Attachment V

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

New York Public Service Commission, *et. al*.,	**)**	**Docket No. EL15-64-___**
v.	**)**	**ER16-[ ]-___**
	)	
New York Independent System Operator, Inc.	**)**	
	)	
New York Independent System Operator, Inc.	**)**	

AFFIDAVIT OF NICOLE M. BOUCHEZ, PH.D

Dr. Nicole M. Bouchez declares:

I. Qualifications

1. I have personal knowledge of the facts and opinions herein and if called to testify could and would testify competently hereto.

2. I am a Principal Economist, Market Design, of the New York Independent System Operator, Inc. ("NYISO"). My business address is 10 Krey Boulevard, Rensselaer, NY 12144.

3. I have worked an energy economist at the NYISO for thirteen years. I hold a Ph.D. and M.A. in International Economics from the University of California, Santa Cruz and a B.A. in Economics and International Relations from the University of California, Davis.

4. Prior to my current position, I was the Manager- Market Mitigation and Analysis, for the NYISO. In that role, I was responsible for implementing the NYISO's market power mitigation measures and assisting the NYISO's and the independent Market Monitoring Unit's efforts to administer the NYISO's Market Monitoring Plan[1] (including with respect to the NYISO's implementation of market power mitigation measures.) My responsibilities included assessing the competitive performance of the NYISO administered markets, including the Installed Capacity[2] ("ICAP") market, as well as identifying and developing remedies for potential market design flaws and market power abuses. I was also responsible for buyer-side mitigation determinations.

[1] The Market Monitoring Plan is NYISO Market Administration and Control Area Services Tariff ("Services Tariff") Section 30, Attachment O.

[2] Capitalized terms herein have the meaning set forth in the Compliance Filing including its Attachment A, and if not defined therein, the meaning set forth in the Market Administration and Control Area Services Tariff ("Services Tariff"), and if not defined therein, then as defined in the Open Access Transmission Tariff.

5. In my current role, I have participated in the NYISO's development of revisions to existing and proposed new market rules, and in the evaluation of design concepts. The matters for which I have been responsible include capacity market mitigation measures and other rules designed to improve the efficiency of the market. This work requires that I analyze the NYISO Administered Markets and the markets of other Independent System Operators and Regional Transmission Operators. I frequently make presentations to stakeholders, and lead discussions with them, regarding the NYISO's proposals, and support the NYISO's filings proposing the resulting revisions.

6. I was responsible for the NYISO's "competitive entry exemption" proposal in the stakeholder process. I coordinated the development of the NYISO's tariff compliance filing in response to the Commission's directive to incorporate into the Services Tariff a Competitive Entry Exemption[3] in a form substantially similar to what the NYISO had designed.[4] The prohibited arrangements, certification and acknowledgements, and revocation provisions in the Competitive Entry Exemption tariff provisions formed the base from which the NYISO developed the proposed corresponding provisions for the Renewables Exemption and Self Supply Exemption.

7. I was also responsible for the NYISO's prior renewable and self supply exemption proposals that were presented to and developed with stakeholders in 2014 and 2015. Although those proposals failed to get the necessary supermajority vote of stakeholders to be filed as tariff revisions pursuant to Section 205 of the Federal Power Act, those earlier discussions helped the NYISO during its development of the instant proposal.

8. I was responsible for the stakeholder process leading to the development of April 13, 2016 compliance filing and tariff revisions ("Compliance Filing") to which this Affidavit is attached. The NYISO is submitting the Compliance Filing in response to the Commission's October 9, 2015 order ("Order") in Docket No. EL15-64-000.[5] I presented the NYISO's proposed iterations of draft tariff revisions to, and led discussions with, stakeholders at the eight meetings described in Section [ ] of the Compliance Filing. I also engaged in discussions with and obtained input from the Market Monitoring Unit on the development of the proposal.

9. The purpose of this Affidavit is to support the Compliance Filing's proposal to adopt a 1,000 MW cap on the total amount of MW that may be determined to be exempt from Offer Floor mitigation pursuant to the NYISO's proposed Renewable Exemption for any one Class Year. The 1,000 MW limitation would be established by proposed new Section 23.4.5.7.13.1.1(b).

