Title: BY SHOW OF (WHICH) HANDS: AN EMPIRICAL ANALYSIS OF REGIONAL TRANSMISSION ORGANIZATION STAKEHOLDER VOTING

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Abstract

In the late 1990's, modern grid operators known as regional transmission organizations (RTOs) formed and adopted or expanded power pool roles to oversee deregulated, competitive markets for electricity generation in response to orders from the FERC. In their respective footprints covering the northeastern United States, the PJM Interconnection, New York Independent System Operator, and ISO New England manage many of the technical, planning and market aspects needed in wholesale electric energy production and delivery. Each RTO contains stakeholder processes which are thought of as a key aspect of grid governance and democratic innovation: changes to market and operational tariffs occur based on the outcome of formal voting procedures; this comparative analysis uses a novel dataset composed of senior-level rule proposal voting from 2010-2019. The dataset extends to other sources to create relevant stakeholder heterogeneity. The empirical work assesses patterns of voting based on varying cross-sectional commercial interests. Additionally, a dynamic test of the pivotal voter model which incorporates a theoretical net return to voting is implemented. Lastly, for a stakeholder class deemed not highly participatory, a simple quantitative approach to determine if marginal participation could affect vote outcome is implemented.

1. Introduction

In their respective footprints, the PJM Interconnection, New York Independent System Operator, and ISO New England manage many of the technical, planning and market aspects of wholesale electric energy production and delivery. To applaud the resilience of these organizations, a contemporary analysis done by a handful of young scholars at Dartmouth University found that regional transmission organizations such as these were collectively equipped for the change in demand patterns and production challenges in electric delivery during the COVID-19 pandemic (Britton, Curtis, Dickerman, Edelman, & McGrath, 2020). As a measure for reliability at more usual times, black-outs are generally not an issue. A monumental blackout event in August 2003, the so-called "Northeast Blackout", marked a turning point in infrastructural emphasis on interregional electric reliability (Ott, 2018).

Overall, the generation fleet is capital-intensive and much of the generation technology used today still combusts fuel that is non-renewable (ample but surely finite); and in turn, this combustion emits carbon which has its own social cost (U.S. Energy Information Administration, 2020).[1] As "captive ratepayers" of electricity and tax-paying citizens with heterogenous concerns regarding the quality of the environment and status quo climate, it should be remembered that the generation fleet needs to ultimately serve the public and their interests (Peskoe, Forthcoming). The February 2021 winter blast in Texas and the awareness and discussion it raised for ERCOT serves as an important, highly contemporary example of the difficult relationship between this infrastructure and people. Bringing electric supply to electric demand in the short-run and long-run requires constant contemplation of the transmission system and the generation fleet:

- Is there enough generation capacity to satisfy peak loads? Are the signals represented by a capacity demand curve properly constructed to trigger investment in more capacity?
- Is there a mechanism that curtails a portion of demand when demand is high and the marginal supplier in a uniform price auction is expensive? Is it a properly compensated mechanism?
- Is the constructed market being monitored for monopolists? Is the market constructed to mitigate monopolistic behavior?

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[1] Overnight capital costs reflect the "total cost a developer would expect to incur during the construction of a [turnkey] project, excluding financing costs." According to the EIA, an ultra-supercritical coal with 90% carbon capture ad sequestration (CCS) power plant overnight capital costs are approximately $3.7MM per MW; combined-cycle natural gas power plant with 90% CCS are approximately $2.5MM per MW; and an offshore wind turbine are costs approximately $4.4MM per MW. (U.S. Energy Information Administration, 2020) Powering 650 homes per MW of electricity produced from a coal power plant would thus equate to an approximate amortization of $9,000/home (sunk cost before a multitude of generation variable, maintenance, transmission and other administrative costs).

- In light of electric energy as a source of global warming, can market mechanisms be built to promote clean energy infrastructure development *and* assure reliability?

Following guidance given to RTOs via the Federal Energy Regulatory Commission (FERC) through Orders 888, 719 and 2000, RTOs have adopted stakeholder-driven mechanisms to address these and other issues. The working groups and stakeholder committees within the regional transmission organizations (RTOs) PJM Interconnection, New York Independent System Operator, and ISO New England develop and approve changes to how RTOs plan and operate their systems, and how market designs are structured. The stakeholder committees exercise formal voting procedures to democratically adopt new market and operational tariff changes. Participation in this voting is entirely voluntary, and RTOs have been subject to multiple criticisms that their stakeholder processes systematically advantage incumbents over new entrants (Welton, 2020; Simeone, 2022).

Motivated by the question of whether stakeholder processes endow some stakeholder classes with excessive political power, this paper uses a unique data set covering voting activity in three RTOs to empirically investigate determinants of participation in these senior-level stakeholder processes. Cross-sectional analysis indicates that stakeholders that own renewable energy technology were less participatory than the incumbent stakeholders whose portfolios are heavy with fossil energy. A panel data analysis designed to incorporate the effects of voting issue on participation rates finds that for many stakeholders participation does depend on whether that stakeholder sees a direct commercial implication of the issue being voted upon. This supports an interpretation of participation as being issue-oriented for many stakeholders rather than a "good citizen" model of participation. We also use a simple example around an actual issue in the PJM RTO to illustrate how improving participation rates can affect a vote outcomes and participant revenue streams.

The remainder of the paper is organized as follows. Section 2 presents some background on RTOs as organizations and the emerging area of RTO governance research. Section 3 provides some information on the RTO stakeholder process. This section focuses on the structure of the PJM process to provide a detailed example; the NYISO and ISONE use similar stakeholder voting structures. Section 4 describes the relevant hypotheses and empirical modeling strategy. Section 5 provides outputs from several different regression models aimed at capturing determinants of overall participation rates as well as the extent to which stakeholder-voters in the northeastern RTOs are drive to participate by specific issues. Section 6 offers concluding thoughts.

2. Background and Literature Review

In the 1990s, the Federal Energy Regulatory Commission (FERC) Orders No. 888, 889 and 2000 imaginatively formed a competitive market environment for generation and carved out a central position for RTOs to become what they are today. "The changes [were] designed to foster competition in the generating segment of the industry and to reform the regulation of the transmission and distribution functions, which continue to be viewed as natural monopolies." (Joskow, 1997) Outcomes of this rule-making included open and non-discriminatory access to transmission, horizontal "unbundling" of vertically integrated wholesale electricity infrastructure, and the ceding of operational control of transmission and dispatch to a single entity that is independent of market participants. Dworkin and Goldwasser (2007) are elaborative in describing this FERC rule-making and the advent of these organizations. The authors depict RTOs as elephants in the sense that it is difficult to observe all profiles of the animal. In isolating certain responsibilities, it is explained that RTOs can be viewed as agents of the FERC, agents of transmission owners, private-sector monopolists in need of regulation, hybrid quasi-governmental organizations, or as regional planners. These monikers are derived from their responsibilities which include:
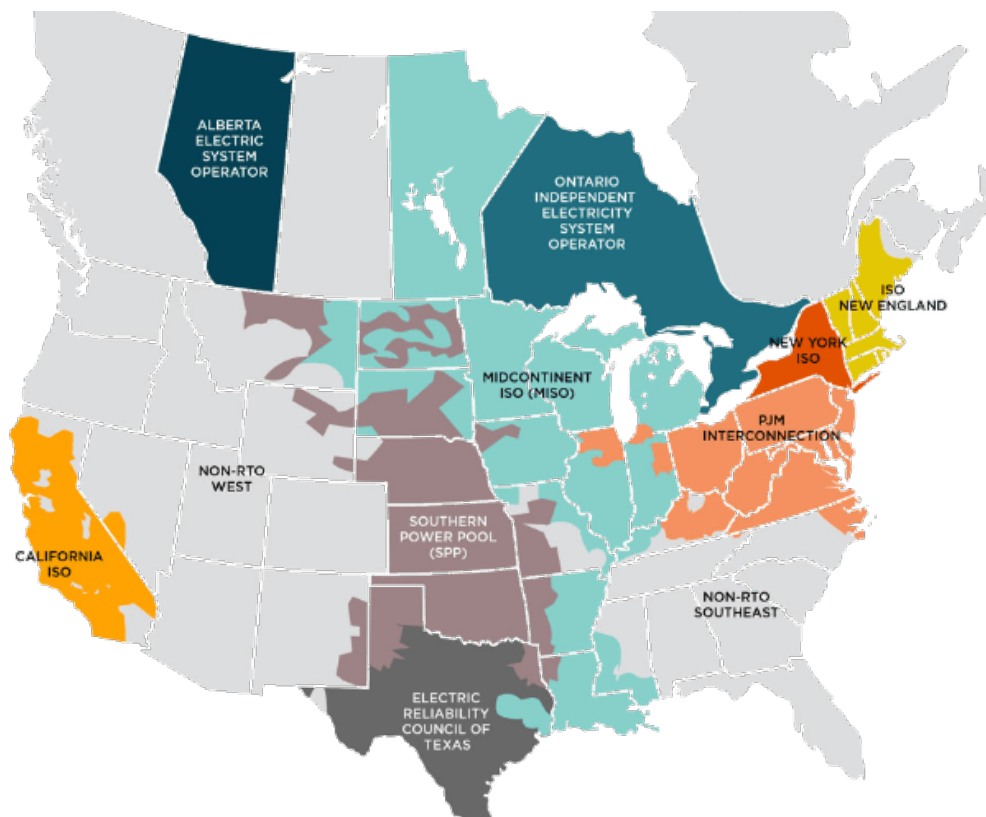
Figure 1. Map of Regional Transmission Organizations Two-thirds of the population in the United States of America is delivered electricity via the RTO economic dispatch process.

- Timely Dispatch of Electric Generation

- Transmission and Generation Infrastructure Planning

- Market Management and Monitoring

- Non-Profit Collection of Transmission Line Compensation

RTOs are in a critical position with this set of responsibilities. For instance, the energy market involves the day ahead and real time spot markets in which wholesale electric energy is sold or purchased for immediate delivery. These are "core components which provide the basis for efficient scheduling and then real-time dispatch based on the latest information." (Cramton, 2017) The day ahead and real time markets achieve the objectives of cost minimization while conditioned by the property that electric energy storage requires batteries. RTOs orchestrate non-stop and frequent day ahead and real time energy market auctions between load and generation (demand and supply) and utilize market outcomes to coordinate electricity delivery in what is known as an economic dispatch. Economic dispatch is appreciative of complex physical requirements while cognizant that surplus generation of electricity will not be stored.

Cramton (2017) outlines other aspects in wholesale electricity market design including day-ahead markets, adjustment periods, real-time markets, ancillary services, forward contracts, congestion revenue rights, scarcity pricing and the capacity market. These market devices recognize the inherent kinks and relative infrastructural value in a technical supply chain; their existence fortifies short-run and long-run economic incentives for market participants. The trade-off of scarcity pricing in an energy-only market in lieu of a capacity market, or vice versa, is the classic contentious set of wholesale electricity market mechanisms. According to Cramton (2017), "an energy-only market relies solely on the price signals from the day-ahead and real-time markets to induce sufficient investment in resources to reliably meet load." The northeastern RTOs include a separate long-run market for capacity; other grids, such as ERCOT are energy-only markets.

While the RTO oversees the dispatch and delivery of electricity, it is the stakeholders who own, operate and maintain electricity generators, transmission lines, or the distribution lines and administrative billing that ultimately faces customers. To ensure a fair and collaborative wholesale electricity decision-making environment considering these market design aspects, RTOs established stakeholder committees pursuant to the creation of the overarching organization. For instance, in the New York ISO parties to the ISO Agreement are members of the Management Committee. Membership occurs once an application confirming certain requirements is approved, the ISO Agreement is signed, and the annual fee is paid. Upon membership, a stakeholder then has a "voice in shaping the electricity grid." (New York ISO, 2019) In December 1999, the ISO Agreement in New York made the organization independent and quasi-

autonomous while governed by the FERC; the evolution of "federally-regulated tariffs (which guide grid management, system planning, and wholesale market rules), and other decisions related to the sale and transmission of power" have been developed and approved by the stakeholders in the Management Committee (New York ISO, 2019).

Lenhart and Fox (2023) give a complete comparative assessment of the RTOs in the United States which "encompass many alternative pathways for aggregating preferences and translating decisions into administrative policy." Lenhart and Fox (2023) specifically shows a similar voting sector-weight allocation methodology for the three northeastern RTOs. This work includes a matrix which details RTO market characteristics and institutional design aspects such as filing rights and board, stakeholder engagement, retail regulation and state/local policy. The outline reveals governance similarities among the three northeastern RTOs: a comparable, administrative governance structure creates an opportunity to empirically compare like organizations.

Northeastern RTO stakeholder authority is greater than the other RTOs (direct authority in New York ISO and the PJM Interconnection, co-governance in ISO New England). The group's possession of filing rights with the FERC marks this authority.[2] Established inter-state governmental organizations work in partnership with their respective RTOs. The New England States Committee on Electricity (NESCOE) "represents the collective perspective of the six New England Governors in regional electricity matters." (NESCOE New England States Committee on Electricity, n.d.) In PJM, the Organization of PJM States, Inc. (OPSI) carries a collective political opinion. New York ISO is one of the RTO regions within a state boundary. So, governance engagement is fairly similar at the three most relevant levels: "regional federalist" RTOs, federal government through the FERC, and state governments.

While these democratic processes and the grid itself are advanced, there is identifiable room for improvement. Welton (2020) provides an interesting, open and contemporary view of decision-making in these organizations while incorporating the climate change backdrop. Welton (2020) draws from the work done by Dworkin and Goldwasser (2007); but in the Welton (2020) assessment of RTOs, the organizational construct would be viewed as an elephant in the room regarding progress on clean energy:

> "Incumbent fossil fuel companies essentially run the United States' electricity grid, writing its rules in ways that favor their private interests at the expense of societal goals. Most RTOs are structured as private industry clubs, in which industry members "vote" on the

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[2] Adjustment to rates or other market and operational features is submitted to the FERC under sections 205 & 206 of the Federal Power Act. Section 205 is used to submit what is viewed as a "just and reasonable" new amendment whereas a complainant submits an "unjust and unreasonable" claim under section 206 (PJM, 2020).

rules for regional electricity markets and grid operation. This governance arrangement has proven successful at maintaining a reliable grid but often serves as an impediment to progress on clean energy." (Welton, 2020)

Similar to the Welton (2020) assessment, in climate change diplomacy, there is a concern that incumbent market share parallels political share and it is prohibitive of innovation (Victor, Geels, & Sharpe, 2019).

"The central challenge in transitions concerns how radical innovations get a footing in niches and then compete with and transform existing regimes. This is often an uphill struggle because niche-innovations are initially more expensive and face social acceptance problems, while existing regimes and incumbents are locked into place: they have set rules and expectations, and they control the infrastructure, which is designed for incumbency rather than novelty." (Victor, Geels, & Sharpe, 2019)

Because incumbent technologies are dispatchable and reliable, innovations to electricity production must be socio-politically coaxed into the market to address sustainability and de-carbonization challenges. The interests and responsibilities of the RTO may be multi-faceted, but they are purely focused on electricity infrastructure and markets. They can be viewed as conflicting with state societal goals; or more hopefully, they can be viewed as regionally poised to be at the helm for innovation, but perhaps would require more diverse motives compared to the current, arguably sole motive of reliability. "Though governance reforms may prove to be complex and time consuming, reform efforts may prove beneficial to markets, market participants, consumers, and the states over which they operate. PJM is a leader among its peers – from stakeholder engagement to market operations – making it uniquely positioned to advance the evolving field of RTO/ISO governance." (Simeone, 2017)

Yoo and Blumsack (2018) and Johnson, Lenhart and Blumsack (2023) extend the idea of democratic challenges in their documentation of political share and patterns in the electricity governance systems at PJM. Through interviews, they found perceptions of the PJM stakeholder process include:

- Growth in the number of stakeholders, and increasing conflicts in commercial interests among stakeholders, are creating challenges in moving rule changes forward.
- The stakeholder process has become factionalized into consumer-side interests and supply-side interests.
- Perceptions that consumer-side interests have more political power.
- Perceptions that supplier-side interests have more political power.

While "political power" seems like a qualitative and informal assessment, Yoo and Blumsack (2018) use quantitative network analysis methods to validate some of these perceptions. Information from stakeholder rule proposal voting is used to identify coalitions and swing voting via network community detection algorithms. The analysis offers evidence confirming the perception of a powerful consumer-side coalition. With these interview takeaways, it seems the stakeholder process is a somewhat quarrelsome environment. Using stakeholder voting as done by Yoo and Blumsack (2018) creates an interesting data-oriented approach to analyzing this impactful stakeholder decision-making process.

