North American Energy Standards Board
1301 Fannin, Suite 2350, Houston, Texas 77002
Phone: (713) 356-0060, Fax: (713) 356-0067, E-mail: naesb@naesb.org
Home Page: www.naesb.org

Via posting

TO: WEQ Inadvertent Interchange Payback Task Force and Posting for Interested Parties

FROM: Leona Banning, NAESB Staff

RE: Wholesale Electric Quadrant Inadvertent Interchange Payback Task Force Meeting Minutes – December 10, 2003

DATE: January 16, 2003

NORTH AMERICAN ENERGY STANDARDS BOARD
Wholesale Electric Quadrant Inadvertent Interchange Payback Task Force Meeting
December 10, 2003, 9:00 a.m. – 4:00 p.m. Central
Final Meeting Minutes

1. Welcome

Mr. Terelmes welcomed attendees. Mr. Onken provided the antitrust advice. Mr. Terelmes reviewed the draft agenda and the agenda was adopted by consent without modification. Adoption of outstanding minutes was deferred until day two of the meeting.

Mr. Terelmes also advised the group that Mr. Illian would receive an additional ten minutes for his presentation, if required.

2. H. Illian's Presentation

Mr. Illian presented results of his research on the Western Area Interconnection Analysis Methodology: What it does, what it does not do, and a consideration and understanding of incompatibilities. The presentation is posted on the NAESB website.

Mr. Illian reviewed the simulation, which used Inadvertent Interchange data for 16 Balancing Authority's (BA's) on the Western Interconnect. Mr. Illian created the 17th BA to simulate the total. The case assumed value, and used Frequency data to calculate Frequency Control Component (FCC) settlement values hourly. Mr. Illian displayed the results in spreadsheet format and offered to have the spreadsheet posted for participants to manipulate if requested.

Mr. Illian concluded that the NWPP Inadvertent Interchange Settlement Example shows an example of the financial effect of using FCC in Settlement. In evaluating the effect on decision-making for participants, it considers the question of whether compensation for use of regulating margins and reserves has an impact if made part of settlement process. He said FCC compensation is significant because it rewards good frequency control and penalizes bad frequency control, and always sums to zero across the interconnection, thus removing financial risk.

Part Three of the discussion was a motion to table the motion to consider inadvertent interchange deadband. Technical background: There was a motion made to use L10 as a valid basis for determining a deadband to decide when to settle in kind vs. when to settle financially. Mr. Illian outlined the unknowns and complexities relating to inadvertent interchange deadband, and concluded with a recommendation that the design of the Inadvertent Interchange settlement process must be completed before a frequency domain deadband is investigated.

3. Questions on H. Illian's Presentation and H. Illian's Supplement to R. Blohm

The group discussed the source of the FCC value, and how that would be one of the next things that would be reviewed. They also discussed practical implementation of FCC settlement -- level – control area requirements and market requirements. They also discussed enforcement issues.

In response to a question on how the assumed FCC value of .10 megawatts was derived and how it might vary if frequency deviated more, Mr. Illian responded that as part of JIITF, the discussion included setting up a mechanical pricing methodology in a regulated environment, set by the regulator. The regulator originally sets the pricing mechanism that closely approximates how eventually, ancillary markets would set the price. Ten cents was selected arbitrarily; one of the next things that the group would review would be how to determine the price and how to vary it with frequency control.

The group also looked at the meaning of the phrase "FCC Compensation is significant;" determining that it means that FCC Compensation is large enough to impact decision-making of a BA at an interconnect and not so small that people would ignore it.

Mr. Illian recapped details of his proposal for clarity, noting the following points: 1) NERC would be responsible for collection of inadvertent data and frequency data, with concurrence of the JIC; 2) a settlement party would do a process like that described in the presentation – monthly; 3) settlement would occur through a central party that would take in settlement money from and distribute to impacted parties; and 4) processes could improve and settlement could occur more quickly as the quality of data improves. It was noted that settlements cannot reach real time because the data breaks down as increments of time get smaller.

The group discussed enforcement of hourly data collection in light of NERC's current data collection procedures. It was noted that it was already decided that the IIPTF would not address this issue since NERC has previously committed – once NAESB establishes a settlement standard – to provide hourly data for inadvertent and frequency deviation.

The group also discussed the concept within Mr. Illian's presentation that in-kind payback is bad because it uses capacity and reserves in an unplanned way. It was noted that there is lead-time with scheduling of energy, and as it decreases, the possibility of cutting into reserves increases. Mr. Illian identified a big advantage of this financial settlement method was removal of that impact on reserves and regulating margin, no matter what the lead-time.

4. R. Blohm's Presentation

Mr. Blohm's presentation also appears on the NAESB website. Mr. Blohm presented a CPS1-driven market for Clearing/Settling Inadvertent Interchange. The presentation consisted of a simulation from an 11-Day period of 17-control-areas in the Western-Interconnection using Jan 2002 hourly data. Mr. Blohm presented four cases, as requested by Mr. Goss. The cases came from two components: energy bought or sold vs. the unscheduled part of the transaction, resulting in a matrix with four possibilities related to energy price that is received or paid when it helps or hurts frequency. Mr. Blohm described the four cases, then presented a visual animation illustrating the clearing and settlement process, which included depicting FCC as the slope of a line that measures the BA's average inadvertent interchange's average contribution to frequency, and showing that positive slopes are bad and negative slopes are good, that the slopes sum to a zero slope for the whole interconnection and that the bad slopes sum to equal and opposite the good slopes and so pay the good slopes.