10. The Order directed the NYISO to establish a Renewable Exemption "limited to renewable resources that are both purely intermittent and that have relatively low capacity factors and high development costs because these resources have limited or no

---

[3] The Competitive Entry Exemption is established under Section 23.4.5.7.9 of the Services Tariff.

[4] *Consol. Edison Co. of N.Y. Inc., et al. v. N.Y. Indepen. Sys. Operator, Inc.*, 150 FERC ¶ 61,139 at PP 45, 53 (2015) ("CEE Order").

[5] *New York Public Services Commission, et al. v. New York Independent System Operator, Inc.*, 153 FERC ¶ 61,022 (2015).

incentive and ability to artificially suppress capacity prices."[6] It also specified that "the exemption should limit the total amount of such renewable resources—in the form of a megawatt cap—that may receive the exemption, to further limit any risk that these exempted resources will impact NYISO's ICAP market prices."[7]

11. The NYISO conducted an analysis and determined that the maximum amount of eligible MW that should receive a Renewable Exemption for any one Class Year was 1,000 MW of ICAP. I led the team that performed this analysis.

12. Because the proposed Renewable Exemption would only apply to Generators with high development costs and low capacity factors such that they have limited or no incentive to artificially suppress capacity prices, the principal function of the MW cap will be to serve as a safeguard against unanticipated events and conditions. It should therefore be set at a level low enough to serve that function but high enough to avoid needlessly impeding the entry of renewable resources. As a subject matter expert on capacity markets and capacity market power mitigation in New York I believe that the proposed 1,000 MW ICAP cap strikes the proper balance between those two objectives.

13. As a NYISO subject matter expert on capacity market design and capacity market power mitigation I agree with the analysis's conclusion that allowing this quantity of ICAP MW to receive a Renewable Exemption in a given Class Year would be reasonable because it would not be likely to result in the artificial suppression of capacity prices in Mitigated Capacity Zones and it would not overly restrict the availability of Renewable Exemptions.

14. In order to confirm that the proposed cap was not too low, the NYISO began its analysis by reviewing its current Interconnection Queue to assess the level of intermittent renewable projects that could reasonably be expected to be developed in the near future. The NYISO could not predict with certainty which particular Class Year projects would be eligible to elect to join, given the milestones required to be able to make that election, and the potential for delays or cancellations. Nor could the NYISO predict when a project that is eligible to enter a Class Year would make that election and enter it. Accordingly, the NYISO used proposed In-Service dates in order to determine, for purposes of this analysis, how many MW of projects might enter a Class Year[8].

15. There are currently no proposed wind, solar, hydroelectric, or methane (land fill gas) projects in the Interconnection Queue that would be located in the Mitigated Capacity Zones (see Table 1 below) and there is little reliable information about what intermittent and renewable Generators may be developed in the future.

16. Looking at all Load Zones (see Table 1 below), there are approximately 740 MW of Wind, Solar, Hydro and Methane in the queue with a proposed In-Service date in 2016,

---

[6] Order at P 51.

[7] *Id.*

[8] The Interconnection Queue used in this analysis (dated February 29, 2016) includes proposed projects including those that remained in Class Years at the time of the Class Year's completion, but are not yet in service. Queue position 197 Roaring Brook was in a completed Class Year and has been included since it remains indicative of the entry expected in 2017.

939 MW for 2017, 679 MW for 2018, and 1,088 MW for 2019 based on their proposed in-service dates and nameplate ratings. In addition there are 499 MW of projects with no proposed In-Service date. Although none of these resources are proposed to be located in Mitigated Capacity Zones, the information on their potential new entry helps to define a reasonable cap level for Mitigated Capacity Zones because it is reasonable to expect that there would not be more renewables proposing to enter the Mitigated Capacity Zones than there are currently proposing to enter all Load Zones. It therefore is reasonable to expect that more than approximately 1,000 MW of ICAP of renewables would be unlikely to enter in the Mitigated Capacity Zones in a given Class Year.