Finally, James et al (2017) considers reform similar to Simeone (2017). James et al (2017) finds that the FERC Order No. 719:

> "laid out a simple principle: that the stakeholder-governance process needs to be responsive to changing conditions and to continue to evolve with the marketplace. Therefore, [it is] recommended that RTOs create a regular review process of their stakeholder-governance processes that incorporates the four criteria for responsiveness: inclusiveness, fairness in balancing diverse interests, representation of minority positions and ongoing responsiveness." (James, Jones, Krick, & Greane, 2017)

Ultimately, James et al suggest that a "potential area of review is to analyze sector-weighted voting rights to determine if there is a need for a change in the structure due to the increasing diversity of market participants." (James, Jones, Krick, & Greane, 2017) The intent of this work is meant to address this suggestion. The suggestion calls for continuous review of the stakeholder composition and voting rights and a comparison of this review to a survey of the actual market and developing interests. This present analysis specifically focuses on participation patterns given voting rights that have gone un-changed in the timeframe of the study. Rather than changing or adding new voting rights, the effect of marginal participation of stakeholders that currently have voting rights is considered. As James et al (2017) in a way suggests, it is FERC Order No. 719 that is the most relevant legislation to address the potential inequity of political power imbalances between new and incumbent market participants.

3. RTO Stakeholder Voting Processes and Voting Data

3.1 Northeastern RTO Stakeholders & Voting Formulas

       The Northeastern RTOs have each allocated substantial political power to their defined stakeholders. Although the details vary by RTO, all three feature a stakeholder-wide decision-making body which, through voting, signals support of or opposition to proposals that would modify RTO rules and practices related to market design, planning and grid operations. Proposals with stakeholder support are filed with the FERC for ultimate regulatory approval. While these stakeholders influence how RTOs make decisions, they do not generally influence specific operational decisions themselves (so, for example, stakeholders would vote to approve the methods that an RTO uses to conduct planning studies but would not vote to accept or reject the results of a specific planning study).

       In the New York ISO, amendments to the New York ISO tariffs occur after Management Committee (NYISO MC) approval, New York ISO Board agreement, and filing to the FERC. In PJM, the Members Committee (PJM MC) is the senior standing committee involved in the governance process. Amendments to the PJM Operating Agreement requires PJM MC approval and filing to the FERC. In the ISO New England, the NEPOOL Participants Committee (NPC) is the senior standing committee involved in this governance process. Amendments to the ISO New England Tariff do not require NPC approval; rather the NPC stakeholder process can be viewed as advisory. The ISO values this feedback on proposed changes before filing to the FERC. **Figures 2-4** illustrate the administrative structure for each of the northeastern RTOs.
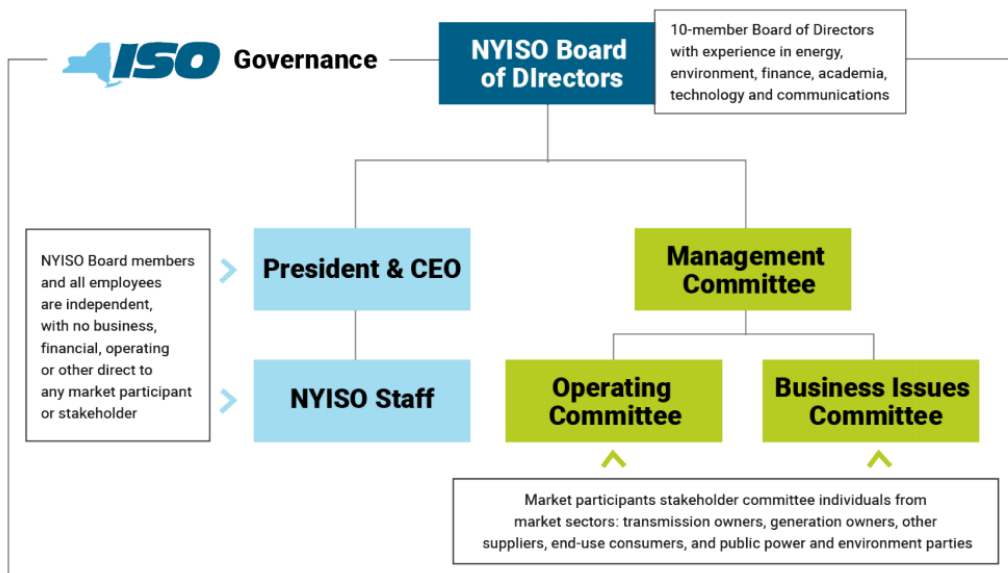
Figure 2. New York ISO Administrative Structure
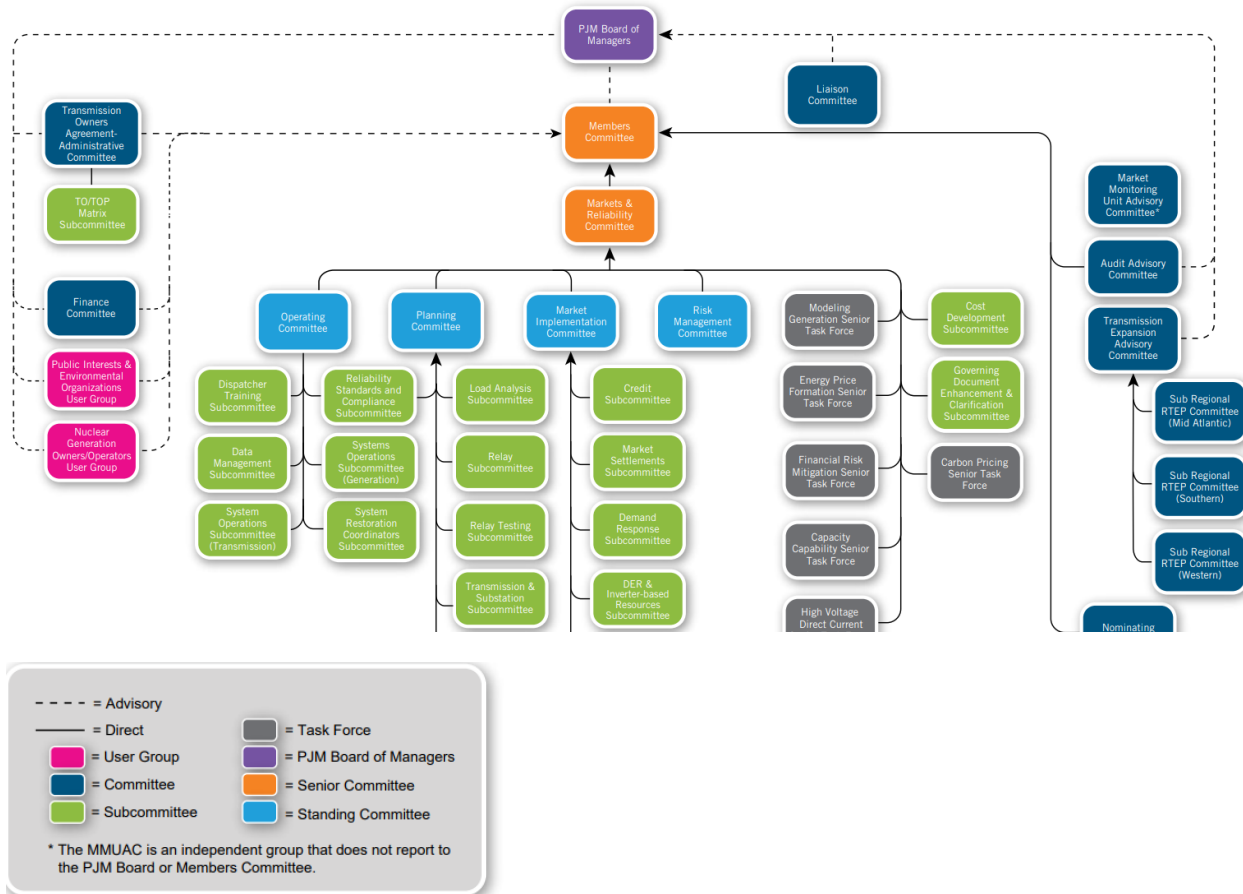
Figure 3. PJM Administrative Structure
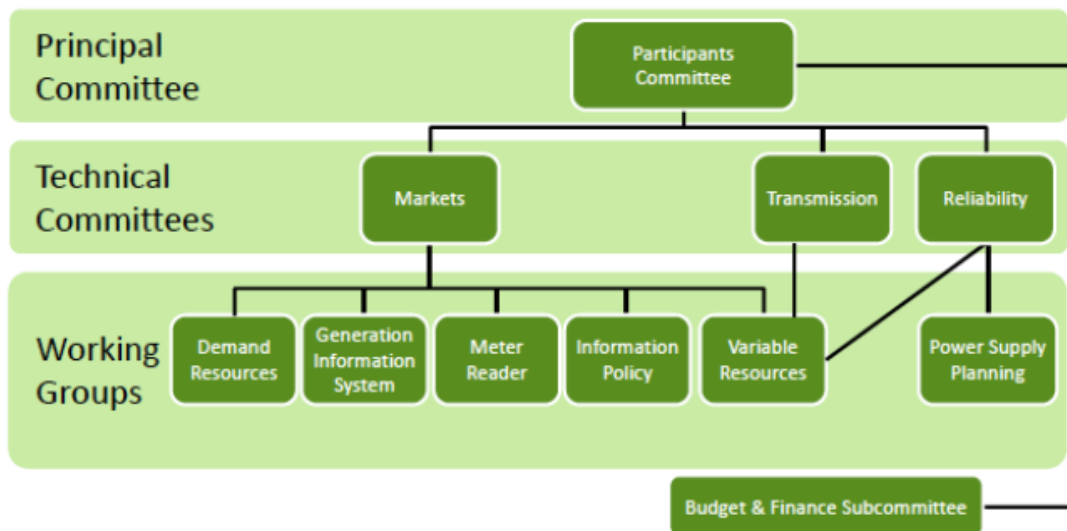
Figure 4. ISO New England Administrative Structure

The top level committee of each RTO (e.g., the Members Committee for PJM) features formulaic sector-weighted voting procedures. For each issue, vote participants can choose to vote yes, no, or can choose to abstain. An overall voting score is then calculated to determine if the issue is supported or opposed by the top-level committee. A mathematical representation of the sector voting score, following the notation in Yoo and Blumsack (2018) is:

$$V_k = \sum_{j=1}^{n_k} w_k \times \frac{\delta_j}{n_k - a_k} \qquad (1)$$

In Equation (1), n_k is the number of present voters in sector k, δ_j is an indicator variable equal to 1 if the j-th voter in sector k voted yes, and zero otherwise, and a_k is the number of present voters in sector k who abstained, and w_k is the sector weight. The sector voting score V_k is thus a number between 0 and w_k. Note that stakeholders not present are not counted at all (in the numerator or denominator) of the sector voting score. For each sector k a voting score V_k is calculated as the proportion of present and non-abstaining voters in that sector voting affirmatively. The voting scores for each sector are summed to yield an aggregate voting score V for each voting item:

$$V = \sum_{k=1}^{5} V_k \qquad (2)$$

The aggregate voting score V ranges from 0 to 5. A voting item passes if $V \geq 3.335$. This is equivalent to a two-thirds supermajority of the five sectors voting in favor of the proposal. As Yoo and Blumsack (2018) have noted, any two sectors voting together could effectively block any proposal in the PJM members committee.

In the NYISO MC, the vote scoring and outcome is determined in a more complex sector-weighted voting procedure. The sectors and weights include Generation Owners (21.5%), Other Suppliers (21.5%), Transmission Owners (20.0%), End-Use Consumer (20.0%) and Public Power (17.0%). Additionally, the End-Use Consumer and Public Power sector contain sub-sectors which take the weight of inactive sub-sectors within their sector:

- End-Use Consumer (20.0%):
  a. Large Consumers (9%)
  b. Large Consumer Government Agency (2%)
  c. Small Consumers (4.5%)
  d. Government State-wide Consumer Advocate (2.7%)

      e.   Government Small Consumer & Retail Aggregator (1.8%)

- Public Power (17.0%):
  a. State Power Authorities (8%)
  b. Muni's and Coops (7%)
  c. Environmental (2%)

If all sectors and sub-sectors are active, k = 11 and the sector weights above are applied to Equations (4) and (5). The below formula reflects the calculation for sector vote weight:

$$w_k = (1 - \tau_k)(w_k^{base} + \frac{\sum_k(\tau_k \times w_k^{base})}{\sum_k(1 - \tau_k)}) \qquad (5)$$

In Equation (5), $\tau_k = 1$ indicates if sector k is inactive. If a sector is inactive, its default vote weight w_k^{base} will be re-distributed to active sectors. The above formula for w_k reflects an even re-distribution of the vote weight to active sectors. The Generation Owners sector vote weight is adjusted without re-distribution of weight (for simplicity, this is not included in the above equation). Section 7 of the New York ISO Agreement specifies the process of vote weight sector re-distribution.

For each issue, NYISO MC participants can choose to vote yes (δ_j quantified as 1, θ_j quantified as 0) or no (δ_j quantified as 0, θ_j quantified as 1), or can choose to abstain. For each sector k a voting score V_k^{yes} is calculated as the proportion of present voters in that sector voting yes, calculated from a whole of voters who voted yes or no (i.e., abstentions are not counted in the calculation of the voting score). The affirmative proportion is then multiplied by the sector weight. Following the notation in Yoo and Blumsack (2018), a mathematical representation of the sector affirmative and negative components of the voting score are:

$$V_k^{yes} = \sum_{j=1}^{n_k} w_k \times \frac{\delta_j}{n_k - a_k} \qquad (6)$$

$$V_k^{no} = \sum_{j=1}^{n_k} w_k \times \frac{\theta_j}{n_k - a_k} \qquad (7)$$

In Equation (6) and (7), n_k is the number of present voters in sector k, δ_j is an indicator variable equal to 1 if the j-th voter in sector k voted yes, and zero otherwise, θ_j is an indicator variable equal to 1 if the j-th voter in sector k voted no, and zero otherwise, a_k is the number of present voters in sector k who abstained, and w_k is the sector weight determined in Equation (5). The sum of the sector affirmative and negative

components of the voting score should equal w_k. Note that stakeholders not present are not counted at all (in the numerator or denominator) of the sector voting score.

The voting scores for each sector are summed to yield an aggregate voting score V for each voting item:

$$V = \sum_k V_k^{yes} \qquad (8)$$

Lastly, this voting score is normalized to 100% for the item's final voting score to be used to determine the outcome of the proposal:

$$V^{norm} = \frac{V}{\sum_k (V_k^{yes} + V_k^{no})} \qquad (9)$$

The aggregate voting score V^{norm} ranges from 0 to 100. A voting item passes if $V \geq 58$.

In the ISO New England, the vote scoring and outcome is also determined in a sector-weighted voting procedure. The complexity of the procedure is intermediate compared to the PJM MC and NYISO MC procedures. The sectors and weights include Generation (17.30), Transmission (17.30), Supplier (17.30), Alternative Resources (13.50), Publicly Owned Entity (17.30), and End User (17.30). For each issue, NPC participants can choose to vote yes (δ_j quantified as 1) or no (δ_j quantified as 0), or can choose to abstain. For each sector k a voting score V_k is the proportion of present voters in that sector voting yes, calculated from a whole of voters who voted yes or no (i.e., again, abstentions are not counted in the calculation of the voting score). The affirmative proportion is then multiplied by the sector weight. A mathematical representation of the sector voting score is, similar to the notation in Yoo and Blumsack (2018) once more:

$$V_k = \sum_{j=1}^{n_k} w_k \times \frac{\delta_j}{n_k - a_k} \qquad (10)$$

In Equation (10), n_k is the number of present voters in sector k, δ_j is an indicator variable equal to 1 if the j-th voter in sector k voted yes, and zero otherwise, a_k is the number of present voters in sector k who abstained, and w_k is the sector weight. The sector voting score V_k is thus a number between 0 and w_k. Note that stakeholders not present are not counted at all (in the numerator or denominator) of the sector voting score.

The voting scores for each sector are summed to yield an aggregate voting score V for each voting item:

$$V = \sum_{k=1}^{5} V_k \qquad (11)$$

The aggregate voting score V ranges from 0 to 100. A voting item passes if $V \geq 66\ 2/3$; but if the vote outcome is above 60%, ISO New England can proceed with filing if compelled in what is referred to as a "jump ball."

