UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Dynegy Inc.; Dighton Power, LLC; Elwood Energy LLC; EquiPower Resources Management, LLC; Kincaid Generation, L.L.C.; Lake Road Generating Company, L.P.; Liberty Electric Power, LLC; MASSPOWER; Milford Power Company, LLC; Richland-Stryker Generation LLC; Brayton Point Energy, LLC	)	Docket No. EC14-140-000
Dynegy Resource I, LLC; Duke Energy Commercial Asset Management; Duke Energy Retail Sales, LLC	)	Docket No. EC14-141-000
	)	(not consolidated)

COMMENTS OF
THE INDEPENDENT MARKET MONITOR FOR PJM

Pursuant to Rule 211 of the Commission's Rules and Regulations,[1] Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM ("Market Monitor"), submits these comments on the transactions proposed in the above captioned dockets. The Market Monitor provides its alternative analysis and comments in a report included as an Attachment.

I. COMMENTS

The Market Monitor's report provides an assessment of the impact of the proposed transactions on PJM markets, including the Energy Market, the Capacity Market and the

[1] 18 CFR § 385.211 (2014).

Regulation Market. In conducting this analysis the Market Monitor has made use of actual dispatch, offer and availability data to define the relevant markets and to examine the effects of the proposed merger on those markets using concentration ratios and pivotal supplier indices. The Commission has accepted and considered similar analyses when evaluating proposed mergers in PJM.[2]

The analysis presented in this report covers the impact of the transactions on the structure of the PJM markets, using current data. The analysis examines market structure metrics in order to quantify the expected impact of the transactions on the market structure of defined markets within PJM. The analysis concludes that the proposed transactions would significantly increase concentration in specific, highly concentrated locational energy markets, would have a significant effect on the market for regulation, and would increase concentration in portions of the capacity market.

The Market Monitor recommends that the Commission require behavioral mitigation measures to address the issues identified in this report. Appropriate mitigation could resolve the identified concerns about competitive impacts. The Market Monitor recommends that, if the transactions are approved, the Commission require that the entity resulting from the transaction make cost-based offers in the energy, capacity and regulation market. The Market Monitor also recommends that such entity be required to continue to offer the same units and quantities historically offered into the regulation market because participation is voluntary and one way to exercise market power is simply not to offer.

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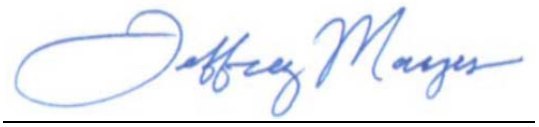
[2] *See Exelon Corporation, Constellation Energy Group, Inc.*, 138 FERC ¶ 61,167 (2012); *NRG Energy Holdings, Inc., Edison Mission Energy*, 146 FERC ¶ 61,196 (2014); *see also Analysis of Horizontal Market Power under the Federal Power Act*, 138 FERC ¶ 61,109 (2012) ("We reiterate, however, that the Commission may consider arguments that a proposed transaction raises competitive concerns that have not been captured by the Competitive Analysis Screen. Likewise, while applicants must continue to provide a Competitive Analysis Screen, we will also consider any alternative methods or factors, if adequately supported.").

The IMM recommends, in order to limit the effect of the proposed Talen combination on market structure given the Dynegy merger, that Dynegy be added to the list of participants (American Electric Power Company; Dominion Resources, Inc; Duke Energy Corp.; Exelon Corp.; First Energy Corp.; NRG Energy Inc.; Public Service Enterprise Group Incorporated; and Calpine Corp.) ineligible to purchase the Talen resources identified as Option 1 or Option 2 assets in Talen's filing. In its report on the Talen combination, the IMM recommended that no purchaser with more than three percent of the installed capacity in the overall PJM market, in the PJM MAAC submarket, or in the PJM 5004/5005 sub-market be permitted to purchase the Talen resources identified as Option 1 or Option 2 assets. Based on this criterion, the post-merger Dynegy would qualify for exclusion due to a post-merger market share in excess of three percent of installed capacity in the overall PJM market.

II. CONCLUSION

The Market Monitor respectfully requests that the Commission afford due consideration to these comments as the Commission resolves the issues raised in this proceeding.

Respectfully submitted,



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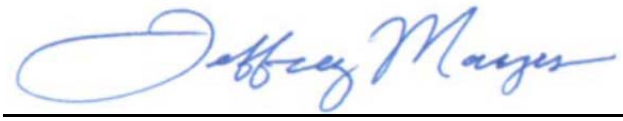
Dated: November 10, 2014

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Eagleville, Pennsylvania,
this 10th day of November, 2014.



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Attachment

Monitoring Analytics

Review and Analysis of Dynegy's Proposed Purchase of Duke and ECP Assets

The Independent Market Monitor for PJM

November 10, 2014

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Table of Contents

Introduction

This report was prepared by PJM's Independent Market Monitor (IMM). The report provides an assessment of the impact of Dynegy's proposed purchase of Duke Energy PJM market assets and Energy Capacity Partners (ECP) assets PJM market assets (together referred to as the Applicants) on PJM wholesale electricity markets including the Energy Market, the Capacity Market and the Regulation Market.[1] In conducting this analysis the PJM IMM made use of actual dispatch, offer and availability data to define the relevant markets and to examine the effects of the proposed merger on those markets using concentration ratios and pivotal supplier indices.

This report incorporates the most current available information on asset ownership, including exclusion from the entire analysis of units that retired in 2014. The report provides analysis, excluding resources retired as of June 2014, of the energy market based on current (as of August 25, 2014), rather than historical, ownership and operational status for analysis of the energy market from January 1, 2013, through June, 30, 2014; of the regulation market from January 1, 2013 through June, 30, 2014; and on the capacity markets for the 2016/2017 and 2017/2018 delivery years. Resources that retired as of June 2014 have been removed from the market structure calculations for all relevant market intervals and units for which retirement plans have been withdrawn have been added. Any changes in the ownership of market resources have been fixed at June 30, 2014, for all the relevant market intervals studied.

The list of PJM market units attributed to Dynegy (pre proposed acquisition) appears in Appendix A. The list of PJM market units attributed to Duke Energy that are to be acquired by Dynegy in its proposed acquisition appear in Appendix B. The list of PJM market units attributed to ECP Utilities that are to be acquired by Dynegy in its proposed acquisition appears in Appendix C.

Summary

The analysis presented in this report covers the impact of the proposed Dynegy asset acquisitions (Dynegy Acquisition) on the structure of the PJM markets, using current data. The analysis examines market structure metrics in order to quantify the expected impact of the proposed Dynegy Acquisition on the market structure of constraint defined markets within PJM. The analysis concludes that the proposed Dynegy Acquisition would significantly increase concentration in specific, highly concentrated

[1] Dynegy refers, as applicable, both to Dynegy, Inc. and/or Dynegy Inc's wholly owned indirect subsidiary, Dynegy Resource I.

locational energy markets, would have a significant effect on the market for regulation, and would increase concentration in portions of the capacity market.

The proposed Dynegy Acquisition would have an anticompetitive impact on several of PJM's local energy markets, PJM's regulation service market and PJM's capacity market. The IMM recommends that the Commission require behavioral mitigation measures to address the issues identified in this report. Appropriate mitigation could resolve the identified concerns about competitive impacts. The following are examples of such mitigation. The IMM recommends that, if the Dynegy Acquisition is approved, the Commission require Dynegy to make cost-based offers in the energy and regulation markets. The IMM also recommends that Dynegy be required to continue to offer the same units and quantities historically offered into the regulation market because participation is voluntary and one way to exercise market power is simply not to offer. The IMM also recommends that Dynegy be required, absent catastrophic failure or significant regulatory changes which make continued operation of a resource uneconomic, to offer their resources into the PJM's capacity market. The IMM also recommends that Dynegy be required to provide at least 18 months notice to PJM and the IMM of any planned resource retirements due to a failure to clear PJM's capacity market.

The IMM recommends, in order to limit the effect of the proposed Talen combination on market structure given the Dynegy merger, that Dynegy be added to the list of participants (American Electric Power Company; Dominion Resources, Inc; Duke Energy Corp.; Exelon Corp.; First Energy Corp.; NRG Energy Inc.; Public Service Enterprise Group Incorporated; and Calpine Corp.) ineligible to purchase the Talen resources identified as Option 1 or Option 2 assets in Talen's filing. In its report on the Talen combination, the IMM recommended that no purchaser with more than three percent of the installed capacity in the overall PJM market, in the PJM MAAC submarket, or in the PJM 5004/5005 sub-market be permitted to purchase the Talen resources identified as Option 1 or Option 2 assets. Based on this criterion, the post-merger Dynegy would qualify for exclusion due to a post-merger market share in excess of three percent of installed capacity in the overall PJM market.

Methods of Analysis

In analyzing whether a proposed merger is consistent with the public interest, the FERC considers the "effect of the transaction on competition, rates, and regulation of the applicant by the Commission and state commissions with jurisdiction over any party to the transaction."[2] In this report, the IMM focuses on the first factor, the effect on competition, measured by the impact on the structure of relevant markets based on

[2] 18 CFR § 33.2(g) (2011).

actual market data. The IMM evaluates the impact of the merger using concentration thresholds, including those defined in FERC's Competitive Analysis Screen,[3] and pivotal supplier analysis.

Any analysis of market structure depends on an accurate definition of the relevant markets. Market definitions depend on properly identifying and evaluating potential substitutes for a given product. Within organized markets data are available, and should be used, to define markets based on how the units are evaluated and dispatched to meet demand, based on networked relationships between resources and load, relative costs, availability and operational parameters. Such an approach provides definitions of the relevant markets based on actual operational data related to the participants and the markets in which they operate. Evaluated in this manner, the substitutability or lack of substitutability among supply options in a market is made transparent, along with the relevant market(s), and the relative importance of the merging firms within the market(s). It is on this basis that the use of prescribed formulas regarding market shares, residual suppliers and concentration ratios, as well as other metrics, can be useful tools for evaluating the effects of a proposed merger.

In the IMM analysis, the definition of the relevant market is based on the actual substitutability among available, relevant resources which in turn is based on the physical facts of the system and how the PJM markets defined the substitutability among available resources in the relevant markets over the analysis period. Rather than limit its analysis to a predefined range of load and price levels, the IMM has analyzed every actual relevant market defined by a constraint and the system software. The relevant energy markets in this analysis are those local energy markets created by transmission constraints within the broader PJM market that occurred for one hundred or more hours in the January 1, 2013 through June, 30, 2014 period where the Applicants provided relief MW in seventy five or more hours. The relevant ancillary services markets are those defined by the actual operation of PJM markets in the January 1, 2013 through June, 30, 2014, period. The relevant capacity markets are those that resulted from the actual operation of the markets for the 2016/2017 and 2017/2018 delivery years.

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[3] 18 CFR § 33.3; *see also Revised Filing Requirements Under Part 33 of the Commission's Regulations*, Order No. 642, FERC Stats. & Regs. ¶ 31,111 (2000) ("Order No. 642"); *Transactions Subject to FPA Section 203*, Order No. 669, FERC Stats. & Regs. ¶ 31,200 (2005) ("Order No. 669"), *order on reh'g*, Order No. 669-A, FERC Stats. & Regs. ¶ 31,214 ("Order No. 669-A"), *order on reh'g*, Order No. 669-B, FERC Stats. & Regs. ¶31,225 (2006) ("Order No. 669-B"); *Inquiry Concerning the Commission's Merger Policy Under the Federal Power Act: Policy Statement*, Order No. 592, 77 FERC ¶61,263 (*mimeo*), FERC Stats. & Regs. ¶ 31,044 (1996), *reconsideration denied*, Order No. 592-A, 79 FERC ¶61,321 (1997) ("Merger Policy Statement"); *FPA Section 203 Supplemental Policy Statement*, FERC Stats. & Regs. ¶ 31,253 (2007).

The IMM analysis of the relevant markets reflects the information available based on the actual operation of the PJM wholesale power markets, rather than approximations of seasonal geographic markets that ignore local transmission constraints, distribution factors and relative dispatch costs. The information used to prepare the analysis included in this report is highly confidential and market sensitive as it relates to specific market participants.[4]

The IMM analysis relies on what FERC terms economic capacity, or total capacity without netting of load obligations, also termed gross position. Net positions would be calculated by subtracting the load obligation from the supply of the relevant product for all participants that have both an obligation to purchase a product or to sell a product at a defined price and the ability to supply a product. Such participants, in this analysis, would be primarily integrated utility companies that have not yet been exposed to significant retail competition and that therefore retain most of their native load. A net position analysis would show the market results when the integrated utility companies retain their dominant position in the market. A complete net position analysis would also have to account for all financial positions of the respective companies which affect their net positions. The gross position analysis shows the market results when the integrated utility companies either no longer have the load obligation or have separated their generation companies from the integrated company so that their financial incentives no longer correspond to those of a fully integrated company. While the net position analysis may illustrate the current incentives to increase prices based on current load obligations and other financial market obligations, another impact of higher prices that is not explicitly considered is the fact that high prices for the relevant product could serve as a barrier to entry by competitive retail suppliers who would have to pay the high price in order to compete with the incumbent utility. The gross position, or economic capacity, analysis is more appropriate to the evaluation of the long-term impacts of a merger in a market with widespread although not ubiquitous retail competition and is the approach taken here.

Merger Standards

For the evaluation of the impact of a merger on competition, FERC adopted the 1992 Horizontal Merger Guidelines as the analytical framework for analyzing the impact of mergers on competition as described in the Commission's Competitive Analysis Screen.[5]

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[4] *See* OATT Attachment M–Appendix § I.

[5] *See* Order No. 642 *mimeo* at 4–5; U.S. Dept. of Justice & Federal Trade Commission, "Horizontal Merger Guidelines" (1992), as revised (1997) (1992 Guidelines) ("1992 Guidelines"). DOJ and FTC modified their guidelines in 2010, increasing their HHI and market share thresholds and expanding the criteria used to define the relevant market. U.S.

