grid. With respect to priority and quality of service, firm point-to-point remains at a lower priority than native load service, even though FERC has stressed that they should have equal priority.

What we're seeing in the market is a lack of sanctity with respect to service contracts. Many of the recent TLR re-dispatch filings that have been made at FERC prove our point. Utilities will provide re-dispatch service for native load and network customers to keep their business, but can, without financial

consequence, interrupt a firm customer who's paid a reservation charge. That's something we're hoping FERC will fix, because until point-to-point is equal to network and native load service, full competition is going to remain out of reach. Just because I'm using firm point-to-point instead of network service, I shouldn't be disadvantaged with a lower priority.

Finally, information is another area without full comparability. Utilities are able to deny us access to critical information, through incorrect or out-of-date postings of ATC or, in some instances, intentional withholding through CBM.

How do we solve these problems? More reporting isn't going to work, because people will find ways to get around it. What is really needed are structural reforms. We're proposing that the Commission completely unbundle all jurisdictional transmission service — including that to native load customers — from the wholesale and retail merchant functions, so that retail service providers are required to purchase and schedule transmission under the same open-access tariff as everyone else, relying on the OASIS system to get their information. The Commission should also consolidate all existing transmission services into a single, uniform service based on tradable transmission reservations, and collapse the currently fragmented control areas into appropriately structured, for-profit transcos and regional operating entities. The Commission should also reclaim the rules affecting the terms and conditions of transmission service, including reliability, and ensure that these rules are implemented equally for all customers, whether native load or point-to-point.

Discussion

Comment: From your remarks, it sounded like the utilities were calculating CBM, when, in fact, PJM calculates the CBM.

Response: I understand that PJM does it, but in other areas in the country the individual utilities calculate CBM for themselves and determine how much transmission they need to block. I don't know that they're conspiring to keep parties out but, if they're going to make reservations for native load, they should pay for that through a reservation charge.

Question: Another remark was that outward access is controlled by the utilities. I thought that if the marketer wanted access out of PJM, they could bid with anyone else for firm transmission. I thought it was all posted on OASIS, and allocated on a bid-based basis, so the more you pay, the more you get.

Response: My marketers tell me that in PJM, outward access is not even being put up for bid. There's a certain amount that's being held back from the long-term market, to be doled out a week or a day ahead. That's something that we experienced last summer — month-ahead capacity wasn't available, yet when you actually got to that month, capacity was available for a week, or even for a day. They were holding it back under CBM, and then making it available as it got closer to real time, when they determined that it wasn't needed.

Question: If all uses of the transmission system were put onto the same level playing field, do you feel that the native load customers would be entitled to any residual value because they have built and supported the system for many years?

Response: I would say no — native load customers should pay the same transmission rate for the local part of the service, and there shouldn't be an exit fee for customers leaving the system. It should just be recovered from everyone through the transmission rates.

Response: The native load customers have stranded assets. Native load in this context is actually fairly simply defined — it's those people that are paying cost-based regulation for transmission to the utility that owns the transmission assets. One of the ironies is that, in the name of protecting retail consumers, state regulators are actually putting them at greater risk. It's a small issue compared to the stranded assets some utilities may have in generation but, in terms of an equity argument, there ought to be some compensation. I agree that native load customers ought to pay on the same basis as everyone else, and that we ought to get on with unification, but we should recognize that somebody is bearing greater risks.

Question: You described the compensation of native load consumers for their past financial support of the transmission system, but I couldn't tell whether you were in favor of it or were saying that it would be inefficient and expensive, but should be done if that's the only way forward politically.

Response: The problem is only one of money, not of access priority, because I don't think that the way to compensate native load rate payers is to give them priority. To be clear, what is a native load? It's somebody who paid in the past who's continuing to buy bundled service. At some point, if you assume that we're all going to competition, then all that

distinguishes these particular people is that they paid in the past. The real solution would be to say, Everybody paid something in the past. Life is tough, let's just drop it.