<h3 style="text-align:center">3.2 Stakeholder Voting Data</h3>

PJM MC, NYISO MC, and NPC publish voter-level data for each voting item addressed by the senior-level stakeholder committee that follow the formulas from the previous section. This data has been archived by Teti and Blumsack (2021) for the period 2010-2019 and includes aggregated and granular vote data. Aggregate issue features include vote outcomes, vote categories, and vote descriptions which are based mostly on issue presentations, stakeholder voting reports and other relevant web-pages available at the time of compilation. Granular data includes stakeholder participation and their voting decision.

The NPC focusing on rule proposals in ISO New England voted most frequently in the timeframe of the study (102 votes requiring a formal count); 63% of voting in NPC resulted in a failed outcome. The PJM MC and NYISO MC cast 46 (25 passed) and 36 (20 passed) votes respectively. In total, the dataset includes 184 votes; 83 of which have passed and may have resulted in a submission to the FERC. The volume of voting is shown in **Table 1**.

Outcome	NPC	NYISO MC	PJM MC	Total
FAILED	64 (63%)	16 (44%)	21 (46%)	101 (55%)
PASSED	38 (37%)	20 (56%)	25 (54%)	83 (45%)
Total	**102**	**36**	**46**	**184**

Table 1. Northeastern RTO Vote Count (2010-2019) Total number of votes and outcomes in each RTO senior-level stakeholder committee occurring in the 2010 decade.

Archived metadata includes a sub-list of broad categorizations of issues based on the author's interpretation of information from PJM. The frequency of issue category is shown in **Table 2**. The immediate discovery is that proposals related to the capacity market occur most frequently (56% of voting). To better understand temporal distribution of voting, **Figure 5** depicts the information from these tables across years. Curiously, many stakeholders in PJM MC and NPC have never cast a vote in a formal

committee procedure. The distribution of voting is shown in **Figure 6**. Vote count is robust across all possibilities (x-axis is constrained by the number of votes in the decade). The nature of this distribution drives the core analysis; the underlying heterogeneity associated with these histograms is of interest.

Issue Category	NPC	NYISO MC	PJM MC	Total
Ancillary Services	1	5	1	7 (4%)
Auction Revenue Rights and Financial Transmission Rights	0	0	6	6 (3%)
Capacity Market - De-List Bid & Substitution Auction	14	0	0	14 (8%)
Capacity Market - General	44	14	16	74 (40%)
Capacity Market - Winter Reliability Program/Fuel Security	14	0	0	14 (8%)
Demand Response	1	0	8	9 (5%)
Energy Market	7	2	4	13 (7%)
Financial Assurance Policy	5	0	0	5 3%)
General Admin	4	11	4	19 (10%)
Other System Operations	1	0	2	3 (10%)
Out-of-Market Payments & Fuel Costs	3	1	2	6 (3%)
Transmission System Planning	8	3	3	14 (8%)
Total	**102**	**36**	**46**	**184**

Table 2. Northeastern RTO Issue Category Count (2010-2019) Total number of votes by issue category in each senior-level stakeholder committee, 2010-2019.
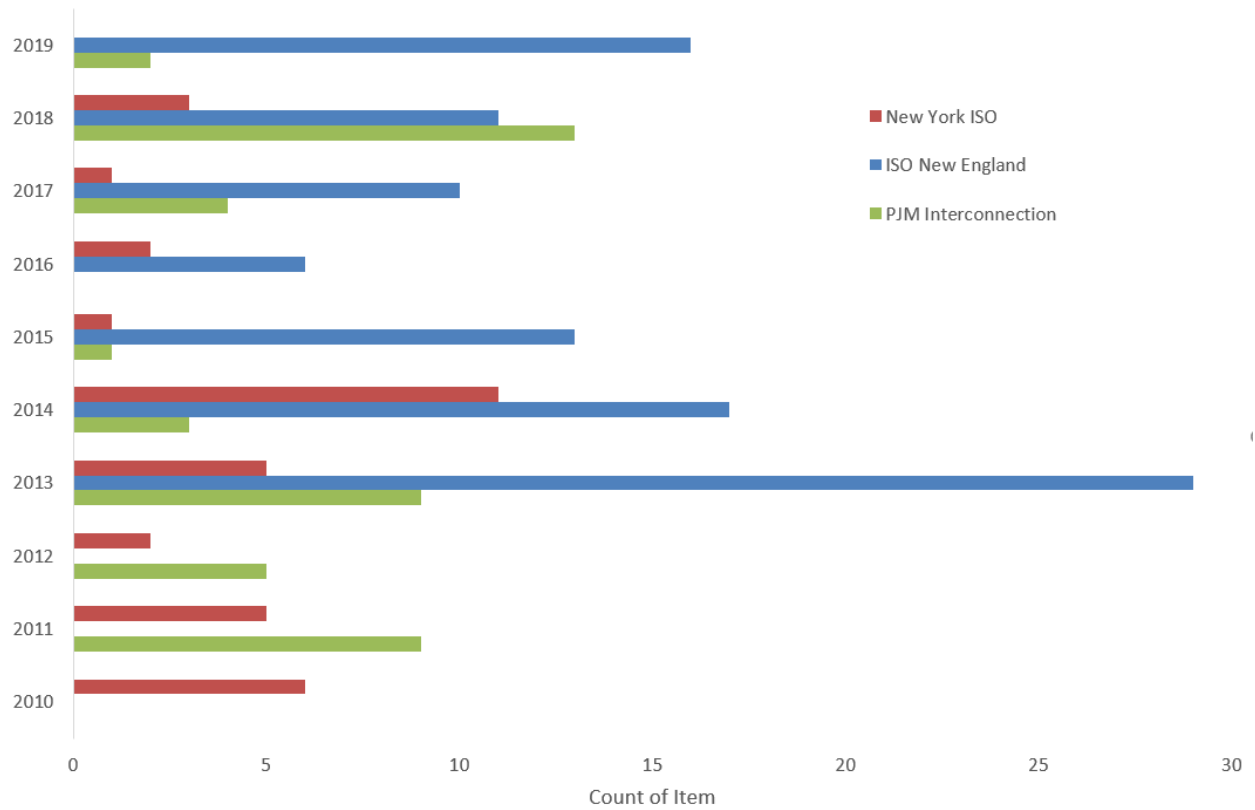
Figure 5. Northeastern RTO Voting Items by Year Total number of votes by year in each senior-level stakeholder committee occurring in the 2010 decade.
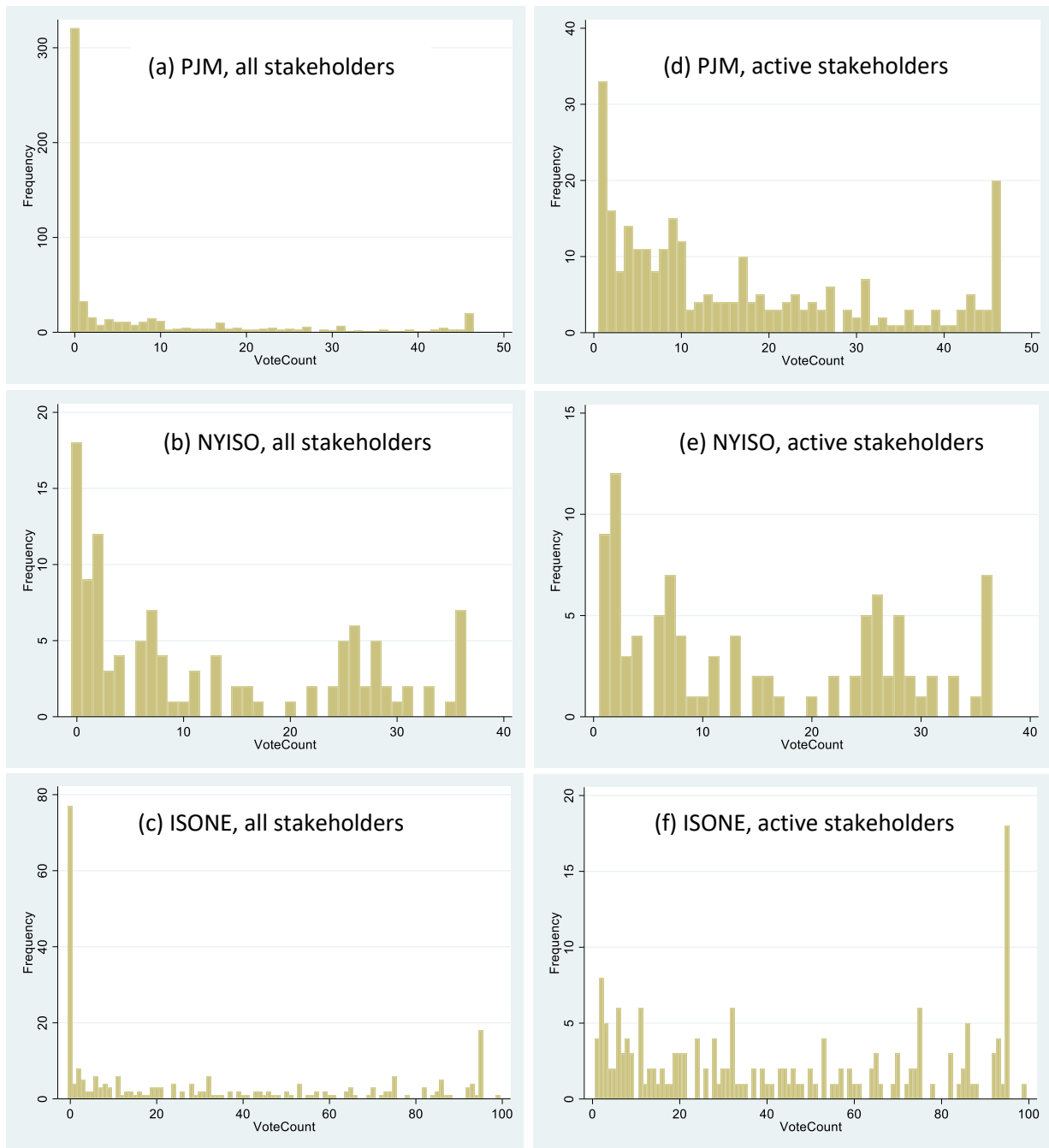
Figure 6. Northeastern RTO Vote Count Histogram (All vs. "Active") The rows are as follows: PJM MC, NYISO MC, and NPC. The x-axis shows vote count (un-binned) and the y-axis measures the number of stakeholders that have cast that corresponding number of votes. The first column includes all stakeholders and the second column omits the inactive stakeholders. For example, 33 PJM MC stakeholders have cast one vote per the top-right panel.

3.3 Stakeholder Characteristic Data

Characterizing stakeholders and their voting behavior exhibited in RTO stakeholder processes requires a novel data set which gathers and bridges data from multiple sources. This paper utilizes a data set (Teti and Blumsack 2021) which integrates voting report data from three RTOs with characteristics about stakeholders and resources. An additional challenge in assembling and interpreting this type of data set is that many ownership activities such as mergers, acquisitions, plant opening, decommissioning and plant re-opening may have occurred during the covered time period 2010-2019. Additionally, in the northeastern United States, there public/municipal/co-operative and independent power producers whose characteristics may not be as well captured by existing public-domain data sets.

PJM MC voting reports group stakeholders by the size of their generation, transmission and load serving operations. Generation groups based on MW Installed Capacity (Zero: 0; Small: <500; Medium: >=500 and <=3,000; and Large: >3,000). Transmission groups based on Revenue Requirements ($MM) (Zero: 0; Small: <50; Medium: >=50 and <=150; and Large: >150). Load server groups based on Avg Real-Time Metered Load (MW) over all the hours of the year (Zero: 0; Small: <1,000; Medium: >=1,000 and <=5,000; and Large: >5,000). PJM MC voting reports are mostly treated as definitive in this analysis and the grouping methodology is applied to the other RTOs to create a uniform structure to define stakeholder heterogeneity.

Referring to U.S. Energy Information Administration (EIA) data that outlines customer load serving and generation by utility was a feasible merging task. The EIA 860 report is archived annually and is publicly available. PJM MC, NYISO MC, and NPC stakeholder members (which are simply named) were manually connected to EIA plant-level data. The latest EIA 860 report (2018) was used to get a snap-shot of generation ownership; preparing a complete temporal data set is out of scope. **Figures 7 and 8** illustrate generation ownership by size category and by the primary technology in a stakeholder's portfolio.

Like the EIA 860 report, the EIA 861 report is archived annually, publicly available and focuses on retail sales of electric load served by utilities. To be consistent with PJM categorization, Avg Real-Time Metered Load (MW) over all the hours of the year can be calculated from the EIA 861 report. Again, linking this data to the relevant RTO stakeholder creates load server heterogeneity in the voting dataset. Operational expenses in annual financial reports for the few transmission stakeholders in the NYISO MC identifies the revenue requirement-based transmission size characteristic. In ISO New England, the Schedule 9 Rate Development Worksheet contains transmission owner revenue requirements. Once more, a linkage established between the ISO New England Schedule 9 Rate Development Worksheet and the stakeholder name creates greater stakeholder heterogeneity.
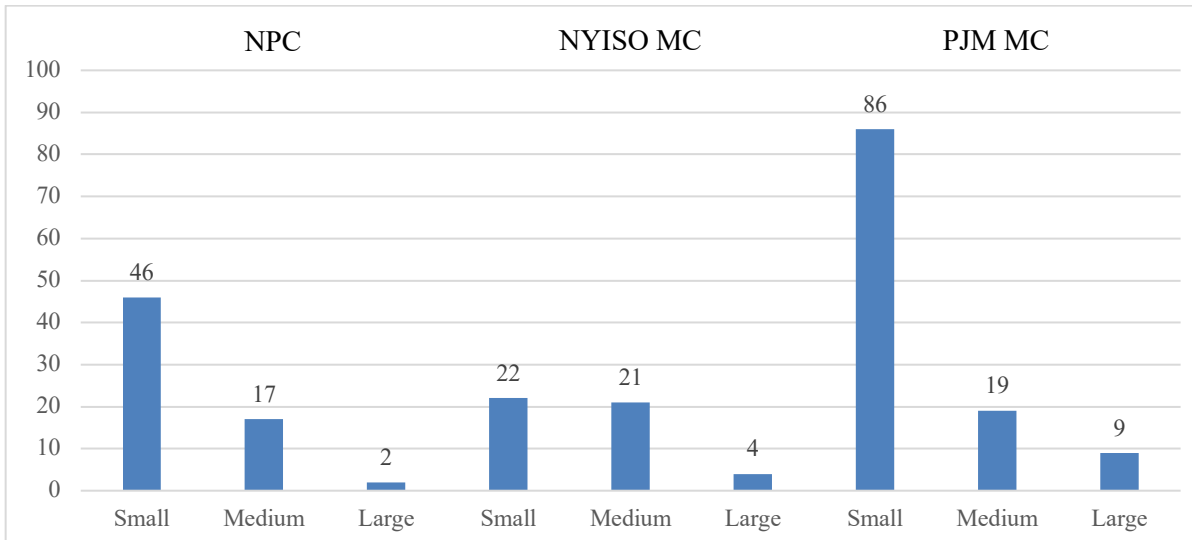
Figure 7. Count of Stakeholders by Generation Size Generation groups based on MW Installed Capacity (Zero: 0, Small: <500, Medium: >=500 and <=3,000, Large: >3,000).
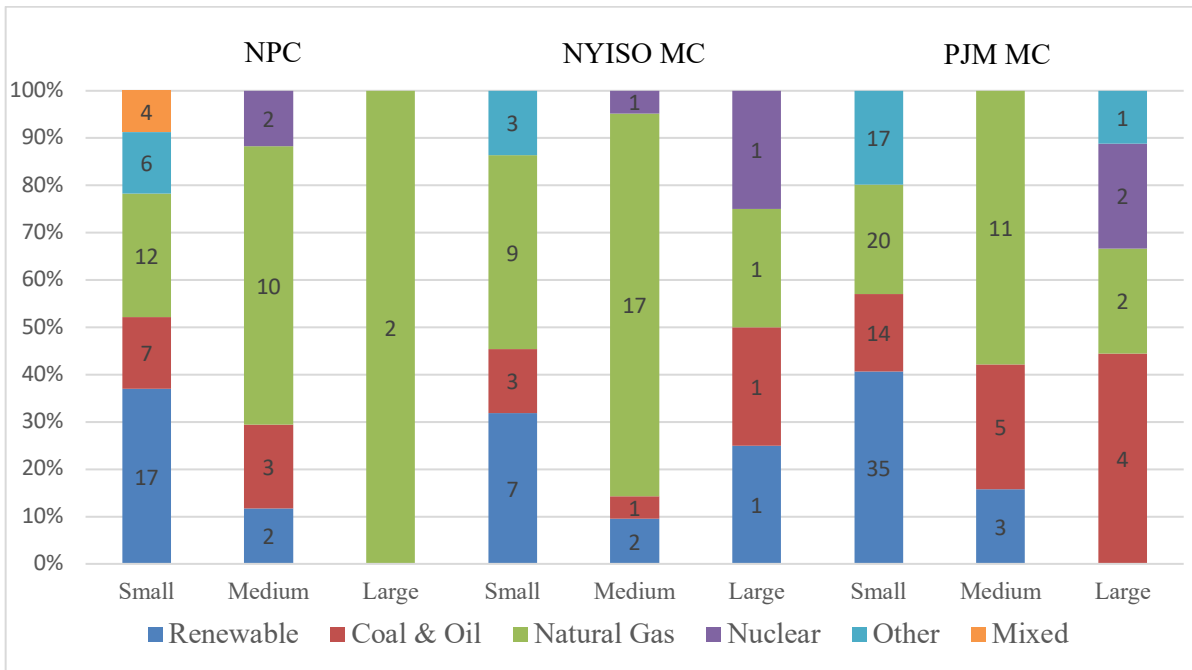
Figure 8. Primary Technology across Generation Size (from Graph Above) Generation technology is categorized as renewable, coal & oil, natural gas, nuclear or other. If a stakeholder's portfolio contains >50% of one of these technologies, the above graph is constructed to consider this as a primary technology.