The Commission reserves the opportunity to consider alternative approaches for analyzing the impact of proposed mergers, including analyses similar to the analysis included in this report, when evaluating proposed mergers in PJM.[6]

The 1992 Guidelines outlined the enforcement policy of the Department of Justice and the Federal Trade Commission concerning horizontal mergers subject to section 7 of the Clayton Act, section 1 of the Sherman Act, and Section 5 of the Federal Trade Commission Act. As noted in the Guidelines, "[t]he unifying theme of the Guidelines is that mergers should not be permitted to create or enhance market power or facilitate its exercise."[7]

FERC's Competitive Analysis Screen, based on the 1992 Guidelines, uses market concentration, measured by the HHI, as a basic metric of the structural competitiveness of a market. The 1992 Guidelines define three basic levels of market concentration while recognizing that "[o]ther things being equal, cases falling just above and just below a threshold present comparable competitive issues."[8] A market with an HHI of less than 1000 is considered to be unconcentrated. Mergers resulting in HHI level less than a 1000 are not considered to have adverse competitive effects. A market with an HHI between 1000 and 1800 is considered to be moderately concentrated. A merger in or resulting in a moderately concentrated market is not considered to have an adverse effect on competition if it increases the market's HHI by less than 100 points. A merger in or resulting in a moderately concentrated market is considered to "potentially raise significant competitive concerns" if it increases the market's HHI by 100 points or more.[9] A market with an HHI of 1800 or above is considered to be highly concentrated. A merger in or resulting in a highly concentrated market is not considered to have an

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Dept. of Justice & Federal Trade Commission, "Horizontal Merger Guidelines" (August 19, 2010). FERC considered whether to revise it policies to follow the DOJ and FTC 2010 modifications, but decided, after notice and inquiry, to retain the 1992 Guidelines. *Analysis of Horizontal Market Power under the Federal Power Act*, 138 FERC ¶61,109 (2012).

6 *See Id*. at P 38 ("We reiterate, however, that the Commission may consider arguments that a proposed transaction raises competitive concerns that have not been captured by the Competitive Analysis Screen. Likewise, while applicants must continue to provide a Competitive Analysis Screen, we will also consider any alternative methods or factors, if adequately supported."); *Exelon Corporation, Constellation Energy Group, Inc.*, 138 FERC ¶ 61,167 (2012).

7 1992 Guidelines at 2.

8 1992 Guidelines at 15.

9 *Id*. at 16.

adverse effect on competition if it increases the market's HHI by less than 50 points. A merger producing an increase in the market HHI of 50 points or more in a highly concentrated market "potentially raises significant competitive concerns."[10]

The 1992 Guidelines do not directly address whether changes in HHI are of greater concern at higher starting HHI, such as 4000. Presumably the higher the starting the HHI, the greater the concern caused by a given increase in HHI caused by a merger.

Both the DOJ's 1992 Guidelines and the Commission's Appendix A use their respective HHI thresholds and measures as a guideline, and the importance of a specific range is dependent on a number of other factors, such as the amount of demand response that exists in a given market. All else held equal, where a lack of potential demand response might allow prices to be raised by more than a "small but significant and non-transitory" amount, "more market power is at stake in the relevant market than in a market in which a hypothetical monopolist would raise price by exactly five percent."[11]

In making the determination with respect to post merger market power, the Commission's analytic screen focuses primarily on the market concentration analysis as detailed in the Guidelines. In both cases, the concentration analysis requires the definition of product and geographic markets that are likely to be affected by a proposed merger and the measurement of concentration in those markets. The product and geographic market definitions used in the Commission analysis are designed to identify the pool of feasible alternative suppliers to the merged firm from a buyer's perspective, taking into account the costs of delivering the product and various measures of transmission capacity between potential suppliers and potential buyers, under varying market conditions (load levels).

The Commission approach requires analysis at a range of load and price levels given the effect of the combination of load levels and seasons on the competitive price. The IMM has performed its energy market analysis on the basis of actual relevant market interval defined by an identified constraint and the system software in January 1, 2013 through June, 30, 2014 period. The IMM has performed its capacity market analysis on the basis of the cleared LDAs in the Base Residual Auctions 2016/2017 and 2017/2018. The IMM has performed its ancillary services market analysis on the basis of the actual hourly cleared markets in January 1, 2013 through June, 30, 2014 period.

Where the analysis indicates that a proposed merger may significantly increase concentration in any of the relevant markets, the FERC then examines the merger using

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10 *Id.*

11 *Id. at* 17.

the remaining four analytic steps from the Guidelines. This process involves an "examination of other factors that either address the potential for adverse competitive effect or that could mitigate or counterbalance the potential competitive harm."[12] FERC notes that "(s)uch factors include the ease of entry in the market or any efficiencies stemming from the merger."[13] Where such "additional factors examined do not mitigate or counterbalance the adverse competitive effects of the merger," remedial, mitigative conditions can be explored by FERC.[14] Such remedial, mitigative conditions or actions can include, but are not limited to transmission expansion and/or generation divestiture.[15]

Market Based Rate Authority Metrics

The FERC's Market-Based Rates Order, Order No. 697, defines the market structure characteristics that must be met for a market participant to be granted market based rates for three years.[16] Order No. 697 indicates that an individual seller market share in excess of 20 percent is an indicator of market power and that an HHI of 2500 is an indicator of market power.[17] Order No. 697 also uses the residual supplier index (RSI), a pivotal supplier metric, to define market structure.[18]

The Commission adopted market power screens and tests in the Order No. 697.[19] The Order No. 697 defined two indicative screens and the more dispositive delivered price test. The Commission's delivered price test for market power defines the relevant market as all suppliers who offer at or below the clearing price times 1.05 and, using that definition, applies pivotal supplier, market share and market concentration analyses. These tests are failed if, in the relevant market, the supplier in question is pivotal, has a market share in excess of 20 percent or if the Herfindahl-Hirschman Index (HHI)

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12 Merger Policy Statement, Appendix A at 3.

13 *Id*.

14 *Id*. at 3–4.

15 *Id*. at 23–27.

16 *Market-Based Rates For Wholesale Sales Of Electric Energy, Capacity And Ancillary Services By Public Utilities*, Order No. 697, 119 FERC ¶ 61,295 (2007) ("Order No. 697").

17 Order No. 697 at P 111.

18 Order No. 697 at P 106–109.

19 *Id*.

exceeds 2500. The Commission recognized that there are interactions among the results of each screen under the delivered price test and that some interpretation is required and, in fact, is encouraged.[20]

The Commission defines the relevant market under the delivered price test "by identifying potential suppliers based on market prices, input costs, and transmission availability, and calculates each supplier's economic capacity for each season/load condition."[21] The Commission defines the relevant market to include suppliers with "costs less than or equal to 1.05 times the market price," i.e. those "suppliers that could sell into the destination market at a price less than or equal to 5 percent over the market price."[22] Thus, the relevant market includes all supply that is potentially competitive with the supplier and excludes supply that is not potentially competitive with the supplier.

The Commission's market based rates analysis then applies the components of the delivered price test to the relevant market. A supplier fails if the supplier is pivotal (one pivotal supplier test), if it has a market share greater than or equal to 20 percent, or if the Herfindahl-Hirschman Index ("HHI") in the relevant market is greater than or equal to 2500.[23] A supplier is pivotal under the market power test if demand in the relevant market cannot be met without its supply (one pivotal supplier test).

The Commission recognizes the interactions among the multiple analyses under the delivered price test and "encourages the most complete analysis of competitive conditions in the market as the data allow."[24]

For example, passing a single pivotal supplier test does not demonstrate the absence of structural market power because market participants can coordinate their behavior with other suppliers and can do so without overt interaction. The Commission stated:

> Concentration statistics can indicate the likelihood of coordinated interaction in a market. All else being equal, the higher the HHI, the more firms can extract excess profits from the market. Likewise a low HHI can

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20 *Id*.

21 Order No. 697 at P 106.

22 AEP Order at App. F; *see also* Merger Policy Statement, *mimeo* at 6; Order No. 697 at P 108.

23 Order No. 697 at P 111.

24 *See* Order No. 697 at PP 111–117; AEP Order at PP 111–12.

> indicate a lower likelihood of coordinated interactions among suppliers and could be used to support a claim of a lack of market power by a seller that is pivotal or does have a 20 percent or greater market share in some or all season/load conditions. For example, a seller with a market share of 20 percent or greater could argue that … it would be unlikely to possess market power in an unconcentrated market (HHI less than 1000).[25]

In a market with an inelastic demand curve, the existence of two jointly pivotal suppliers, regardless of the amount of excess capacity available, does not provide a market structure that will result in a competitive outcome. The 20 percent market share and the HHI screen are also weak screens for structural market power on a stand-alone basis. A market share in excess of 20 percent does not demonstrate market power if the holder of that market share is not jointly pivotal and is unlikely to be able to affect the market price. A market share less than 20 percent does not demonstrate the absence of market power if the holder of that market share is jointly pivotal and is likely to be able to affect the market price. An HHI in excess of 2500 does not demonstrate market power if the relevant owners are not jointly pivotal and are unlikely to be able to affect the market price. An HHI less than 2500 does not demonstrate the absence of market power if the relevant owners are jointly pivotal and are likely to be able to affect the market price.[26]

Higher concentration ratios indicate that comparatively small numbers of sellers dominate a market while lower concentration ratios mean larger numbers of sellers split market sales more equally. Lower aggregate market concentration ratios establish neither that a market is competitive nor that participants are unable to exercise market power. Higher concentration ratios do, however, indicate an increased potential for participants to exercise market power. Despite their significant limitations, concentration ratios provide useful information on market structure.

The residual supply index (RSI) is a measure of the extent to which one or more generation owners are pivotal suppliers in a market. A single generation owner is pivotal if the output of the owner's generation facilities is needed to meet demand. Multiple generation owners are jointly pivotal when the output of the owners' generation facilities, taken together, is needed to meet demand. When a generation owner is pivotal, it has the ability to affect market price. For a given level of market demand, the RSI compares the market supply, net of the supply controlled by one or

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[25] Order No. 697 at P 111.

[26] For detailed examples, see Joseph E. Bowring, PJM market monitor. "IMM Analysis of Combined Regulation Market," PJM Market Implementation Committee Meeting (December 20, 2006).

more generation owners, to the market demand. The RSI value is calculated as a ratio, where total supply minus the supply of the tested suppliers is divided by the market demand. If the RSI is greater than 1.00, the supply of the specific generation owner(s) is not needed to meet market demand and that generation owner(s) has a reduced ability to influence market price. If the RSI is less than 1.00, the supply owned by the specific generation owner(s) is needed to meet market demand and the generation owner(s) is a pivotal supplier with an ability to influence price. When the RSI is reported for a market, the reported RSI is for the largest supplier or identified number of the largest suppliers. As with concentration ratios, the RSI is not a bright line test.

FERC indicates that a single supplier RSI of less than 1.0 is an indicator of market power.[27] In the PJM markets a three pivotal supplier RSI of less than 1.0 defines the existence of local market power. The three pivotal supplier test (TPS) defines market power even in the presence of market share and concentration levels that fall below FERC guidelines for a competitive market structure.[28]

Three Pivotal Supplier Test

In the IMM analysis, the basic metrics used for each market include market share, the Herfindahl-Hirschman Index (HHI) and the three pivotal supplier test (TPS), a residual supplier index used in the PJM markets to define locational market power. Market share measures the proportion of market output contributed by a supplier. Market share is calculated by dividing the output of a supplier by total supply in a market. Concentration ratios are a summary measure of market share. The concentration ratio used here is the Herfindahl-Hirschman Index (HHI), calculated by summing the squares of the market shares of all firms in a market.

The IMM uses the three pivotal supplier test as the key measure of market structure and structural market power. The three pivotal supplier test is used in PJM markets to define the existence of local market power and as a trigger for market power mitigation. A test for local market power based on the number of pivotal suppliers has a solid basis in economics and is clear and unambiguous to apply in practice. There is no perfect test, but the three pivotal supplier test for local market power strikes a reasonable balance between the requirement to limit extreme structural market power and the goal of limiting intervention in markets when competitive forces are adequate. The three pivotal supplier test for local market power is also a reasonable application of the logic contained in the Commission's market power tests.

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[27] *See Midwest Independent Transmission System Operator, Inc.*, 121 FERC ¶ 61,190 at P 6 n.5 (2007).

[28] AEP Order at P 111.

The three pivotal supplier test, as implemented in PJM markets, is consistent with the Commission's market power tests, encompassed under the delivered price test. The three pivotal supplier test is an application of the delivered price test to the Real-Time Energy Market, the Day-Ahead Energy Market, the Regulation Market and the Reliability Pricing Model (RPM) Capacity Market. The three pivotal supplier test explicitly incorporates the impact of excess supply and implicitly accounts for the impact of the price elasticity of demand in the market power tests. The three pivotal supplier test includes more competitors in its definition of the relevant market than the Commission's delivered price test. While the Commission's delivered price test defines the relevant market to include all offers with costs less than, or equal to, 1.05 times the market price, the three pivotal supplier test includes all offers with costs less than, or equal to, 1.50 times the clearing price for the local market.

The three pivotal supplier test is also consistent with the Commission's delivered price test in that it tests for the interaction between individual participant attributes and features of the relevant market structure. The three pivotal supplier test is an explicit test for the ability to exercise unilateral market power as well as market power via coordinated action which accounts for market shares and the supply-demand balance in the market.

The results of the three pivotal supplier test can differ from the results of the HHI and market share tests. The three pivotal supplier test can show the existence of structural market power when the HHI is less than 2500 and the maximum market share is less than 20 percent. The three pivotal supplier test can also show the absence of market power when the HHI is greater than 2500 and the maximum market share is greater than 20 percent. The three pivotal supplier test is more accurate than the HHI and market share tests because it focuses on the relationship between demand and the most significant aspect of the ownership structure of supply available to meet it. A market share in excess of 20 percent does not indicate market power if the holder of that market share is not jointly pivotal and is unlikely to be able to affect the market price. A market share less than 20 percent does not indicate the absence of market power if the holder of that market share is jointly pivotal and is likely to be able to affect the market price. Similarly, an HHI in excess of 2500 does not indicate market power if the relevant owners are not jointly pivotal and are unlikely to be able to affect the market price. An HHI less than 2500 does not indicate the absence of market power if the relevant owners are jointly pivotal and are likely to be able to affect the market price.[29]

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[29] For detailed examples, see Joseph E. Bowring, PJM market monitor. "IMM Analysis of Combined Regulation Market," PJM Market Implementation Committee Meeting (December 20, 2006).

