PJM Interconnection
Load Analysis Subcommittee
Minutes of the 286th Meeting
Conference Call
October 26, 2010

Members Present:

John Reynolds, Chairman	PJM Interconnection, L.L.C.
Debbie Kanner	Allegheny Power
Randy E. Holliday	American Electric Power
Mark Bock	Baltimore Gas & Electric Company
Dennis Kelter	Commonwealth Edison (Exelon)
Bill Moll	FirstEnergy Solutions Corp.
Kemm Farney	Pepco Holdings Inc.
Susan M. Mushock	PPL Electric Utilities
Steve Wreschnig	Public Service Electric & Gas
Molly Mooney, Secretary	PJM Interconnection, L.L.C.

Others Present:

Jeff Brown	American Electric Power
Leon Brunson	Baltimore Gas & Electric Company
John Goodenough	Baltimore Gas & Electric Company
John Citrolo	Calpine Energy Services, L.P.
Guy Filomena	Customized Energy Solutions, Ltd.
Mike Hurd	Dayton Power & Light Company
Jeff Burke	Dominion Retail, Inc.
James Habberfield	Duquesne Light Company
Audrey Lyke	Exelon Generation Co., L.L.C.
Sari Fink	Exeter Associates
Mark Hanson	Illinois Commerce Commission
James Wilson	Independent Consultant
Michael Krauthamer	Maryland PSC
Yohannes Mariam	Office of the People's Counsel
David Hamilton	Old Dominion Electric Cooperative
Jocelyn Burton	PECO Energy Company
Willa Hightower	PECO Energy Company
David Woodruff	PPL Electric Utilities
James Jablonski	Vineland Municipal Electric Utility
Mike Batta	Virginia Electric & Power Company
Ken Berger	Virginia Electric & Power Company
Yashodhan Dongre	Virginia Electric & Power Company
Abhijit Rajan	Virginia Electric & Power Company
Karim Siamer	Virginia Electric & Power Company
Alex Habre	PJM Interconnection, L.L.C.
John J. Slivka	PJM Interconnection, L.L.C.
Jennifer Warner-Freeman	PJM Interconnection, L.L.C.

1. ADMINISTRATIVE

PJM took attendance and an additional presentation concerning Itron's Recommendation #7 submitted by Dominion was added to the agenda.

2. MINUTES

Minutes from the August 25, 2009, September 8, 2009, December 10, 2009 and March 23, 2010 meeting were reviewed and approved. The final minutes will be posted to the Load Analysis Subcommittee (LAS) webpage.

3. PJM RESPONSE TO ITRON RECOMMENDATIONS

The Itron Recommendations are listed below:

Itron Recommendation #1: Implement a weighted economic index that combines multiple economic measures into a single index of economic activity.

Itron Recommendation #2: Include rate shift variable for zones that have experienced significant rate increases.

Itron Recommendation #3: Combine the economic forecasts from Moody's Economy.com and Global Insight to generate forecasts.

Itron Recommendation #4: Track Moody's and Global Insight performance of their three-year ahead forecast to adjust the relative vendor weighting of composite economic driver.

Itron Recommendation #5: Keep using the simulation method. It is the best way to model diversity related to regional weather patterns.

Itron Recommendation #6: Explore approaches that interact weather variables with economic driver that remove the impact of industrial load from the interactive variables.

Itron Recommendation #7: Allocate the RTO peaks to zones using the zone CP values that occurred on peak days instead of the maximum zone CP for the month, and adjust only a single month to the seasonal peak unless there is a planning reason to adjust all months in the season.

Mr. Reynolds reviewed PJM's response to each of Itron's load forecasting recommendations along with an estimated timeframe for implementation. In summary, PJM believes that all recommendations have merit but there is a reliability planning issue related to the recommendation that calls for only adjusting one monthly peak that needs further review. The results of implementing each recommendation will be reviewed with LAS and the Planning Committee (PC). The Load Forecast is a PJM work product but PJM always seeks input of members.

There was some discussion within the group about these recommendations. Mr. Farney asked if there are results that these recommendations improve the forecast. Mr. Wreschnig questioned if recommendation #2 had merit. He also asked about recommendation #3 and if there was justification that two are better than one. He said there is no proof that the average will be better than one or the other. Mr. Burke asked about the PJM timeline and if it is aggressive and how PJM would implement feedback. PJM agreed that the timeline was aggressive and does not include a lot of time for people asking numerous questions or requesting additional analysis. If there is a lot of disagreement or further work, PJM will not be able to meet the timeline.

4. STAKEHOLDER RESPONSE TO ITRON RECOMMENDATIONS

Stakeholders discussed each Itron Recommendation.