Looking ahead, it is important to consider available data and how it narrows possible empirical approaches. PJM MC provides definitive, temporal data; but this data is discrete through the above groupings. The connection to EIA information provides variation and an opportunity to use continuous regressors; but due to the scope of the project, the data is static. The above grouping methodology can be applied to discretize this continuous data for consistency with the PJM data. Again, generation ownership activities such as mergers, acquisitions, plant opening, decommissioning and plant re-opening would have occurred during the time period studied; stakeholder sector affiliation can be assessed in a panel data regression model as this characteristic should be temporally rigid.

4. Model Framework

4.1 Theoretical Framework

Since RTO stakeholder processes affect market design decisions, which in turn can affect market participant payoffs, participation by stakeholders in the stakeholder process in many cases can influence those payoffs. Participation, on the other hand, takes a substantial amount of time and resources – there are thus transactions costs associated with participation. We might thus formulate different hypotheses around factors that might influence the level of participation.

One possible hypothesis is that entities with higher market shares would exhibit a higher participation rate. This would suggest that incumbent firms (largely including transmission owners and owners of fossil generation assets) would have higher participation rates because they have more assets whose values are determined by market design decisions. They may also be larger organizations with more capacity to participate (are less sensitive to transactions costs). It would also suggest that new entrants (including renewable energy developers and stakeholders that represent newer technologies such as energy storage) would have lower participation rates. Their revenue streams are more dependent on subsidies (like production tax credits), and they may be smaller firms that are more sensitive to transactions costs. One corollary of this hypothesis is that participation rates within these two groups (incumbents versus new entrants or larger versus smaller participants are likely to be more homogenous.

A second possible hypothesis is that participation rates will be issue-driven or driven by the perceived likelihood of a given stakeholder being able to influence the outcome. Under this hypothesis, the benefits to voting are not uniform across member or stakeholder types and the decision to participate is driven more by alignment of commercial interests with the type of issue being considered. The decision to participate may also be influenced by beliefs about whether the vote will be close (in which case individual stakeholders may have more pivotal political power) or whether the vote will go one way overwhelmingly.

Participation or non-participation/abstention are discrete choices. The first hypothesis can be tested with a cross-sectional assessment of participation. The second hypothesis would suggest that the discrete choice of participation is conditional on a value for the net return of voting. If the net return of voting is greater than zero, a voter would theoretically vote. Duffy and Tavits (2006) provides a useful theoretical foundation of the pivotal voter model. A mathematical representation of the net return to voting, modifying the notation from Duffy and Tavits (2006):

$$R = pB - c + f \qquad (12)$$

In Equation (12), p is the perceived probability of casting a pivotal vote, B is the benefit of an outcome consistent with the vote cast, c is the cost of voting, and f is utility gained from a stakeholder's "fulfillment of civic duty." (Duffy & Tavits, 2006) The j-th voter in sector k considering i-th rule proposal would require $R > 0$ to rationally participate. Net return to voting can be any real number $\{-\infty, \infty\}$.

As outlined by Duffy and Tavits (2006), in normalizing $B = 1$, a voter will participate if $p > c$. B, the benefit of an outcome from an instated or avoided i-th rule proposal, is not the same for all stakeholders. If a stakeholder is not commercially interested in i-th rule proposal, $B = 0$ and the stakeholder will not participate (unless $f > c$). So, this model is classifying stakeholders in two groups. Strategic stakeholders are concerned with $pB - c$ for each i-th rule proposal. Broader, vested stakeholders have f general interests pertaining to the grid during all proposals. Neither $p, B, c,$ or f are directly observable. Latent variables can be used as proxies for some of these variables. For instance, a proposed mathematical representation of the benefit of an outcome:

$$B_{ij} = f(\gamma_i^l, \eta_j^k, \varphi_i, \varepsilon_j) \qquad (13)$$

In Equation (13), the benefits of a rule proposal are primarily a function of γ_i^l which indicates l issue category, η_j^k representing general stakeholder attributes of the sector in which j is affiliated, and φ_i and ε_j which reflect idiosyncrasies of i vote and j voter. A formula containing simply vote category may be parsimonious in assessing the benefit of voting for a particular rule proposal. We are also interested in interactions between γ_i^l and η_j^k.

From Equation (12), the subjective perception of pivotality, p, is not directly calculable; however, the vote score can be tested as a latent variable assuming stakeholders anticipated the closeness of the vote. Ansolabehere, Snyder, and Stewart III (2001) examine roll-call voting in their analysis of the 103rd, 104th and 105th United States Congress. Simple-majority votes resulting in "more than 65% votes on the winning side" are considered "lop-sided." On the contrary, "close votes" are then roughly the middle third of vote

scoring and are conjectured to have a more coalescent preference by party through the influence of "vote-buying." Testing the theory of pivotality will be done using this operationalization. Because 2/3 supermajority is required for a vote to pass in RTO stakeholder processes, testing votes revolving around this threshold is also interesting. This would indicate a heightened perception of closeness with stakeholder awareness of voting formulas.

From Equation (12), the cost of voting, c, is also difficult to attain; but it can surely be assumed that $c > 0$. As a lower bound, a \$2,000 application fee is required to become a stakeholder in the PJM MC and the annual membership fee is \$5,000. Voting is an emphasized feature of membership (PJM, 2021). Emphasizing voting as a feature of membership this way makes the previous theories more reasonable. It is not clear that there are benefits associated with being a member and not voting.

4.2 Empirical Framework – Models to Assess Participation

4.2.1 Determinants of Stakeholder Apathy

Our first analysis focuses on identifying determinants of "apathetic" stakeholders in the northeastern RTOs, which we define as those that have zero recorded votes in our data set (i.e., stakeholders that never cast a vote during the period 2010-2019). Discrete choice econometric models can describe how attributes of a vote and attributes of a voter influence the discrete choice of voter participation; additionally, discrete choice models can describe how attributes of a stakeholder influence the discrete choice to ever participate in the voting process. The data in PJM MC is balanced between 0s and 1s for this dependent variable (321 and 274). The data in NPC is moderately unbalanced between 0s and 1s for the dependent variable (77 and 178). As discussed in the theoretical framework, cross-sectional regression should determine any participation patterns by stakeholder class (i.e. which, if any, stakeholder characteristics cause greater participation). It is hypothesized that heightened commercial interests and ownership of natural gas technology (which is the dominant technological share of the aggregate fleet) will correspond with greater deliberative involvement.

Probit and logit models are commonly used to estimate unknown probability parameters associated with the attributes of discrete choice. Similar to random utility maximization models, "an observer cannot know all the factors that drive a person's decisions, and so from [the analysts'] perspective, utility consists of two components: one that is made up of observable factors and another that is unobservable." (Phaneuf & Requate, 2017) Examining the covariance of a discrete choice dependent variable with many independent, binned categorical variables makes assuming a residual error distribution challenging: therefore, both probit and logit regressions, which assume residual error is distributed normally and

logistically for type I extreme error respectively, will be implemented (Phaneuf & Requate, 2017). **Regression I** is shown below:

$$ACTIVE_j = \beta_0 + \sum_{k=1}^{K-1} \beta_{1,k} SECTOR_j^k + \beta_2 GEN\ SIZE_j^{SMALL} + \beta_3 GEN\ SIZE_j^{MEDIUM}$$

$$+ \beta_4 GEN\ SIZE_j^{LARGE} + \beta_5 TRANS\ SIZE_j^{SMALL} + \beta_6 TRANS\ SIZE_j^{MEDIUM}$$

$$+ \beta_7 TRANS\ SIZE_j^{LARGE} + \beta_8 LOADSERVE\ SIZE_j^{SMALL}$$

$$+ \beta_9 LOADSERVE\ SIZE_j^{MEDIUM} + \beta_{10} LOADSERVE\ SIZE_j^{LARGE}$$

$$+ \beta_{11} COAL\ \&\ OIL_j + \beta_{12} NATURAL\ GAS_j + \beta_{13} NUCLEAR_j$$

$$+ \beta_{14} RENEWABLE_j + \beta_{15} P3_j + \varepsilon_j \qquad (5)$$

where j indexes the stakeholder and k indexes the sector. The dependent variable $ACTIVE_j$ is a binary variable equal to 1 if a stakeholder has ever participated in a vote and equal to 0 is a stakeholder has not participated in a vote. $SECTOR_j^k$ is a dummy variable corresponding with the stakeholder sector affiliation. Commercial interest types (generation, transmission and load server) and categorical sizes (zero, small, medium and large), as well as generation technology types (coal & oil, natural gas, nuclear and renewable) are also dummy variables. $P3_j$ indicates is a stakeholder is in the PJM Power Providers group. The P3 PJM Power Providers Group is a formal coalition of generation owners (The P3 Group, 2021). The above model shows all observed independent variables; to avoid multicollinearity, multiple iterations of regression with sub-sets of these variables will be implemented.

Again, the vote count distributions in PJM MC and NPC are zero-inflated (many stakeholders in have never cast a vote in a formal committee procedure). Because of this, the analysis of cross-sectional effects is measured in two steps. Above, the analysis is whether a stakeholder has cast a vote (y=1), or has not yet participated (y=0). Next, the number of votes in the timeframe will be analyzed after isolating "active" stakeholders (to mitigate for the suspected negative impact on coefficient estimation). This is a procedure consistent with the zero-inflated Poisson model developed by Mullahy (1986) and described by Greene (2017). In this proposed procedure, truncation bias (which is not "innocent") arises as inactive voters are discarded in the second step (Greene, 2012). Regressions of full and truncated samples will be displayed side-by-side to get a sense of the effect of truncation bias in the PJM MC and NPC. All stakeholders are considered in NYISO MC which does not exhibit a zero-inflated distribution of vote count. **Regression II** is identical to Regression I; however, the dependent variable $VOTECOUNT_j$ is a count variable equal to the number of votes cast by a stakeholder. The independent variables, regression iterations and baselines are the same as Regression I in this second step.

4.2.2 Estimating Determinants of Issue-Voting

The pivotal voter model indicates that the discrete choice of participation is conditional on a value for the net return of voting involving B, the benefit of an outcome consistent with the vote cast, and p, the subjective, perceived probability of casting a pivotal vote. The active stakeholders (from Regression I) are repeated decision-makers that may or may not have participated in the sporadic voting held throughout the timeframe of the study. Stakeholder j likely has time-invariant attributes outside of the observed heterogeneity. Additionally, there may be effects associated with the time set i (rule proposal) other than the periodic issue category. The models computed declare the effects of j and i as random. Equation (4) introduces l which indicates the set of category possibilities reflecting the substance of rule proposal i. **Regression III** features interaction terms of stakeholder sector and vote category where each interaction is isolated in an individual regression. Otherwise stated, the equation estimates separately for all sectors k and all issue categories l. A sector-level examination across categories should then indicate if a stakeholder class is generally discriminate of rule proposal substance. **Regression III** is:

$$VOTE_{ji}|(ACTIVE_j = 1)$$

$$= \beta_0 + \sum_{k=1}^{K-1} \beta_{1,k} SECTOR_j^k + \sum_{l=1}^{L-1} \beta_{2,l} VOTE\ CATEGORY_i^l$$

$$+ \beta_3 (SECTOR_j^k \times VOTE\ CATEGORY_i^l) + \varepsilon_{ji} \quad (6)$$

where indexes include j stakeholders, k sectors, i votes, and l vote categories. The dependent variable $VOTE_{ji}$ is a binary variable equal to 1 if a stakeholder votes for a particular rule proposal and equal to 0 is a stakeholder does not vote. $VOTE\ CATEGORY_i^l$ is a dummy variable corresponding with the rule proposal category. $SECTOR_j^k \times VOTE\ CATEGORY_i^l$ is an interaction term (i.e. Generation Owner and Capacity Market).

Finally, a few variations for a close vote indicator and a term interacting stakeholder sector and the close vote indicator will be tested. Similar to **Regression III**, sector and vote category interactions will be exhibited one at a time. **Regression IV** is:

$$VOTE_{ji}|(ACTIVE_j = 1)$$

$$= \beta_0 + \sum_{k=1}^{K-1} \beta_{1,k} SECTOR_j^k + \sum_{l=1}^{L-1} \beta_{2,l} VOTE\ CATEGORY_i^l$$

$$+ \beta_3 CLOSE\ VOTE\ OUTCOME_i + \beta_4 (SECTOR_j^k \times CLOSE\ VOTE\ OUTCOME_i)$$

$$+ \varepsilon_{ji} \quad (7)$$

where the dummy variable $VOTE\ CATEGORY_i^l$ corresponds with the rule proposal category. The dummy variable $CLOSE\ VOTE\ OUTCOME_i$ is 1 if a vote score is close (i.e. 33%-66%). An interaction term $SECTOR_j^k \times CLOSE\ VOTE\ OUTCOME_i$ is used to determine is stakeholders affiliated with a particular sector are more perceptive of a close vote.

Chapter 5. Results

The discussion of results focuses on each regression separately and will include comparisons across RTOs. The regression results for PJM MC are in embedded in the body of this chapter and the regression results for NYISO MC and NPC are included in the Appendix. Ultimately, for a stakeholder class deemed not highly participatory, a simple quantitative approach to show marginal participation affecting vote outcome will be implemented. This will be interesting if there is an empirically determined opportunity for increased participation to arise and matter amidst diverse interests within a sector: diverse ownership of generation technology is a clear case.

5.1 Regression I Results

In the PJM MC, large generation ownership is a characteristic that does indeed predict "active" participation in the first step of cross-sectional regression. It is more likely that owners of a large quantity of capacity will be "active" stakeholders in the voting process compared to small generation owners. Inclusion of a P3 PJM Power Providers Group indicator variable eliminates the statistical significance of large generation in the first stage. Thus, voting behavior by the formal coalition influences this initial finding focused on binary, "active/inactive" participation. Isolating the dataset to stakeholders that own generation assets indicates that natural gas generation ownership predicts an increased probability of participation while renewable generation ownership does not have this same effect. The baseline (which includes landfill gas, municipal solid waste, and wood waste) is more participatory than the renewable technology classification. Thus overall, it seems that the "private club" impression is not farfetched: binary participation by incumbent, large generators and owners of the leading technology is measurably different than their competing counterparts. With many small generation owners in the PJM MC and many owning renewable technology, this finding indicates that there is an opportunity for increased participation by this class of stakeholder to impact vote outcome.

Similarly, in the ISO New England NPC, the large generation owners are sure participants, especially when compared to smaller generation owners. As in the PJM MC, natural gas generation ownership predicts increased participation in the first step of cross-sectional regression, while renewable generation ownership does not have the same effect. The NPC carves out the Alternative Resources sector

for demand response participants, distributed generation and renewable generation owners; this is an important distinction. Altogether, the finding that renewable generation ownership participation is weaker than the leading technology would indicate that there is an opportunity for increased participation by this class of stakeholder to impact vote outcome like in the PJM MC.