The three pivotal supplier test was designed in light of actual elasticity conditions in load pockets in wholesale power markets in PJM. The price elasticity of demand is a critical variable in determining whether a particular market structure is likely to result in a competitive outcome. A market with a specific set of market structure features is likely to have a competitive outcome under one range of demand elasticity conditions and a noncompetitive outcome under another set of elasticity conditions. It is essential that market power tests account for actual elasticity conditions and that evaluation of market power tests neither ignore elasticity nor make counterfactual elasticity assumptions. As the Commission stated, "In markets with very little demand elasticity, a pivotal supplier could extract significant monopoly rents during peak periods because customers have few, if any, alternatives."[30] The Commission also stated:

> In both of these models, the lower the demand elasticity, the higher the mark-up over marginal costs. It must be recognized that demand elasticity is extremely small in electricity markets; in other words, because electricity is considered an essential service, the demand for it is not very responsive to price increases. These models illustrate the need for a conservative approach in order to ensure competitive outcomes for customers because many customers lack one of the key protections against market power: demand response.[31]

The three pivotal supplier test is a reasonable application of the Commission's delivered price test to the case of local markets that are defined by actual conditions in a market based on security-constrained, economic dispatch with locational market pricing and extremely inelastic demand. The three pivotal supplier test explicitly incorporates the relationship between supply and demand in the definition of pivotal, and it provides a clear test for whether excess supply is adequate to offset other structural features of the market and results in an adequately competitive market structure.

TPS Test: Defining the Market

The goal of defining the relevant market is to include those producers that actually compete to determine the market price or could actually compete to determine the market price. Conversely, the goal of defining the relevant market is to exclude those units that are not meaningful competitors and therefore do not have an impact on the clearing price. The existence of market power within that defined market depends on the ability of the firm to raise price while continuing to sell its output. A firm cannot

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30 AEP Order at P 72.

31 *Id*. at P 103.

successfully increase the market price above the competitive level if competitors would replace its output when it did so.

The Commission definition of the relevant market includes all suppliers which have costs less than or equal to 1.05 times the clearing price. The Commission definition means that, if the marginal unit sets the clearing price based on an offer of $200 per MWh, all units with costs less than, or equal to, $210 per MWh have a competitive effect on the offer of the marginal unit. These units are all defined to be meaningful competitors in the sense that it is assumed that their behavior constrains the behavior of the marginal and inframarginal units. The three pivotal supplier definition means that, if the marginal unit sets the clearing price based on an offer of $200 per MWh, all units with costs less than, or equal to, $300 per MWh have a competitive effect on the offer of the marginal unit. These units are all defined to be meaningful competitors in the sense that it is assumed that their behavior constrains the behavior of the marginal and inframarginal units. The three pivotal supplier test incorporates a definition of meaningful competitors that is at the extremely high end of inclusive. It is questionable whether a unit with a competitive offer price of $300 offer meaningfully constrains the offer of a $200 unit. This broad market definition is combined with the recognition that multiple owners can be jointly pivotal. The three pivotal supplier test includes three pivotal suppliers while the Commission test includes only one pivotal supplier.

The three pivotal supplier test is designed to test the relevant market. For example, in the case of the market for out of merit generation needed to relieve a constraint in real time, the three pivotal supplier test examines the market specifically available to provide that relief. Under these conditions, the three pivotal supplier test measures the degree to which the supply from three generation suppliers is required in order to meet the demand to relieve a constraint, as defined by PJM's market solution software. The market demand consists of the incremental, effective MW required to relieve the constraint. The market supply consists of the incremental, effective MW of supply available to relieve the constraint.[32] For purposes of the test, incremental effective MW are attributed to specific suppliers on the basis of their control of the assets in question. Generation capacity controlled directly or indirectly through affiliates or through contracts with third parties are attributed to a single supplier.

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[32] A unit's contribution toward effective, incrementally available supply is based on the DFAX of the unit relative to the constraint and the unit's incrementally available capacity over current load levels, if the capacity in question is available within the period that the relief will be needed. Effective, incrementally available MW from an unloaded 100 MW 15-minute start combustion turbine (CT) with a DFAX of 0.05 to a constraint would be 5 MW relative to the constraint in question. Effective, incrementally available MW from a 200 MW steam unit, with 100 MW loaded, a 50 MW ramp rate and a DFAX of 0.5 to the constraint would be 25 MW.

Unlike structural tests that define markets by geographic proximity, TPS makes explicit and direct use of the incremental, effective MW of supply available to relieve the constraint at a distribution factor (DFAX) greater than, or equal to, the DFAX used by PJM in operations. Only the supply that is part of the market as defined by the reality of the electric network as measured by unit characteristics and distribution factors is included in the three pivotal supplier test, to the extent that it is incremental, effective MW of supply that is available at a price less than, or equal to, 1.5 times the clearing price (P_c) that would result from the intersection of demand (constraint relief required) and the incremental supply available to resolve the constraint.

Energy Market Results

The analysis of the impact of the merger on the energy market focuses on constraint defined locational markets that occurred for 100 or more hours for the January 1, 2013, through June 30, 2014, period. The relevant markets are defined based on the incremental, effective MW of raise relief supply available to relieve each market defining constraint based on the actual operation of PJM's system. This definition of the market allows the identification of resource owners in a position to exercise market power by directly affecting locational prices when a transmission constraint binds.

A constraint was included in the analysis only if Dynegy, Duke or ECP Utilities had incremental effective MW of supply for the constraint, the constraint bound for 100 or more hours in the study period and Dynegy, Duke Energy and/or ECP Utilities provided raise help relief in 75 or more of the constrained hours. The analysis defined eleven constraints which met the criteria in the study period: 5004/5005 Interface, AP South, Bedington – Black Oak, Benton Harbor – Palisades, Breed – Wheatland, Bunsonville – Eugene, Central East, Cook – Palisades, Dickerson – Pleasant View, Nelson Cordova and West. Pre Dynegy Acquisition, Dynegy assets contributed raise help relief 5004/5005 Interface, AP South, Bedington – Black Oak, Benton Harbor – Palisades, Central East, Cook – Palisades, Dickerson – Pleasant View, Nelson Cordova and West in the study period. Pre Dynegy Acquisition, Duke assets contributed raise help relief to Breed – Wheatland, Bunsonville – Eugene and Nelson Cordova in the study period. Pre Dynegy Acquisition ECP Utilities contributed raise help relief to 5004/5005 Interface, AP South, Bedington – Black Oak, Benton Harbor – Palisades, Central East, Cook – Palisades, Dickerson – Pleasant View and West in the study period.

The supply defined in each market interval consists of the sum of incremental, effective MW of relief supply from all available online units[33] compared to an unconstrained solution. Each unit's supply is calculated as the difference between its unconstrained

[33] Units that are online in real time as well as units offline but committed in the intermediate SCED solution.

dispatched MW and the constrained dispatch MW adjusted with its dfax for that particular constraint. The constrained dispatch MW of a unit consists of ramp limited MW that are available at a price less than or equal to the sum of the system marginal price (SMP) and 1.5 times the congestion component attributed to that constraint (1.5 times constraint shadow price times unit dfax). The resulting measure of effective raise relief supply is termed the relevant effective supply in the market for the relief of the defined constraint. Results are provided for peak, off peak and all hour periods.

Summary Results for Specific Constraints

For the defined markets, the TPS score, market concentration and HHI levels were calculated on a pre and a post Dynegy Acquisition basis for each instance of the market. A market instance exists each time that PJM dispatch software runs the TPS test on the market for incremental relief of a constraint in the real time energy market Dynegy, Duke Energy and/or ECP Utilities were in the pre-Dynegy Acquisition supply stack for raise relief MW. There can be multiple market instances in an hour and there can be hours with no market instances. Market instance results were rolled up and averaged by hour, with each hourly result termed a market hour event. Market hours with Dynegy, Duke Energy and/or ECP Utilities assets concurrently in the pre-Dynegy Acquisition supply stack are counted as one hour in the analysis.

Pivotal Supplier Analysis

The three pivotal supplier (TPS) test measures the degree to which the supply from three suppliers of raise help constraint relief is required in order to meet the demand for relief of the constraint. The analysis includes TPS statistics for the identified market on a pre merger basis and on a post merger basis. The TPS results focus on the ability to exercise market power in the PJM energy market, specifically in the market created by the constraint in question.

Pivotal Supplier Analysis

Table 0-1 and Table 0-3 show, for the January 2013 through June 2014 period, by constraint, the number of real time constraint hours, the number of hours the market was defined in PJM's look ahead software (Market Hours), the number of Market Hours that one or more market participants failed (Hours Failed) the three pivotal supplier test, the number of Market Hours that Dynegy, Duke Energy and/or ECP Utilities assets provided relief supply in the three pivotal supplier test, and the number of Market Hours that Dynegy, Duke Energy and/or ECP Utilities failed the TPS test (pre and post Dynegy Acquisition). Table 0-2 and Table 0-4 show pre and post Dynegy Acquisition average TPS score of Dynegy, Duke Energy and/or ECP Utilities. Failure of a test in a Market Hour results in the failure of the hour. Table 0-1 and Table 0-2 provides the results for peak hours for the pre and post Dynegy Acquisition. Table 0-3 and Table 0-4 provides the results for off peak hours for the pre and post Dynegy Acquisition.

The lower the score below 1.0, the more market power the participant has in the market. The lower a participant's RSI score, the more important, and the more pivotal, the participant is in meeting the expressed demand in the defined market. A reduction in a participant's RSI score indicates that the participant has become more important, more pivotal, in meeting the demand in the defined market.

The absence of a change in the number of hours in which the merging participant is pivotal is not an indicator that a merger does not have an anticompetitive effect on the tested market. For example, if the merging participant had an RSI score of less than 1.0 in a market hour prior to the merger (indicating a TPS failure for the hour) and a lower RSI score post merger, this would indicate that the merger increased the market power of the merging participant. There would be no change in the number of market hours that the merging participant failed the TPS test, as the same hour is failed pre and post merger. In order for a merger to affect the number of hours failed by the participants, the merger would have to change participant RSI score from a pass to a fail result for an hour.

Analysis of the results indicates that, prior to the Dynegy Acquisition, a number of the relevant markets for raise help relief are heavily concentrated with Dynegy, Duke Energy and/or ECP Utilities holding a dominant position in raise help relief capability. This is evidenced by the significant number of relevant market hours (hours in which Dynegy, Duke Energy and/or ECP Utilities assets provided relief MW) that market participants, including Dynegy, Duke Energy and/or ECP Utilities, failed the TPS test. For example, for the 5004/5005 interface, of the 429 relevant market hours (market hours where Dynegy, Duke Energy and/or ECP Utilities assets provided raise help relief), 421 (98.1%) had one or more participants failing the TPS test in the study period. Dynegy failed 263 (62.5 percent) of the 421 market hours with one or more participants failing the TPS test for the 5004/5005 interface. ECP failed 158 (37.5 percent) of the 421 market hours with one or more participants failing the TPS test for the 5004/5005 interface. Duke assets did not fail the TPS test for the relief of the 5004/5005 Interface. Either Dynegy or ECP, or both, failed in all 301 (71.5 percent) hours that had one or more participants failing the TPS test for the 5004/5005 interface.

The analysis of peak and off peak hours shows that the Dynegy Acquisition causes a significant number of TPS failures in several of the affected markets. The Dynegy Acquisition increases the proportion of raise help assets under the control of Dynegy in several of the relevant peak markets (5004/5005, AP South, Bedington – Black Oak, Central East, Dickerson – Pleasant View, Nelson – Cordova, West) and off peak markets (5004/5005, AP South, Benton Harbor – Palisades, Central East, Dickerson – Pleasant View, West). In these markets the TPS scores fell as a result of the merger, showing an

increase in the pivotal position of the now combined assets. In one peak market (5004/5005 Interface) the Dynegy Acquisition led to an increase in the number of hours with market failures in the study period.