Question: I'm wondering if this whole discussion is about a transitional issue, in that 18 states have already gone to a restructured environment where FERC has jurisdiction and there are no longer bundled customers or residual revenue requirements. The only exceptions are default customers, who are primarily residential customers, unable to respond to price signals because of metering and other issues.

Response: I agree it's a transitional issue, but the reason why it doesn't automatically go away is that the residual revenue responsibility is still part of the bundled rate you pay for the delivery of power. No state has an unbundled retail transmission rate, and I don't think jurisdiction automatically falls to FERC. That was the assumption in California, but I'm not sure it's actually happening.

Question: If the transmission assets are transferred to an independent transmission company, what happens to native load priority? It seems to me that it disappears. The transco amounts to a de facto unbundling of transmission from everything else, with all its customers contracting for service in some way.

Response: I think that's correct, but the forum for debate then becomes the proceeding before the state commission to determine whether to approve the transco. The financial question becomes: To the extent there's payment for assets in excess of book value, where do those proceeds go? Do they go to the former transmission owner? Do they flow through to the native load, in recognition of their up-front payments? It becomes a traditional gain-on-sale problem for disposition of an asset. Further, to describe the transfer as a single-state matter is an oversimplification — it's more likely to be a multi-utility, multi-state issue, where failure to come to a fairly quick solution, which makes everybody happy, means that the transfer never occurs.

Question: You mentioned that the FERC-required payment for point-to-point transmission goes into a fund that the states don't use. Could you explain a little bit more what the states should be doing?

Response: If money is simply moving from one corporate pocket to another, there's no real payment for that service. In our view, the states should be taking a look at those dollars to see what's

happening. One of the things we experience is that there's an awful lot of switching transactions back and forth between the merchant functions serving the retail customer and those participating in the wholesale market. When a deal ends up being profitable, it goes to the wholesale merchant, otherwise it's allocated to the retail function. Just as we get ready to schedule, we get a call to change who we're scheduling to, based on whether it ends up being a profitable or unprofitable deal. There are a lot of games being played that are very difficult to detect. We've been involved in one merger case where we've been trying to get the data to prove our point, but it's very difficult and time-consuming to prove that they're using their monopoly, rate-based assets to participate in the market. The payments should be used for the party taking the risk, which is ultimately the consumer, not the utility.

Comment: I'd like to start from the observation about this being a zero-sum game from the utility's point of view, but note that it's not a zero-sum game for the consumer. To the extent that the utility maximizes the use of the existing grid through trades that wouldn't have otherwise taken place, the current native-load consumer benefits, in that she's responsible for a lower revenue requirement. But to the extent that the utility builds additional lines in anticipation of trades, and they're not used to capacity, then it's the native load consumer who is at

risk. My understanding of Order 888 is that under certain circumstances there's an obligation to build that is not necessarily controlled by the utility's judgment about whether it's going to be good for native load customers. The general view is that, because there are price inequities, more transmission will lead to equalization of prices. But, for example, if you think about a state that's between a high-price region and a low-price region, building transmission to make those two markets equivalent is certainly not in the local environmental interest, and it may not be in the local economic interest, depending on the actual pricing of that line and what effect it's going to have on bundled rates. Now, maybe native load will soon disappear, because we'll all be competitive, but I'm not sure we're completely done with the issues of residential consumers needing to have price certainty, and not worry about whether things completely beyond their control are going to drastically change their electric rates. This is not only an issue for business, but also for ordinary citizens.

Response: One principle that ought to be clear is that those making the investment decisions ought to bear the risks, and also reap the rewards, of their choices. Clearly we don't have that at the present time. There is a real asymmetry, which skews the incentives. The balancing of risk and reward is critical, and its linked with creating incentives to maximize efficient usage of the system.

Afternoon Session: The Practitioner's Perspective

Speaker One

Can we unify retail and wholesale transmission markets? Of course we can. It's really not a big deal — we could simply treat large, aggregated retail loads like wholesale transactions, continue to treat small loads just like they are today, and let customers choose whether they want to move into the large load or stay in the small one. There's very little engineering difference between a city purchasing to meet its native load customers and the consumption of something like an automobile assembly factory, except maybe the factory is better from a system standpoint because it has a higher load factor.