Regression I (a.) PJM Cross-Sectional Regression of Participation

	Probit				Logit			
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
Active								
Generation Owner	0.192				1.362			
	(0.134)				-0.293			
Transmission Owner	///				///			
Electric Distributor	1.146***				6.495***			
	(0.237)				-2.668			
End-Use Customer	0.920***				4.419***			
	(0.222)				-1.635			
G - Small		0.019	0.027			1.011	1.025	
		(0.144)	(0.144)			-0.238	-0.242	
G - Medium		0.436	0.101	0.462		1.996	1.165	2.095
		(0.314)	(0.353)	(0.321)		(1.008)	(0.660)	(1.086)
G - Large		0.971*	0.766	1.034*		4.832*	3.403	5.500*
		(0.464)	(0.494)	(0.460)		(3.883)	(2.828)	(4.457)
LS - Small		1.114***	1.126***			6.272***	6.397***	
		(0.221)	(0.220)			-2.463	-2.504	
LS - Medium		///	///			///	///	
LS - Large		///	///			///	///	
P3			///				///	
Constant	-0.322***	-0.260***	-0.271***	-0.126				
	(0.066)	(0.062)	(0.062)	(0.126)				
Observations	575	584	575	130	575	584	575	130
Pseudo R^2	0.052	0.054	0.052	0.04	0.052	0.053	0.052	0.04

Regression I (b.) PJM Cross-Sectional Probit Regression of Participation

	Probit		Logit	
	(5a)	(6a)	(5b)	(6b)
Active				
Renewable	-0.721[*]		0.297*	
	(0.350)		(0.181)	
Coal & Oil	0.348		1.759	
	(0.334)		(0.996)	
Natural Gas	1.028[***]		5.365***	
	(0.304)		(2.724)	
Nuclear	0.283		1.565	
	(0.804)		(2.164)	
Renewable - 100MW		-0.013		0.979
		(0.082)		(0.141)
Coal & Oil - 100MW		0.013		1.020
		(0.013)		(0.021)
Natural Gas - 100MW		0.088[*]		1.200
		(0.040)		(0.118)
Nuclear - 100MW		0.000		0.996
		(0.008)		(0.015)
Constant	-0.258	-0.315[*]		
	(0.265)	(0.141)		
Observations	130	130	130	130
Pseudo R^2	0.217	0.164	0.217	0.172

Regression Notes: Standard errors in parentheses: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients are exponentiated in Regression I (b.) to reflect odds ratios. Regression (1) focuses on stakeholder sector variables and the baseline reflects a stakeholder affiliated with the Other Suppliers sector. Regressions (2) & (3) focuses on commercial interests and the baseline reflects a stakeholder that does not own generation or distribution infrastructure. Regression (4) isolates the sample to stakeholders that own generation assets and the baseline reflects a stakeholder that owns generation assets and is categorized as a small generation owner. Regressions (5) & (6) also reflect stakeholders that owns generation assets and the baseline reflects ownership of the technology type categorized as Other. In Regression (1), Transmission Owner predicts success perfectly - dropped and 20 observations not used. In Regression (2), LS - Medium predicts success perfectly - dropped and 8 observations not used. LS - Large also predicts success perfectly - dropped and 3 observations not used. In Regression (3), LS - Medium predicts success perfectly - dropped and 8 observations not used. LS - Large also predicts success perfectly - dropped and 3 observations not used. P3 - PJM Power Providers Group also predicts success perfectly - dropped and 9 observations not used.

But, because of the sector distinction, at least a portion of renewable generation owners do not compete with incumbent generation ownership for vote weight; then, exhibited participation of renewable technology owners may be sufficiently representative in the additional sector.

5.2 Regression II Results

In the second step (which again, considers frequency of active stakeholders), the characteristic of large generation ownership increases the vote incidence rate compared to the baseline more so than small generation ownership. The P3 PJM Power Providers Group indicator variable does not affect the vote incidence rate in the second step; thus, voting by active large, non-P3 generation owners occurs as frequently as voting by the large, P3 generation owners. In the second step of cross-sectional regression, renewable generation ownership predicts greater vote incidence than natural gas ownership in the PJM MC countering the hypothesis. Like the results in the PJM MC, in the second step of cross-sectional regression of the ISO New England NPC, renewable generation ownership predicts greater vote frequency than natural gas ownership. The hypothesis that the characteristic of natural gas ownership would be associated with more frequent participation is then unaffirmed in the PJM MC and NPC; however, sample selection via the truncation of the sample may influence this finding. An analysis of truncation bias is shown below in the table of auxiliary regressions.

The regression of vote frequency in the NYISO MC indicates that the large generation ownership characteristic increases the vote incidence rate compared to the baseline more so than small generation ownership. Isolating the portion of stakeholders that own generation assets also confirms that participation increases with increasing sizes of generation asset ownership. In this same isolated dataset, natural gas generation ownership predicts high vote incidence; renewable generation ownership also increases vote incidence compared to the baseline (again, which includes landfill gas, municipal solid waste, and wood waste). Although both are positive and significant, the hypothesis that natural gas generation ownership will be more participatory than the renewable technology classification is confirmed by the magnitude of these exponentiated coefficients which are normalized to the baseline. In other words, in the NYISO MC, stakeholders that own natural gas generation technology vote more frequently than stakeholders that own renewable technology. Again, this finding indicates that quasi-political activity parallels leading market share as expressed by technological ownership and size; however, if there is a situation to vote as a competitor to owners of the leading technology, this finding also indicates that there is an opportunity for the emerging technology owner stakeholder class to be more participatory.

Regression II. PJM Cross-Sectional Poisson Regression of Participation

	(1)	(2)	(3)	(4)	(5)	(6)
Vote Count						
G - Medium	1.140*	1.600***	1.140*			
	(0.074)	(0.104)	(0.074)			
G - Large	1.338***	2.433***	1.338***			
	(0.091)	(0.166)	(0.091)			
Renewable				1.201*	0.505***	1.201*
				(0.110)	(0.047)	(0.110)
Coal & Oil				1.394***	1.663***	1.394***
				(0.082)	(0.098)	(0.082)
Natural Gas				1.035	1.888***	1.035
				(0.064)	(0.115)	(0.064)
Nuclear				1.811***	1.914***	1.811***
				(0.219)	(0.228)	(0.219)
Inflate						
G - Small	6.900***					
	(3.008)					
Renewable				8.972***		
				(4.231)		
Observations	130	130	66	130	130	66
Pseudo R^2		0.051	0.017		0.149	0.045

Regression Notes: Standard errors in parentheses: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients are exponentiated to reflect incidence rate ratios. Regression (1-3) isolates the sample to stakeholders that own generation assets and the baseline reflects a stakeholder that owns generation assets and is categorized as a small generation owner. Regressions (4-6) also reflect stakeholders that owns generation assets and the baseline reflects ownership of the technology type categorized as Other. Regression (1) & (4) use the zero-inflated Poisson command in Stata. The coefficients are comparable to the coefficients attained in Regression (3) & (6) which reflect the truncated sample. Regression (2) & (5) reflect parameter estimates for the un-truncated sample. In Regression (2), the coefficient for G – Large has a greater magnitude. In Regression (5), the coefficient for Renewable has a smaller magnitude. Thus, at a glance, there is impactful truncation bias.

5.3 Regression III Results

Sectoral interest in certain issue categories is an apparent, broader feature of voting behavior in each RTO. As the data is novel and this analysis is a preliminary assessment of participation, this section is approached holistically. Additionally, as this is an initial assessment of the novel dataset, simple, qualitative and directional findings are interesting.

In the PJM MC, the Transmission Owner sector does not seem concerned with issue category. Stakeholders in this sector are very participatory (in the first stage of regression, these stakeholders were omitted due to perfect prediction of participation) and only one issue category interaction variable is statistically significant. The Electric Distributor sector is most concerned with issue category; the sector indicator predicts relatively high participation and all issue categories are statistically significant predictors of participation (some positive/increasing, some negative/decreasing). The End-Use Customer sector is

least concerned with issue category; the sector indicator predicts relatively high participation and there are no issue categories that augment the interest of stakeholders within this sector. The Generation Owner sector affiliation is not a distinguishable characteristic of participation compared to the baseline. Members from the Other Suppliers and Generation Owner sectors are less participatory compared to the other sectors. The Generation Owners that are active are somewhat selective of the issue categories in which they participate. Illogically, general administrative issue categories increase participation by Generation Owners. The auction revenue rights and financial transmission rights issue category reduces predicted participation of Generation Owners; this is more logical as this issue category should not affect the commercial interests of Generation Owners.

In the NYISO MC, patterns of sectoral interest for certain issue categories are similar to the PJM MC with the exception of the End-Use Customer sector. The aggregated End-Use Customer sector is participatory and selective of issue category (for example, stakeholders are seemingly uninterested in transmission system planning). Again, in the PJM MC, the End-Use Customer sector is not as selective. The Transmission Owner sector is not concerned with issue category and stakeholders in this sector are very participatory. Similarly, Long Island Power Authority and the New York Power Authority, which comprise the Public Power - State Power Authorities sector, are participatory and indiscriminate of issue category. It could be said that these stakeholders are simply performing their duty to the grid. Like the PJM MC, stakeholders in the Generation Owners sector are not highly participatory. Unlike the PJM MC, Generation Owners are least interested in general administrative matters and most interested in ancillary service rule proposals.

In the NPC, sectoral interest in certain issue categories is also observable conduct. Like the PJM MC Electric Distributor sector, the NPC Publicly Owned Entity sector is most concerned with issue category as indicated by participation; the sector is highly participatory and participation varies significantly for all issue categories. Unlike the PJM MC and the NYISO MC, stakeholder participation varies by issue category among the Transmission Owners. For example, transmission system planning proposals provoke higher participation from stakeholders within the sector. The Alternative Resources sector is not a participatory group of stakeholders compared to the other sectors; matters related to de-list bid & substitution auctions were the only issue category which provoked greater participation.

Regression III (a.) PJM Panel Data Probit Regression of Participation (GO x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
Generation Owner x Category	**-0.124**	**-0.233***	**-0.273****	**-0.095**	**0.621*****	**0.195**
	(0.08)	**(0.10)**	**(0.11)**	**(0.13)**	**(0.12)**	**(0.14)**
Generation Owner	**0.255**	**0.251**	**0.247**	**0.221**	**0.155**	**0.2**
	(0.16)	**(0.16)**	**(0.16)**	**(0.16)**	**(0.16)**	**(0.16)**
Transmission Owner	0.700**	0.704**	0.703**	0.705**	0.695**	0.703**
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Electric Distributor	1.457***	1.454***	1.459***	1.455***	1.461***	1.456***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
End-Use Customer	0.693**	0.694**	0.694**	0.694**	0.696**	0.694**
	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)
Capacity Market	**0.357*****	0.333**	0.333**	0.332**	0.331**	0.331**
	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Demand Response	0.306**	**0.350****	0.306**	0.305**	0.303**	0.304**
	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.507***	0.507***	**0.558*****	0.506***	0.504***	0.505***
	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)
Energy Market	0.289**	0.288**	0.289**	**0.305****	0.285*	0.287*
	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)
General Admin	0.187	0.187	0.187	0.187	**0.051**	0.186
	(0.11)	(0.11)	(0.11)	(0.11)	**(0.12)**	(0.11)
Transmission System Planning	0.235*	0.234*	0.234*	0.234*	0.232*	**0.194**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**
Out-of-Market Payments & Fuel Costs	0.380**	0.380**	0.380**	0.379**	0.378**	0.378**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Other System Operations	0.119	0.118	0.119	0.118	0.117	0.118
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Constant	-1.095***	-1.094***	-1.094***	-1.088***	-1.074***	-1.083***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
/						
lnsig2u	0.117	0.118	0.118	0.117	0.123	0.117
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Regression III (b.) PJM Panel Data Probit Regression of Participation (TO x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
Transmission Owner x Category	**-0.022**	**0.193**	**-0.22**	**-0.432***	**0.018**	**0.118**
	(0.11)	**(0.14)**	**(0.16)**	**(0.18)**	**(0.19)**	**(0.22)**
Generation Owner	0.211	0.211	0.212	0.209	0.211	0.211
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Transmission Owner	**0.713****	**0.673****	**0.734****	**0.745****	**0.703****	**0.698****
	(0.24)	**(0.23)**	**(0.23)**	**(0.23)**	**(0.23)**	**(0.23)**
Electric Distributor	1.455***	1.455***	1.455***	1.455***	1.455***	1.455***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
End-Use Customer	0.693**	0.693**	0.694**	0.693**	0.693**	0.693**
	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)
Capacity Market	**0.334****	0.331**	0.332**	0.333**	0.332**	0.332**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Demand Response	0.305**	**0.289****	0.305**	0.305**	0.305**	0.304**
	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.506***	0.505***	**0.521*****	0.507***	0.505***	0.505***
	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)
Energy Market	0.287*	0.287*	0.287**	**0.322****	0.287*	0.287*
	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)
General Admin	0.187	0.186	0.187	0.187	**0.185**	0.186
	(0.11)	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)
Transmission System Planning	0.233*	0.233*	0.234*	0.234*	0.233*	**0.224**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**
Out-of-Market Payments & Fuel Costs	0.379**	0.378**	0.379**	0.380**	0.379**	0.379**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Other System Operations	0.118	0.118	0.118	0.118	0.118	0.118
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Constant	-1.086***	-1.082***	-1.088***	-1.089***	-1.085***	-1.085***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
/						
lnsig2u	0.117	0.117	0.117	0.118	0.117	0.117
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Regression III (c.) PJM Panel Data Probit Regression of Participation (ED x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
Electric Distributor x Category	**0.271****	**0.309***	**0.265**	**-0.675*****	**-0.728*****	**-0.487****
	(0.10)	**(0.12)**	**(0.14)**	**(0.16)**	**(0.16)**	**(0.18)**
Generation Owner	0.21	0.21	0.21	0.208	0.21	0.21
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Transmission Owner	0.700**	0.704**	0.702**	0.700**	0.693**	0.701**
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Electric Distributor	**1.370*****	**1.407*****	**1.426*****	**1.531*****	**1.534*****	**1.498*****
	(0.18)	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**
End-Use Customer	0.694**	0.694**	0.693**	0.694**	0.694**	0.693**
	(0.21)	(0.21)	(0.21)	(0.21)	(0.22)	(0.21)
Capacity Market	**0.301****	0.330**	0.331**	0.334**	0.334**	0.333**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Demand Response	0.303**	**0.271***	0.304**	0.306**	0.306**	0.306**
	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.502***	0.504***	**0.480*****	0.508***	0.508***	0.507***
	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)
Energy Market	0.285*	0.286*	0.286*	**0.364****	0.289**	0.288**
	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)
General Admin	0.185	0.186	0.186	0.188	**0.271***	0.187
	(0.11)	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)
Transmission System Planning	0.232*	0.233*	0.233*	0.234*	0.234*	**0.292***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**
Out-of-Market Payments & Fuel Costs	0.376**	0.377**	0.378**	0.381**	0.381**	0.380**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Other System Operations	0.117	0.118	0.118	0.119	0.119	0.118
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Constant	-1.073***	-1.079***	-1.081***	-1.094***	-1.093***	-1.090***
	(0.13)	(0.13)	(0.13)	(0.14)	(0.14)	(0.13)
/						
lnsig2u	0.119	0.117	0.118	0.122	0.124	0.119
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Regression III (d.) PJM Panel Data Probit Regression of Participation (EUC x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
End-Use Customer x Category	**-0.066**	**-0.217**	**-0.124**	**-0.243**	**0.093**	**0.266**
	(0.09)	**(0.12)**	**(0.13)**	**(0.16)**	**(0.16)**	**(0.18)**
Generation Owner	0.211	0.21	0.212	0.21	0.211	0.211
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Transmission Owner	0.705**	0.704**	0.705**	0.703**	0.705**	0.705**
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Electric Distributor	1.456***	1.456***	1.456***	1.454***	1.456***	1.457***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
End-Use Customer	**0.718***	**0.730***	**0.710***	**0.713***	**0.686**	**0.677**
	(0.22)	**(0.22)**	**(0.22)**	**(0.21)**	**(0.21)**	**(0.21)**
Capacity Market	**0.340**	0.332**	0.332**	0.332**	0.332**	0.332**
	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Demand Response	0.305**	**0.330**	0.305**	0.305**	0.304**	0.304**
	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.506***	0.506***	**0.520***	0.506***	0.505***	0.505***
	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)
Energy Market	0.287**	0.288**	0.287**	**0.314**	0.287*	0.287*
	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)
General Admin	0.187	0.187	0.187	0.187	**0.176**	0.186
	(0.11)	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)
Transmission System Planning	0.233*	0.234*	0.233*	0.234*	0.233*	**0.201**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**
Out-of-Market Payments & Fuel Costs	0.379**	0.379**	0.379**	0.379**	0.379**	0.379**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Other System Operations	0.118	0.118	0.118	0.118	0.118	0.118
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Constant	-1.089***	-1.090***	-1.088***	-1.088***	-1.084***	-1.083***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
/						
lnsig2u	0.117	0.117	0.117	0.118	0.117	0.117
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

5.4 Regression IV Results

In the PJM MC, the objective indicator for a close vote (33%-66%) increases participation. The Electric Distributor sector is seemingly driving this finding while Generation Owners and End-Use Customers are actually less participatory in votes that are ultimately close. Inversely stated, Generation Owners and End-Use Customers are more participatory in lop-sided voting. As these sectors are on opposite sides of the buyer-seller spectrum, this is an interesting high-level finding that could perhaps support the interviewed stakeholder notion of a factionalized PJM MC (if this finding corresponds with lop-sided votes that fail). In the NYISO MC, the indicator for a close vote (33%-66%) increases participation; however, there is no indication that this finding is aligned to any sector. Specific sectoral participation does not increase or decrease during close votes; or inversely, during lop-sided votes. So, across all sectors, the NYISO MC stakeholders are more engaged during close votes. Stakeholders in the NPC appear very perceptive of the voting procedure. The indicator for a close vote (33%-66%) increases participation. Additionally, participation decreases significantly as the objective vote outcome diverges from the threshold. Also, the coefficient for the close vote indicator that tightly revolves around the threshold (58%-75%) has a greater magnitude than the middle-third indicator used in relevant literature. Focusing on the close vote (33%-66%) indicator, Generation Owners and Publicly Owned Entities are driving the finding that participation increases during close votes while the End-Use Customer sector is less participatory during close votes. In this analysis, the NPC displays the strongest covariance between participation and pivotality perception.