Table 0-1 Peak hours pre and post Dynegy Acquisition number of hours TPS failed by facility

			Pre Merger					Post Merger				Change			
Facility	Total RT Constraint Hours	Market Hours (all companies)	Hours Failed (all companies)	Hours Failed (Duke or Dynegy or ECP)	Hours Failed Duke	Hours Failed Dynegy	Hours Failed ECP	Hours Failed (all companies)	Hours Failed (Dynegy or Duke)	Hours Failed Duke	Hours Failed Dynegy	Hours Failed (all companies)	Hours Failed Duke or Dynegy or ECP (Pre Merger) vs. Hours Failed Duke or Dynegy (Post Merger)	Hours Failed Duke (Pre Merger) vs. Hours Failed Duke (Post Merger)	Hours Failed Dynegy (Pre Merger) vs. Hours Failed Dynegy (Post Merger)
5004/5005 Interface	243	429	421	301	0	263	158	422	302	0	302	1	1	0	39
AP South	1,095	1,606	1,595	419	0	221	261	1,595	419	0	419	0	0	0	198
Bedington - Black Oak	229	416	414	252	0	202	173	414	252	0	252	0	0	0	50
Benton Harbor - Palisades	58	52	52	37	0	34	17	52	37	0	37	0	0	0	3
Breed - Wheatland	340	395	395	197	197	0	0	395	197	193	194	0	0	(4)	194
Bunsonville - Eugene	264	206	206	46	46	0	0	206	46	38	46	0	0	(8)	46
Central East	185	127	127	81	0	39	45	127	81	0	81	0	0	0	42
Cook - Palisades	101	89	89	45	0	43	7	89	45	0	45	0	0	0	2
Dickerson - Pleasant View	86	138	133	91	0	79	39	133	91	0	91	0	0	0	12
Nelson - Cordova	214	235	235	160	111	129	2	235	160	0	160	0	0	(111)	31
West	261	412	409	290	0	250	170	409	290	0	290	0	0	0	40

Table 0-2 Peak hours pre and post Dynegy Acquisition average TPS scores by facility

	Pre Merger				Post Merger			Change		
Facility	Average of Lowest TPS Score (Duke or Dynegy or ECP)	Average TPS Score Duke	Average TPS Score Dynegy	Average TPS Score ECP	Average TPS Score (Duke or Dynegy)	Average TPS Score Duke	Average TPS Score Dynegy	Average of Duke or Dynegy or ECP (Pre Merger) TPS Score vs. Average of Duke or Dynegy (Post Merger) TPS Score	Average of Duke TPS Score (Pre Merger) vs (Post Merger)	Average of Dynegy TPS Score (Pre Merger) vs. (Post Merger)
5004/5005 Interface	0.29	0.00	0.31	0.27	0.28	0.00	0.28	(0.01)	0.00	(0.02)
AP South	0.44	0.00	0.68	0.50	0.43	0.00	0.43	(0.01)	0.00	(0.25)
Bedington - Black Oak	0.22	0.00	0.25	0.30	0.22	0.00	0.22	(0.00)	0.00	(0.03)
Benton Harbor - Palisades	0.11	0.00	0.11	0.14	0.11	0.00	0.11	0.01	0.00	0.00
Breed - Wheatland	0.01	0.01	0.00	0.00	0.03	0.03	0.03	0.02	0.02	0.03
Bunsonville - Eugene	0.01	0.01	0.00	0.00	0.02	0.04	0.01	0.01	0.02	0.01
Central East	0.11	0.00	0.19	0.04	0.11	0.00	0.11	0.00	0.00	(0.08)
Cook - Palisades	0.11	0.00	0.11	0.10	0.10	0.00	0.10	(0.00)	0.00	(0.00)
Dickerson - Pleasant View	1.58	0.00	1.76	0.87	1.49	0.00	1.49	(0.09)	0.00	(0.27)
Nelson - Cordova	0.02	0.02	0.04	0.00	0.01	0.00	0.01	(0.01)	(0.02)	(0.03)
West	0.35	0.00	0.37	0.34	0.34	0.00	0.34	(0.01)	0.00	(0.03)

Table 0-3 Off peak hours pre and post Dynegy Acquisition number of hours TPS failed by facility

			Pre Merger					Post Merger				Change			
Facility	Total RT Constraint Hours	Market Hours (all companies)	Hours Failed (all companies)	Hours Failed (Duke or Dynegy or ECP)	Hours Failed Duke	Hours Failed Dynegy	Hours Failed ECP	Hours Failed (all companies)	Hours Failed (Dynegy or Duke)	Hours Failed Duke	Hours Failed Dynegy	Hours Failed (all companies)	Hours Failed Duke or Dynegy or ECP (Pre Merger) vs. Hours Failed Duke or Dynegy (Post Merger)	Hours Failed Duke (Pre Merger) vs. Hours Failed Duke (Post Merger)	Hours Failed Dynegy (Pre Merger) vs. Hours Failed Dynegy (Post Merger)
5004/5005 Interface	266	405	403	254	0	233	134	403	254	0	254	0	0	0	21
AP South	922	1,268	1,261	259	0	182	174	1,261	259	0	259	0	0	0	77
Bedington - Black Oak	188	297	296	159	0	141	114	296	159	0	159	0	0	0	18
Benton Harbor - Palisades	188	156	154	120	0	90	84	154	120	0	120	0	0	0	30
Breed - Wheatland	774	767	767	433	433	0	0	767	433	424	422	0	0	(9)	422
Bunsonville - Eugene	513	302	302	124	124	0	0	302	124	112	121	0	0	(12)	121
Central East	103	52	52	27	0	11	16	52	27	0	27	0	0	0	16
Cook - Palisades	207	187	187	102	0	95	25	187	102	0	102	0	0	0	7
Dickerson - Pleasant View	14	27	27	18	0	14	7	27	18	0	18	0	0	0	4
Nelson - Cordova	257	277	277	165	86	124	2	277	165	0	165	0	0	(86)	41
West	179	213	213	120	0	100	101	213	120	0	120	0	0	0	20

Table 0-4 Off peak hours pre and post Dynegy Acquisition average TPS scores by facility

	Pre Merger				Post Merger			Change		
Facility	Average of Lowest TPS Score (Duke or Dynegy or ECP)	Average TPS Score Duke	Average TPS Score Dynegy	Average TPS Score ECP	Average TPS Score (Duke or Dynegy)	Average TPS Score Duke	Average TPS Score Dynegy	Average of Duke or Dynegy or ECP (Pre Merger) TPS Score vs. Average of Duke or Dynegy (Post Merger) TPS Score	Average of Duke TPS Score (Pre Merger) vs (Post Merger)	Average of Dynegy TPS Score (Pre Merger) vs. (Post Merger)
5004/5005 Interface	0.25	0.00	0.28	0.29	0.24	0.00	0.24	(0.01)	0.00	(0.04)
AP South	0.17	0.00	0.20	0.14	0.17	0.00	0.17	0.00	0.00	(0.04)
Bedington - Black Oak	0.15	0.00	0.17	0.19	0.14	0.00	0.14	(0.01)	0.00	(0.03)
Benton Harbor - Palisades	0.21	0.00	0.26	0.28	0.21	0.00	0.21	(0.01)	0.00	(0.05)
Breed - Wheatland	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Bunsonville - Eugene	0.01	0.01	0.00	0.00	0.03	0.03	0.03	0.02	0.02	0.03
Central East	0.08	0.00	0.18	0.02	0.08	0.00	0.08	0.00	0.00	(0.09)
Cook - Palisades	0.11	0.00	0.11	0.15	0.11	0.00	0.11	(0.00)	0.00	(0.00)
Dickerson - Pleasant View	0.45	0.00	0.51	0.18	0.45	0.00	0.45	0.00	0.00	(0.06)
Nelson - Cordova	0.00	0.00	0.01	0.09	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)
West	0.22	0.00	0.24	0.24	0.20	0.00	0.20	(0.02)	0.00	(0.04)

Summary HHI Analysis of Proposed Combination and Mitigation Proposals

Table 0-5, Table 0-6 and Table 0-7 show the minimum, average, maximum and median pre and post Dynegy Acquisition market hour event HHIs for each constraint for which Dynegy, Duke and/or ECP Utilities provided raise help relief supply in the study period. Table 0-5 provides the results for peak hours, Table 0-6 provides the results for off-peak hours and Table 0-7 provides the results for all hours.[34]

Analysis of the results indicates that, prior to the Dynegy Acquisition; a number of the relevant markets for raise help relief are heavily concentrated. Pre Dynegy Acquisition mean HHIs ranged from 2096 (Cook - Palisades) to 7357 (Nelson – Cordova), over peak hours. Pre Dynegy Acquisition combination median HHIs ranged from 1879 (Cook - Palisades) to 7424 (Nelson – Cordova), over peak hours.

The effect of the Dynegy Acquisition on the identified market average and median HHIs varied by market and by peak and off peak hours in the study period. In two of the relevant markets, the Dynegy Acquisition decreased or had no discernable changes in the peak or off peak mean or median HHIs. However the Dynegy Acquisition increased, on an all market hour basis, the mean and/or median HHI in nine of the markets: 5004/5005 interface, AP South, Bedington – Black Oak, Benton Harbor – Palisade, Central East, Cook- Palisades, Dickerson – Pleasant View, Nelson - Cordova and West. These

[34] The corresponding tables showing the minimum, average, maximum and median pre and post Talen Proposed Combination market hour event HHIs for each constraint for the Option 1 Stand Alone scenario, Option 1 Largest Eligible Party scenario, Option 2 Stand Alone scenario, Option 2 Largest Eligible Party scenario are provided in Appendix F.

identified markets showed the pre Dynegy Acquisition mean peak hour HHIs ranging from 2263 (West Interface) to 7357 (Nelson - Cordova) and mean off peak hour HHIs ranging from 2362 (West Interface) to 7399 (Nelson - Cordova). The pre Dynegy Acquisition median HHI for the peak relevant market hours ranged from 1879 (Cook - Palisades) to 7424 (Nelson - Cordova) and the median off peak HHI ranged from 2067 (West Interface) to 7148 (Nelson - Cordova). The maximum pre and post Dynegy Acquisition combination HHI in the study period was 10000. Among these nine markets with an overall (all hour) increase in the mean HHI, the increase in the mean peak hour HHI ranged from 1 to 238 and the mean off peak ranged from 0 to 87.

Of particular concern, due to average hourly HHI changes in excess of 50 points, were the mean peak hour HHI increases in the 5004/5005 Interface (77) and Nelson – Cordova (238) and the mean off peak hour increase in the 5004/5005 Interface (86), Nelson – Cordova (61) and West (87).

This same subset of markets also saw significant (greater than 50 HHI points) increases in the peak median HHI (5004/5005 Interface (92) and Nelson – Cordova (446)). The off peak median HHI saw significant (greater than 50 HHI points) increases in the market for relief for the 5004/5005 Interface (58), Nelson – Cordova (79) and West (140).

Table 0-5 Proposed Dynegy Acquisition peak hours pre and post merger market event HHIs by constraint

		Pre Merger HHI					Post Merger HHI					Change in HHI				
Facility	Market Hours	Min	Mean	Max	Median	Standard Deviation	Min	Mean	Max	Median	Standard Deviation	Min	Mean	Max	Median	Standard Deviation
5004/5005 Interface	307	1074	2575	10000	2248	1257	1074	2653	10000	2340	1245	0	77	0	92	(13)
AP South	425	1132	4196	9958	3999	1498	1132	4197	9958	3999	1497	0	1	0	(0)	(0)
Bedington - Black Oak	254	1128	3895	9888	3679	1870	1128	3900	9888	3694	1866	0	6	0	14	(4)
Benton Harbor - Palisades	37	1246	2528	4679	2357	932	1246	2562	4679	2402	930	(0)	34	0	45	(2)
Breed - Wheatland	197	2574	5634	10000	5526	1535	2574	5617	10000	5526	1545	0	(17)	0	0	9
Bunsonville - Eugene	46	3475	6118	9260	6386	1629	3475	6118	9260	6386	1629	0	0	0	0	(0)
Central East	81	1642	5313	10000	5204	2481	1642	5318	10000	5204	2479	0	5	0	0	(2)
Cook - Palisades	45	1055	2096	4846	1879	790	1055	2101	4846	1879	790	0	4	0	0	(0)
Dickerson - Pleasant View	97	1269	3352	6411	3175	1178	1269	3369	6411	3188	1160	(0)	17	(0)	13	(17)
Nelson - Cordova	160	2197	7357	10000	7424	1759	2197	7596	10000	7870	1770	0	238	0	446	11
West	293	1169	2263	7888	1968	934	1196	2291	7888	1983	933	26	28	0	15	(1)

Table 0-6 Proposed Dynegy Acquisition off peak hours pre and post merger market event HHIs by constraint

		Pre Merger HHI					Post Merger HHI					Change in HHI				
Facility	Market Hours	Min	Mean	Max	Median	Standard Deviation	Min	Mean	Max	Median	Standard Deviation	Min	Mean	Max	Median	Standard Deviation
5004/5005 Interface	258	1263	2755	10000	2306	1484	1280	2840	10000	2363	1507	16	86	0	58	23
AP South	263	1839	5199	9999	4571	2256	1839	5200	9999	4571	2256	1	1	0	0	(0)
Bedington - Black Oak	160	1462	4851	9519	4567	2069	1462	4862	9519	4567	2065	0	11	0	0	(4)
Benton Harbor - Palisades	123	1181	3241	8328	2933	1476	1208	3258	8328	2933	1486	27	17	0	(0)	9
Breed - Wheatland	433	2530	5261	10000	5001	1505	2530	5213	10000	4888	1510	0	(48)	0	(113)	4
Bunsonville - Eugene	124	2855	6119	10000	5592	1993	2674	6093	10000	5592	1993	(181)	(25)	0	0	0
Central East	27	2216	5615	10000	4732	2926	2216	5615	10000	4732	2926	0	0	0	0	0
Cook - Palisades	102	1246	2625	6375	2399	1061	1246	2653	6375	2412	1077	0	28	0	12	15
Dickerson - Pleasant View	18	2885	4212	5423	4050	679	2885	4214	5423	4050	678	0	2	0	(0)	(1)
Nelson - Cordova	165	4274	7399	10000	7148	1487	4719	7460	10000	7228	1486	445	61	0	79	(1)
West	120	1193	2362	8317	2067	1001	1193	2449	8317	2208	985	0	87	(0)	140	(16)

Table 0-7 Proposed Dynegy Acquisition all hours pre and post merger market event HHIs by constraint

		Pre Merger HHI					Post Merger HHI					Change in HHI				
Facility	Market Hours	Min	Mean	Max	Median	Standard Deviation	Min	Mean	Max	Median	Standard Deviation	Min	Mean	Max	Median	Standard Deviation
5004/5005 Interface	565	1074	2657	10000	2277	1367	1074	2738	10000	2355	1373	0	81	0	79	6
AP South	688	1132	4580	9999	4154	1888	1132	4581	9999	4154	1888	0	1	0	0	(0)
Bedington - Black Oak	414	1128	4264	9888	3928	2002	1128	4272	9888	3939	1998	0	8	0	12	(3)
Benton Harbor - Palisades	160	1181	3076	8328	2822	1400	1208	3097	8328	2830	1406	27	21	0	8	6
Breed - Wheatland	630	2530	5378	10000	5082	1523	2530	5339	10000	5055	1531	0	(39)	0	(26)	8
Bunsonville - Eugene	170	2855	6118	10000	5706	1896	2674	6100	10000	5706	1896	(181)	(18)	0	0	0
Central East	108	1642	5389	10000	5129	2588	1642	5393	10000	5132	2587	0	4	0	3	(2)
Cook - Palisades	147	1055	2463	6375	2228	1013	1055	2484	6375	2243	1027	0	21	0	14	14
Dickerson - Pleasant View	115	1269	3486	6411	3512	1155	1269	3501	6411	3522	1139	(0)	15	(0)	10	(17)
Nelson - Cordova	325	2197	7379	10000	7313	1624	2197	7527	10000	7476	1631	0	148	0	163	7
West	413	1169	2291	8317	2020	954	1193	2337	8317	2094	950	24	46	(0)	74	(4)

Specific Constrained Market HHI Results

The following tables are arranged by constraint. Each table provides, for the specified constraint under the Dynegy Acquisition, by pre Dynegy Acquisition market event hour HHI category, the number of market event hours where the proposed Dynegy Acquisition would have increased the HHI by 50 or more points, 100 or more points, 200 or more points and/or 300 or more points. Constraint specific tables were produced for those markets where the Dynegy Acquisition produced a discernable, non-zero effect on hourly HHI. The Dynegy Acquisition has a discernable, non-zero effect on hourly HHI in the market for the relief of the 5004/5005 Interface, AP South, Bedington – Black Oak, Benton Harbor – Palisades, Central East, Cook - Palisades, Dickerson – Pleasant, Nelson – Cordova, and West.