Defining “wholesale” as large quantity purchases and “retail” as small quantity purchases automatically unifies the markets. Wholesale transactions would be assigned a direct transportation charge, while retail transactions would have transportation costs embedded into their bundled rates, just like today. The whole thing seems rather simple, and it's the way transportation is treated in nearly every other commodity market. Customers buying a gallon of milk wouldn't think about paying a directly assigned transportation charge, yet shipping takes place and milk gets onto the shelf. Those who buy milk in bulk are charged shipping costs directly — the commodity price is set in various markets, and the delivery price is the commodity price plus a shipping charge. The distributor might buy milk from a variety of different sources with various ratios of commodity price to shipping cost, and stores only sell milk they think is going to produce a profit. Asserting that retail electricity customers should be sent a transmission price signal in my view reflects a regulator's mindset, not the marketplace reality. Retail customers are not sent transportation price signals for anything else they buy, and electricity should not be an exception.

Steps should be taken to ensure that true competition is brought to the market by unbundling transmission. Although there are some real problems with unbundling, they have to be solved. For example, with a couple of specific exceptions, bulk power transmission is interstate commerce, which, in my view, states never had the legal authority to regulate. Nonetheless, states have regulated bundled rates for the last century, and they don't want to give up that right, which is understandable, but isn't a reason to establish complicated transmission pricing schemes.

There have been some significant developments recently: Over 60,000 MW of generation have been sold, creating competitive facilities; some utilities have talked very seriously about selling transmission; and transcos, by definition, would create unbundled transmission. These kinds of things will go a long way to create unbundling, but there is still some confusion over the issue of native load versus non-native load service. That's a false distinction, because everyone is someone's native load and every transmission transaction is a native load transaction — it's just a matter of whose native load it happens to be.

The term native load has been used very cleverly to exercise market power and discriminate in transmission areas. I won't go into great detail, but the North American Electric Reliability Council's (NERC's) recent TLR discriminates against utilities that have divested themselves of generation because as soon as you divest, all of your transactions are susceptible to interruption, but a vertically integrated utility can shield whatever it calls native load. We should strike the term native load from the jargon, and make sure that everyone who arranges transmission uses the same system and is treated the same. If we do that, it leads to what I originally thought was the subject of today's panel, namely transmission pricing.

Most transmission revenues come from retail customers through bundled rates, under the jurisdiction of state regulators. Allegedly this means that end-use customers do not receive proper transmission price signals and that this creates a zero-sum game for transmission providers. In my view, the real problem is market power caused by vertical integration and monopoly franchises, not transmission pricing. Transmission providers are rewarded handsomely for constructing and operating facilities. I'm sure other industries would be glad to have the opportunity to recover “prudently incurred” costs plus a fair rate of return. But I agree that under the present system, there is a strong incentive for vertically integrated entities to be inefficient in transmission, since by being inefficient they can protect their generation, which is where the big money is.

Also, we have to put the issue into perspective. Transmission represents only a small proportion of total costs — around 10 percent, compared to roughly 70 percent for generation — so we mustn't over-

engineer a transmission pricing regime at the expense of a competitive generation market. Second, we should approach transmission pricing just like we approach shipping for any other commodity. That is, generation and transmission should be unbundled, although individual shippers could have their own transmission networks if they want. Most end-use customers shouldn't be required to arrange their own transmission, because the transaction costs are simply too high, and intermediaries can do it for them. Most of the transmission activity would be upstream, with the large sales.

No matter how we treat transmission, though, it will not be competitive enough to allow a significant relaxation of regulation in the near future. In fact, during the transition (which could go on for quite some time), we would expect transmission owners to act more like local telephone companies, which are monopolies, or maybe railroad companies, which are somewhat competitive. Regulation should be cost-based, without any FERC sweeteners. Price flexibility for transmission would be very difficult but, as long as transmission is paid for upstream, then there's some flexibility as to how much gets passed downstream.