5.5 Marginal Participation Affecting Vote Outcome

In the PJM MC, it has been determined that (1) Generation Owners that own renewable technology are relatively inactive (there are roughly 30 PJM MC stakeholders that meet this criteria), (2) large and natural gas generation owners seem comfortable becoming active in this political arena and (3) there is not an existing pattern of heightened Generation Owner stakeholder interest in capacity market issues (surprisingly, the regression coefficient is negative, but insignificant).

In June 2014, the PJM MC voted on the reduction of frequently mitigated unit (FMU) "adders," a market mechanism that supplements generator revenue. According to the PJM market monitor, Monitoring Analytics:

Regression IV (a.) PJM Panel Data Probit Regression of Participation (Close Votes)

	(1)	(2)	(3)	(4)
	Vote Score: 33%-66%	Vote Score: 50-83%	Vote Score: 58%-75%	Absolute Value (- Threshold)
Participation				
Close Vote Outcome	**0.119*****	**0.037**	**-0.063***	**0.054***
	(0.03)	**(0.03)**	**(0.03)**	**(0.03)**
Generation Owner	0.211	0.21	0.212	0.211
	(0.16)	(0.16)	(0.16)	(0.16)
Transmission Owner	0.710**	0.703**	0.704**	0.708**
	(0.23)	(0.23)	(0.23)	(0.23)
End-Use Customer	0.695**	0.694**	0.693**	0.691**
	(0.21)	(0.21)	(0.21)	(0.21)
Electric Distributor	1.462***	1.454***	1.455***	1.459***
	(0.18)	(0.18)	(0.18)	(0.18)
Capacity Market	0.273**	0.313**	0.351***	0.333**
	(0.11)	(0.11)	(0.10)	(0.10)
General Admin	0.156	0.159	0.234*	0.208
	(0.11)	(0.12)	(0.12)	(0.11)
Out-of-Market Payments & Fuel Costs	0.318**	0.360**	0.411***	0.392**
	(0.12)	(0.12)	(0.12)	(0.12)
Demand Response	0.259*	0.286**	0.312**	0.311**
	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.447***	0.475***	0.536***	0.528***
	(0.11)	(0.11)	(0.11)	(0.11)
Other System Operations	0.118	0.1	0.149	0.131
	(0.12)	(0.12)	(0.12)	(0.12)
Transmission System Planning	0.195	0.209	0.253*	0.244*
	(0.12)	(0.12)	(0.12)	(0.12)
Energy Market	0.232*	0.250*	0.316**	0.308**
	(0.11)	(0.12)	(0.11)	(0.11)
Constant	-1.087***	-1.085***	-1.086***	-1.135***
	(0.13)	(0.13)	(0.13)	(0.14)
/				
lnsig2u	0.118	0.117	0.118	0.117
	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604
Pseudo R^2				

Regression IV (b.) PJM Panel Data Logit Regression of Participation (Close Votes)

	(1) Vote Score: 33%-66%	(2) Vote Score: 50-83%	(3) Vote Score: 58%-75%	(4) Absolute Value (- Threshold)
Participation				
Close Vote Outcome	**1.262*****	**1.066**	**0.908**	**1.092**
	(0.07)	**(0.06)**	**(0.05)**	**(0.05)**
Generation Owner	1.474	1.474	1.477	1.473
	(0.43)	(0.43)	(0.43)	(0.43)
Transmission Owner	3.503**	3.458**	3.458**	3.474**
	(1.47)	(1.45)	(1.45)	(1.46)
End-Use Customer	3.529**	3.516**	3.513**	3.500**
	(1.38)	(1.37)	(1.37)	(1.36)
Electric Distributor	13.239***	13.016***	13.015***	13.088***
	(4.45)	(4.38)	(4.38)	(4.40)
Capacity Market	1.596*	1.738**	1.850***	1.798**
	(0.30)	(0.33)	(0.34)	(0.33)
General Admin	1.273	1.287	1.453	1.398
	(0.26)	(0.26)	(0.30)	(0.28)
Out-of-Market Payments & Fuel Costs	1.752**	1.906**	2.066***	2.012**
	(0.38)	(0.41)	(0.45)	(0.43)
Demand Response	1.585*	1.675**	1.751**	1.749**
	(0.30)	(0.32)	(0.33)	(0.33)
ARR & FTR	2.125***	2.263***	2.507***	2.479***
	(0.41)	(0.45)	(0.49)	(0.48)
Other System Operations	1.234	1.194	1.294	1.262
	(0.27)	(0.26)	(0.28)	(0.28)
Transmission System Planning	1.375	1.424	1.535*	1.513*
	(0.28)	(0.30)	(0.32)	(0.31)
Energy Market	1.405	1.482	1.658*	1.639*
	(0.28)	(0.31)	(0.33)	(0.33)
/				
lnsig2u	3.663***	3.652***	3.653***	3.652***
	(0.39)	(0.39)	(0.39)	(0.39)
Observations	12604	12604	12604	12604
Pseudo R^2				

Regression IV (c.) PJM Panel Data Probit Regression of Participation (All Close)

	(1)	(2)	(3)	(4)
	Generation Owner	Transmission Owner	Electric Distributor	End-Use Customer
Participation				
Sector x Close Vote Outcome (33%-66%)	**-0.258*****	**-0.042**	**0.766*****	**-0.249****
	(0.07)	**(0.11)**	**(0.10)**	**(0.09)**
Close Vote Outcome (33%-66%)	**0.170*****	**0.123*****	**0.045**	**0.149*****
	(0.03)	**(0.03)**	**(0.03)**	**(0.03)**
Generation Owner	**0.319***	0.211	0.205	0.21
	(0.16)	(0.16)	(0.16)	(0.16)
Transmission Owner	0.699**	**0.727****	0.685**	0.710**
	(0.23)	**(0.24)**	(0.23)	(0.23)
Electric Distributor	1.466***	1.462***	**1.208*****	1.464***
	(0.18)	(0.18)	**(0.19)**	(0.18)
End-Use Customer	0.698**	0.696**	0.693**	**0.795*****
	(0.21)	(0.21)	(0.22)	**(0.22)**
Capacity Market	0.276**	0.273**	0.268*	0.274**
	(0.11)	(0.11)	(0.10)	(0.11)
General Admin	0.158	0.156	0.151	0.158
	(0.11)	(0.11)	(0.11)	(0.11)
Out-of-Market Payments & Fuel Costs	0.322**	0.318**	0.313*	0.318**
	(0.12)	(0.12)	(0.12)	(0.12)
Demand Response	0.262*	0.259*	0.255*	0.261*
	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.451***	0.448***	0.445***	0.449***
	(0.11)	(0.11)	(0.11)	(0.11)
Other System Operations	0.12	0.118	0.117	0.118
	(0.12)	(0.12)	(0.12)	(0.12)
Transmission System Planning	0.199	0.196	0.188	0.196
	(0.12)	(0.12)	(0.12)	(0.12)
Energy Market	0.236*	0.232*	0.221*	0.234*
	(0.11)	(0.11)	(0.11)	(0.11)
Constant	-1.111***	-1.088***	-1.048***	-1.100***
	(0.14)	(0.13)	(0.13)	(0.13)
/				
lnsig2u	0.12	0.118	0.134	0.119
	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604
Pseudo R^2				

"Frequently mitigated units (FMUs) were first provided additional compensation as a form of capacity pricing in 2006 to help ensure that units that run primarily in a cost capped mode and are marginal can cover their avoidable or going forward costs. The definition of FMUs provides for a set of graduated adders associated with increasing levels of offer capping. The implementation of the RPM capacity market construct in PJM in 2007 addressed any revenue adequacy issue with frequently mitigated units. The implementation of scarcity pricing for all resources in 2012 added another form of revenue. The reasons that FMU and AU adders were implemented no longer exist." (Monitoring Analytics, 2013)

The FMU "adders" could be thought of as a subsidy. In a 2012 analysis, Monitoring Analytics estimated the total annual cost to be approximately $79 million (PJM, 2013). Because renewable generation is either baseload in the case of hydroelectric, or intermittent in the case of solar and wind, this subsidy would go exclusively to competitors of renewable generation owners. It could even be argued that the FMU "adder" was a distortion that reduced capacity market prices for non-FMU generation owners (like renewable technology owners).

Table 8 shows voting by sector. The vote narrowly failed due to a voting bloc that consisted of Generation Owners and Other Suppliers. The vote score of 3.276 was a mere 0.057 away from passage. Of the 70 eligible Generation Owners stakeholders, 13 voted. The Generation Owner vote score was 0.231 (3 "yes's", 10 "no's"). If two additional stakeholders in the Generation Owner sector voted "yes" then the sector vote score would have been (5/15 = 0.333) and the vote would have passed with a score of 3.378. Although renewable generation is subsidized by the government, it is intertwined in a competitive market. In a quasi-political and competitive environment, to simplify distortions and ultimately eliminate an out-of-market revenue stream to a competitor, imagining a group of renewable generation owners voting affirmatively for the passage of this proposal (though perhaps audacious) seems plausible. With 30 inactive PJM MC stakeholders that own renewable generation, marginal participation could have certainly changed the sectoral vote score to pass the threshold of **2/3**.

Sector	Eligible	Attended	Did Not Vote	Yes	No	Abstain	Sector Weight in Favor
Transmission Owner	14	14	3	5	5	1	0.500
Generation Owner	70	20	7	3	10	0	0.231
End-Use Customer	28	15	1	14	0	0	1.000
Electric Distributor	38	31	3	28	0	0	1.000
Other Supplier	304	48	34	6	5	3	0.545
Total	**455**	**128**	**48**	**56**	**20**	**4**	**3.276**

Table 8. June 2014 PJM MC Rule Proposal Voting The vote score of 3.276 shows this vote narrowly failed. The GO sector participation rate was weak during this formal vote (20/70).

Chapter 6. Conclusion

This work investigates participation in governance processes used in northeastern RTOs to develop and approve changes to market designs, planning processes and operational procedures. The overall market design is a strategy in itself that is decided by stakeholders that as individuals, vote strategically. This analysis provides a high-level look at this market design by outlining *what* issues were deliberated within northeastern RTO senior-level committees in the 2010 decade and *who* was involved. The underlying data enabled us to better understand *which hands* are raised most in these senior-level committees by outlining patterns of participation based on the informal hypothesis of incumbent political power and a more established theoretical pivotal voter model. The discrete choice empirical models were helpful in indicating patterns of stakeholder participation which is illustrative of input for democratic market design. In restructuring the electricity sector and encouraging competition, electric generation was viewed as the aspect of wholesale electricity delivery that would adopt competitive spirit and drive economic efficiency. Interestingly, in all three of the northeastern RTOs, the sectors containing generation owners are noticeably less active than other sectors. Examining the heterogeneity within the generation owner class reveals that incumbent generation technology ownership is not generally absent in the stakeholder process; and inversely, the empirical methods determine that stakeholder participation is less probable if the stakeholder owns renewable energy generation technology, or is deemed "small" in terms of capacity ownership. Additionally, the panel data regressions reveal that in most cases, the highly participatory sector affiliations are not discriminate of issue category. This more dynamic finding reveals that there are stakeholders that have a vested interest in the grid as a whole and there are strategic stakeholders that seemingly vote when the benefits of a particular rule proposal outweigh the costs. So, should currently exogenous stakeholders, such as some NGOs or state governments, be worked into the decision-making process as sectors with expanded vote weight? Can this existing forum be the stage for modern organizations such as NESCOE to seek out their vision? Or, should the challenge of designing markets with harmonious consideration of subsidized renewable expansion be bestowed to renewable generation owners and sought out through increased participation in these stakeholder processes? Perhaps, it's simply time for these representative stakeholders to step into this arena and convincingly eliminate ideas like FMU "adders." Creating an organization like the P3 PJM Power Providers Group to encourage renewable energy generation owner participation may be prudent.

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Appendices

Appendix 1. PJM Vote Data - Annotated Columns

1. **Meeting Date:** date of the monthly PJM Members Committee meeting.
2. **Issue Category:** broad categorization of issue topics based on author's interpretation of information from PJM. The issue categories for PJM (terms defined by PJM) include:
   a. **Ancillary Services** – NERC-defined ancillary services including reserves, regulation, reactive power and black start.
   b. **Auction Revenue Rights and Financial Transmission Rights** – revenues from the Annual Financial Transmission Right (FTR) Auction are allocated to transmission owners (Auction Revenue Rights); day-ahead congestion revenue is awarded to bidders from the Annual FTR Auctions that are entitled to this revenue.
   c. **Capacity Market - General** – series of auctions administered to satisfy the reliability requirements of the PJM region for a Delivery Year (Reliability Pricing Model).
   d. **Demand Response** – program that allows end use customers to reduce their electricity usage during periods of higher power prices; issues pertain to the operations of curtailment service providers.
   e. **Energy Market** – day ahead and real time spot markets in which wholesale electric energy is sold or purchased for immediate delivery.
   f. **General Admin** – covers procedural issues within the PJM MC.
   g. **Other System Operations** – issues such as market efficiency analysis recommendations and deployment of other system upgrades.
   h. **Out-of-Market Payments & Fuel Costs** – transactions that are exceptions to the usual PJM markets policies (such as uplift payments).
   i. **Transmission System Planning, Owner Rev Requirements, and Cost Allocations** – costs related to operations and upgrades to transmission system.
3. **Issue Summary:** briefly summarizes the issue matter and is the author's paraphrasing of information from PJM MC issue presentation documents or other relevant information.
4. **Issue Description:** detailed description of the issue. The description often references direct phrasing from PJM MC issue presentation documents or other relevant information.
5. **Item:** title of the voting item as written in voting reports published by PJM.
6. **Yes:** number of affirmative votes cast by all present stakeholders.
7. **No:** number of negative votes cast by all present stakeholders.
8. **Abstain:** number of abstentions by all present stakeholders.
9. **Transmission:** average sector vote score calculated for the Transmission Owner sector (% of votes in favor of the proposal excluding abstentions for the sector, as described in equation 1).
10. **Generation:** average sector vote score calculated for the Generation Owner sector (% of votes in favor of the proposal excluding abstentions for the sector, as described in equation 1).
11. **EUC:** average sector vote score calculated for the End-Use Customer sector (% of votes in favor of the proposal excluding abstentions for the sector, as described in equation 1).
12. **ED:** average sector vote score calculated for the Electric Distributor sector (% of votes in favor of the proposal excluding abstentions for the sector, as described in equation 1).
13. **Other Supplier:** average sector vote score calculated for the Other Supplier sector (% of votes in favor of the proposal excluding abstentions for the sector, as described in equation 1).
14. **Voting Score:** the sum across all sectors taken to calculate the overall vote score, as described in equation 2.
15. **Outcome:** if the vote score is ≥ 3.335, a voting item passes; otherwise the vote fails.