The TPS results, in combination with the HHI results, indicate that, pre Dynegy Acquisition, Dynegy, Duke and/or ECP Utilities assets hold a dominant position in the heavily concentrated market for raise help relief capability in a number of markets for relief. Within a subset of these markets (5004/5005, Nelson-Cordova and West), the Dynegy Acquisition would, in a subset of hours, create a company with a significant market position that would, relative to the current disposition of raise help assets, exacerbate the market concentration issue in this market. In these relevant market hours Dynegy would have the ability and incentive to exercise market power.

5004/5005 Interface Results for Proposed Combination

Table 0-8 shows the effect of Dynegy Acquisition on the market for the relief of the 5004/5005 interface constraint, by pre merger market event hour HHI category, the number of market event hours where the proposed merger would have increased the HHI by 50 or more points, 100 or more points, 200 or more points and/or 300 or more points.

Table 0-8 shows that of the 565 relevant market hours for which Dynegy, Duke and/or ECP Utilities provided raise help relief supply for the 5004/5005 in the study period 533 of these market hours (94.3 percent of relevant market hours) had a pre merger HHI of

1500 or more and 384 of these market hours (70.0 percent) had an HHI of 2000 or more. The Dynegy Acquisition causes 541 of these relevant market hours (95.8 percent of the relevant market hours) to have an HHI of 1500 or more and causes 415 of these relevant market hours (73.5 percent of the relevant market hours) to have an HHI of 2000 or more.

Of the 384 pre Dynegy Acquisition 5004/5005 market event hours with an HHI of 2000 or more, the merger would cause 78 (20.3 percent) of these market event hours to have an increase of 50 or more points, 60 (15.6 percent) of these market event hours to have an increase of 100 or more points, 41 (10.7 percent) of these market event hours to have an increase of 200 or more points and 28 (7.3 percent) of these market event hours to have an increase of 300 or more points.

The TPS results, in combination with the HHI results, indicate that Dynegy, Duke and/or ECP Utilities hold a dominant position in the heavily concentrated market for raise help relief capability for the 5004/5005 Interface constraint and that the Dynegy Acquisition would, in a subset of hours, create a company with a significant market position that would, relative to the current disposition of raise help assets, exacerbate the market concentration issue in this market.

Table 0-8 By pre merger market event HHI category, post merger change in HHI of 50 or more, 100 or more, 200 or more or 300 or more points: 5004/5005 Interface Market January 2013 through June 2014

HHI Range	Pre Merger Number of Market Hours	Post Merger Number of Market Hours	Change in Hours	Pre to Post Merger hours with HHI increase of 50 or more	Pre to Post Merger hours with HHI increase of 100 or more	Pre to Post Merger hours HHI increase of 200 or more	Pre to Post Merger hours with HHI increase of 300 or more	Percentage of Market Hours with HHI increase of 50 or more	Percentage of Market Hours with HHI increase of 100 or more	Percentage of Market Hours with HHI increase of 200 or more	Percentage of Market Hours with HHI increase of 300 or more	Pre Merger Percentage of Makret Hours in HHI Range	Post Merger Percentage of Hours in HHI Range	Change in percentage of hours in HHI range
<500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
500 to <1000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1000 to <1500	32	24	(8)	12	10	6	3	38%	31%	19%	9%	6%	4%	(1%)
1500 to <2000	149	126	(23)	48	38	30	22	32%	26%	20%	15%	26%	22%	(4%)
2000 to <2500	177	187	10	40	29	17	13	23%	16%	10%	7%	31%	33%	2%
2500 to <3000	91	100	9	21	17	14	8	23%	19%	15%	9%	16%	18%	2%
3000 to <3500	37	44	7	6	6	4	3	16%	16%	11%	8%	7%	8%	1%
3500 to <4000	19	22	3	4	2	2	1	21%	11%	11%	5%	3%	4%	1%
4000 to <4500	15	13	(2)	3	2	2	1	20%	13%	13%	7%	3%	2%	(0%)
4500 to <5000	8	11	3	-	-	-	-	0%	0%	0%	0%	1%	2%	1%
5000 to <5500	7	7	-	1	1	-	-	14%	14%	0%	0%	1%	1%	0%
5500 to <6000	3	1	(2)	2	2	2	2	67%	67%	67%	67%	1%	0%	(0%)
6000 to <6500	7	9	2	1	1	-	-	14%	14%	0%	0%	1%	2%	0%
6500 to <7000	1	2	1	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
7000 to <7500	8	8	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
7500 to <8000	2	2	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
8000 to <8500	4	4	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
8500 to <9000	3	3	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
9000 to <9500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
9500 to <10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
10000	2	2	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
Overall	565	565	-	138	108	77	53	24%	19%	14%	9%	100%	100%	0%

AP South Interface Results for Proposed Combination

Table 0-9 shows the effect of Dynegy Acquisition on the market for the relief of the AP South interface constraint, by pre merger market event hour HHI category, the number

of market event hours where the proposed merger would have increased the HHI by 50 or more points, 100 or more points, 200 or more points and/or 300 or more points.

Table 0-9 shows that of the 688 relevant market hours for which Dynegy, Duke and/or ECP Utilities provided raise help relief supply for the AP South in the study period 685 of these market hours (99.6 percent of relevant market hours) had a pre merger HHI of 1500 or more and 676 of these market hours (98.3 percent) had an HHI of 2000 or more. The Dynegy Acquisition causes 685 of these relevant market hours (99.6 percent of the relevant market hours) to have an HHI of 1500 or more and causes 676 of these relevant market hours (98.3 percent of the relevant market hours) to have an HHI of 2000 or more. The Dynegy Acquisition has an anti-competitive effect on the market for the relief of the AP South constraint.

The TPS results, in combination with the HHI results, indicate that Dynegy, Duke and/or ECP Utilities hold a relatively modest position in the heavily concentrated market for raise help relief capability for the AP South Interface constraint and that the Dynegy Acquisition would, in a very small subset of hours, create a company with a significant market position that would, relative to the current disposition of raise help assets, exacerbate the market concentration in this market.

Table 0-9 By pre merger market event HHI category, post merger change in HHI of 50 or more, 100 or more, 200 or more or 300 or more points: AP South Interface Market January 2013 through June 2014

HHI Range	Pre Merger Number of Market Hours	Post Merger Number of Market Hours	Change in Hours	Pre to Post Merger hours with HHI increase of 50 or more	Pre to Post Merger hours with HHI increase of 100 or more	Pre to Post Merger hours HHI increase of 200 or more	Pre to Post Merger hours with HHI increase of 300 or more	Percentage of Market Hours with HHI increase of 50 or more	Percentage of Market Hours with HHI increase of 100 or more	Percentage of Market Hours with HHI increase of 200 or more	Percentage of Market Hours with HHI increase of 300 or more	Pre Merger Percentage of Makret Hours in HHI Range	Post Merger Percentage of Hours in HHI Range	Change in percentage of hours in HHI range
<500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
500 to <1000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1000 to <1500	3	3	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
1500 to <2000	9	9	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
2000 to <2500	45	44	(1)	1	1	-	-	2%	2%	0%	0%	7%	6%	(0%)
2500 to <3000	69	70	1	-	-	-	-	0%	0%	0%	0%	10%	10%	0%
3000 to <3500	99	99	-	-	-	-	-	0%	0%	0%	0%	14%	14%	0%
3500 to <4000	95	95	-	1	-	-	-	1%	0%	0%	0%	14%	14%	0%
4000 to <4500	79	79	-	-	-	-	-	0%	0%	0%	0%	11%	11%	0%
4500 to <5000	73	73	-	-	-	-	-	0%	0%	0%	0%	11%	11%	0%
5000 to <5500	51	50	(1)	1	-	-	-	2%	0%	0%	0%	7%	7%	(0%)
5500 to <6000	33	34	1	1	-	-	-	3%	0%	0%	0%	5%	5%	0%
6000 to <6500	27	27	-	-	-	-	-	0%	0%	0%	0%	4%	4%	0%
6500 to <7000	18	18	-	-	-	-	-	0%	0%	0%	0%	3%	3%	0%
7000 to <7500	21	21	-	-	-	-	-	0%	0%	0%	0%	3%	3%	0%
7500 to <8000	11	11	-	-	-	-	-	0%	0%	0%	0%	2%	2%	0%
8000 to <8500	15	15	-	-	-	-	-	0%	0%	0%	0%	2%	2%	0%
8500 to <9000	12	12	-	-	-	-	-	0%	0%	0%	0%	2%	2%	0%
9000 to <9500	5	5	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
9500 to <10000	23	23	-	-	-	-	-	0%	0%	0%	0%	3%	3%	0%
10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
Overall	688	688	-	4	1	-	-	1%	0%	0%	0%	100%	100%	0%

Bedington - Black Oak Results for Proposed Combination

Table 0-10 shows the effect of Dynegy Acquisition on the market for the relief of the Bedington – Black Oak constraint, by pre merger market event hour HHI category, the number of market event hours where the proposed merger would have increased the

HHI by 50 or more points, 100 or more points, 200 or more points and/or 300 or more points.

Table 0-10 shows that of the 414 relevant market hours for which Dynegy, Duke and/or ECP Utilities provided raise help relief supply for the Bedington – Black Oak in the study period 403 of these market hours (97.3 percent of relevant market hours) had a pre merger HHI of 1500 or more and 368 of these market hours (88.9 percent) had an HHI of 2000 or more. The Dynegy Acquisition causes 404 of these relevant market hours (97.6 percent of the relevant market hours) to have an HHI of 1500 or more and causes 370 of these relevant market hours (89.4 percent of the relevant market hours) to have an HHI of 2000 or more. The Dynegy Acquisition has anti-competitive effects on the market for the relief of the Bedington – Black Oak constraint.

The TPS results, in combination with the HHI results, indicate that Dynegy, Duke and/or ECP Utilities hold a significant position in the heavily concentrated market for raise help relief capability for the Bedington – Black Oak constraint and that the Dynegy Acquisition would, in a subset of hours, create a company with a significant market position that would, relative to the current disposition of raise help assets, exacerbate the market concentration in this market.

Table 0-10 By pre merger market event HHI category, post merger change in HHI of 50 or more, 100 or more, 200 or more or 300 or more points: Bedington - Black Oak Market January 2013 through June 2014

HHI Range	Pre Merger Number of Market Hours	Post Merger Number of Market Hours	Change in Hours	Pre to Post Merger hours with HHI increase of 50 or more	Pre to Post Merger hours with HHI increase of 100 or more	Pre to Post Merger hours HHI increase of 200 or more	Pre to Post Merger hours with HHI increase of 300 or more	Percentage of Market Hours with HHI increase of 50 or more	Percentage of Market Hours with HHI increase of 100 or more	Percentage of Market Hours with HHI increase of 200 or more	Percentage of Market Hours with HHI increase of 300 or more	Pre Merger Percentage of Makret Hours in HHI Range	Post Merger Percentage of Hours in HHI Range	Change in percentage of hours in HHI range
<500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
500 to <1000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1000 to <1500	11	10	(1)	1	-	-	-	9%	0%	0%	0%	3%	2%	(0%)
1500 to <2000	35	34	(1)	3	1	1	-	9%	3%	3%	0%	8%	8%	(0%)
2000 to <2500	56	58	2	1	-	-	-	2%	0%	0%	0%	14%	14%	0%
2500 to <3000	37	36	(1)	1	1	1	-	3%	3%	3%	0%	9%	9%	(0%)
3000 to <3500	34	34	-	4	2	1	1	12%	6%	3%	3%	8%	8%	0%
3500 to <4000	42	43	1	3	-	-	-	7%	0%	0%	0%	10%	10%	0%
4000 to <4500	34	34	-	1	1	-	-	3%	3%	0%	0%	8%	8%	0%
4500 to <5000	30	29	(1)	-	-	-	-	0%	0%	0%	0%	7%	7%	(0%)
5000 to <5500	24	24	-	1	1	1	1	4%	4%	4%	4%	6%	6%	0%
5500 to <6000	22	23	1	-	-	-	-	0%	0%	0%	0%	5%	6%	0%
6000 to <6500	24	23	(1)	-	-	-	-	0%	0%	0%	0%	6%	6%	(0%)
6500 to <7000	20	21	1	-	-	-	-	0%	0%	0%	0%	5%	5%	0%
7000 to <7500	13	13	-	-	-	-	-	0%	0%	0%	0%	3%	3%	0%
7500 to <8000	8	8	-	-	-	-	-	0%	0%	0%	0%	2%	2%	0%
8000 to <8500	10	10	-	-	-	-	-	0%	0%	0%	0%	2%	2%	0%
8500 to <9000	8	8	-	-	-	-	-	0%	0%	0%	0%	2%	2%	0%
9000 to <9500	4	4	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
9500 to <10000	2	2	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
Overall	414	414	-	15	6	4	2	4%	1%	1%	0%	100%	100%	0%

Benton Harbor – Palisades Results for Proposed Combination

Table 0-11 shows the effect of Dynegy Acquisition on the market for the relief of the Benton Harbor – Palisades interface constraint, by pre merger market event hour HHI category, the number of market event hours where the proposed merger would have

increased the HHI by 50 or more points, 100 or more points, 200 or more points and/or 300 or more points.