To be more specific, how could we price transmission during the transition period? Well, electricity is put into the interconnected grid at many locations and is removed at many other locations, and attempts to capture all the differences at each individual point are far more complex than is necessary. There are parallels to other pricing schemes — for example, if we decided to pay for roads through tolls, we certainly wouldn't put toll booths at every intersection, or even wherever there's congestion.

Transmission pricing must be simple and user-friendly. In other competitive markets, delivery services are generally of secondary concern to consumers. The primary concern should be to assure a competitive market for the product, which in this case is electricity. To get to this kind of a pricing scheme, though, is going to take a lot of work. Sections 203, 205, 206, and even 202a give FERC a lot of authority, which it should use to establish three, very large regional transmission organizations (RTOs). And FERC should take every possible action to require comparable treatment of every utility's transmission use. The idea of giving preference to native load is outdated and discriminatory.

FERC should aggressively use its conditioning and merger authorities. For example, it should deal much more seriously with market power issues to stimulate the creation of wires companies, and should modify pro forma tariffs. Actions such as these would allow the creation of a single, interconnection-wide, open-access transmission tariff, at least for the growing portion of transmission that has been released from dedicated service. Tariffs should be offered on a nondiscriminatory basis, approved by FERC and applicable to all wholesale and retail uses. Structuring such a tariff on an interconnection-wide basis would be a big step toward internalizing loop flows and eliminating pancaking. To make the markets work, we need to get to postage stamp rates and establish liquid, short-term, forward markets. Rates for transmission service should be provided in advance and assessed retroactively. The cost of new network transmission facilities should be recovered on a rolled-in, embedded cost basis, and not directly assigned to the incremental users of the network.

In conclusion, I think the most important thing is to make generation markets competitive, because most of the potential savings for customers are in generation. But significant actions will be needed to get there, and since it appears that the states are not ready to act, FERC must step in.

Speaker Two

How can transmission pricing signals be sent to retail customers? I don't think that's the right question. The real question is, *Should* transmission pricing signals be sent to retail customers? My answer is not necessarily, unless there's already:

- Retail choice. It doesn't make sense to give customers a price signal if they can't do anything with it (one exception may be large customers that have real-time pricing or the ability to buy through an interruption contract).
- Unbundled service. Transmission is a regional service, so it doesn't make sense to price it on a state-by-state basis.
- Comparability of all transmission services (and I agree that there should be no native load priority).

Even if price signals aren't sent, there are a lot of benefits to getting transmission pricing right in the wholesale market. If transmission is priced appropriately, the supplier of power — whether it's the local distribution company (LDC) or a vertically-integrated utility — has an incentive to minimize the cost of using that transmission service when

acquiring generation. The LDC becomes no different from a municipality negotiating the best transmission price.

In terms of the connection between congestion management issues and pricing to recover embedded costs, the issue is about allocating the residual revenue responsibility. Those who are involved in the Midwest ISO envision moving the revenue responsibility from the retail customer to the ISO, and therefore to all users of the transmission system. All customers with choice will get service from the ISO, which will have the responsibility to recover all the transmission owners' revenue requirements. Last year, the state legislature in Wisconsin passed a law that addressed a number of these issues. One result is the requirement that every transmission owner in the state must be a member of a FERC-approved RTO by June 2000. Another is the obligation on all transmission owners to take the transmission service for their native load from the ISO, or from the RTO, whichever it is. So the whole issue of whether the vertically-integrated utility has preferential treatment has already been dealt with in Wisconsin.

The Midwest ISO has treated congestion management costs by socializing them. If a company has an existing contract, and there's a congestion cost from re-dispatch, it gets blended into the overall cost collection process. Although there is a regulatory formula, basically everyone is paying that cost. The Midwest ISO is looking at setting up a bulletin board for customers to arrange and pay for re-dispatch if there's congestion.

