Transmission Asset Management

1800 Larimer St., Suite 600
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April 1, 2011

Public Service Company of Colorado (Public Service)

Response to Economic Request
from Colorado PUC staff dated Dec 28, 2010

Public Service received a request for two "economic studies" on Dec 28, 2010 from Mr. Inez Dominguez of the Colorado Public Utilities staff.[1] The request also was submitted to Tri-State Generation and Transmission Association (TSG&T) and Black Hills Energy. This response to the December 28th request is only from Public Service: TSG&T and Black Hills are responding separately. However, Public Service, TSG&T and Black Hills conferred on the economic request and the group met in Denver at the Xcel Energy building (1800 Larimer Street) on January 28, 2011 with Mr. Dominguez in person.

The economic requests were sent in general question format rather than the Public Service Attachment R Request for Economic Planning Study form[2]. The form solicits detailed information that would be used in performing "production-cost" analysis. In discussing the form of the request with Mr. Dominguez, he suggested that the Commission may be satisfied with narrative responses at this time rather than a complex production cost analysis.

[1] The December 28, 2010 "Request for Economic Studies" is attached hereto.
[2] http://www.oatioasis.com/PSCO/PSCOdocs/FERC_890_customer_request_.pdf

Public Service's responses are as follows.

Question 1: **"***Are there generating units in Colorado run out of economic dispatch order because of local transmission reliability issues."*

Response: At present, under normal operating conditions, Public Service does not run any of its generating units out of economic dispatch due to any transmission or reliability limitations. Generating units may be run in a less desirable economic dispatch when elements of the system are out of service due to maintenance or forced outage conditions. To provide an example, while not part of the "local" system, a situation occurred late last summer when Platte River Power Authority (PRPA) was performing some work on one of the TOT7 elements that required TOT7 to be run at levels much lower than normal. During that timeframe, Public Service was required to curtail some of its northern Colorado wind and fossil output and replace it with generation south of the TOT7 interface. PRPA was also required to reduce output from its Rawhide unit. Once the TOT7 line(s) were returned to service, both companies were once again able to operate normally.

Public Service does have to curtail generation, particularly wind generation, from time to time for non-transmission reasons. For example, sudden large changes in wind generation output may inhibit the capabilities of Public Service's fossil fleet to adjust to the changes. This can occur because of ramping limitations on Public Service's other generation assets when there is either a large unanticipated increase or decrease in wind generation.

Question 2: *"Given the transmission constraints within Colorado and limited available transmission capacity connecting Colorado to neighboring states, is Colorado foregoing the opportunity to access (either firm or non-firm) more economical generation in neighboring states?"*

Response: Under the present market structure in the West, Public Service does not believe that it is foregoing any significant level of economic transactions due to transmission limitations. Except within the California ISO, economic transactions are done on a bilateral basis. For these transactions, transmission service is commonly procured and scheduled in whole hourly increments. The market structure inherently limits the number of transactions that may be entered into, which in turn makes it difficult to justify increasing capacity on transmission ties to neighboring regions. If the market were more efficient – that is, if we had a regional organized market – more transactions could occur, and market price differences between regions could help justify potential transmission expansion. That is because such markets make greater use of the existing transmission infrastructure as they dispatch generating units within the market footprint on an economic and continuous - not just hourly - basis while taking into account actual flows on limiting transmission elements. When actual flows on limiting transmission lines have to be reduced, it is the generation redispatch that solves the overload problem that creates the market price separation between regions in the market.

Public Service does have a limited amount firm transmission capability between Colorado and its neighboring states. For example, from Wyoming to Colorado (TOT3), Public Service has a limited amount of firm transmission rights. Public Service has no permanent (i.e., long-term firm generation) resources in Wyoming that use those rights, though Public Service does have some

transmission rights acquired across the Sidney DC Tie (from east to west). Those transmission rights, and the TOT3 rights, are used to import power into Colorado from time to time. In addition, non-firm transmission service is available across TOT3 during most hours of the year, which is used to import power into our system on an economic basis – that is, so long as the purchase price of energy plus the price of the transmission service, ancillary services and losses is less than Public Service's cost of internal production – or during system emergencies. Public Service also uses TOT3 in the opposite direction to make sales, and congestion is very rare in that direction.

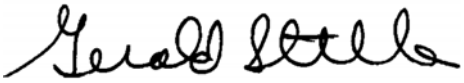
To purchase energy from the Four Corners marketplace, Public Service already has a significant amount of transmission rights (currently 188 MW) from south to north from the Four Corners area to Craig in western Colorado. Public Service makes use of this path quite frequently to purchase economic energy. Having this path provides Public Service with access to a large number of utilities and marketers who trade at the Four Corners hub. Four Corners is the closest market hub with a large number of market participants. Public Service also purchases power from neighbors who have access to Craig (e.g., Tri-State, PacifiCorp, PRPA, WACM and Salt River Project), but typically does not transact much with entities in Utah (e.g., UAMPS, UMPA, Deseret).

Public Service also has 208 MW (that is the amount into the Public Service system) of transmission rights across the Lamar HVDC Tie with Southwestern Public Service (SPS). This allows Public Service to purchase capacity and energy from SPS. It also allows Public Service to make sales to SPS and other Southwest Power Pool (SPP) participants when economic.

It should be emphasized that economic (production cost) studies are a complex and substantial regional modeling process . It requires a combination of

fundamental analysis (plant by plant modeling) and/or involved quantitative analysis of market prices (market signals with price elasticity parameters). Accordingly, the concept of entering into such an economic study should not be taken casually. The Board of the Western Electricity Coordinating Council has assigned the Transmission Expansion Planning Policy Committee (TEPPC) to perform such studies on a regional basis. However, some sub-regional concerns are also being addressed. Those acuities can be tracked at http://www.wecc.biz/committees/BOD/TEPPC

Sincerely,



Gerald Stellern