Table 0-11 shows that of the 160 relevant market hours for which Dynegy, Duke and/or ECP Utilities provided raise help relief supply for the Benton Harbor – Palisades in the study period 147 of these market hours (91.9 percent of relevant market hours) had a pre merger HHI of 1500 or more and 122 of these market hours (76.3 percent) had an HHI of 2000 or more. The Dynegy Acquisition causes 150 of these relevant market hours (93.8 percent of the relevant market hours) to have an HHI of 1500 or more and causes 123 of these relevant market hours (76.9 percent of the relevant market hours) to have an HHI of 2000 or more. The Dynegy Acquisition has an anti-competitive effect on the market for the relief of the Benton Harbor – Palisades.

The TPS results, in combination with the HHI results, indicate that Dynegy, Duke and/or ECP Utilities hold a modest position in the heavily concentrated market for raise help relief capability for the Benton Harbor – Palisades constraint and that the Dynegy Acquisition would, in a small subset of hours, create a company with a significant market position that would, relative to the current disposition of raise help assets, exacerbate the market concentration in this market.

Table 0-11 By pre merger market event HHI category, post merger change in HHI of 50 or more, 100 or more, 200 or more or 300 or more points: Benton Harbor – Palisades Market January 2013 through June 2014

HHI Range	Pre Merger Number of Market Hours	Post Merger Number of Market Hours	Change in Hours	Pre to Post Merger hours with HHI increase of 50 or more	Pre to Post Merger hours with HHI increase of 100 or more	Pre to Post Merger hours HHI increase of 200 or more	Pre to Post Merger hours with HHI increase of 300 or more	Percentage of Market Hours with HHI increase of 50 or more	Percentage of Market Hours with HHI increase of 100 or more	Percentage of Market Hours with HHI increase of 200 or more	Percentage of Market Hours with HHI increase of 300 or more	Pre Merger Percentage of Makret Hours in HHI Range	Post Merger Percentage of Hours in HHI Range	Change in percentage of hours in HHI range
<500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
500 to <1000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1000 to <1500	13	10	(3)	1	1	-	-	8%	8%	0%	0%	8%	6%	(2%)
1500 to <2000	25	27	2	-	-	-	-	0%	0%	0%	0%	16%	17%	1%
2000 to <2500	32	31	(1)	3	2	2	1	9%	6%	6%	3%	20%	19%	(1%)
2500 to <3000	20	22	2	-	-	-	-	0%	0%	0%	0%	13%	14%	1%
3000 to <3500	18	18	-	3	1	-	-	17%	6%	0%	0%	11%	11%	0%
3500 to <4000	18	17	(1)	1	1	1	1	6%	6%	6%	6%	11%	11%	(1%)
4000 to <4500	12	13	1	-	-	-	-	0%	0%	0%	0%	8%	8%	1%
4500 to <5000	7	6	(1)	1	1	1	1	14%	14%	14%	14%	4%	4%	(1%)
5000 to <5500	5	5	-	-	-	-	-	0%	0%	0%	0%	3%	3%	0%
5500 to <6000	3	4	1	-	-	-	-	0%	0%	0%	0%	2%	3%	1%
6000 to <6500	3	3	-	-	-	-	-	0%	0%	0%	0%	2%	2%	0%
6500 to <7000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
7000 to <7500	1	1	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
7500 to <8000	2	2	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
8000 to <8500	1	1	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
8500 to <9000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
9000 to <9500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
9500 to <10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
Overall	160	160	-	9	6	4	3	6%	4%	3%	2%	100%	100%	0%

Central East Results for Proposed Combination

Table 0-12 shows the effect of Dynegy Acquisition on the market for the relief of the Central East constraint, by pre merger market event hour HHI category, the number of market event hours where the proposed merger would have increased the HHI by 50 or more points, 100 or more points, 200 or more points and/or 300 or more points.

Table 0-12 shows that of the 108 relevant market hours for which Dynegy, Duke and/or ECP Utilities provided raise help relief supply for the Central East in the study period 104 of these market hours (96.3 percent of relevant market hours) had a pre merger HHI of 200 or more. The Dynegy Acquisition caused no change in the number of relevant market hours that had an HHI of 2000 or more, however it did cause HHIs to increase by more than 300 points in one hour. The Dynegy Acquisition has a modest anti-competitive effect on the market for the relief of the Central East constraint.

The TPS results, in combination with the HHI results, indicate that Dynegy, Duke and/or ECP Utilities hold a relatively modest position in the heavily concentrated market for raise help relief capability for the Central East constraint and that the Dynegy Acquisition would, in a very small subset of hours, create a company with a significant market position that would, relative to the current disposition of raise help assets, exacerbate the market concentration in this market.

Table 0-12 By pre merger market event HHI category, post merger change in HHI of 50 or more, 100 or more, 200 or more or 300 or more points: Central East Market January 2013 through June 2014

HHI Range	Pre Merger Number of Market Hours	Post Merger Number of Market Hours	Change in Hours	Pre to Post Merger hours with HHI increase of 50 or more	Pre to Post Merger hours with HHI increase of 100 or more	Pre to Post Merger hours HHI increase of 200 or more	Pre to Post Merger hours with HHI increase of 300 or more	Percentage of Market Hours with HHI increase of 50 or more	Percentage of Market Hours with HHI increase of 100 or more	Percentage of Market Hours with HHI increase of 200 or more	Percentage of Market Hours with HHI increase of 300 or more	Pre Merger Percentage of Makret Hours in HHI Range	Post Merger Percentage of Hours in HHI Range	Change in percentage of hours in HHI range
<500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
500 to <1000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1000 to <1500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1500 to <2000	4	4	-	-	-	-	-	0%	0%	0%	0%	4%	4%	0%
2000 to <2500	9	9	-	-	-	-	-	0%	0%	0%	0%	8%	8%	0%
2500 to <3000	15	15	-	-	-	-	-	0%	0%	0%	0%	14%	14%	0%
3000 to <3500	8	8	-	-	-	-	-	0%	0%	0%	0%	7%	7%	0%
3500 to <4000	8	8	-	-	-	-	-	0%	0%	0%	0%	7%	7%	0%
4000 to <4500	5	4	(1)	1	1	1	1	20%	20%	20%	20%	5%	4%	(1%)
4500 to <5000	4	5	1	-	-	-	-	0%	0%	0%	0%	4%	5%	1%
5000 to <5500	5	5	-	-	-	-	-	0%	0%	0%	0%	5%	5%	0%
5500 to <6000	7	7	-	-	-	-	-	0%	0%	0%	0%	6%	6%	0%
6000 to <6500	3	3	-	-	-	-	-	0%	0%	0%	0%	3%	3%	0%
6500 to <7000	9	9	-	-	-	-	-	0%	0%	0%	0%	8%	8%	0%
7000 to <7500	5	5	-	-	-	-	-	0%	0%	0%	0%	5%	5%	0%
7500 to <8000	4	4	-	-	-	-	-	0%	0%	0%	0%	4%	4%	0%
8000 to <8500	5	5	-	-	-	-	-	0%	0%	0%	0%	5%	5%	0%
8500 to <9000	4	4	-	-	-	-	-	0%	0%	0%	0%	4%	4%	0%
9000 to <9500	4	4	-	-	-	-	-	0%	0%	0%	0%	4%	4%	0%
9500 to <10000	4	4	-	-	-	-	-	0%	0%	0%	0%	4%	4%	0%
10000	5	5	-	-	-	-	-	0%	0%	0%	0%	5%	5%	0%
Overall	108	108	-	1	1	1	1	1%	1%	1%	1%	100%	100%	0%

Cook - Palisades Results for Proposed Combination

Table 0-13 shows the effect of Dynegy Acquisition on the market for the relief of the Cook - Palisades constraint, by pre merger market event hour HHI category, the number of market event hours where the proposed merger would have increased the HHI by 50 or more points, 100 or more points, 200 or more points and/or 300 or more points.

Table 0-13 shows that of the 147 relevant market hours for which Dynegy, Duke and/or ECP Utilities provided raise help relief supply for the Cook - Palisades in the study period 129 of these market hours (87.8 percent of relevant market hours) had a pre merger HHI of 1500 or more and 88 of these market hours (59.9 percent) had an HHI of 2000 or more. The Dynegy Acquisition did not cause the number of relevant market hours with an HHI of 1500 or more or an HHI of 2000 or more to increase. However, as shown in the table, the Dynegy Acquisition does cause the HHIs to increase in a subset of hours. The Dynegy Acquisition has an anti-competitive effect on the market for the relief of the Cook - Palisades constraint.

The TPS results, in combination with the HHI results, indicate that Dynegy, Duke and/or ECP Utilities hold a significant position in the heavily concentrated market for raise help relief capability for the Cook - Palisades constraint and that the Dynegy Acquisition would, in a subset of hours, create a company with a significant market position that would, relative to the current disposition of raise help assets, exacerbate the market concentration in this market.

Table 0-13 By pre merger market event HHI category, post merger change in HHI of 50 or more, 100 or more, 200 or more or 300 or more points: Cook - Palisades Market January 2013 through June 2014

HHI Range	Pre Merger Number of Market Hours	Post Merger Number of Market Hours	Change in Hours	Pre to Post Merger hours with HHI increase of 50 or more	Pre to Post Merger hours with HHI increase of 100 or more	Pre to Post Merger hours HHI increase of 200 or more	Pre to Post Merger hours with HHI increase of 300 or more	Percentage of Market Hours with HHI increase of 50 or more	Percentage of Market Hours with HHI increase of 100 or more	Percentage of Market Hours with HHI increase of 200 or more	Percentage of Market Hours with HHI increase of 300 or more	Pre Merger Percentage of Makret Hours in HHI Range	Post Merger Percentage of Hours in HHI Range	Change in percentage of hours in HHI range
<500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
500 to <1000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1000 to <1500	18	18	-	-	-	-	-	0%	0%	0%	0%	12%	12%	0%
1500 to <2000	41	41	-	2	1	1	-	5%	2%	2%	0%	28%	28%	0%
2000 to <2500	32	29	(3)	5	2	1	1	16%	6%	3%	3%	22%	20%	(2%)
2500 to <3000	23	25	2	2	2	1	1	9%	9%	4%	4%	16%	17%	1%
3000 to <3500	14	14	-	-	-	-	-	0%	0%	0%	0%	10%	10%	0%
3500 to <4000	5	5	-	-	-	-	-	0%	0%	0%	0%	3%	3%	0%
4000 to <4500	5	5	-	-	-	-	-	0%	0%	0%	0%	3%	3%	0%
4500 to <5000	5	6	1	-	-	-	-	0%	0%	0%	0%	3%	4%	1%
5000 to <5500	1	1	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
5500 to <6000	1	1	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
6000 to <6500	2	2	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
6500 to <7000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
7000 to <7500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
7500 to <8000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
8000 to <8500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
8500 to <9000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
9000 to <9500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
9500 to <10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
Overall	147	147	-	9	5	3	2	6%	3%	2%	1%	100%	100%	0%

Dickerson - Pleasant View Results for Proposed Combination

Table 0-14 shows the effect of Dynegy Acquisition on the market for the relief of the Dickerson - Pleasant View constraint, by pre merger market event hour HHI category, the number of market event hours where the proposed merger would have increased the HHI by 50 or more points, 100 or more points, 200 or more points and/or 300 or more points.

Table 0-14 shows that of the 115 relevant market hours for which Dynegy, Duke and/or ECP Utilities provided raise help relief supply for the Dickerson - Pleasant View in the study period 112 of these market hours (97.4 percent of relevant market hours) had a pre merger HHI of 1500 or more and 99 of these market hours (86.1 percent) had an HHI of 2000 or more. The Dynegy Acquisition did not cause the number of relevant market hours with an HHI of 1500 to increase, however the Dynegy Acquisition causes 102 of these relevant market hours (88.7 percent of the relevant market hours) to have an HHI of 2000 or more. The Dynegy Acquisition has an anti-competitive effect on the market for the relief of the Dickerson - Pleasant View constraint.

The TPS results, in combination with the HHI results, indicate that Dynegy, Duke and/or ECP Utilities hold a significant position in the heavily concentrated market for raise help relief capability for the Dickerson - Pleasant View constraint and that the Dynegy Acquisition would, in a subset of hours, create a company with a significant market position that would, relative to the current disposition of raise help assets, exacerbate the market concentration in this market.

Table 0-14 By pre merger market event HHI category, post merger change in HHI of 50 or more, 100 or more, 200 or more or 300 or more points: Dickerson - Pleasant View Market January 2013 through June 2014

HHI Range	Pre Merger Number of Market Hours	Post Merger Number of Market Hours	Change in Hours	Pre to Post Merger hours with HHI increase of 50 or more	Pre to Post Merger hours with HHI increase of 100 or more	Pre to Post Merger hours HHI increase of 200 or more	Pre to Post Merger hours with HHI increase of 300 or more	Percentage of Market Hours with HHI increase of 50 or more	Percentage of Market Hours with HHI increase of 100 or more	Percentage of Market Hours with HHI increase of 200 or more	Percentage of Market Hours with HHI increase of 300 or more	Pre Merger Percentage of Makret Hours in HHI Range	Post Merger Percentage of Hours in HHI Range	Change in percentage of hours in HHI range
<500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
500 to <1000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1000 to <1500	3	3	-	-	-	-	-	0%	0%	0%	0%	3%	3%	0%
1500 to <2000	13	10	(3)	5	4	2	2	38%	31%	15%	15%	11%	9%	(3%)
2000 to <2500	6	9	3	-	-	-	-	0%	0%	0%	0%	5%	8%	3%
2500 to <3000	18	18	-	-	-	-	-	0%	0%	0%	0%	16%	16%	0%
3000 to <3500	17	17	-	-	-	-	-	0%	0%	0%	0%	15%	15%	0%
3500 to <4000	20	20	-	-	-	-	-	0%	0%	0%	0%	17%	17%	0%
4000 to <4500	20	20	-	-	-	-	-	0%	0%	0%	0%	17%	17%	0%
4500 to <5000	7	7	-	-	-	-	-	0%	0%	0%	0%	6%	6%	0%
5000 to <5500	7	7	-	-	-	-	-	0%	0%	0%	0%	6%	6%	0%
5500 to <6000	2	2	-	-	-	-	-	0%	0%	0%	0%	2%	2%	0%
6000 to <6500	2	2	-	-	-	-	-	0%	0%	0%	0%	2%	2%	0%
6500 to <7000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
7000 to <7500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
7500 to <8000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
8000 to <8500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
8500 to <9000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
9000 to <9500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
9500 to <10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
Overall	115	115	-	5	4	2	2	4%	3%	2%	2%	100%	100%	0%

Nelson - Cordova Results for Proposed Combination

Table 0-15 shows the effect of Dynegy Acquisition on the market for the relief of the Nelson - Cordova constraint, by pre merger market event hour HHI category, the number of market event hours where the proposed merger would have increased the HHI by 50 or more points, 100 or more points, 200 or more points and/or 300 or more points.

