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COMPLAINT OF CALPINE
CORPORATION AND NRG ENERGY,
INC. AGAINST THE ELECTRIC
RELIABILITY COUNCIL OF TEXAS
AND APPEAL OF DECISION
CONCERNING THE HOUSTON
IMPORT PROJECT

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I certify that a copy of this document will be served on all parties of record by October 10, 2014, in accordance with P.U.C. Procedural Rule 22.74.


Marie Reyna

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I. Introduction

In this appeal, this Commission is asked to consider the narrow question of whether, during ERCOT's comprehensive review and ultimate endorsement of the need for the Houston Import Project (HIP), ERCOT violated any law, order, rule or binding planning procedure.¹ The evidence in this proceeding will demonstrate that ERCOT properly followed the relevant laws, ERCOT Nodal Protocols (protocols) and procedures in reaching its decision that the HIP was necessary to maintain the reliability of the grid in the Houston area. The evidence will show that ERCOT's process was transparent and followed all relevant procedures set forth in the existing protocols and planning guides for evaluating Tier One projects such as the HIP. The evidence will further show that ERCOT's independent review and analysis, including ERCOT's various adjustments to the SSWG base case model, were reasonable. In short, the evidence will show that the Commission should reject the Houston Generators' appeal.

While the Houston Generators have identified a number of protocols, binding planning guide sections, and other materials that ERCOT has ostensibly violated,² their case primarily focuses on ERCOT Planning Guide Section 4.1.1.1(5).³ This provision authorizes ERCOT to make "reasonable variations" to the load forecasts in the SSWG base case model in order to perform specific planning studies. In assessing the reasonableness of ERCOT's variations in this proceeding, the Houston Generators have in turn focused on two issues. First, whether

¹ See Direct Testimony of Jeffrey Billo at 8 (Sep. 19, 2014) (Billo Direct). See also Direct Testimony of Charles S. Griffey at 43-44 (Sep. 19, 2014) (Griffey Direct). Calpine and NRG (collectively, the "Houston Generators") have also alleged that ERCOT violated several Steady State Working Group (SSWG) procedures. Staff concurs with ERCOT and others that these procedures solely address the design of the SSWG base case model. They are not part of or binding upon the transmission planning process.

² See Complainants' Reply to Responses to the Complaint and to Commission Staff's Recommendation at 10-11 (Jul. 7, 2014) (Complainants' Reply). Houston Generators alleged that ERCOT violated the following specific Protocol and Planning Guide procedures: Protocol 3.11.2(3), Planning Guide Section 3.1.3(1), Planning Guide Section 4.1.1.1(5)(a) and (b), and Planning Guide Section 3.1.4.1(1).

³ Planning Guide Section 4.1.1.1(5) states, in relevant part:

The following assumptions may be applied to the SSWG base cases for use in planning studies:

- (a) Reasonable variations of Load forecast;
- (b) Reasonable variations of generation commitment and dispatch applicable to transmission planning analyses on a case-by-case basis may include, but are not limited to, the following methods:
 - (i) Production cost model simulation, security constrained optimal power flow, or similar modeling tools that analyze the ERCOT System using hourly generation dispatch assumptions;
 - (ii) Modeling of high levels of intermittent generation conditions; or
 - (iii) Modeling of low levels of or no intermittent generation conditions.

ERCOT's various sensitivity studies, which utilized a variety of load scaling methods, constituted reasonable variations to the load forecast in the SSWG base case model. Second, whether ERCOT's use of the "higher of" and "90th percentile" load forecasts likewise constituted "reasonable variations" from the SSWG base case load forecast. Staff anticipates that the bulk of the evidence the Commissioners will hear at the hearing will focus on these issues.