17. In order to confirm that the proposed cap was not too high, the NYISO examined levels of new entry in the NYCA over the last ten years (2005-2014) using data from the 2015 "Gold Book."[9] On average, there have been 680 MW[10] per year of total new entry NYCA-wide.[11] The lowest annual NYCA entry was 17 MW in 2014, while the highest annual NYCA entry was 1,458 MW in 2006. It is reasonable to anticipate that the future entry of Generators that are intermittent and renewable in Mitigated Capacity Zones would not exceed past entry levels for all resource types NYCA wide. Over the same period, there has been very little new entry in the Mitigated Capacity Zones, with the only entry being in New York City (Load Zone J). In that period, there was been a total of new entry of 2,758 MW in Load Zone J. This corresponds to an average entry of 276 MW per year, none of which was from renewable Generators[12]. This Load Zone J entry occurred over 4 years at levels ranging from 1,216 MW in 2006 to 370 MW in 2005, and six years with no new entry at all. Although the past is not necessarily predictive of the future, past entry does help to define a reasonable cap level for Mitigated Capacity Zones. Information regarding past entry illustrates the variability of entry in New York. It clearly suggests that if, in the future, intermittent and renewable resources come to provide the majority of new entry, setting the cap much below 1,000 MW may unnecessarily constrain such resources. It therefore is reasonable to expect that a cap lower than approximately 1,000 MW of ICAP of renewables for a given Class Year might needlessly limit the entry of such resources and thus that the proposed cap is not too high.

---

[9] *See* 2015 Load and Capacity Data (the "Gold Book"), available at: <http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planning_Data_and_Reference_Docs/Data_and_Reference_Docs/2015%20Load%20and%20Capacity%20Data%20Report.pdf>; *see also*, the list of existing generators in the NYCA by technology type, available at: <http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planning_Data_and_Reference_Docs/Data_and_Reference_Docs/2015%20NYCA%20Generatoring%20Facilities.xls>.

[10] All the MW in the analysis based on the Gold Book are based on facilities Nameplate Ratings and the year of their In-Service dates.

[11] *See* Table 2 below for the Existing Generating Facility Nameplate Ratings by Year of In-Service Date and by Load Zone (2005-2014)

[12] *See* Table 3 below for the Wind, Solar, Hydro, and Methane Fuel – Existing Facility Nameplate Ratings by year of In-Service and by Load Zone (2005-2015).

18. In short, the NYISO's review of the Interconnection Queue showed that more than 1,000 MW of renewable ICAP entry in a given Class Year is unlikely. At the same time, the NYISO's review of Gold Book data on past entry indicated that setting the Renewable Exemption cap lower than 1,000 MW would probably be unreasonably restrictive. Accordingly, in my opinion the proposed 1,000 MW cap is a reasonable safeguard against unanticipated conditions and thus reasonably balances the need to protect against capacity market price suppression against the need to avoid unnecessary restrictions on entry by renewables that lack the ability or incentive to suppress prices.

19. The NYISO considered other possible ways to determine a reasonable level for the Renewable Exemption MW cap. Some stakeholders suggested that the cap be tied to load growth, or a variation of a load growth factor. The NYISO decided, however, not to take this approach because in the NYCA Load growth can vary over time, and the development of renewables may be unrelated to Load growth given the potential that they will replace existing non-renewable resources. Therefore, the NYISO determined that using Load growth is not appropriate for the ISO Administered Markets. As a subject matter expert on capacity markets and capacity market power mitigation in New York I support this determination.

20. Other stakeholders recommended using a backward looking analysis based on past entry of renewable Generators in Mitigated Capacity Zones. The NYISO did not believe that this would be a useful model because no new Intermittent Power Resources or limited Control Run-of-River Hydro resources have entered the Mitigated Capacity Zones from 2005 through 2015.[13] There have been new Intermittent Power Resources or Limited Control Run-of-River Hydro Resources in other Load Zones; however, it is not clear how such entry is predictive of future renewable entry in Mitigated Capacity Zones. As a subject matter expert on capacity markets and capacity market power mitigation in New York, I believe that the decision to not derive the level of the cap from a backward looking analysis of intermittent and renewable Generators was reasonable.