Table 0-15 shows that of the 325 relevant market hours for which Dynegy, Duke and/or ECP Utilities provided raise help relief supply for the Nelson - Cordova constraint in the study period 323 of these market hours (99.4 percent of relevant market hours) had a pre merger HHI of 3500 or more and 320 of these market hours (98.5 percent) had an HHI of 4000 or more. The Dynegy Acquisition causes 323 of these relevant market hours (99.4 percent of the relevant market hours) to have an HHI of 3500 or more and causes 321 of these relevant market hours (98.8 percent of the relevant market hours) to have an HHI of 4000 or more.

Of the 320 pre Dynegy Acquisition Nelson - Cordova market event hours with an HHI of 4000 or more, the merger would cause 96 (30.0 percent) of these market event hours to have an increase of 50 or more points, 77 (24.1 percent) of these market event hours to have an increase of 100 or more points, 61 (19.1 percent) of these market event hours to have an increase of 200 or more points and 49 (15.3 percent) of these market event hours to have an increase of 300 or more points. The Dynegy Acquisition has a significant anti-competitive effect on the market for the relief of the Nelson - Cordova constraint.

The TPS results, in combination with the HHI results, indicate that Dynegy, Duke and/or ECP Utilities hold a dominant position in the heavily concentrated market for raise help relief capability for the Nelson - Cordova constraint and that the Dynegy Acquisition would, in a significant subset of hours, create a company with a significant market position that would, relative to the current disposition of raise help assets, exacerbate the market concentration in this market.

Table 0-15 By pre merger market event HHI category, post merger change in HHI of 50 or more, 100 or more, 200 or more or 300 or more points: Nelson – Cordova Market January 2013 through June 2014

HHI Range	Pre Merger Number of Market Hours	Post Merger Number of Market Hours	Change in Hours	Pre to Post Merger hours with HHI increase of 50 or more	Pre to Post Merger hours with HHI increase of 100 or more	Pre to Post Merger hours HHI increase of 200 or more	Pre to Post Merger hours with HHI increase of 300 or more	Percentage of Market Hours with HHI increase of 50 or more	Percentage of Market Hours with HHI increase of 100 or more	Percentage of Market Hours with HHI increase of 200 or more	Percentage of Market Hours with HHI increase of 300 or more	Pre Merger Percentage of Makret Hours in HHI Range	Post Merger Percentage of Hours in HHI Range	Change in percentage of hours in HHI range
<500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
500 to <1000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1000 to <1500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1500 to <2000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
2000 to <2500	1	1	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
2500 to <3000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
3000 to <3500	1	1	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
3500 to <4000	3	2	(1)	1	1	1	1	33%	33%	33%	33%	1%	1%	(0%)
4000 to <4500	4	3	(1)	2	2	2	1	50%	50%	50%	25%	1%	1%	(0%)
4500 to <5000	14	12	(2)	3	3	3	2	21%	21%	21%	14%	4%	4%	(1%)
5000 to <5500	23	22	(1)	7	6	4	2	30%	26%	17%	9%	7%	7%	(0%)
5500 to <6000	20	20	-	8	7	5	3	40%	35%	25%	15%	6%	6%	0%
6000 to <6500	34	28	(6)	14	12	11	8	41%	35%	32%	24%	10%	9%	(2%)
6500 to <7000	37	36	(1)	17	11	8	7	46%	30%	22%	19%	11%	11%	(0%)
7000 to <7500	40	39	(1)	15	11	10	9	38%	28%	25%	23%	12%	12%	(0%)
7500 to <8000	24	22	(2)	11	9	7	6	46%	38%	29%	25%	7%	7%	(1%)
8000 to <8500	36	39	3	7	4	3	3	19%	11%	8%	8%	11%	12%	1%
8500 to <9000	27	28	1	7	7	5	5	26%	26%	19%	19%	8%	9%	0%
9000 to <9500	18	21	3	2	2	2	2	11%	11%	11%	11%	6%	6%	1%
9500 to <10000	32	37	5	3	3	1	1	9%	9%	3%	3%	10%	11%	2%
10000	11	14	3	-	-	-	-	0%	0%	0%	0%	3%	4%	1%
Overall	325	325	-	97	78	62	50	30%	24%	19%	15%	100%	100%	0%

West Results for Proposed Combination

Table 0-16 shows the effect of Dynegy Acquisition on the market for the relief of the West interface constraint, by pre merger market event hour HHI category, the number of market event hours where the proposed merger would have increased the HHI by 50 or more points, 100 or more points, 200 or more points and/or 300 or more points.

Table 0-16 shows that of the 413 relevant market hours for which Dynegy, Duke and/or ECP Utilities provided raise help relief supply for the West Interface in the study period 366 of these market hours (88.6 percent of relevant market hours) had a pre merger HHI of 1500 or more and 210 of these market hours (50.8 percent) had an HHI of 2000 or more. The Dynegy Acquisition causes 377 of these relevant market hours (91.3 percent of the relevant market hours) to have an HHI of 1500 or more and causes 225 of these relevant market hours (54.5 percent of the relevant market hours) to have an HHI of 2000 or more. The Dynegy Acquisition has a significant anti-competitive effect on the market for the relief of the West Interface constraint.

Of the 210 pre Dynegy Acquisition West Interface market event hours with an HHI of 2000 or more, the merger would cause 48 (22.9 percent) of these market event hours to have an increase of 50 or more points, 35 (16.7 percent) of these market event hours to have an increase of 100 or more points, 13 (7.2 percent) of these market event hours to have an increase of 200 or more points and 4 (1.9 percent) of these market event hours to have an increase of 300 or more points.

The TPS results, in combination with the HHI results, indicate that Dynegy, Duke and/or ECP Utilities hold a dominant position in the heavily concentrated market for raise help relief capability for the West Interface constraint and that the Dynegy Acquisition would, in a subset of hours, create a company with a significant market position that would, relative to the current disposition of raise help assets, exacerbate the market concentration in this market.

Table 0-16 By pre merger market event HHI category, post merger change in HHI of 50 or more, 100 or more, 200 or more or 300 or more points: West Market January 2013 through June 2014

HHI Range	Pre Merger Number of Market Hours	Post Merger Number of Market Hours	Change in Hours	Pre to Post Merger hours with HHI increase of 50 or more	Pre to Post Merger hours with HHI increase of 100 or more	Pre to Post Merger hours HHI increase of 200 or more	Pre to Post Merger hours with HHI increase of 300 or more	Percentage of Market Hours with HHI increase of 50 or more	Percentage of Market Hours with HHI increase of 100 or more	Percentage of Market Hours with HHI increase of 200 or more	Percentage of Market Hours with HHI increase of 300 or more	Pre Merger Percentage of Makret Hours in HHI Range	Post Merger Percentage of Hours in HHI Range	Change in percentage of hours in HHI range
<500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
500 to <1000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
1000 to <1500	47	36	(11)	12	10	3	-	26%	21%	6%	0%	11%	9%	(3%)
1500 to <2000	156	152	(4)	40	27	15	9	26%	17%	10%	6%	38%	37%	(1%)
2000 to <2500	104	114	10	28	21	6	1	27%	20%	6%	1%	25%	28%	2%
2500 to <3000	41	40	(1)	12	9	6	2	29%	22%	15%	5%	10%	10%	(0%)
3000 to <3500	26	31	5	3	1	-	-	12%	4%	0%	0%	6%	8%	1%
3500 to <4000	13	11	(2)	4	4	1	1	31%	31%	8%	8%	3%	3%	(0%)
4000 to <4500	11	14	3	-	-	-	-	0%	0%	0%	0%	3%	3%	1%
4500 to <5000	7	7	-	1	-	-	-	14%	0%	0%	0%	2%	2%	0%
5000 to <5500	4	4	-	-	-	-	-	0%	0%	0%	0%	1%	1%	0%
5500 to <6000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
6000 to <6500	1	1	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
6500 to <7000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
7000 to <7500	1	1	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
7500 to <8000	1	1	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
8000 to <8500	1	1	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%
8500 to <9000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
9000 to <9500	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
9500 to <10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
10000	-	-	-	-	-	-	-	-	-	-	-	0%	0%	0%
Overall	413	413	-	100	72	31	13	24%	17%	8%	3%	100%	100%	0%

Capacity Market Results

The Reliability Pricing Model (RPM) Capacity Market design was implemented in the PJM region on June 1, 2007. RPM is a forward-looking, annual, locational market, with a must offer requirement for capacity and a must buy requirement for load, with performance incentives for generation, that includes clear market power mitigation rules and that permits the direct participation of demand-side resources.

Under RPM, capacity obligations are annual. Base Residual Auctions (BRA) are held for delivery years that are three years in the future. Effective with the 2012/2013 delivery year, First, Second and Third Incremental Auctions (IA) are held for each delivery year.[35]

RPM prices are locational and may vary depending on transmission constraints and local supply and demand conditions.[36] Existing generation capable of qualifying as a

35 *See* 126 FERC ¶ 61,275 (2009) at P 86.

capacity resource must be offered into RPM Auctions, except for resources owned by entities that elect the fixed resource requirement (FRR) option, which is a way to opt out of RPM while maintaining responsibility for meeting capacity obligations. Participation by LSEs is mandatory, except for those entities that elect the FRR option. There is an administratively determined demand curve that, with the supply curve derived from capacity offers, determines market prices in each BRA. RPM rules provide performance incentives for generation, which, although not adequate, link capacity payments to the level of unforced capacity and link capacity payments to the performance of capacity resources during identified hours. Under RPM there are explicit market power mitigation rules that define the must offer requirement, that define structural market power, that define offer caps based on the marginal cost of capacity and that have flexible criteria for competitive offers by new entrants or by entrants that have an incentive to exercise monopsony power. Demand-side resources and Energy Efficiency resources may be offered directly into RPM Auctions and receive the clearing price without mitigation.

In the Capacity Market, transmission constraints mean that less expensive capacity from unconstrained parts of PJM is not always available in constrained parts of PJM. The higher capacity prices that result when transmission constraints are binding reflect the higher marginal costs of capacity located in the constrained areas which are needed to meet the requirement for capacity in the constrained areas at those times. Under these conditions, a single capacity price for the entire PJM footprint would not provide the appropriate incentives to build or maintain capacity in constrained areas when capacity is needed to maintain reliability and meet the loads there. When transmission constraints create local capacity markets in specific RPM Locational Deliverability Areas (LDAs) and the TPS test is failed, there is structural market power in those local markets.

Capacity markets are necessary in PJM in order to ensure that the incentives are adequate to provide the desired level of reliability.[37] Energy market net revenues are not adequate to keep a significant portion of existing units, across all technology types, financially viable. Net revenues from the energy market alone are less than the annual going forward costs for a significant level of capacity, across all generation technologies. When a unit receives less than its annual going forward costs in net revenue, it is more

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[36] Transmission constraints are local capacity import capability limitations caused by transmission facility limitations, voltage limitations or stability limitations. In RPM, capacity constraints are measured by the relationship between capacity emergency transfer limits (CETL) and capacity emergency transfer objectives (CETO) for LDAs.

[37] *See* the *2013 State of the Market Report for PJM*, Volume II, Section 5, "Capacity Market," for a more detailed discussion.

profitable for the unit to retire than to continue operation. Capacity market revenues make up that difference and provide the incentive for units to continue operation.[38]

In addition, energy market net revenues are not sufficient to incent new entry. The net revenues from the energy market are less than the annual going forward costs plus annual fixed costs of new units. In some zones, the sum of capacity market revenues and energy market net revenues is adequate to incent new entry. In those cases, capacity market revenues make up the difference and provide a key component of the incentive for new entry.[39]

The RPM Capacity Market design explicitly addresses the underlying issues of ensuring that competitive prices can reflect local scarcity while not relying on the exercise of market power to achieve the design objective, and of explicitly limiting the exercise of market power.

The Capacity Market is, by design, always tight in the sense that total supply is generally only slightly larger than demand. The demand for capacity includes expected peak load plus a reserve margin. Thus, the reliability goal is to have total supply equal to, or slightly above, the demand for capacity. The market may be long at times, but that is not the equilibrium state. Capacity in excess of demand is not sold and, if it does not earn adequate revenues in other markets, will retire. Demand is almost entirely inelastic, because the market rules require loads to purchase their share of the system capacity requirement. The result is that any supplier that owns more capacity than the difference between total supply and the defined demand is pivotal and has market power.

In other words, the market design for capacity leads, almost unavoidably, to structural market power. Given the basic features of market structure in the PJM Capacity Market, including significant market structure issues, inelastic demand, tight supply-demand conditions, the relatively small number of nonaffiliated LSEs and supplier knowledge of aggregate market demand, the potential for the exercise of market power is high. Market power is and will remain endemic to the existing structure of the PJM Capacity Market. This is not surprising in that the Capacity Market is the result of a regulatory/administrative decision to require a specified level of reliability and the related decision to require all load serving entities to purchase a share of the capacity required to provide that reliability. It is important to keep these basic facts in mind when evaluating capacity markets. The Capacity Market is unlikely ever to approach the

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38 *See* the *2013 State of the Market Report for PJM*, Volume II, Section 7, "Net Revenue."

39 *See* the *2013 State of the Market Report for PJM*, Volume II, Section 7, "Net Revenue."

economist's view of a competitive market structure in the absence of a substantial and unlikely structural change that results in much more diversity of ownership.