With regard to ERCOT's use of load scaling in its planning process, the evidence will demonstrate that such approach is not only reasonable, but entirely appropriate. However, it is worth emphasizing at the outset, that the use of various forms of load scaling in ERCOT's sensitivity analyses had no impact on the ultimate finding that the HIP was needed. As TIEC witness Charles Griffey stated: "the SSWG case with no load scaling *still showed that the HIP was needed to maintain reliability in the Houston area.*"⁴ Even though the SSWG base case model established the need for the HIP, ERCOT employed load scaling because such approaches comport with the goal of the ERCOT transmission process. That is, to evaluate the need for a particular project in view of a grid under stressed, but yet realistic conditions. Both ERCOT and TIEC have presented persuasive testimony that explains that scaling down the load outside of the study area better reflects load in those regions during the study area's peak load. In other words, it provides the most accurate picture of the grid conditions when a reliability project like the HIP is likely to be necessary. The evidence will make clear that ERCOT's use of these tools to model the grid for the conditions the HIP is ultimately designed to address is reasonable. The Commission should reject the Houston Generators' arguments on this point. However, even if it accepts the Houston Generators' flawed analysis, it should still uphold ERCOT's need endorsement on the basis of the SSWG base case study.

Similarly, ERCOT's use of the higher of the load level in the SSWG base case model or the ERCOT 90th percentile load forecast reflected a reasonable variation to the SSWG base case model. Again, the evidence will show that ERCOT's approach was designed to reflect the applicable critical system conditions necessary to test system performance and identify the need for the HIP. Utilizing the higher of the SSWG base case model or the ERCOT 90th percentile

⁴ Griffey Direct at 10-11; See Direct Testimony of Johannes P. Pfeifenberger at 6 (Sep. 19, 2014) (Pfeifenberger Direct) ("One of these cases relied on the 2014 SSWG base case without any load scaling and still demonstrated a 2018 reliability need for the HIP). See also Billo Direct at 26 ("The power flow analysis for each of the additional cases showed reliability criteria violations in 2018. This verifies the need for the HIP because the need was shown in a case with no load scaling (Additional Case 1) and in cases with varying levels of load scaling (Additional Cases 2 and 3))."

load forecast provides a better indication of these critical system conditions. This approach accomplishes what the ERCOT transmission planning process is required to do: model the ERCOT system under conditions of stress in order to evaluate what steps are needed to ensure reliability. The evidence will show that ERCOT's approach accomplished this goal. It will also show that the Houston Generators' alternative methods, which rely on average system conditions and 50th percentile load forecasts fail to model critical system conditions properly.

The applicants appear to have strenuous objections to how ERCOT reaches its determination that a particular transmission project is needed. ***This appeal is not about what the ERCOT process should be.*** As Commissioner Anderson indicated at the July 10, 2014 open meeting, the Houston Generators "have raised some very important, big picture issues."⁵ But the proper venue for these broad policy issues is, at least initially, in the ERCOT stakeholder process. The evidence in ***this*** limited proceeding, however, will make clear that ERCOT has followed all relevant requirements, procedures, and processes as they exist today. The result they have reached is reasonable. The Houston Generators' appeal should be denied.

II. Overview of ERCOT's Process

a. ERCOT's Process in General

Pursuant to PURA § 39.151(a), ERCOT is the independent organization responsible for ensuring the reliability and adequacy of the regional electrical network. P.U.C. SUBST. R. 25.361 further describes ERCOT's functions and responsibilities in transmission planning. Specifically, the rule requires ERCOT to conduct transmission planning and exercise ***comprehensive authority*** over the planning of the bulk transmission projects.⁶ The rule further requires ERCOT to "evaluate and make a recommendation to the commission as to the need for any transmission facility over which it has comprehensive transmission planning authority."⁷

Prior to performing a transmission project analysis such as the HIP independent review, ERCOT's process begins with the SSWG. The SSWG is a non-voting working group comprised

⁵ Open Meeting Tr. at 59:15-16 (Jul. 10, 2014).

⁶ P.U.C. SUBST. R. 25.361(d)

⁷ P.U.C. SUBST. R. 25.361(d)(1).

of ERCOT staff and ERCOT transmission service providers (TSPs).⁸ The SSWG's main purpose is to develop and maintain the seasonal (Data Set A) and future (Data Set B) steady state base cases (power flow models) on an annual basis.⁹ Data Set A contains the seasonal cases for the following year. These in turn consist of both an on-peak and an off-peak case for each of the four seasons.¹⁰ Data Set B sets forth six summer on-peak base cases for the six future years following the upcoming year, as well as one High Wind/Low Load (HWLL) case, and one minimum case.¹¹ Pursuant to Planning Guide Section 6, these cases contain the appropriate characteristics and system data, and represent projected system conditions that provide a starting point for each required season and year. TSPs are required to provide the load forecasts used in developing the base cases.¹² The SSWG maintains these base case models with additional guidance from the SSWG Procedure Manual, which is intended to demonstrate compliance with NERC reliability standards applicable to steady state modeling.¹³ While the SSWG Procedure Manual provides guidance on the creation of the base cases, it does not provide direct guidance on transmission planning.¹⁴