Appendix 2. Northeastern RTO Stakeholder Master Data - Annotated Columns

1. **No.:** number assigned for a single stakeholder/RTO combination (992 stakeholders). The list comprises:
   a. Stakeholders that have participated in committee voting.
   b. Stakeholders that are on the committee roster available at time of data collection and are voting members. The distinction between membership type is made in column 11.
2. **Name:** name of the RTO stakeholder.
3. **RTO/ISO:** indicates membership of the ISO New England, New York ISO or PJM Interconnection.
4. **Sector (PJM):** stakeholders choose a sector affiliation upon membership. In the PJM Interconnection, the sectors include Transmission Owner, Generation Owner, End-Use Customer, Electric Distributor, and Other Supplier. The PJM sectors are applied to ISO New England and New York ISO by the author to establish sectoral consistency across RTOs.
5. **Sector (RTO-Specific):** stakeholders choose a sector affiliation upon membership. Stakeholder sector affiliation within the RTO is reported. In the Northeastern RTOs, each RTO has a unique, but similar sector list. In cases where stakeholders have changed sectors, this file captures the most frequent affiliation throughout the time period (2010-2019). Count of stakeholders by RTO & sector:
6. **Company Line of Business:** stakeholder line of business as indicated in the item vote report or author's company website inquiry. For example, a stakeholder can be affiliated with the Other Suppliers sector and operate in the Curtailment Service Provider line of business. The author denotes incomplete observations as "Unspecified LOB."
7. **Buyer-Seller:** stakeholder designation with respect to the sale of wholesale electricity. The PJM Interconnection item vote report designates based on the Net Due amount totaled from the 12 months of PJM bills of the prior year; otherwise, the designation is based on author's grouping of the stakeholder's generation, transmission and load server operations. Stakeholder is considered a buyer unless the generation grouping is similar to or greater than its grouping of transmission and load server operations.
8. **Generation:** groups based on MW Installed Capacity. Each company is categorized as Zero, Small, Medium, or Large based on a snapshot of MW of capacity installed as indicated in the EIA 860 - 2018 Report; with the exception of PJM voting stakeholders, where the generation group is indicated in the item vote report. The author established a static linkage between the EIA 860 - 2018 Report and the stakeholder. Capturing the temporal change associated with asset ownership sale, retirement, or new uprated capacity is out of scope. The category scale is consistent with the PJM Interconnection stakeholder grouping process.

Zero:	0
Small:	<500
Medium:	>=500 and <=3,000
Large:	>3,000

9. **Transmission:** groups based on Revenue Requirements ($MM). Each company is categorized as Zero, Small, Medium, or Large. In ISO New England, the categorization is based on the ISO New England Schedule 9 Rate Development Worksheet. In New York ISO, the categorization is based on the annual expenses found in financial statements of the company. In the PJM Interconnection, the categorization is indicated in the item vote report. The category scale is consistent with the PJM Interconnection stakeholder grouping process.

Zero:	0

Small: <50
        Medium: >=50 and <=150
        Large: >150

10. **Load Server:** groups based on Avg Real-Time Metered Load (MW) over all the hours of the year. Each company is categorized as Zero, Small, Medium, or Large based on the EIA 861 – 2018 Report which quantifies Sales (MWh). The Avg Real-Time Metered Load (MW) over all the hours of the year is calculated by dividing the Sales (Megawatthours) by 8,760 hours by the author. The author established the linkage between the EIA 861 - 2018 Report and the stakeholder. In the PJM Interconnection, the categorization is indicated in the item vote report. The category scale is consistent with the PJM Interconnection stakeholder grouping process.

        Zero: 0
        Small: <1,000
        Medium: >=1,000 and <=5,000
        Large: >5,000

11. **Member Status:** membership status per the most recent stakeholder roster.
    a. Voting Member
    b. Not a Current Member
    c. Non-Voting Entity
    d. Non-Voting Affiliate
    e. Ex Officio Member
    f. Associate Member

12. **Active:** indicates whether a stakeholder has cast a vote (either affirmative or negative) (Yes), or has not yet participated as a voter (No) in a formal, sector-weighted voting procedure. If a stakeholder was present at a meeting that involved a "show of hands" voting method, their participation would thus not be captured.

13. **Votes:** count of stakeholder-level votes (either affirmative or negative) recorded in a formal, sector-weighted voting procedure.

14. **Total RTO Votes:** total proposals voted upon by stakeholders in each RTO (available publicly and to the author at time of collection without further request).

15. **Vote Participation:** participation rate calculated by dividing *Votes* by *Total RTO Votes*.

16. **Timeframe RTO Votes:** proposals voted upon in each RTO within the timeframe in which a stakeholder has participated. The timeframe considers the first and last votes cast by the stakeholder. This value may be a better denominator to be used for participation rate comparison.

17. **Timeframe Participation:** participation rate calculated by dividing *Votes* by *Timeframe RTO Votes*.

18. **First Vote:** date of the first vote cast by the stakeholder.

19. **Last Vote:** date of the last vote cast by the stakeholder.

20. **Operable:** the EIA 860 - 2018 Report classifies power plants as operable, proposed or retired. The author established the linkage between the EIA 860 - 2018 Report and the stakeholder. Per this plant-level snapshot, the total operable nameplate capacity (MW) for each stakeholder is reported.

21. **Proposed:** the EIA 860 - 2018 Report classifies power plants as operable, proposed or retired. The author established the linkage between the EIA 860 - 2018 Report and the stakeholder. Per this plant-level snapshot, the total proposed nameplate capacity (MW) for each stakeholder is reported.

22. **Retired:** the EIA 860 - 2018 Report classifies power plants as operable, proposed or retired. The author established the linkage between the EIA 860 - 2018 Report and the stakeholder. Per this plant-level snapshot, the total retired nameplate capacity (MW) for each stakeholder is reported.

23. **Renewable:** the EIA 860 - 2018 Report classifies power plants by technology type. The author established the linkage between the EIA 860 - 2018 Report and the stakeholder and grouped certain technology types as *Renewable*. These technology types include Solar Photovoltaic, Onshore Wind Turbine, Conventional Hydroelectric, Batteries, Hydroelectric Pumped Storage, Solar Thermal without Energy Storage, Solar Thermal with Energy Storage, and Offshore Wind Turbine. Per this plant-level snapshot, the total renewable nameplate capacity (MW) for each stakeholder is reported.

24. **Coal & Oil:** the EIA 860 - 2018 Report classifies power plants by technology type. The author established the linkage between the EIA 860 - 2018 Report and the stakeholder and grouped certain technology types as *Coal & Oil*. These technology types include Petroleum Liquids, Conventional Steam Coal, Coal Integrated Gasification Combined Cycle, and Petroleum Coke. Per this plant-level snapshot, the total coal & oil nameplate capacity (MW) for each stakeholder is reported.

25. **Natural Gas:** the EIA 860 - 2018 Report classifies power plants by technology type. The author established the linkage between the EIA 860 - 2018 Report and the stakeholder and grouped certain technology types as *Natural Gas*. These technology types include Natural Gas Fired Combustion Turbine, Natural Gas Fired Combined Cycle, Natural Gas Steam Turbine, Natural Gas Internal Combustion Engine, Other Natural Gas, and Natural Gas with Compressed Air Storage. Per this plant-level snapshot, the total natural gas nameplate capacity (MW) for each stakeholder is reported.

26. **Nuclear:** the EIA 860 - 2018 Report classifies power plants by technology type. The author established the linkage between the EIA 860 - 2018 Report and the stakeholder and grouped the nuclear technology type as *Nuclear*. Per this plant-level snapshot, the total nuclear nameplate capacity (MW) for each stakeholder is reported.

27. **Other:** the EIA 860 - 2018 Report classifies power plants by technology type. The author established the linkage between the EIA 860 - 2018 Report and the stakeholder and grouped certain technology types as *Other*. These technology types include Landfill Gas, Other Gases, Other Waste Biomass, Wood/Wood Waste Biomass, All Other, Flywheels, Municipal Solid Waste, and Geothermal. Per this plant-level snapshot, the total nuclear nameplate capacity (MW) for each stakeholder is reported.

28. **Sales MWh:** average real-time metered load (MW) over all the hours of the year. The EIA 861 – 2018 Report quantifies Sales (MWh). The average real-time metered load (MW) over all the hours of the year is calculated by dividing the Sales (MWh) by 8,760 hours by the author. The author established the linkage between the EIA 861 - 2018 Report and the stakeholder. This task is completed for ISO New England and New York ISO; in the PJM Interconnection, the load server categorization is indicated in the item vote report.

29. **TO - RR/Est. OPEX ($MM):** transmission owner revenue requirements ($MM) or estimated operations expenses. In ISO New England, the transmission size is based on revenue requirements listed in the ISO New England Schedule 9 Rate Development Worksheet. In New York ISO, the transmission size is based on the annual expenses found in financial statements of the company.

30. **Parent/Subsidiary/Other:** the author noted a few stakeholder associations such as Exelon, PECO Energy Company, and Potomac Electric Power Company.

31. **PJM Power Providers Group ("P3"):** per the P3, the "nonprofit corporation [is] dedicated to promoting policies that will allow the PJM region to fulfill the promise of its competitive wholesale electricity markets. P3 strongly believes that properly designed and well-functioning competitive markets are the most effective means of ensuring a reliable supply of power to the PJM region, facilitating investments in alternative energy and demand response technology, and promoting prices that will allow consumers to enjoy the benefits of competitive electricity markets. Combined, P3 members own over 87,000 megawatts of generation assets, own over 51,000 miles of transmission lines, serve nearly 12.2 million customers and employ over 55,000 people in the PJM

region – encompassing 13 states and the District of Columbia." (https://www.p3powergroup.com/) In the context of this data, the P3 is intriguing because it is a recognized coalition of generation owners.

32. **2010-11:** initial operating year of plant capacity in 2010-11 (Total Nameplate Capacity - MW). The author retrieved EIA 860 Reports from 2010-2018 to ascertain newly operable plants across years. The author established the linkage between the EIA 860 - 2018 Report and referred to this temporal view of power plant outlaid investment.

33. **2011-12:** initial operating year of plant capacity in 2011-12 (Total Nameplate Capacity - MW). The author retrieved EIA 860 Reports from 2010-2018 to ascertain newly operable plants across years. The author established the linkage between the EIA 860 - 2018 Report and referred to this temporal view of power plant outlaid investment.

34. **2012-13:** initial operating year of plant capacity in 2010-13 (Total Nameplate Capacity - MW). The author retrieved EIA 860 Reports from 2010-2018 to ascertain newly operable plants across years. The author established the linkage between the EIA 860 - 2018 Report and referred to this temporal view of power plant outlaid investment.

35. **2013-14:** initial operating year of plant capacity in 2010-14 (Total Nameplate Capacity - MW). The author retrieved EIA 860 Reports from 2010-2018 to ascertain newly operable plants across years. The author established the linkage between the EIA 860 - 2018 Report and referred to this temporal view of power plant outlaid investment.

36. **2014-15:** initial operating year of plant capacity in 2010-15 (Total Nameplate Capacity - MW). The author retrieved EIA 860 Reports from 2010-2018 to ascertain newly operable plants across years. The author established the linkage between the EIA 860 - 2018 Report and referred to this temporal view of power plant outlaid investment.

37. **2015-16:** initial operating year of plant capacity in 2015-16 (Total Nameplate Capacity - MW). The author retrieved EIA 860 Reports from 2010-2018 to ascertain newly operable plants across years. The author established the linkage between the EIA 860 - 2018 Report and referred to this temporal view of power plant outlaid investment.

38. **2016-17:** initial operating year of plant capacity in 2016-17 (Total Nameplate Capacity - MW). The author retrieved EIA 860 Reports from 2010-2018 to ascertain newly operable plants across years. The author established the linkage between the EIA 860 - 2018 Report and referred to this temporal view of power plant outlaid investment.

39. **2017-18:** initial operating year of plant capacity in 2017-18 (Total Nameplate Capacity - MW). The author retrieved EIA 860 Reports from 2010-2018 to ascertain newly operable plants across years. The author established the linkage between the EIA 860 - 2018 Report and referred to this temporal view of power plant outlaid investment.

40. **New Plant Total:** estimate of total new plant capacity between 2010-18 (Total Nameplate Capacity - MW). The sum of the preceding annual columns is calculated by the author.

Appendix 3: Detailed Regression Output Tables:

Regression I:

- **PJM**
- **ISO New England**

Regression II:

- **PJM**
- **New York ISO**
- **ISO New England**

Regression III:

- **PJM**
- **New York ISO**
- **ISO New England**

Regression IV:

- **PJM**
- **New York ISO**
- **ISO New England**

Regression 1a. PJM Cross-Sectional Probit Regression of Participation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Active							
Generation Owner	0.192						
	(0.134)						
Transmission Owner	///			///			
Electric Distributor	1.146***			0.539			
	(0.237)			(0.283			
End-Use Customer	0.920***			0.900***			
	(0.222)			(0.229)			
G - Small		0.019	0.027				
		(0.144)	(0.144)				
G - Medium		0.436	0.101		0.462		
		(0.314)	(0.353)		(0.321)		
G - Large		0.971*	0.766		1.034*		
		(0.464)	(0.494)		(0.46)		
LS - Small		1.114***	1.126***				
		(0.221)	(0.22)				
LS - Medium		///	///				
LS - Large		///	///				
P3			///				
Non-Generation Owner x G - Small=1				0.943***			
				(0.226)			
Non-Generation Owner x G - Medium=1				///			
Non-Generation Owner x G - Large=1				///			
Generation Owner x G - Small=0				0.263			
				(0.679)			
Generation Owner x G - Small=1				-0.802			
				(0.822)			
Generation Owner x G - Medium=0				0.566			

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				(0.419)			
Generation Owner x G - Medium=1				///			
Generation Owner x G - Large=0				0.135			
				(0.586)			
Generation Owner x G - Large=1				///			
Renewable						-0.721*	
						(0.35)	
Coal & Oil						0.348	
						(0.334)	
Natural Gas						1.028***	
						(0.304)	
Nuclear						0.283	
						(0.804)	
Renewable - 100MW							-0.013
							(0.082)
Coal & Oil - 100MW							0.013
							(0.013)
Natural Gas - 100MW							0.088*
							(0.04)
Nuclear - 100MW							0
							(0.008)
Constant	-0.322***	-0.260***	-0.271***	-0.326***	-0.126	-0.258	-0.315*
	(0.066)	(0.062)	(0.062)	(0.066)	(0.126)	(0.265)	(0.141)
Observations	575	584	575	571	130	130	130
Pseudo R^2	0.052	0.054	0.052	0.05	0.04	0.217	0.164

Regression 1b. PJM Cross-Sectional Logit Regression of Participation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Active									
Generation Owner	1.362								
	(0.293)								
Transmission Owner	///					///			
Electric Distributor	6.495***					2.448			
	(2.668)					(1.172)			
End-Use Customer	4.419***					4.387***			
	(1.635)					(1.672)			
G - Small		1.011			1.025				
		(0.238)			(0.242)				
G - Medium		1.996			1.165		2.095		
		(1.008)			(0.66)		(1.09)		
G - Large		4.832*			3.403		5.50*		
		(3.883)			(2.828)		(4.46)		
LS - Small		6.272***	6.762***	6.762***	6.397***				
		(2.463)	(2.348)	(2.348)	(2.504)				
LS - Medium		///	///	///	///				
LS - Large		///	///	///	///				
Operable - 100MW			1.045						
			(0.025)						
Operable - GW				1.555					
				(0.377)					
P3						///			
Non-Generation Owner x G - Small=1						4.791***			
						(1.821)			
Non-Generation Owner x G - Medium=1						///			
Non-Generation Owner x G - Large=1						///			

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Generation Owner x G - Small=0						1.521			
						(1.684)			
Generation Owner x G - Small=1						0.272			
						(0.367)			
Generation Owner x G - Medium=0						2.5			
						(1.698)			
Generation Owner x G - Medium=1						///			
Generation Owner x G - Large=0						1.25			
						(1.203)			
Generation Owner x G - Large=1						///			
Renewable								0.297*	
								(0.181)	
Coal & Oil								1.759	
								(0.996)	
Natural Gas								5.365***	
								(2.724)	
Nuclear								1.565	
								(2.164)	
Renewable - 100MW									0.979
									(0.141)
Coal & Oil - 100MW									1.02
									(0.021)
Natural Gas - 100MW									1.2
									(0.118)
Nuclear - 100MW									0.996
									(0.015)
Observations	575	584	584	584	575	571	130	130	130
Pseudo R^2	0.052	0.053	0.067	0.067	0.052	0.092	0.04	0.217	0.172

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Regression 1a. & 1b. Notes:

Standard errors in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

(1) i. Transmission Owner predicts success perfectly - dropped and 20 observations not used.