How will TLRs work for retail customers? The entity contracting for transmission service will need to revise its transactions if it is causing congestion, and the retail provider will have to manage the service cutback. An example from last summer is where Company A had a contract for transmission with Company B that was interrupted more than 20 times. On some of those occasions, Company A had to interrupt its interruptible customers and reduce the reliability of its existing native load. It ended up being Company A's responsibility, as the load serving entity, to figure out a way to modify its customers' load or to re-dispatch its own generation, and it had to bear the cost of that re-dispatch.

Should existing transmission assets be removed from the retail rate base? If you have unbundling, and you make the assumption that FERC is overseeing transmission rates, the transmission function will be viewed as an external cost of doing business with the load-serving entity or the LDC. To the extent that

your capital assets are in your rate base, the state commission will still judge the prudence of the incurred cost. I have been told that the state commission in Wisconsin intends to view transmission expenses in the same way they look at coal or uranium contracts. They will judge whether a company has been prudent in lining up contracts and is making the most efficient use of whatever tariffs the ISO offers. If they agree that costs are prudently incurred, they'll let the company pass them along to the retail customer.

Should a single access regime apply to both retail and wholesale markets? My answer is yes. Certainly it is in place in states with retail access, although I still don't understand how a state can put a price on a transmission that's used in the interstate marketplace. In Illinois, the state law does not clearly say whether transmission prices have to be unbundled, or whether jurisdiction will be with FERC or with the state. But, whether or not customers choose to stay with the vertically-integrated utility, the transmission service has to be taken from the Midwest ISO, whose tariff is FERC-approved. So in Illinois the state commission has said that they, as a state agency, are not going to be pricing transmission for any customers, even when there's retail choice.

Does it make sense to do this on a state-by-state basis? I think the answer is no. We need federal legislation that clarifies the FERC role — not just in this area, but in RTOs and in jurisdiction over all transmission assets — because that's what it's going to take to remove some of the confusion.

What benefits, if any, should accrue to the native load customers who have borne a disproportionate share of the costs up to now? The Midwest ISO has a zoned, or license plate, tariff, so that the individual customers within a service territory will still pay the transmission rate for the facilities they've helped support in the past. I would tend to agree that this represents a relatively small cost, and that we should just make a decision and be done with it.

I agree with the critics that CBM should not be calculated on a utility-by-utility basis, but rather that it should be computed by RTOs. It should be viewed as belonging to the load, so that if you have retail choice, whoever serves the load has access to that CBM, although by definition it is not available for sale. CBM is necessary to guarantee reliability, at least in areas like the Midwest where there is no pool or congestion pricing. It should be calculated by an independent third party, and recognized as belonging

to the load, not to the vertically-integrated utility for use as backup reliability.

In conclusion, my view is that FERC will have jurisdiction after unbundling, but that states should continue to have the right to approve the siting of new facilities. The RTO should define the need for transmission. It would be up to each state to determine the appropriate routing and siting of the facilities, but it would not be in the purview of the state agency to say that a facility is not needed.

Speaker Three

My comments will be in the context of activities currently going on in both PJM and New York. Both pools allow for a consistent application of a set of financial rights, coupled with locational pricing and the recovery of embedded costs on a zoned basis, which sets up a paradigm where, given proper implementation, there can be convergence between retail and wholesale transmission pricing. That is, there is a consistent set of applications and rules all the way down the line that will make the problem go away.

One of the first things to recognize is that now that we have put financial rights and locational pricing in place, there is a consistent story that integrates all aspects of pricing in both the PJM and New York systems. I get uncomfortable when people look at a single question — such as the one we have here today about the integration of retail and wholesale transmission services — without stepping back to look at the context, because you've got to look at how a specific issue interacts with the entire system before coming to any conclusions.

Let me give a thumbnail sketch of where PJM and New York are. Both systems are implementing locational pricing — New York will provide for both a day-ahead, two-settlement system and an hourly settlement system; PJM is currently on a single settlement system, but hopefully within about a year will get to a two-settlement one. Embedded costs in New York under the new ISO will be recovered on a kilowatt-hour basis based on transmission service; in PJM, embedded costs are recovered on a per-kilowatt basis based on the share of peak load. With respect to embedded cost properties, they're very different. In both systems, the good news is that they're getting the price right, that is, the difference between locational prices in both systems can be used to figure out the marginal value of generation and transmission. The bad news is that there isn't a set of

actions at both pool and retail levels to get that information to consumers.