The TSPs utilize the SSWG base case to analyze their systems and identify transmission reliability issues. The TSPs can then propose projects to solve identified issues to the Regional Planning Group (RPG). The RPG is a non-voting, consensus-based group comprised of TSPs (who are required to participate), as well as market participants, consumers, stakeholders and Commission Staff.¹⁵ The purpose of the group is to identify needs, potential solutions, communicate varying viewpoints, and review transmission analyses in the planning horizon.¹⁶

⁸ ERCOT Steady State Working Group Procedure Manual (SSWG Procedure) 1.1.

⁹ *Id.*

¹⁰ *Id.* at 1.1 and 1.2.

¹¹ *Id.* at 3.2.

¹² Planning Guide 6.5.

¹³ SSWG Procedure 1.2.

¹⁴ Billo Direct at 8.

¹⁵ Protocol 3.11.3.

¹⁶ *Id.*

All transmission projects in the ERCOT region go through a formal review by the RPG, except for certain minor transmission projects.¹⁷

The RPG project submission and review process is outlined in Protocol 3.11.4, and Planning Guide Section 3.1.5. First, a stakeholder, such as a TSP, submits a project in accordance with the protocols and planning guides. ERCOT will classify the project into one of four "Tiers."¹⁸ Next, ERCOT will conduct a comment process for all Tier 1, 2, and 3 projects, which is open to stakeholders to submit questions, concerns, objections, or comments about the submitted project.¹⁹ Once the comment process has ended, ERCOT will conduct an independent review for projects that require a certificate of convenience and necessity (CCN) or that have an estimated capital cost of \$50 million or greater.²⁰ For Tier 1 projects, such as the HIP, ERCOT is also required to submit the independent review to the ERCOT Board of Directors (ERCOT Board) for endorsement of the project.²¹ Pursuant to Planning Guide Section 3.1.1.3, the ERCOT Board's endorsement of a project is intended to support a finding by the Commission that the project is necessary for the service, accommodation, convenience, or safety of the public.

In addition to coordinating with TSPs on developing the SSWG base cases, and overseeing the RPG project review process, ERCOT develops the Regional Transmission Plan (RTP) annually in conjunction with the RPG and TSPs.²² The purpose of the RTP is to provide a coordinated plan for the ERCOT system.²³ Thus, the RTP addresses reliability in the ERCOT region and economic transmission needs, and the planned improvements to meet those needs for the upcoming six years included in the SSWG base cases.²⁴ The RTP includes "projects previously approved by the ERCOT Board, projects previously reviewed by the RPG, new projects that will be refined at the appropriate time by TSPs in order to complete RPG review,

¹⁷ Planning Guide 3.1.1.3.

¹⁸ Protocol 3.11.4.3.

¹⁹ Protocol 3.11.4.2 and Planning Guide 3.1.5.

²⁰ Protocol 3.11.4.6 and 3.11.4.7.

²¹ Protocol 3.11.4.7(2).

²² Planning Guide 3.1.1.2.

²³ Planning Guide 3.1.4.

²⁴ Planning Guide 3.1.1.2; Billo Direct at 14.

and the local projects currently planned by TSPs.”²⁵ The RTP generally serves as the basis for all subsequent RPG Project Reviews, including of projects within the RTP and of other proposed projects.²⁶ The RTP Process has not been changed since 2012, and is designed to be consistent with the NERC Transmission Planning (TPL) Standards, Protocol 3.11, and the Planning Guide.²⁷ The 2013 RTP Study Scope and Process document provides guidance on the modeling assumptions and review process ERCOT used for its 2013 RTP study.²⁸

Accordingly, the HIP was derived from ERCOT’s process described above. ERCOT witnesses Jeffrey Billo and Johannes Pfeifenberger, and TIEC witness Charles Griffey, each provided a detailed explanation of the process that ERCOT conducted to identify the reliability need in the Houston region and to ultimately recommend a solution to address the need.

