August 25, 2010

To: EISPC Executive Committee
From: David Whiteley
Re: 2020 Case Assumptions

The EIPC thanks the EISPC Reference Case Work Group for its initial review and feedback regarding the 2020 case (the roll-up and integration case) data provided on June 28, 2010. We have reviewed your comments in light of how best to provide useful information to support EISPC and the recently formed EIPC Stakeholder Steering Committee ("SSC") activities. Because SSC Working Groups have recently been formed, the EIPC proposes that it would be most transparent and effective for responses to this request and further discussions associated with this request or similar requests, be handled through the stakeholder Roll-Up Work Group or other work groups as appropriate. However, in an effort to keep this process moving forward, the EIPC provides the following responses to the EISPC memo dated June 28, 2010 and will also post and make this response available to the full SSC, its associated working groups, and all stakeholders.

Background

As an initial matter, it should be noted that the EIPC modeling to date has been focused on aggregating existing regional transmission expansion plans (the "roll-up") for 2020. In their broadest sense, those plans, which are the result of FERC-approved Order 890 processes, identify the future means of reliably serving the loads in a planning area utilizing the available resources. Transmission planning differs from resource planning wherein an assessment of load requirements and potential resource options is performed. Resource planning requires extensive cost assumptions regarding resource options, future fuel forecasts, environmental costs, and other parameters. Typically, load requirements and resource decisions are inputs to the transmission planning process submitted by others. For example, the transmission planner supports the resource planning process by providing assessments of the transmission needs and costs associated with various resource options, but the cost analysis of technology options and ultimate resource decisions are made by the Load Serving Entity (LSE), not the transmission planner.

Also, transmission expansion does not result from single, static plans but rather from continually iterating plans that grow from the ongoing, bottom-up FERC-approved Order 890 processes within each of the Planning Authorities (PAs). Within the established planning cycles, transmission planners update the plan to reflect inputs provided by LSEs, generation developers, market participants, states and others requesting transmission service to update the modeling with new load forecasts, other supply and demand resources, and transmission service requirements.

As previously noted, the first task of the EIPC is to aggregate the transmission expansion plans of the PAs in the Eastern Interconnection so that interconnection-wide analysis may be performed and any possible efficiencies or limits to transfer among the regions can be assessed. On the surface, aggregating power flow cases may appear a trivial undertaking, but in reality it is complex and labor intensive, requiring an extensive amount of coordination and analysis. In fact, this EIPC exercise is a first-of-its-kind attempt at an aggregation and analyses of existing regional plans on an interconnection wide basis and will inevitably involve many uncertainties in both the modeling process and basic analysis to complete the task.

The 2020 year was selected because it provides the farthest projection into the transmission planning horizon maintained by most PAs. Most generation and transmission facilities in the PA transmission expansion plans will be existing facilities or facilities that are committed/under construction. However, areas with a significant amount of merchant generation development and/or a significant amount of load growth may also include prospective projects, particularly if needed to balance area loads. It should be noted that the expansion plans are based upon current laws and regulations. Projects through 2015 are reasonably certain, however, extensive changes are anticipated beyond 2015 when new EPA regulations are anticipated to be in effect. Although individual PAs may have performed a substantial amount of analysis related to these and other potential impacts, the existing PA expansion plans, in most cases, do not reflect these potential, but yet undefined regulatory changes.

The 2020 “roll-up” will be a power flow case provided in PTI PSS/E format. In general, the model provides the planned topology of the power system for a given year and includes the following types of information:

- Transmission lines and busses
- Transformers
- Capacitors and other shunt devices
- Generators
- Loads
- Facility ratings

The model does not include non-power flow parameters such as:

- Facility capital and operating costs
- Fuel forecasts and costs
- Generator heat rates and availability
- Emissions rates
- Alternate expansion scenarios

Requested Information

Assumptions Spreadsheet: The proposed "Standardized Format for Reference Case Assumptions" spreadsheet largely reflects assumptions typically utilized in a resource planning analysis rather than a transmission power flow analysis. In many cases, the parameters requested in the spreadsheet may not be known by the Transmission Planner or the PA and in any event are not variables determined by the Transmission Planner or subject to its discretion. Reference is made to the tab entitled "By Planning Authority" and "By Variable".

Resource planning parameters will be addressed as part of the macroeconomic and production cost modeling activities (Task 5 and Task 3, respectively). It is anticipated that publically available information such as is incorporated in the CRA modeling will be used as a starting point, with the stakeholder Modeling Work Group serving as the point of contact. However, some information requested on the "By Variable" tab with respect to the roll-up case was provided in the April 2, 2010 response (attached).

Specific Questions and Additional Information:

1. Question: Common Understanding of Terms: In assessing the data it would be very helpful to EISPC if EIPC provided clarification relative to the reference case terminology and the assumptions used by the PAs. EISPC has already discovered that regions sometimes use different terminology or language for the same things, and, sometimes the same terminology or language is used for different things. We would ask that EIPC prepare definitions for the terms used in describing the reference case.

   It would be very helpful if EIPC fully described the various ways PAs describe their assumptions so EISPC can better understand what they mean. Examples: ISO-NE includes generation projects that have "I.3.9 approval"; PJM includes generation with a "signed in-service agreement" and with "signed study agreements"; Power South includes "fictitious generation".

