

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

Principles for Efficient and Reliable
Reactive Power Supply and Consumption

Docket No. AD05-1-000

**Comments of the
Electricity Consumers Resource Council (“ELCON”)
and the American Iron and Steel Institute (“AISI”)**

On February 4, 2005, the Commission published a Staff Report, *Principles for Efficient and Reliable Reactive Power Supply and Consumption*. The Staff Report explores the issue of reactive power supply from both technical and economic perspectives, including alternative proposals for compensating suppliers of reactive power. The Commission also scheduled a technical conference on March 8, 2005 on the Staff Report and subsequently posted on FERC’s web site a transcript of the conference (“Transcript”).

ELCON and AISI appreciate the opportunity to comment on the issue of reactive power compensation as posed in the Staff Report. The Staff Report appropriately reminds us that “insufficient reactive power was an issue” during the August 2003 Blackout. The Blackout was a significant and unfortunate incident and many US and Canadian manufacturers were severely impacted by that event.¹

¹ US-Canada Power System Outage Task Force, Final Report on the August 14, 2003 Blackout in the United States and Canada, April 2004. Estimates of costs incurred by US manufacturers are \$4 billion to \$10 billion. In Canada loss is estimated at \$2.3 billion. Final Report at 1.

The Staff Report identifies several problems and concerns regarding existing reactive procurement practices and compensation policies. These include: (1) discriminatory compensation schemes; (2) rigid but imprecise interconnection standards that are insensitive to local needs; (3) the lack of transparency and consistency in planning and procurement; (4) poor financial incentives to provide or consume reactive power; (5) poor incentives for some system operators to procure reactive power and reactive power capability at least cost; and (6) the failure of system operators to adjust reactive power instructions so as to fully utilize the dispatch.²

The Staff Report reviews several pricing options for compensating reactive power resources. This includes prices in the form of a capacity payment and real-time, spot pricing options. The capacity payment options are: (1) a cost-based payment; (2) a capacity market payment; (3) prices determined through auction; or (4) pay nothing.³

The real-time, spot pricing options are: (1) pay nothing for production within bandwidth or physical rating; (2) unit-specific opportunity costs; (3) bid-based market clearing prices; and (4) administratively determined prices or a pricing formula announced in advance.⁴

The Staff Report makes four broad recommendations:

1. Reactive power reliability needs should be addressed locally, based on clear national standards.
2. These needs should be procured in an effective and reliable manner.
3. Those who benefit from reactive power should be charged for it.
4. All providers of reactive power should be paid, and on a nondiscriminatory basis.⁵

² Staff Report at 4-5.

³ Id. at 12, 91-95.

⁴ Id. at 12-13, 99-104.

⁵ Id. at 6 and 105.

While the Staff Report does not recommend a single, best compensation approach, there is a clear long-term preference in the document for locational bid-based reactive power spot markets, although the report adds the caveat that the idea for such markets is new and it may be too soon to implement.⁶

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One option for compensating suppliers of reactive power is no change and to simply preserve the status quo. Certainly an argument can be made that whatever problem is perceived under current methods of compensation it is minor. After all reactive power costs are a very small fraction of total power costs that are recovered from customers. Any generator (or any other resource) that believes it is currently being under-compensated can file a complaint with FERC to resolve the matter.

A second option that promises a more efficient solution is to try to standardize the process and make it more fair and transparent. Changes in the industry and the entry of new technologies require a fresh look at the problem. Modest reform of the method for compensating reactive power supply gives the transmission provider—whether an ISO/RTO or vertically integrated utility—more flexibility and makes long-term investment decisions more efficient. FERC’s responsibility is to accomplish these laudable goals yet keep reactive power costs “a very small fraction of total power costs that are recovered from customers.”

A. Compensation Should Be Provided in Long-term Bilateral Contracts Between Suppliers and the Transmission Provider.

Ideally the supply of reactive power should be bundled with other transmission services and its cost recovered under traditional cost of service regulation. This avoids the dilemma of trying to define a tradable VAR that is necessary for establishing consistent market-based rates for static and dynamic reactive power supplies. But this

⁶ Id. at 15 and 110.

may no longer be practical in regions of the country where states have mandated the divestiture of generation or where merchant generators must provide this essential service. In such cases there may be some opportunities for competitive procurement under long-term bilateral contracts with compensation based on cost of service (and including a fair rate of return on the investment).⁷ Alternatively, the terms may be negotiated as part of the generators' power supply arrangements.⁸

The purpose of the contracts should be to closely replicate the "integration" of the resource(s) with the transmission system as it would under vertical integration. This will hopefully preserve the economies of scale and scope of vertical integration.

The contracts should specify in detail the terms and conditions of providing the service including the amount available (provided or absorbed) on an instantaneous or delayed basis, communicating operating status to the transmission provider, capacity and energy charges, opportunity cost recovery and verification, performance testing requirements, penalties for failing to deliver when called, treatment of start-up costs, compensation inside or outside the power factor range specified in the Interconnection Agreement, etc. The roles of short-term markets for reactive power must be absolutely minimized, although real-time needs to address contingencies are inevitable and extremely important. But this type of resource can also be dealt with in long-term bilateral contracts.