b. ERCOT’s HIP Process

Utilizing the SSWG base case, four TSPs (CenterPoint Energy, Lone Star Transmission, and Garland Power & Light in conjunction with Cross Texas Transmission), identified the 2018 reliability need to improve import capability into the Houston area, and submitted three project proposals to the RPG for consideration in the summer of 2013.²⁹ ERCOT classified each of the projects as Tier 1 projects pursuant to Protocol 3.11.4.7 since the estimated capital cost of each proposal exceeded \$50 million.³⁰ Next, ERCOT submitted each project proposal to the RPG for comments and responses from the TSPs, during which time approximately thirty entities provided comments on the submittals.³¹ ERCOT then performed a single independent review of the three proposals, in accordance with the Protocol 3.11.4.7(1).

²⁵ Planning Guide 3.1.1.2

²⁶ Planning Guide 3.1.4.2.

²⁷ Pfeifenberger Direct at 8.

²⁸ Billo Direct at 7.

²⁹ Pfeifenberger Direct at 7; Billo Direct at 11.

³⁰ See Billo Direct at 11.

³¹ *Id.*

ERCOT utilized 2013 RTP assumptions for its HIP Independent Review analysis, which are consistent with the RTP Study Scope and Process document.³² This methodology had been discussed and approved by the RPG in two previous RTP cycles.³³ ERCOT typically uses the most recent RTP summer peak case as the base case for its independent review.³⁴ Thus, ERCOT began its HIP analyses with the 2018 summer peak case that was developed for use in the 2013 RTP.³⁵ This case began with the 2018 summer peak case (from the 2013 Data Set B) created by the SSWG, and then was modified in accordance with the RTP Study Scope and Process document.³⁶

ERCOT used a combination of TSP load forecasts from the 2013 SSWG Data Set B bases cases and the 2013 90th percentile of summer peak loads forecast developed by ERCOT to model the load in the HIP Independent Review.³⁷ ERCOT then adjusted the self-serve load and losses in the 90th percentile forecast to make the two forecasts more compatible.³⁸ Additionally, ERCOT split the system into two study areas – the NW Texas region (North, Far West, West, and North Central weather zones), and the SE Texas region (South, South Central, East, and Coast weather zones).³⁹ The SE region was deemed the HIP study area and load was modeled for that area as the “higher of” the SSWG or the 90th percentile forecast for the weather zones in the study area.⁴⁰ The NW region load was originally left equal to the SSWG forecast, but eventually was scaled down by ERCOT by approximately 15% in order to balance supply and demand in the model.⁴¹

³² Billo Direct at 14; Pfeifenberger Direct at 8.

³³ Pfeifenberger Direct at 8.

³⁴ Billo Direct at 15.

³⁵ *Id.* at 14; Pfeifenberger Direct at 8.

³⁶ Billo Direct, Attachment A, ERCOT Independent Review of Houston Import RPG Project (ERCOT Independent Review) at 3.

³⁷ Pfeifenberger Direct at 8.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.* at 9.

⁴¹ *Id.*

ERCOT conducted three other sensitivity analyses in response to stakeholder comments regarding the study assumptions, such as load scaling, that ERCOT had employed in the first study.⁴² In these additional case studies, ERCOT utilized the updated 2014 SSWG forecast instead of the 2013 RTP base case. All four cases ultimately confirmed the reliability need for the HIP starting in 2018.⁴³ After completion of the Independent Review, ERCOT presented its findings to the RPG on February 20, 2014. To address the need, ERCOT recommended new 345-kV double-circuit transmission lines terminating in the Limestone, Gibbons Creek, and Zenith substations, in addition to upgrades to those substations, and an upgrade of the T.H. Wharton to Addicks 345-kV transmission line.⁴⁴ ERCOT then presented its recommendation to the Technical Advisory Committee (TAC) (March 27, 2014) and the ERCOT Board (April 8, 2014), both of which endorsed the reliability need for the HIP.⁴⁵ The ERCOT Board also deemed the new transmission lines as critical to reliability.⁴⁶

III. ERCOT's Analysis

As outlined above, several of the Houston Generators' arguments are based on the contention that ERCOT's analysis was improper, unreasonable, did not follow the protocols or planning guides, and amounted to an abuse of discretion by ERCOT Staff. However, as set out in ERCOT's testimony, ERCOT properly followed the requirements in the protocols and planning guides and made reasonable modifications to the models when it had the discretion to do so.

a. Use of the SSWG load forecast was reasonable

It was reasonable for ERCOT to use the load forecast for the Coast weather zone provided by the SSWG rather than the Long-Term Hourly Peak Demand and Energy Forecast

⁴² *Id.*

⁴³ *Id.* at 9-10.