   In setting forth the information, we request that EIPC and the PAs use practical terms and common language so that EISPC can determine whether and to what extent the assumptions are comparable across the interconnection. EISPC's review would also be aided if terms were used universally (to the greatest extent possible).

   Response: We understand the confusion associated with varying terms for the status of projects and will propose consistent terms, perhaps adopting the classifications used by NERC in its long-term resource assessment. One option

for documenting this consistent terminology is in the Steady-State Modeling and Load Flow Working Group manual that is currently under development. Discussion of the best way to address this issue would be appropriate with the recently formed SSC Roll-Up Work Group or at one of the upcoming SSC meetings.

2. Question: Planned Generation and Transmission – how does each PA determine what facilities are certain enough to include in the reference case as assumed infrastructure? For instance, is it projects that are approved, projects where construction has begun, or something else?

   Response: Consistent with their planning cycles, transmission planners respond to the inputs provided by LSEs, generator developers, market participants, and others requesting transmission service to update the modeling with new load forecasts, resources, and transmission service requirements. As such, the resource assumptions (whether firm, anticipated, or otherwise) are provided as inputs to the transmission planner. Discussions with the SSC Modeling Working Group may help facilitate questions related to resources. A narrative that addresses these issues with respect to the 2020 case will be provided as part of the description and report on the roll-up effort, currently targeted for September 17th well in advance of the next SSC meeting.

   Question: On transmission, it would be helpful for EIPC to provide a separate spreadsheet showing assumed transmission in each planning region which indicates: number of miles; voltage; and, whether it is for reliability, economic, or public policy purposes. This should also show assumed transmission that spans control areas to enable an assessment of whether the assumed inter-regional projects line up.

   Response: While some of this information is available from the earlier response and on various PA websites, we will provide this information for the 2020 case in spreadsheet format by September 17th.

3. Question: RPS Modeled – It is likely that a scenario for study will revolve around a future renewable policy direction. It is necessary to know the parameters of what levels of RPS are modeled in the reference case so that, if there are inconsistencies across PAs, the inconsistencies can be identified and addressed as necessary. Please provide current RPS requirements that are applicable within each PA and the current penetration of renewables by PA.

Response: While some of this information is available from the earlier response and on various PA websites, we will provide this information for the 2020 case in spreadsheet format by September 17th.

4. Question: Generation Modeled – It is also necessary to know what levels of generation, both renewable and traditional, are modeled in the reference case. Please provide the resource assumptions being used within each PA, including the current penetration of renewables by PA. See Resource Assumptions worksheet in the attached Excel Spreadsheet.

   Response: While some of this information is available from the earlier response and on various PA websites, we will provide this information for the 2020 case in spreadsheet format by September 17th.

5. Question: EISPC would like to receive the raw data that the PAs provide to you. If there is proprietary information contained therein, we'll obviously have to deal with the confidentiality issue sooner rather than later.

   Response: It will be possible to obtain the load flow model in PSS/E (Industry standard Power Flow Software) RAWD format (ASCII). Procedures to obtain this will be posted shortly on the EIPC website.

6. Question: How will EIPC deal with entities that are moving from one PA to another? (For example First Energy and Duke are both moving from the Midwest ISO to PJM.) Is there a mechanism to ensure that those entities are not double counted?

   Response: This matter is routinely addressed in FERC filings when an entity seeks to transfer from one RTO to another. As part of coordination of any transmission owner moving between RTOs, the affected RTOs coordinate the necessary changes to their transmission planning inputs to ensure an effective "hand-off" of planning processes between entities. This includes coordination of generation queues and planning processes. The EIPC coordination on the development and analysis of the roll-up case and any other models and analyses performed under this project will ensure that these systems are appropriately treated.

7. Question: EISPC continues to believe that the reference case must be extended to the same planning horizon as the futures to do any sort of meaningful analyses of those futures. Has EIPC given any further thought to the issue?

Response: EIPC understands the issue raised in regards to extending the "reference case" into the same planning horizon as the three (3) scenarios to be studied as part of Phase II as described in the EIPC Statement of Project Objectives. As previously mentioned, the EIPC would like to make the distinction between the roll-up of plans identified in Tasks 2 and 3 of the EIPC Statement of Project Objectives and the development of futures described in the remaining Phase I tasks. Further, the roll-up is not correctly characterized as a "reference case". More properly, the roll-up can be described as providing some of the foundation for creation of the futures with the macroeconomic scenarios developed by the SSC and analyzed by CRA forming another part of that foundational information. For the most part, the PAs have not developed a transmission plan beyond the year 2020 given the uncertainties associated with future prognostications and the need for a focus on critical infrastructure needed over the next ten years. As a result, the project proposal did not include the creation of a separate reference case beyond 2020 as a part of Task 2. Should the SSC determine that a "reference case" beyond 2020 be needed, it would be considered as one of the three (3) transmission scenarios. The resource assumptions going into that "reference case" would need to be determined through the expansion scenario planning process (Task 6) in Phase I of the project. EIPC would then proceed to develop (Task 7) and analyze (Task 8) transmission alternatives in response to that scenario in the same manner as the transmission reliability analysis was conducted in Task 2.