21. As described above, the following are Tables 1, 2 and 3.

[13] *Id.*

Table 1 – Interconnection Queue Maximum Summer Megawatt Electrical Output of Hydro, Solar, Wind and Methane Fuel Types by Proposed In-Service Year and Load Zone

Maximum summer megawatt electrical output		Proposed In-Service Year					
Fuel	Zone	2016	2017	2018	2019	N/A	Total (all In-Service dates)
Hydro	B			6			6
	E			14			14
	F	15					15
Hydro Total		15		20			35
Solar	F	98		20			118
	K	55					55
Solar Total		153		20			173
Wind	A		401		149	204	754
	B		103	100			203
	C	323	106	90	291		809
	D	78	200	449			727
	E	172	129		528	295	1125
	F				120		120
Wind Total		573	939	639	1088	499	3737
Methane	B	3.2					3.2
Methane Total		3.2					3.2
Total (Hydro, Solar, Wind and Methane)		740	939	679	1088	499	3946

Based on data from the NYISO Interconnection Queue available on the NYISO's web site dated February 29, 2016.

Table 2 - Existing Generating Facility Nameplate Ratings by Year of In-Service Date and by Load Zone (2005-2014)

Nameplate Ratings (MW)	Zone								
Year	A	B	C	D	E	F	J	K	Total
2005						895	370	178	1443
2006	6				231	5	1216		1458
2007	26	6	3		125				161
2008	101	5	257	392	6				761
2009	6		113	0	3	21		375	518
2010	10		1		2	693			705
2011			57		74		660	32	823
2012	15	2	3	216	4		512		752
2013			96		56	7			158
2014	1		16		1				17
Total	164	13	546	608	501	1621	2758	585	6797
Annual Average 2005-2014	16	1	55	61	50	162	276	58	680

Based on data from the 2015 Load & Capacity Data, "Gold Book," New York Independent System Operator, Inc., April 2015.

Table 3- Wind, Solar, Hydro, and Methane Fuel - Existing Generating Facility Nameplate Ratings by Year of In-Service Date and by Load Zone (2005-2014)

MW Nameplate Rating		Load Zone							
Fuel Type	Year	A	B	C	D	E	F	K	Grand Total
Sun	2011							32	32
Sun Total								32	32
Methane	2006	6					5		11
	2007	6	6	2					15
	2008		5	6	6	6			24
	2010	10				2	3		14
	2012		2	3		3			8
	2013			2					2
	2014	1							1
Methane Total		23	13	13	6	11	8		75
Water*	2005						2		2
	2007			1					1
	2009				0		21		22
	2010			1					1
	2013						7		7
	2014					1			1
Water* Total				2	0	1	30		33
Wind	2006					231			231
	2007	20				125			145
	2008	101		251	386				737
	2009			113					113
	2011			57		74			131
	2012	15			216				231
	2013			94					94
	2014			16					16
Wind Total		136		531	601	430			1698
Grand Total		159	13	546	608	442	38	32	1837
Annual Average 2005-2014		16	1	55	61	44	4	3	184

Based on data from the 2015 Load & Capacity Data, "Gold Book," New York Independent System Operator, Inc., April 2015.
*Note that the Gold Book does not differentiate between Intermittent Run of River Hydro units and other generators fueled by water.

22. This concludes my affidavit.

ATTESTATION

I am the witness identified in the foregoing affidavit. I have read the affidavit and am familiar with its contents. The facts set forth therein are true to the best of my knowledge, information, and belief.

Nicole M. Bouchez

Subscribed and sworn to before me
this [13] day of April 2016

Notary Public

My commission expires: March 21, 2018

DIANE L. EGAN
Notary Public, State of New York
Qualified in Schenectady County
No. 4924890
Commission Expires March 21, 20 18