Is retail access worth the trouble at the moment? At least in the short run, I would evaluate that depending on the system. Consider a wholesale competition system where the existing distribution companies are fully divested, simply acting as wholesale procurement agents, versus a system with full retail access. Which of these will be better at providing mechanisms that pass price information on to the ultimate consumers? By that I mean things like the implementation of metering, financial instruments for hedges, call options consistent with everyone's consumption, physical controls for price-responsive use of electricity, and so on. Right now, when I look at what's happening, I have the feeling that the transaction cost of adapting to the implementation of retail access is probably not worth the trouble that's been caused in the wholesale system. We could probably have been more efficient by forcing divestiture at the retail level and simply having a fully open and competitive wholesale market.

In the long term, the implementation of things that will be good for retail competition — e.g. metering, load control, and pricing — may be more likely under retail access. One problem, however, is that the short-term details might run at odds with consistent and appropriate implementation in the long term. For example, in order to accommodate retail access in PJM, the allocation of load responsibility has been simplified so that the pool can allow the load to shift among multiple suppliers very quickly, while still allocating cost responsibility. It uses an imprecise method which, in the long run, probably impinges on the price responsiveness of the pool.

Another problem is the release mechanism for financial rights contracts, FTRs, and TCCs, which in principle can be sold, auctioned, or allocated. One of the systems' goals is to allocate these types of financial rights in a way that allows retail loads to be fully hedged against existing positions. In New York, the state commissions have done the correct thing from an allocation view, which is that they have forced the utilities to prorate these rights to the load as it's released into retail competition. Interestingly enough, the issue didn't come up in PJM. As far as I'm aware, in the restructuring in New Jersey and Pennsylvania, no one has thought about how to allocate the FTRs, so it is possible for the utilities to release the least valuable FTRs with the retail load, and retain the most valuable ones for themselves. My concern is that, although we are trying to move to the correct pricing structure and implement things

well, during the transition we may give people benefits that are hard to take away later.

One issue of interest, which is now in front of PJM, is interconnection policy for new generators. Although it may seem detached from what we're talking about today, it's an integral aspect of upgrading the transmission system. The issue in PJM is that there's a need for new generators to connect with the system. Whether such new generation can meet the firm installed requirements of the pool will be evaluated, but even ignoring for the moment what the criteria for evaluation will be, questions arise. Who pays for it? Who owns and builds it? Who gets the benefits of it? What are those benefits and how are they determined?

The answers to those questions are integral to giving price signals both to consumers, who will pay for the power coming out of these things, and to generators, who choose where to locate generation and what transmission to build. In PJM we got half the solution correct, in that specific transmission upgrades will be identified for new generation. The party paying for the upgrades will be deemed a firm resource, so they'll have that property right, but any of the associated transmission financial rights they create will not be allocated.

A similar example is expansion planning for generation and transmission. In the proposal currently in front of PJM, costs will be based on a comparison with some sort of central regional transmission expansion plan. If someone builds a new interconnection facility consistent with the plan, they probably won't have to pay too much. That is, the ISO wanted to build those facilities, and therefore the new generator will get credit for doing something consistent with the plan. At first glance that sounds reasonable, but on contemplation, I reject the notion that we need to have regional transmission plans at all. After all, we've put in place pricing that is supposed to tell generators where to locate, reflect the proper incremental cost of purchasing at every location, and encourage investment in transmission to relieve congestion. Against that backdrop we say, Well, we need to have a central plan for long term expansion of the transmission grid to relieve congestion. But that's something of a *non sequitur*, because it tells the participants in the market that there is a central planning authority that, in some fashion, is going to direct investment to relieve congestion over the long run. Why, then, should you invest in your own transmission, if the central planning authority may take actions to undercut the value of those investments?