⁴⁴ Billo Direct at 12.

⁴⁵ *Id.*

⁴⁶ *Id.*

used for the Capacity, Demand, and Reserves (CDR) report used to assess future resource adequacy. Mr. Pfeifenberger noted that using the 2014 forecast would not have materially changed the reliability need, as using the peak load under the 2014 forecast rather than the 2013 would not have been enough to alter the results of the Independent Review.⁴⁷ In addition, comparing the CDR forecast to the Independent Review forecast is an “apples-to-oranges” comparison, because the Houston Generators do not account for the differences between resource adequacy planning, which the CDR is used for, and transmission planning.⁴⁸ Also, the 2014 CDR forecast was not complete in time for ERCOT to use it to conduct the independent review.⁴⁹ The CDR forecast was completed in February 2014, while the project proposals for the HIP were first received in July 2013.⁵⁰

ERCOT witness, Warren Lasher, also points out that the CDR is designed to reflect average weather conditions and loads when the entire system peaks.⁵¹ However, transmission system planning should reflect critical system conditions rather than average weather conditions, and transmission needs for a particular region should plan for the peak load in that region independent of the load levels in nearby regions.⁵² Additionally, Mr. Billo argues that the Houston Generators misunderstand the requirements of the protocols. Mr. Billo explains that “normal conditions” refers to the state of the system, not to the load level, and that the word “normal” refers to the pre-contingency conditions of the system.⁵³

⁴⁷ Pfeifenberger Direct at 19-20.

⁴⁸ *Id.* at 20.

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ Direct Testimony of Warren Lasher at 11-12 (Sept. 19, 2014) (Lasher Direct).

⁵² *Id.* at 10.

⁵³ Billo Direct at 21-22.

b. ERCOT's use of the "higher of" the SSWG forecast and the ERCOT 90th percentile forecast was reasonable

The Houston Generators argue that it was unreasonable for ERCOT to use the higher of the SSWG forecast and the ERCOT 90th percentile load forecast.⁵⁴ In ERCOT's study, the 90th percentile load forecast was higher than the SSWG forecast in the East and South weather zones, therefore ERCOT used those load levels for those areas instead of the SSWG load levels.⁵⁵ Mr. Billo argues that ERCOT uses this methodology for two reasons. First, NERC reliability standards require that transmission planning assessments cover critical system conditions.⁵⁶ Second, the two forecasts are developed independently and use different methodologies and assumptions.⁵⁷ Looking at the higher of the two forecasts ensures that the system is planned for critical system conditions. As the entity responsible for transmission reliability, ERCOT can determine what constitutes "critical system conditions."⁵⁸ In addition, ERCOT has used this methodology, which was presented to the RPG stakeholders, since 2010.⁵⁹

Mr. Pfeifenberger agrees that this methodology is reasonable, also noting that this approach has been used for several years in the RTP Study Scope and Process documents and that it is consistent with NERC standards, which require ERCOT to have a process to ensure the system can operate in a reliable manner under a wide variety of load forecasts and system conditions.⁶⁰ Mr. Pfeifenberger also argues that the Independent Review is a reliability study, not a resource adequacy model, and it is therefore reasonable to consider peak loads under critical, not just average conditions.⁶¹ No party disputes the fact that forecasts themselves are inherently

⁵⁴ Complaint at 18, and 29; Complainants' Reply at 19-22.

⁵⁵ Billo Direct at 16.

⁵⁶ *Id.* at 23-24; Pfeifenberger Direct at 14.

⁵⁷ Billo Direct at 23-24.

⁵⁸ *Id.* at 23; Pfeifenberger Direct at 14.

⁵⁹ Billo Direct at 24.

⁶⁰ Pfeifenberger Direct at 13-14.