Itron Recommendation #1: Mr. Wreschnig stated that recommendation #1 could not be separated from recommendation #2. His concern is that the price shift variable will pick up slack of an inadequate economic variable and we will not know how the economic variable performed. Mr. Farney raised a concern about the weights assigned to each economic component of Index1. He would like to see some sort of decision process to show if each recommendation offered improvement to the forecast. PJM stated that there will be a number of forecast runs laid out during agenda item #5. Mr. Wilson stated that weights were selected based on how they represent load. Ms. Lyke raised a concern that weights are the same in all zones. She is concerned with a one size fits all approach to Index1. Mr. Wreschnig again brought up the issue of time constraints and stated that Itron did not come back with anything that is broken in the current PJM model. A general question about why PJM would implement Index1 was asked. PJM's belief is that from Itron's point of view mixing in population, households, and employment are easier economic indicators to calculate and calculate correctly. Mr. Jablonski stated that Phase 1 and 2 of the forecast review process were set up to be implemented this year.

Itron Recommendation #2: Mr. Woodruff asked if the data is based on EIA data. PJM concurred that EIA -826 data was used. He raised a concern that only experienced history will be reflected and not future price changes. PJM explained that price dummy variables will only signal times when a zone experienced a significant rate increase and does not include any sort of price forecast. Mr. Holliday expressed concern with the EIA-826 data only capturing customers that go to default pricing. Mr. Wreschnig said that if price is important you need to take it into account in the forecast. He is concerned that the price shift dummy variables may dampen the forecast. Mr. Kelter believes that the idea of price dummy variables is fine but PJM needs to ask utilities about the price impacts and when they occurred.

Itron Recommendation #3: Mr. Wilson said there are papers that showed pooled indices are more stable, accurate and less biased. Ms. Warner-Freeman noted that these papers do not show or comment on statistics for long term economic forecasts. Mr. Farney agreed that the literature may be misrepresented. His concern is that Moody's and Global Insight do things differently. For example, in their GMP calculation one vendor uses Income and one uses Employment. Averaging only works if scenarios are used, but if a mishmash is used and then averaged then PJM will have a lot of explaining to do. PJM mentioned that they are indexing the economic series from each vendor in order to average. PJM agreed to provide details that do not give away the economic forecast.

Itron Recommendation #4: PJM explained that they do not have long term Global Insight data but will start the process to track the performance of both vendors.

Itron Recommendation #5: No change was recommended for the simulation method.

Itron Recommendation #6: PJM intends to explore the interactive weather and economic variables after Recommendation #1 is completed.

Itron Recommendation #7: The two parts of recommendation #7 were identified as: 1) post processing zonal CP values and 2) adjusting only one month to the seasonal peak. PJM stated that the load profile month to month is important to the IRM study and therefore it is not appropriate to change the adjustment of months to seasonal peaks at this point. Pertaining to post processing, Mr. Reynolds first explained that PJM chose to use the zonal CP maximums as it was consistent with how NCP results are analyzed. The

suggestion to use not each zone's individual CP maximum but their CP contribution to the RTO maximum was already something PJM was looking into when Itron began their review. Itron also recommended using the zone's contribution to the RTO maximum in their response to how PJM processes weather scenarios (Phase 2 of the Statement of Work).

Dominion Presentation on Recommendation #7

Mr. Rajan presented slides showing Dominion's comments and concerns with recommendation #7. He mentioned that changing the way PJM processes zonal CP will cause CP values to be a lot lower in geographically distant zones. Mr. Rajan explained that his calculations of the impact of implementing recommendation #7 looked at the last six years of each zone's contribution to the RTO CP and averaged them. It was mentioned that ComEd was around 65 degrees at the RTO peak two years ago which could skew the ComEd value shown in slide 7. PJM noted that this change will require significant recoding and PJM is not in a position to comment on how it will impact zonal CP loads.

5. STATUS OF IMPLEMENTATION OF ITRON RECOMMENDATIONS

Ms. Warner-Freeman reviewed the zonal graphs showing where PJM identified price shift points. It was again explained that data is from EIA-826. Some zone's will look into identified price shift points and get back to PJM with an explanation. Mr. Wilson and Mr. Wreschnig suggested putting in a binary variable each year and see what coefficient results. PJM clarified that Itron intended these price shift variables to be big changes that come at once, for example those that are reported in the newspapers.

Ms. Warner-Freeman shared zonal graphs showing indexed economic forecasts for GMP and Index1 for Moody's Economy.com, Global Insight, and an average of the two.

Ms. Warner-Freeman reviewed a matrix of test forecast runs being set up by PJM in order to analyze Itron's recommendations. The matrix does not include forecast runs that will be done to analyze price shift variable impacts and the post processing of zonal CP values. The matrix does show a number of runs that will isolate the changes as a result of using Index1 and the impact on peak and energy. Mr. Rajan asked for in-sample and out-of-sample test for all forecast runs. PJM said that regression results, goodness of fit statistics, in-sample MAPEs, along with tables and graphs of the forecast would be shared. Mr. Holliday asked if PJM plans to continue to use consistent models for all zones. PJM affirmed that they plan to use the same model for each zone. Mr. Jablonski stated that PJM hired Itron to come up with changes that would produce the best forecast so the recommendations should be accepted.

6. NEXT STEPS

PJM will review the LAS discussion on Itron's recommendations at the November 10th Planning Committee Meeting. Future LAS webex meetings were scheduled for Thursday, November 18th and Tuesday December 7th.

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