A benefit of competitive procurement should be the conscious effort to avoid compensation based on the opportunity costs of real power sales.⁹ This should be self-evident in regions with excess generation and the average capacity factors of merchant generators are relatively low.

⁷ Ideally, some form of pro forma contract might be an appropriate solution. But given the highly locational and circumstantial nature of the services, we believe this option is less attractive.

⁸ John Lucas, Transcript at 114.

⁹ Opportunity costs may be recoverable if the generator had to back off its real power schedule (or increase a schedule as the case may be) and that such actions are verifiable to the transmission provider.

B. Terms of Service Should Meet FERC's Comparability Principle, Be Nondiscriminatory, and Technology Neutral.

If competitive procurement is adopted, the rules of entry must abide by FERC's comparability principle and be non-discriminatory and technology-neutral. Where technologically feasible and assuming a demonstrated capability, offers should be allowed and encouraged from loads and behind-the-meter generation in addition to merchant suppliers. A fair compensation policy should not be generation-centric because new generation is increasingly sited away from load centers. If generators qualify for opportunity costs, so should loads.

Comparability is important but must not be interpreted as giving IPPs the same deal transmission providers give their affiliate generators if those arrangements are not just and reasonable. A fair mechanism for defining allocable costs must first be established and then and only then applied on a comparable basis.

Consumers should pay for reactive power based only on the service that is needed and where it is needed. The generation glut in some parts of the country has created a situation in which there may be excess reactive power capability.¹⁰ Consumers should not have to pay for all of this. If there are multiple dynamic resources in a given area only the ones that the transmission provider has contracts with should be compensated.¹¹

C. Reactive Power That Is An Externality Associated With Other Commercial Transactions Should Not Be Monetized.

Reactive power that is provided (or absorbed) as an externality of some other business (*i.e.*, the owner of the resource cannot not produce VARs) should not be compensated unless compensation was arranged prior to the construction of the resource. Otherwise, we will travel down the slippery slope of monetizing other

¹⁰ Dennis Behtel, Transcript at 95.

¹¹ See, also, John Lucas, Transcript at 137.

externalities in the spirit of comparability. Externalities are ubiquitous. Every load and resource bears some responsibility for maintaining reliability without linking that responsibility to compensation. Loads have some responsibility for controlling its power factor, and every synchronous generator has some obligation to follow a voltage schedule. ELCON and AISI recommend that the North American Electric Reliability Council (NERC) consider new standards for clarifying those minimal responsibilities consistent with the objectives of the Staff Report.

D. Locational Bid-based Spot Markets Should Not Be Considered An Appropriate Mechanism for Compensating Reactive Power Supply.

While reactive power is a highly location specific service, the rates for the service that are ultimately recovered from end-use consumers should not be locational. Locational spot markets for reactive power should not be an objective of the Commission's inquiry. Such markets would most certainly be thin even if a tradable product were capable of being defined, which is doubtful. Several speakers at the Commission's March 8, 2005 technical conference assert that reactive power (*i.e.*, voltage control) is really a service.¹² The dollars associated with reactive power are relatively minor compared to real power. For example, the cost of reactive supply in PJM in 2003 was 0.52 percent of the total cost to serve load.¹³ Very few of the PJM costs are associated with opportunity costs.¹⁴ Industrial consumers believe that the costs of trying to implement a real-time auction market for reactive power will likely outweigh

¹² For example, Anjan Bose, Transcript at 38; Scott Helyer, Transcript at 120. Also, National Grid USA believes that "reactive power isn't a product that is suitable for a real-time market." Michael Calviou, Transcript at 174. American Transmission Company believes that "reactive power is not conducive to trading in a competitive regional market, and is inherently prone to local market power concerns." Harry Terhune, Transcript at 196.

¹³ Steven Wofford, Transcript at 110.

¹⁴ *Id.* Transcript at 138.

any benefits.¹⁵ Therefore the Commission is urged to “keep it simple” and not experiment with ratepayers’ bills.

Finally, and given the location-specific nature of the service, the potential for local market power may be significant and this problem will be exacerbated if spot markets are created. The concern is greatly heightened for generators that perform a dual role of selling real power on merchant basis and also provide reactive power on a “must run” basis. The temptation will be for a the owner of a must-run generator to use its local market power to sell reactive power on the basis of what the market will bear. To our regret, the Staff Report “does not reach a conclusion about how best to mitigate market power of reactive power providers.”¹⁶ Certainly, if the Commission elects to implement reactive power spot markets, the matter of market power must be addressed before such markets are allowed to operate.

During the March 8, 2005 technical conference, a speaker representing National Grid USA had a thoughtful comment that the Commission should heed regarding the need for a real-time market for reactive power:

... [T]he important thing with reactive power is making sure that it doesn’t distort and cause problems in the real power market, rather than trying to find incremental minuscule savings in terms of reactive power costs per se.¹⁷

This is fitting advice to conclude these comments.

Respectfully Submitted,

**The Electricity Consumers Resource Council (ELCON)
and
The American Iron and Steel Institute (AISI)**

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¹⁵ PJM believes that “the cost of creating a market in real-time power pricing is probably prohibitive.” Andy Ott, Transcript at 214.

¹⁶ Staff Report at 15.

¹⁷ Michael Calviou, Transcript at 174.

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