⁶¹ *Id.* at 13.

uncertain.⁶² Therefore, considering this uncertainty, it is reasonable for ERCOT to compare forecasts from various sources in order for ERCOT to meet its responsibility for maintaining a reliable electric grid.⁶³

Additionally, Mr. Pfeifenberger argues that, because it is not clear whether the ERCOT forecast or the SSWG forecast is more accurate, and because there is no evidence that the higher forecast is an unreasonable representation of critical system conditions, he believes it is reasonable to use the higher of methodology for reliability planning purposes.⁶⁴ Finally, Mr. Pfeifenberger also compares this methodology to other RTOs, which look at extreme system conditions when evaluating reliability needs.⁶⁵ Most regions use the 90th percentile non-coincident peak load forecasts to define critical system conditions when studying reliability needs in import constrained regions such as the HIP, and some even define critical system conditions more stringently by considering more significant generation outages.⁶⁶

Moreover, the evidence demonstrates that the higher of methodology did not create the reliability need, as the Houston Generators suggest, because the SSWG base case forecast for 2018 peak load was very similar to the peak load created by the higher of methodology.⁶⁷ This is also confirmed by the additional case studies ERCOT performed which did not employ the higher of methodology, but still demonstrated a reliability need for the HIP in 2018.⁶⁸ TIEC witness, Charles Griffey, agrees that the higher of methodology did not have much impact on the HIP analysis.⁶⁹ Furthermore, Mr. Griffey notes that this methodology helps account for

⁶² See Direct Testimony of Ross Baldick at 16 (Aug. 18, 2014) (Baldick Direct); See also Pfeifenberger Direct at 14.

⁶³ Pfeifenberger Direct at 14; See Griffey Direct at 29 (“Again, for reliability you want to design the transmission network to perform over the full range of expected conditions.”).

⁶⁴ Pfeifenberger Direct at 15.

⁶⁵ *Id.* at 15, 24-26.

⁶⁶ *Id.* at 15.

⁶⁷ *Id.* at 15-16.

⁶⁸ *Id.* at 16.

⁶⁹ Griffey Direct at 28-29 (“The Coastal and South Central zone forecasts did not change, while the East zone went up by 206 MW and the South zone went up by 171 MW. The net impact in the SE region of those four weather regions was only a 0.7 percent increase in load, and there was no increase in the Houston area.”).

uncertainty in economic growth in a region since the TSPs have local knowledge of planned industrial and commercial load additions that may not be captured in ERCOT's models.⁷⁰

c. The load forecast used was a reasonable variation of the SSWG base case load forecast

The Houston Generators also argue that ERCOT made unreasonable variations to the SSWG base case load forecast. However, as shown in the testimony of Mr. Billo, Mr. Lasher, and Mr. Pfeifenberger, ERCOT followed the protocols, planning guides, and other reliability criteria when making these variations. Mr. Lasher states that the SSWG base case model load forecast for the Coast weather zone was not adjusted, and that the adjustments were only made to the to the load forecast outside of the Coast weather zone, which is not relevant to the determination of need for additional import capacity into the Houston area.⁷¹ Even then, ERCOT used the 90th percentile load forecast for the East and South weather zones, under the "higher of" methodology, as these forecasts were higher than the SSWG forecast.⁷²

Mr. Billo describes the reasons why ERCOT grouped the weather zones into two different study areas. Mr. Billo states that it is not reasonable to assume that all areas will be at their non-coincident peaks at the same time. Rather than creating a separate case for each of the eight weather zones for each of three years, or 24 different cases, ERCOT grouped the weather zones into two study areas.⁷³ ERCOT has been using this approach since 2010.⁷⁴ Mr. Billo states that grouping weather zones is reasonable for this type of analysis because the primary objective is to determine whether the transmission system can support the import needs of a load pocket like Houston, and system conditions outside the load pocket have little impact on the import need.⁷⁵ This is the basis for Mr. Billo's disagreement with the criticisms raised by the Houston Generators' witness, Professor Baughman.⁷⁶

⁷⁰ *Id.* at 29; *See Pfeifenberger Direct* at 14-15.

⁷¹ *Lasher Direct* at 14.

⁷² *Billo Direct* at 16.

⁷³ *Id.* at 27.

⁷⁴ *Id.*

⁷⁵ *Id.* at 28.