Another way of looking at it is that the existence of a central plan makes people reluctant to invest, so the costs of all transmission improvements will be borne by the regional transmission providers. All we have done by introducing a backdrop plan into the market paradigm is spread the cost of congestion across all the participants in the pool, which is exactly what we were trying to avoid by having congestion pricing in place.

Speaker Four

I want to talk about a problem that is fairly simple, but that has manifested itself in the California market, forcing me to rethink some of the things I'd taken for granted. The problem is the inelasticity of market demand in the California power exchange.

We started with the recognition that in the old system, the regulator is confronted with a desire for stable prices but wants to avoid the high prices that are the inevitable consequence of trying to satisfy all demand. The compromise we lived with for years was that the utilities developed, and the regulators endorsed, a category of interruptible customers and a very complex tariff system in order to exploit the elasticity of demand inherent in the electricity market. Efficient energy markets held out the promise that, by giving the users price signals, we could exploit those demand elasticities much better than a regulator ever could. Consumers would reduce their demand in periods of high prices, and increase their demand in periods of low prices — or, to use the jargon, in a period of high prices they would “self-interrupt.”

The problem we've found in California is that the demand elasticity just isn't there. In fact, end-user demand is better reflected by a perfectly inelastic demand curve until prices reach \$150-200, at which point quantity falls off rapidly for one very simple reason: the ISO's real-time market is capped at \$250, so as the prices in the power exchange rise, the large independent operating units, which constitute approximately 90 percent of the bidding, pull out of the power exchange and instead buy an increasing fraction of their demand in the real-time market.

The obvious first question is: What would happen if there wasn't a cap in the real-time market? Well, the quantity demanded in the power exchange market in fact exceeds the quantity supplied at all prices below about \$175, so we don't actually know how high prices would go if there was no cap. Secondly, why is the demand curve vertical? The obvious answer is

that many small customers do not see the market prices — they buy at a rolled-in price, and the distribution company buys the power and charges a rate that is pretty much set to cover costs and doesn't respond to the competitive market. Also, in the complex bargaining in California, many industrial customers got special deals, so they're better off buying at the average cost sold to them by the distribution company than entering the market. Given these kinds of arrangements, it is logical for the distribution company to submit a perfectly vertical demand curve.

What about the few customers that do participate directly? Some of them negotiated special deals, whereby if prices go up substantially, they are compensated for the increase in price, so in fact only a fairly small number of large customers are left in the market, and they have little residual demand. So what we've got is a market that turns out to be very difficult to make efficient. In principle, we could make a perfectly inelastic demand curve work with a large number of generators but, in fact, once we get to the peak summer days, there are only about four generators who have any discretion.

The second dimension of this problem is that the ISO, which operates with a high degree of separation from the power exchange, is also buying ancillary services. So the ISO comes in with perfectly inelastic demand curves for generating services and buys from the energy market for reliability control. The greater the ISO's demand, the less generation capacity is left in the market, and as the demand goes up, the demand for ancillary services also goes up to satisfy the reliability requirement.

How do we introduce demand elasticity into this market? Essentially by bringing into the market the large players, who are sophisticated buyers and may have elasticity, and who otherwise end up signing special deals. But getting the big players back in is really a political process. I don't think that those who appreciate the importance of demand elasticity in the market were able to carry the day, so we've just got to live with the current situation for a while until they realize it.

There is another dimension to this, namely that nobody is trying to conserve capacity by cultivating the old system of interruptible users. There is a proposal on the table in California, although it hasn't got very far outside the power exchange as yet, that if you have, for example, an industrial customer who has a privileged position, you go to him and say, We're going to give you the right to bid your

consumption into the spinning reserve market, because you can cut back on your load faster than we can bring up another generator. So, we re-classify those people as supply rather than demand. The problem is that, in effect, they're now being paid twice — they got a sweet deal in the political negotiation, and now, to get through the transition, we have to make it even sweeter by calling them suppliers.