RPM has explicit market power mitigation rules designed to permit competitive, locational capacity prices while limiting the exercise of market power. The RPM construct is consistent with the appropriate market design objectives of permitting competitive prices to reflect local scarcity conditions while explicitly limiting market power. The RPM Capacity Market design provides that competitive prices can reflect locational scarcity while not relying on the exercise of market power to achieve that design objective by limiting the exercise of market power via the application of the three pivotal supplier test and the resultant offer capping.

But it must also be recognized that the market power mitigation rules are not perfect and cannot prevent all exercises of market power.

Markets

The analysis of the impact of the merger on the Capacity Market examines the locational markets defined by the underlying economics of the market including supply and demand curves and transmission constraints. Each transmission zone is a Locational Deliverability Area (LDA) which can be a separate market if PJM models the zone as an LDA and market conditions result in price separation in an auction. There are, in addition, several subzonal LDAs, including PSEG North, DPL South, and ATSI Cleveland.

For the defined markets, market concentration and HHI levels were calculated on a pre merger and a post merger basis for each market.

As in the energy market, to the extent that total RTO demand for capacity can be met without any constraints binding, the optimal solution is defined by the intersection of the aggregate supply and demand curves. However, if the next increment of demand for capacity in an LDA cannot be met by the next economic increment of supply, regardless of location, and must be met by supply within the LDA, then the transmission constraint is binding and there is a separate market created. That separate market is defined by the incremental demand that must be met by capacity within the LDA and the incremental supply within the LDA available to meet that demand, above that which would have cleared at the RTO price.

The ability to exercise market power in the LDA is determined by the ownership structure of the incremental supply and the relationship between incremental supply and incremental demand. The ability to exercise market power can be measured most accurately by the TPS test, applied to the incremental supply of capacity, but can also be measured by the HHI, applied to the total cleared supply of capacity in the LDA. The incentive to exercise market power in the LDA is a function of the ownership structure

of all capacity in the LDA. Regardless of offer price and regardless whether the capacity was incremental, all capacity in a constrained LDA receives the higher constrained clearing price. The ability to exercise market power can be measured most accurately by the TPS test while the HHI provides a measure of the incentive to exercise market power.

When RPM clears as a single market, total RTO supply and demand determine the clearing price and all resources receive the clearing price. The market definition is clear. When an LDA within the RTO clears as a separate market, the incremental locational supply available to meet the locational demand determines the clearing price for the LDA. All capacity resources in the LDA receive the clearing price, regardless of whether the capacity resources are incremental.

When there are multiple LDAs that clear as separate markets and the LDAs are not overlapping, the logic is exactly the same for each LDA separately and its relationship to the rest of RTO. When the LDAs are nested, one within another, the analysis becomes more complex. For example, EMAAC is entirely within MAAC, which is entirely within the RTO. The EMAAC locational price is determined by the incremental locational supply available to meet the locational demand within EMAAC. The MAAC price in this case is analogous to the RTO price in the case of a single LDA. The MAAC price is determined by all the MAAC incremental supply (defined with respect to the RTO market) that is not incremental in EMAAC. Even though MAAC includes more capacity resources than EMAAC, the MAAC clearing price may result from fewer MW of incremental supply than the EMAAC price and may apply to fewer MW of rest of MAAC supply than the EMAAC price. The MAAC clearing price in this case could also be referred to as the rest of MAAC price, analogous to the rest of RTO price. The rest of RTO clearing price in this case is determined by all the supply that is not incremental in MAAC, including EMAAC.

Total Market Analysis

HHI Analysis

Table 0-17 shows pre and post Dynegy Acquisition HHIs for the 2016/2017 and 2017/2018 RPM Base Residual Auctions, including all modeled LDAs for each BRA. The HHIs in Table 0-17 measure concentration of ownership for all capacity in the identified LDAs. This metric measures the incentive to exercise market power rather than the ability to exercise market power in the LDAs. As a result of the location of the capacity resources of the Applicants, there was an increase in HHI for the ComEd and RTO markets and a slight increase in the MAAC and ATSI markets. The effect of the Dynegy Acquisition was an increase in the RTO HHIs in both the 2016/2017 and 2017/2018 model, as well as an increase in the ComEd HHI in 2017/2018. The Dynegy Acquisition caused the RTO HHI to increase by 30 points in the 2016/2017 BRA, and 29 points in the 2017/2018 BRA. The Dynegy Acquisition caused the ComEd HHI to increase by 176

points in the 2017/2018 BRA. Pre combination RTO HHIs were 672 in the 2016/2017 model and 639 in the 2017/2018 model. The pre combination ComEd HHI for the 2017/2018 BRA was 1,924.

Table 0-17 Pre and post merger total market HHI analysis

RPM Auction	RPM Market	Pre Merger HHI	Post Merger HHI	Change in HHI
2016/2017 Base Residual Auction	RTO	672	702	30
	MAAC	955	957	1
	EMAAC	1,498	1,498	0
	SWMAAC	2,528	2,528	0
	DPL South	2,220	2,220	0
	PSEG	4,645	4,645	0
	PSEG North	4,526	4,526	0
	Pepco	5,405	5,405	0
	ATSI	2,632	2,634	1
	ATSI Cleveland	4,158	4,158	0
2017/2018 Base Residual Auction	RTO	639	668	29
	MAAC	928	930	1
	EMAAC	1,405	1,405	0
	SWMAAC	2,307	2,307	0
	DPL South	2,297	2,297	0
	PSEG	4,951	4,951	0
	PSEG North	4,950	4,950	0
	Pepco	5,346	5,346	0
	ATSI	2,821	2,821	0
	ATSI Cleveland	4,524	4,524	0
	ComEd	1,924	2,100	176
	BGE	4,277	4,277	0
	PPL	3,636	3,636	0

Incremental Market Analysis

Pivotal Supplier Analysis

The incremental analysis addresses the ability of owners to exercise market power.

The market for a constrained LDA is defined by the incremental supply available to meet the incremental demand when locational incremental demand must be met by capacity resources within the LDA. The RTO market is defined to include all supply that is not incremental supply in a constrained LDA. The RTO market includes all MW that resulted in the clearing price for the rest of RTO.

The three pivotal supplier (TPS) test measures the degree to which the incremental supply from three suppliers of capacity is required in order to meet the incremental demand in an LDA. The demand consists of the incremental MW of capacity required to

relieve a constraint or clear a market. The supply consists of the incremental MW of supply available to relieve the constraint or clear the market.

Table 0-18 shows the pre merger TPS scores for the Applicants and the post merger TPS score for the combined company. Table 0-18 shows that, pre-merger, Dynegy fails the TPS in the RTO market. Table 0-18 shows the merger increases the pivotal position (the combined company TPS score falls relative to pre-merger scores) of the combined resources under Dynegy's control in both the 2016/2017 and the 2017/2018 base residual auctions.

Table 0-18 Pre and post merger TPS scores: Dynegy, Duke, EquiPower, and combined

		Pre Merger RSI_3			Post Merger RSI_3
RPM Auction	RPM Market	Dynegy	Duke	EquiPower	Combined Company
2016/2017 Base Residual Auction	RTO	0.653	0.633	0.653	0.599
	MAAC				
	PSEG				
	ATSI				
2017/2018 Base Residual Auction	RTO	0.689	0.670	0.686	0.636
	PSEG				

Regulation Market Results

For the defined regulation markets, the TPS score, market concentration and HHI levels were calculated on a pre and a post reorganization/combination basis. A market instance exists each time that PJM dispatch software runs the regulation market and Dynegy, Duke and/or ECP Utilities were in the pre Dynegy Acquisition supply stack. Market hours with Dynegy, Duke and/or ECP Utilities in the pre-Dynegy Acquisition supply stack are counted as one hour in the analysis. Based on the TPS and HHI results, the IMM concludes that there were significant market power concerns in the Regulation Market arising from the proposed merger.

TPS Analysis

Table 0-19 shows the TPS results in the Regulation Market on a pre merger and post merger basis. Dynegy, Duke and/or ECP Utilities were pivotal in 93.4 percent of hours pre merger and Dynegy was pivotal in 97.9 percent of hours post merger.

Table 0-19 TPS results: Regulation Market January 2013 through June 2014

TPS Metric	Pre Merger	Post Merger	Value Change	Percent Change
Market Hours (All Companies)	13,079	13,079	0	0.0%
Market Hours Failed (All Companies)	12,721	13,006	285	2.2%
Market Hours (Duke, Equipower and/or Dynegy)	11,120	11,120	0	0.0%
Market Hours Failed (Duke, Equipower and/or Dynegy)	10,390	10,885	495	4.8%
Duke Hours Failed	9,951	5,039	(4,912)	(49.4%)
Equipower Hours Failed	3,247	NA	NA	NA
Dynegy Hours Failed	6,680	10,885	4,205	62.9%
Duke Score	0.79	0.75	(0.04)	(5.1%)
Equipower Score	0.92	NA	NA	NA
Dynegy Score	0.87	0.63	(0.24)	(27.6%)

HHI Analysis

Table 0-20 shows the HHI results in the Regulation Market on a pre merger and post merger basis. The merger causes the HHI level to increase by at least 300 points in 19.1 percent of hours. The analysis shows that the proposed Dynegy Acquisition has a significant anti-competitive effect on the Regulation Market.

Table 0-20 HHI results: Regulation Market January 2013 through June 2014

Range	Pre Merger Number of Market Hours	Post Merger Number of Market Hours	Change In Hours	Pre to Post Merger HHI Increase of 50 or More	Pre to Post Merger HHI Increase of 100 or More	Pre to Post Merger HHI Increase of 200 or More	Pre to Post Merger HHI Increase of 300 or More	Percentage of Market Hours with HHI Increase of 50 or More	Percentage of Market Hours with HHI Increase of 100 or More	Percentage of Market Hours with HHI Increase of 200 or More	Percentage of Market Hours with HHI Increase of 300 or More	Pre Merger Percentage of Market Hours in HHI Range	Post Merger Percentage of Market Hours in HHI Range	Change in Percentage of Hours in HHI Range
<500	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
500 to <1000	11	0	(11)	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	(0.1%)
1000 to <1500	1,496	745	(751)	302	202	76	15	2.7%	1.8%	0.7%	0.1%	13.5%	6.7%	(6.8%)
1500 to <2000	4,387	3,772	(615)	1,685	1,354	850	459	15.2%	12.2%	7.6%	4.1%	39.5%	33.9%	(5.5%)
2000 to <2500	3,215	3,803	588	1,712	1,540	1,220	870	15.4%	13.8%	11.0%	7.8%	28.9%	34.2%	5.3%
2500 to <3000	1,399	1,914	515	824	749	634	519	7.4%	6.7%	5.7%	4.7%	12.6%	17.2%	4.6%
3000 to <3500	462	654	192	238	217	193	181	2.1%	2.0%	1.7%	1.6%	4.2%	5.9%	1.7%
3500 to <4000	121	175	54	64	63	59	58	0.6%	0.6%	0.5%	0.5%	1.1%	1.6%	0.5%
4000 to <4500	26	51	25	25	25	25	24	0.2%	0.2%	0.2%	0.2%	0.2%	0.5%	0.2%
4000 to <4500	3	6	3	3	3	3	3	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
5000 to <5500	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5500 to <6000	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6000 to <6500	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6500 to <7000	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
7000 to <7500	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
7500 to <8000	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
8000 to <8500	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
8500 to <9000	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
9000 to <9500	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
9500 to <10000	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10000	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Overall	11,120	11,120	0	4,853	4,153	3,060	2,129	43.6%	37.3%	27.5%	19.1%	100%	100%	0.0%

Appendix A: List of Dynegy Units

Name	Installed Capacity (MW)
ME ONTL 1 F	290
ME ONTL 2 F	290
COM KENDALL 1 CC (DY)	284
COM KENDALL 2 CC (DY)	284
COM KENDALL 3 CC (TEN)	286
COM KENDALL 4 CC (NR)	284
XIC HAVANA 1	46
XIC HAVANA 2	46
XIC HAVANA 3	46
XIC HAVANA 4	46
XIC HAVANA 5	46

Appendix B: List of Duke Units

Name	Installed Capacity (MW)
AEP HANGING ROCK 1 CC	310
AEP HANGING ROCK 2 CC	310
AEP HANGING ROCK 4 CC	311
AEP HANGING ROCK 5 CC	311
AEP WASHINGTON 1 CC	310
AEP WASHINGTON 2 CC	310
AP RONCO 1 CC	310
AP RONCO 2 CC	310
CIN CONESVILLE 4	312
CIN KILLEN 1	198
CIN KILLEN CT	6
CIN STUART 1	225
CIN STUART 2	225
CIN STUART 3	225
CIN STUART 4	225
CIN STUART DIESEL	4
COM LEE CT 1	79
COM LEE CT 2	79
COM LEE CT 3	77
COM LEE CT 4	77
COM LEE CT 5	79
COM LEE CT 6	79
COM LEE CT 7	77
COM LEE CT 8	77
DEOK DICKS CREEK 1 CT	92
DEOK DICKS CREEK 3 CT	14
DEOK DICKS CREEK 4 CT	15
DEOK DICKS CREEK 5 CT	15
DEOK MIAMIFORT 3 CT	14
DEOK MIAMIFORT 4 CT	14
DEOK MIAMIFORT 5 CT	14
DEOK MIAMIFORT 6 CT	14
DEOK MIAMIFORT 7 F	326
DEOK MIAMIFORT 8 F	326
DEOK ZIMMER 1 F	605

Appendix C: List of ECP Resources

Name	Installed Capacity (MW)
COM ELWO CT 1 (PE)	150
COM ELWO CT 2 (PE)	150
COM ELWO CT 3 (PE)	150
COM ELWO CT 4 (PE)	150
COM ELWO CT 9 (PE)	150
COM KINCAID 1	554
COM KINCAID 2	554
FE RICHLAND 1 CT	15
FE RICHLAND 2 CT	15
FE RICHLAND 3 CT	15
FE RICHLAND 4 CT	135
FE RICHLAND 5 CT	135
FE RICHLAND 6 CT	135
FE STRYKER 1 CT	17
PE LIBERTY F	541