⁷⁶ *Id.* at 29.

Mr. Billo also disagreed with the Houston Generators' suggestion to use the top single hour of load, rather than the top 10 hours as ERCOT used to determine the peak load coincidence with the Coast weather zone⁷⁷ because using the top 10 hours will smooth out any anomalies that may occur. Mr. Billo maintains that ERCOT uses a similar methodology to calculate other peak condition values⁷⁸ and that it is reasonable to use this methodology for this purpose.

d. ERCOT's use of load scaling in its planning process was reasonable and appropriate

Load scaling is when a particular load forecast is adjusted by a set amount.⁷⁹ The Houston Generators criticize the use of load scaling in ERCOT's forecast analysis as being in violation of Section 4.1.1.1(5) of the Planning Guide. However, this section allows ERCOT to make reasonable variations of the load forecast in planning studies and it is Staff's position that ERCOT's decision to use it was both reasonable and appropriate. Mr. Griffey maintains in his direct testimony that load scaling is a fairly standard technique with a variety of applications in planning studies.⁸⁰ Further, he dismisses Houston Generators' contention that the absence of load scaling being listed in the SSWG Procedure Manual presents a problem for the reason that the manual addresses building a base case planning model using all non-coincident peaks, not how to conduct specific transmission reliability analyses.⁸¹ Mr. Griffey states that:

Transmission planning for reliability must account for uncertain load conditions and must ensure that reliability will be maintained even under hotter-than-normal weather and load conditions. Further, transmission planning for reliability analyzes potential overload conditions under discrete topologies of generation and transmission under specific outages, *e.g.* the loss of an element (N-1) or of a generator (G-1) ...NERC standards require that the network "be operated to supply projected customer demands...at all demand levels over the range of forecasted system demands," not just at the expected coincident peak

⁷⁷ *Id.* at 26.

⁷⁸ *Id.*

⁷⁹ Griffey Direct at 13.

⁸⁰ *Id.*

⁸¹ *Id.* at 14.

demand level for the system. Therefore, transmission planning must look at more extreme load condition than just the expected load.⁸²

Both ERCOT witness Mr. Billo and TIEC witness Mr. Griffey agree that the summed non-coincident load for each area can be greater than the expected ERCOT-wide load with Mr. Griffey noting that “load scaling reflects the fact that many regions of Texas do not peak at the same time (...the peaks are “non-coincident”), so it is reasonable to scale the loads in other areas to a level that approximates demand in those areas at the time the area under study reaches its non-coincident peak.⁸³ Therefore, ERCOT reduced, or scaled, the load in regions that are not under study because they would not be expected to be at their non-coincident peak at the same time as the study region.⁸⁴ In this case, ERCOT set the load for the NW weather zones at 85% of the SSWG load levels to balance the load and generation⁸⁵ which ERCOT found to be a reasonable coincidence factor with the Coast weather zone based on an analysis of the top ten hours over the last three years.⁸⁶ Mr. Griffey also notes that this scaling allowed for there to be sufficient generation to meet the load in the study case, while still carrying 1,375 MW of generation reserves (the amount needed for a G-1 case for the Houston area.)⁸⁷

ERCOT also conducted sensitivity analyses to verify the reasonableness of the load scaling approach, where it analyzed three additional study cases: one with no load scaling and no adjustments to the SSWG case non-coincident load forecasts; a second that used the SSWG case with each weather zone load scaled to the highest average percentage demand between 2011 and 2013 when the Coast weather zone was at its peak; and a third which used the SSWG case with weather zone load scaled to reflect the actual 2013 coincidence factor when the Coast weather zone was at its peak.⁸⁸ All verified the need for the HIP.⁸⁹

⁸² *Id.* at 6.

⁸³ *Id.* at 14; *See also* Billo Direct at 25.

⁸⁴ Billo Direct at 25.

⁸⁵ *Id.*; *See also* Griffey Direct at 15.

⁸⁶ Griffey Direct at 15; Baldick Direct, Exhibit RB-3 at 4.

⁸⁷ Griffey Direct at 15.

⁸⁸ *Id.* at 18-19.