During discussion on the presentation, the capability to use trading of CPS1 scores as a price driver, so long as there aren't a lot of other standards overlaid that would disable CPS1 as a

driver, was discussed. Additionally, the methodology used to arrive at the $.10 price used in the presentation was extensively reviewed. It was noted the amount was a proxy but that price is probably proportional to the square of frequency error. It was noted that while the methodology is trying to measure and assign responsibility for inadvertent on an hourly basis, it has to use a larger averaged time period to have sufficient data to determine the frequency control component.

Mr. Halpin moved, seconded by Mr. Illian, to extend discussion of Mr. Blohm's presentation for 30 minutes. The motion passed absent opposition. Discussion on the presentation indicated that pricing of inadvertent interchange is dynamic and non-linear to the extent that it is driven by frequency error. It was also noted that pricing should be compatible with reliability so that it reflects the health of the system and does not send signals that could lead to instability in the interconnection. The discussion concluded with a review of the components of the formulas used in the presentations.

5. M. Lively's Presentation

Mr. Lively presented Wide-Open Load Following (WOLF) pricing to the group. The presentation is also posted on the NAESB website. Mr. Lively stated that the WOLF methodology was created in 1984 and provides a dynamic approach to pricing.

Details of the presentation follow. Under the model, price was determined according to the following formula: Price = seed x 10 (– freq error/constant). The presentation used data from the NERC AIE report for Aug 14 (blackout day), sanitized to remove names of actual utilities involved. The results of Mr. Lively's example showed that prices would have gone down to 2 cents once all entities went off line. Mr. Lively stated that using a weighted average, utilities were helping the system when short and taking in electricity when system long, so on average they were providing good inadvertent interchange.

Mr. Lively stated that WOLF pricing is consistent with 1999 conditions and provides a constant of 20 milliHertz. He went on to state that the seed would change with time error and cumulative time error, and incents the system to correct time error. Mr. Lively stated that WOLF pricing control theory shows the cycle between low and high frequency and its relationship to price. Mr. Lively presented a geographic differentiation example, added in inadvertent interchange and showed impact using the WOLF model. Mr. Lively referred participants to his home page for more information on the WOLF model.

Participants discussed Mr. Lively's presentation. The group discussed the logic behind the seed price, and whether it mattered to the results. It was noted that since the WOLF method was non-geographically differentiated, the same price would apply to all control areas. It was suggested the other variable was determining the locational price based on transmission loadings, line losses and constraints. The group then discussed whether the cost represented market incentive and the need to stay ahead of the peak load. Mr. Lively explained that WOLF pricing aims to price what happens when someone does a worse or better job and there is inadvertent interchange.

In a white paper published by a New York Power Pool participant, there was disagreement on the forward price in New York Power Pool and others. Mr. Lively explained that in a forward market, WOLF looks at first integral of time and frequency error.

The group discussed WOLF's requirement that some sort of mechanism be in place to assure that the voltage is controlled. Mr. Lively explained that the market should be paying for leading vars when voltage is low and charge for lagging vars when voltage is low.

The group discussed the shapes of the curves in the presentation, and the importance of the slopes and shapes of the lines. It was suggested that the shape of supply and demand curves is guided by projections. Mr. Lively stated the supply curve shape or demand curve shape doesn't mean anything to the WOLF model, because the model depends on the price and the frequency.

6. Adjourn/Recess

Mr. Terelmes asked if any opposed recessing the meeting until December 11 at 9:00 a.m. No one was opposed, and the meeting was recessed at 3:20 p.m.

7. Attendance:

Name	Company	In Person/By Phone
Banning, Leona	NAESB	In Person
Blohm, Robert	Consulting Economist	In Person
Brown, Ken	Public Service Power and Gas	By Phone
Clark, Kim	Western Area Power Admin	By Phone
Comeaux, Keith	Cleco Power	By Phone
Cox, Phil	AEP	In Person
Davis, Ed	Entergy	By Phone
DiCaprio, Albert	PJM	In Person
Goins, Larry	TVA	In Person
Goss, Bob	Southeastern Power Administration	By Phone
Green, Barry	Ontario Power Gen.	In Person
Halpin, Francis	Bonneville Power Administration	By Phone
Hebson, James	PSEG	By Phone
Henery, E. Nick	SMUD	In Person
Hudson, Dowell	Ontario Power Generation	By Phone
Illian, Howard	Energy Mark	In Person
Lively, Mark	Util. Econ. Eng.	In Person
Monroe, Carl	Southwest Power Pool	By Phone
Oberski, Lou	Dominion	In Person
Power, John	MISO	In Person
Terelmes, Steve	Ameren	In Person
Ulch, Dean	Southern Company	By Phone
Welch, John	XCEL Energy Mktg.	In Person