One last thought. The PX market in California is distorted. The generators claim that the buyers in the PX are underbidding their demand, because they can always make it up in the real-time market, while the large distribution companies are criticizing the generators for withholding excess supply, knowing they can always make up the difference by selling into the real-time market. The ISO has to increase the quantity of replacement capacity they buy, knowing they're going to have to make up the gap in the energy market, which withdraws more capacity from the PX, and aggravates the problem even more. So, we have the makings of a vicious circle, which will lead either to the demise of the PX or at least to an intense debate. And this lack of demand elasticity in the market seems to be a problem that is likely to appear in places like New England, New York, and PJM before the market transitions are completed.

Discussion

Comment: I'm not sure the discussion should be framed in terms of whether wholesale or retail competition best gets price information to the consumer. It seems to me that one of the advantages of retail competition is that different suppliers come in and group different sets of services together, maybe not passing the price signals on to the consumers, but acting on the consumers' behalf in responding to those signals. That is, the sort of service combination retail suppliers can offer seems to be an important difference between wholesale and retail competition.

Comment: Looking at the current situation, the cost and aggravation of accommodating retail access don't seem to be worth the bother. That is, we're making a lot of compromises to accommodate retail access, and what worries me is that in the process of compromising we may be setting things up that will impair us from getting things right down the road. An alternative that didn't occur would have been divestiture plus full-blown wholesale competition, with the regulated distribution company being forced to put in place both the infrastructure — principally metering and load-interruption devices — and

possibly the business structures that would ultimately allow efficient retail competition. There's no question that in the long run, the market instruments that will control demand — hedging and call options, for example — are going to come out of retail competition. My concern is that, because of the rush to market mechanisms, people didn't think about the long-term consequences of the transition process. As a result, I'm concerned we may have set up some impediments that are going to be really difficult to get rid of in a couple years.

Comment: In the New York ISO proposal, there are so-called "native-load TCCs," which are allocated to the incumbent transmission-providing utilities. The original proposal that the New York ISO placed before FERC called for the gradual release of those TCCs as the various utilities embarked on their retail access programs, although the filing was fairly vague about how that would be done. Since then, FERC conditionally approved the New York ISO tariff, but raised a concern about the perceived lack of comparability between the service utilities could provide to their native load and that which could be offered by competing marketers, because the utilities had these native-load TCCs on a long-term basis, with no equivalent long-term rights being offered to anyone else. We have been exploring various ways of addressing that concern, and one option is for the utilities to release the native-load TCCs through an auction in which all market participants would have the ability to bid, eliminating the perception that incumbent utilities have an advantage.

Question: On my gas bill right now, I have a lot of line items for unbundled costs, but they don't really help me make better decisions about whether I should cut back on my gas use by turning the thermostat up or down. By "paying for transmission directly or

indirectly," do you just mean that if it's unbundled, you'll have more line items on your bill describing the charges?

Response: What I'm really saying is that for large purchases, the entities doing the buying and selling get to negotiate and make the transmission deals, but for small purchases, which are more like retail, that doesn't make sense because the transaction costs are so great. It's just like buying anything else — if you go into a department store, you don't have a shipping line item for each thing you buy, even though your purchases were delivered to the store. The price signals that need to get to the end-use customer are primarily about generation, which is the big cost. I'm not saying end-use customers don't need price signals, I'm saying they don't need *transmission* price signals. What customers care about is the bundled price of the commodity plus delivery.

Once we finally get to have a market, I think there are going to be a lot of companies out there trying to meet retail demand. They will give you an all-in price, but it doesn't have to have a line item for transmission on it. If companies are buying, they may want to go to the commodity market, in which case they're going to have to talk about delivery costs. But that's a different thing — the transportation costs should get put upstream, where the big customers can take care of them, leaving aggregators to take care of them for the small customers. Transmission will be a cost of doing business for an aggregator serving retail load. A lot of state commissioners assume that the unbundling process automatically translates everything that you want bundled into a separate line item on a retail customer's bill, but that doesn't have to be the case.