Mr. Pfeifenberger also concludes that load scaling is reasonable. He explains that scaling down the load outside of the study area better reflects load in those regions during the study area's peak load.⁹⁰ Further, this process was established and reviewed by the RPG for RTP studies and is referenced in the RTP Scope and Process document.⁹¹ Finally, Mr. Pfeifenberger states that it is also reasonable to balance supply and demand for the power flow case.⁹² The load scaling did not alter the outcome of the demonstrated need and was supported by the RTP.

e. It was not necessary for ERCOT to evaluate the load outside of the Houston area

Houston Generators argue that ERCOT did not evaluate the load outside of the Houston area. However, as explained by Mr. Billo, the need to import power into the Houston area is driven by the load and generation in the Houston area, and the load level in the rest of ERCOT has very little impact on this need.⁹³ Because the import need is the difference between load and available generation, the only two assumptions that are needed for that determination are the load and generation within the Houston area.⁹⁴ Mr. Billo explains that the load level used the SSWG base case models, consistent with the Planning Guide, and generation was modeled in accordance with Planning Guide Section 6.9. Based on these assumptions, the import need was determined to be greater than the existing transmission system could accommodate.⁹⁵

Mr. Pfeifenberger also notes that the Houston Generators do not account for the fact that the HIP Independent Review is a reliability study for an import constrained portion of the grid, and ERCOT's objective is to ensure local reliability of the grid in the Houston area, not system-wide reliability or resource adequacy.⁹⁶ Mr. Pfeifenberger concludes that it is reasonable to test

⁸⁹ Billo Direct at 25-26; *See also* Pfeifenberger Direct at 18-19.

⁹⁰ Pfeifenberger Direct at 5, 17.

⁹¹ *Id.* at 5-6, 17.

⁹² *Id.* at 17-18.

⁹³ Billo Direct at 28.

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ Pfeifenberger Direct at 22-23.

the grid under critical peak load conditions for the study area, not ERCOT as a whole.⁹⁷ Based on the reasoning from Mr. Billo and Mr. Pfeifenberger, Staff concludes that it is reasonable for ERCOT's analysis to focus on the load and generation in the Houston area, and ERCOT made reasonable adjustments in its analysis to areas outside of Houston.

f. ERCOT appropriately conducted the Relative Value Analysis

It is Staff's position that ERCOT conducted a reasonable economic review. The Houston Generators state that ERCOT violated Protocol 3.11.2(1) because it did not conduct an analysis to evaluate the relative value of alternative improvements based on established technical and economic criteria. However, Mr. Billo states that ERCOT met the requirements of this section in the Independent Review. First, in section 7.6 of the Independent Review, ERCOT conducted an economic analysis of the relative performance of the transmission project options in terms of production cost savings.⁹⁸ Second, in section 7.2, ERCOT compared the net present value of each of the options considering the long term needs of the area.⁹⁹ Mr. Billo points to Planning Guide Section 3.1.3.2 to show what economic analysis is required for a reliability project, which is essentially to compare the transmission project alternatives to one another.¹⁰⁰

IV. Conclusion

This is a narrowly scoped proceeding that rests upon the question of whether ERCOT has violated any rule, law, protocol or procedure in its endorsement of the HIP. The evidence will show that ERCOT followed all relevant protocols and binding planning guide sections in evaluating the HIP and ultimately endorsing the need for the project. The evidence will show that ERCOT's planning assumptions, as well as the analysis utilized in ERCOT's Independent Review of the HIP were reasonable. ERCOT's process was transparent and in accordance with the established processes, protocols, and planning guide procedures. ERCOT's decision endorsing the need for the HIP flowing from this process should be upheld.

As Staff previously noted, many of the issues raised by the Houston Generators, such as the use of different load forecasts in transmission planning versus resource adequacy planning,

⁹⁷ *Id.* at 23.

⁹⁸ Billo Direct at 33.

⁹⁹ *Id.*

¹⁰⁰ *Id.* at 33-34.

are the exact issues that the Commissioners have stated need to be resolved at ERCOT in the first instance, rather than through a contested case. While they may be valid and interesting questions, a contested case is not the proper forum to bring about the changes in the transmission planning process which Houston Generators seek in this proceeding.

Houston Generators' appeal of ERCOT's decision endorsing the need for the HIP should be denied. Staff reserves its right to further develop its position by cross examination at the hearing on the merits.