(2) i. LS - Medium predicts success perfectly - dropped and 8 observations not used.
    ii. LS - Large predicts success perfectly - dropped and 3 observations not used.
(3) i. LS - Medium predicts success perfectly - dropped and 8 observations not used.
    ii. LS - Large predicts success perfectly - dropped and 3 observations not used.
(4) i. LS - Medium predicts success perfectly - dropped and 8 observations not used.
    ii. LS - Large predicts success perfectly - dropped and 3 observations not used.
(5) i. LS - Medium predicts success perfectly - dropped and 8 observations not used.
    ii. LS - Large predicts success perfectly - dropped and 3 observations not used.
    iii. P3 - PJM Power Providers Group predicts success perfectly - dropped and 9 observations not used.
(6) i. Transmission Owner predicts success perfectly - dropped and 20 observations not used.
    ii. Non-GO x G - Medium - empty.
    iii. Non-GO x G - Large - empty.
    iv. GO x G - Medium predicts success perfectly - dropped and 6 observations not used.
    v. GO x G - Large predicts success perfectly - dropped and 8 observations not used.
(7) i. Sample excludes stakeholders that do not own generation assets.
(8) i. Sample excludes stakeholders that do not own generation assets.
(9) i. Sample excludes stakeholders that do not own generation assets.

Regression 2. PJM Cross-Sectional Poisson Regression of Participation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Vote Count							
Generation Owner	1.466***						
	(0.063)						
Transmission Owner	2.633***			2.077***			
	(0.13)			(0.13)			
Electric Distributor	3.095***			2.285***			
	(0.125)			(0.111)			
End-Use Customer	1.810***			1.829***			
	(0.089)			(0.09)			
G - Small		1.539***	1.537***				
		(0.063)	(0.063)				
G - Medium		1.975***	1.952***		1.140*		
		(0.123)	(0.133)		(0.074)		
G - Large		2.047***	2.030***		1.338***		
		(0.134)	(0.138)		(0.091)		
LS - Small		1.542***	1.546***				
		(0.064)	(0.065)				
LS - Medium		1.109	1.117				
		(0.089)	(0.092)				
LS - Large		1.179	1.192				
		(0.14)	(0.144)				
P3			1.037				
			(0.089)				
Non-Generation Owner x G - Small=1				1.582***			
				(0.068)			
Non-Generation Owner x G - Medium=1				1.808***			
				(0.147)			
Non-Generation Owner x G - Large=1				1.419***			
				(0.121)			
Generation Owner x G - Small=0				3.192***			
				(0.489)			
Generation Owner x G - Small=1				4.089***			

				(0.797)			
Generation Owner x G - Medium=0				0.772*			
				(0.086)			
Generation Owner x G - Medium=1				///			
Generation Owner x G - Large=0				0.532***			
				(0.063)			
Generation Owner x G - Large=1				///			
Renewable						1.201*	
						(0.11)	
Coal & Oil						1.394***	
						(0.082)	
Natural Gas						1.035	
						(0.064)	
Nuclear						1.811***	
						(0.219)	
Renewable - 100MW							1.005
							(0.007)
Coal & Oil - 100MW							1.004**
							(0.001)
Natural Gas - 100MW							0.999
							(0.002)
Nuclear - 100MW							1.002
							(0.001)
Observations	274	274	274	274	66	66	66
Pseudo R^2	0.189	0.14	0.14	0.222	0.017	0.045	0.019

Regression Notes:

Exponentiated coefficients
Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

(4) i. GO x G - Medium omitted due to collinearity.
    ii. GO x G - Large omitted due to collinearity.
(5) i. Sample excludes stakeholders that do not own generation assets.
(6) i. Sample excludes stakeholders that do not own generation assets.
(7) i. Sample excludes stakeholders that do not own generation assets.

Regression 3a. PJM Panel-Data Regression of Stakeholder Participation (GO: Sector x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
Generation Owner x Category	**-0.124**	**-0.233***	**-0.273****	**-0.095**	**0.621****	**0.195**
	(0.08)	**(0.10)**	**(0.11)**	**(0.13)**	**(0.12)**	**(0.14)**
Generation Owner	**0.255**	**0.251**	**0.247**	**0.221**	**0.155**	**0.2**
	(0.16)	**(0.16)**	**(0.16)**	**(0.16)**	**(0.16)**	**(0.16)**
Transmission Owner	0.700**	0.704**	0.703**	0.705**	0.695**	0.703**
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Electric Distributor	1.457***	1.454***	1.459***	1.455***	1.461***	1.456***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
End-Use Customer	0.693**	0.694**	0.694**	0.694**	0.696**	0.694**
	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)
Capacity Market	**0.357****	0.333**	0.333**	0.332**	0.331**	0.331**
	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Demand Response	0.306**	**0.350****	0.306**	0.305**	0.303**	0.304**
	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.507***	0.507***	**0.558****	0.506***	0.504***	0.505***
	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)
Energy Market	0.289**	0.288**	0.289**	**0.305****	0.285*	0.287*
	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)
General Admin	0.187	0.187	0.187	0.187	**0.051**	0.186
	(0.11)	(0.11)	(0.11)	(0.11)	**(0.12)**	(0.11)
Transmission System Planning	0.235*	0.234*	0.234*	0.234*	0.232*	**0.194**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**
Out-of-Market Payments & Fuel Costs	0.380**	0.380**	0.380**	0.379**	0.378**	0.378**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Other System Operations	0.119	0.118	0.119	0.118	0.117	0.118
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Constant	-1.095***	-1.094***	-1.094***	-1.088***	-1.074***	-1.083***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
/						
lnsig2u	0.117	0.118	0.118	0.117	0.123	0.117
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Regression 3b. PJM Panel-Data Regression of Participation (TO: Sector x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
Transmission Owner x Category	**-0.022**	**0.193**	**-0.22**	**-0.432***	**0.018**	**0.118**
	(0.11)	**(0.14)**	**(0.16)**	**(0.18)**	**(0.19)**	**(0.22)**
Generation Owner	0.211	0.211	0.212	0.209	0.211	0.211
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Transmission Owner	**0.713****	**0.673****	**0.734****	**0.745****	**0.703****	**0.698****
	(0.24)	**(0.23)**	**(0.23)**	**(0.23)**	**(0.23)**	**(0.23)**
Electric Distributor	1.455***	1.455***	1.455***	1.455***	1.455***	1.455***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
End-Use Customer	0.693**	0.693**	0.694**	0.693**	0.693**	0.693**
	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)
Capacity Market	**0.334****	0.331**	0.332**	0.333**	0.332**	0.332**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Demand Response	0.305**	**0.289****	0.305**	0.305**	0.305**	0.304**
	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.506***	0.505***	**0.521*****	0.507***	0.505***	0.505***
	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)
Energy Market	0.287*	0.287*	0.287**	**0.322****	0.287*	0.287*
	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)
General Admin	0.187	0.186	0.187	0.187	**0.185**	0.186
	(0.11)	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)
Transmission System Planning	0.233*	0.233*	0.234*	0.234*	0.233*	**0.224**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**
Out-of-Market Payments & Fuel Costs	0.379**	0.378**	0.379**	0.380**	0.379**	0.379**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Other System Operations	0.118	0.118	0.118	0.118	0.118	0.118
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Constant	-1.086***	-1.082***	-1.088***	-1.089***	-1.085***	-1.085***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
/						
lnsig2u	0.117	0.117	0.117	0.118	0.117	0.117
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Regression 3c. PJM Panel-Data Regression of Participation (ED: Sector x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
Electric Distributor x Category	**0.271****	**0.309***	**0.265**	**-0.675*****	**-0.728*****	**-0.487****
	(0.10)	**(0.12)**	**(0.14)**	**(0.16)**	**(0.16)**	**(0.18)**
Generation Owner	0.21	0.21	0.21	0.208	0.21	0.21
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Transmission Owner	0.700**	0.704**	0.702**	0.700**	0.693**	0.701**
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Electric Distributor	**1.370*****	**1.407*****	**1.426*****	**1.531*****	**1.534*****	**1.498*****
	(0.18)	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**
End-Use Customer	0.694**	0.694**	0.693**	0.694**	0.694**	0.693**
	(0.21)	(0.21)	(0.21)	(0.21)	(0.22)	(0.21)
Capacity Market	**0.301****	0.330**	0.331**	0.334**	0.334**	0.333**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Demand Response	0.303**	**0.271***	0.304**	0.306**	0.306**	0.306**
	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.502***	0.504***	**0.480*****	0.508***	0.508***	0.507***
	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)
Energy Market	0.285*	0.286*	0.286*	**0.364****	0.289**	0.288**
	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)
General Admin	0.185	0.186	0.186	0.188	**0.271***	0.187
	(0.11)	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)
Transmission System Planning	0.232*	0.233*	0.233*	0.234*	0.234*	**0.292***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**
Out-of-Market Payments & Fuel Costs	0.376**	0.377**	0.378**	0.381**	0.381**	0.380**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Other System Operations	0.117	0.118	0.118	0.119	0.119	0.118
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Constant	-1.073***	-1.079***	-1.081***	-1.094***	-1.093***	-1.090***
	(0.13)	(0.13)	(0.13)	(0.14)	(0.14)	(0.13)
/						
lnsig2u	0.119	0.117	0.118	0.122	0.124	0.119
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Regression 3d. PJM Panel-Data Regression of Participation (EUC: Sector x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
End-Use Customer x Category	**-0.066**	**-0.217**	**-0.124**	**-0.243**	**0.093**	**0.266**
	(0.09)	**(0.12)**	**(0.13)**	**(0.16)**	**(0.16)**	**(0.18)**
Generation Owner	0.211	0.21	0.212	0.21	0.211	0.211
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Transmission Owner	0.705**	0.704**	0.705**	0.703**	0.705**	0.705**
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Electric Distributor	1.456***	1.456***	1.456***	1.454***	1.456***	1.457***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
End-Use Customer	**0.718***	**0.730***	**0.710***	**0.713***	**0.686**	**0.677**
	(0.22)	**(0.22)**	**(0.22)**	**(0.21)**	**(0.21)**	**(0.21)**
Capacity Market	**0.340**	0.332**	0.332**	0.332**	0.332**	0.332**
	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Demand Response	0.305**	**0.330**	0.305**	0.305**	0.304**	0.304**
	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.506***	0.506***	**0.520***	0.506***	0.505***	0.505***
	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)	(0.11)
Energy Market	0.287**	0.288**	0.287**	**0.314**	0.287*	0.287*
	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)	(0.11)
General Admin	0.187	0.187	0.187	0.187	**0.176**	0.186
	(0.11)	(0.11)	(0.11)	(0.11)	**(0.11)**	(0.11)
Transmission System Planning	0.233*	0.234*	0.233*	0.234*	0.233*	**0.201**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**
Out-of-Market Payments & Fuel Costs	0.379**	0.379**	0.379**	0.379**	0.379**	0.379**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Other System Operations	0.118	0.118	0.118	0.118	0.118	0.118
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Constant	-1.089***	-1.090***	-1.088***	-1.088***	-1.084***	-1.083***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
/						
lnsig2u	0.117	0.117	0.117	0.118	0.117	0.117
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Regression 3e - PJM Panel-Data Logit Regression of Participation (GO x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
Generation Owner x Category	**0.793**	**0.654***	**0.651***	**0.904**	**3.048***	**1.38**
	(0.10)	**(0.11)**	**(0.12)**	**(0.20)**	**(0.65)**	**(0.35)**
Generation Owner	**1.603**	**1.588**	**1.564**	**1.489**	**1.342**	**1.449**
	(0.47)	**(0.46)**	**(0.45)**	**(0.43)**	**(0.39)**	**(0.42)**
Transmission Owner	3.435**	3.455**	3.462**	3.463**	3.416**	3.453**
	(1.44)	(1.45)	(1.46)	(1.46)	(1.44)	(1.45)
Electric Distributor	13.057***	13.004***	13.121***	13.032***	13.200***	13.040***
	(4.39)	(4.38)	(4.41)	(4.38)	(4.44)	(4.38)
End-Use Customer	3.516**	3.519**	3.519**	3.514**	3.532**	3.515**
	(1.37)	(1.37)	(1.37)	(1.37)	(1.38)	(1.37)
Capacity Market	**1.879***	1.794**	1.795**	1.795**	1.799**	1.796**
	(0.35)	(0.33)	(0.33)	(0.33)	(0.33)	(0.33)
Demand Response	1.729**	**1.877**	1.729**	1.730**	1.734**	1.730**
	(0.33)	**(0.36)**	(0.33)	(0.33)	(0.33)	(0.33)
ARR & FTR	2.387***	2.387***	**2.595***	2.388***	2.394***	2.389***
	(0.46)	(0.46)	**(0.51)**	(0.46)	(0.46)	(0.46)
Energy Market	1.579*	1.579*	1.580*	**1.612***	1.583*	1.580*
	(0.31)	(0.31)	(0.31)	**(0.33)**	(0.32)	(0.31)
General Admin	1.35	1.35	1.351	1.351	**1.064**	1.351
	(0.27)	(0.27)	(0.27)	(0.27)	**(0.22)**	(0.27)
Transmission System Planning	1.487	1.487	1.487	1.487	1.488	**1.394**
	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	**(0.30)**
Out-of-Market Payments & Fuel Costs	1.968**	1.968**	1.969**	1.969**	1.973**	1.969**
	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)
Other System Operations	1.233	1.233	1.233	1.233	1.234	1.234
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
/						
lnsig2u	3.654***	3.656***	3.654***	3.651***	3.672***	3.653***
	-0.391	-0.391	-0.391	-0.39	-0.393	-0.391
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Regression 3f. PJM Panel-Data Logit Regression of Participation (TO x Categories)

	(1)	(2)	(3)	(4)	(5)	(6)
	Capacity Market	Demand Response	ARR & FTR	Energy Market	General Admin	Transmission System Related
Participation						
Transmission Owner x Category	**0.944**	**1.383**	**0.676**	**0.513***	**1.043**	**1.188**
	-0.183	**-0.341**	**-0.184**	**-0.165**	**-0.34**	**-0.445**
Generation Owner	1.475	1.475	1.477	1.472	1.475	1.475
	-0.426	-0.426	-0.427	-0.425	-0.426	-0.426
Transmission Owner	**3.536****	**3.279****	**3.641****	**3.680****	**3.450****	**3.426****
	-1.507	**-1.384**	**-1.536**	**-1.552**	**-1.453**	**-1.442**
Electric Distributor	13.028***	13.020***	13.037***	13.009***	13.032***	13.032***
	-4.38	-4.378	-4.383	-4.375	-4.381	-4.381
End-Use Customer	3.513**	3.513**	3.516**	3.511**	3.513**	3.513**
	-1.37	-1.37	-1.371	-1.37	-1.37	-1.37
Capacity Market	**1.804****	1.794**	1.797**	1.798**	1.795**	1.795**
	-0.334	-0.331	-0.332	-0.332	-0.331	-0.331
Demand Response	1.730**	**1.686****	1.731**	1.732**	1.730**	1.730**
	-0.328	**-0.321**	-0.328	-0.328	-0.327	-0.327
ARR & FTR	2.389***	2.385***	**2.458*****	2.392***	2.388***	2.387***
	-0.458	-0.457	**-0.474**	-0.459	-0.458	-0.458
Energy Market	1.580*	1.579*	1.581*	**1.669***	1.580*	1.580*
	-0.314	-0.313	-0.314	**-0.334**	-0.314	-0.314
General Admin	1.351	1.35	1.351	1.352	**1.346**	1.351
	-0.269	-0.269	-0.27	-0.27	**-0.271**	-0.269
Transmission System Related	1.487	1.486	1.488	1.488	1.487	**1.466**
	-0.305	-0.304	-0.305	-0.305	-0.305	**-0.304**
Out-of-Market Payments & Fuel Costs	1.970**	1.967**	1.971**	1.972**	1.969**	1.968**
	-0.422	-0.421	-0.423	-0.423	-0.422	-0.422
Other System Operations	1.234	1.233	1.234	1.234	1.233	1.233
	-0.269	-0.269	-0.269	-0.269	-0.269	-0.269
/						
lnsig2u	3.651***	3.652***	3.652***	3.654***	3.651***	3.651***
	-0.39	-0.391	-0.391	-0.391	-0.39	-0.39
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Regression 3g - PJM Panel-Data Logit Regression of Participation (ED x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
Electric Distributor x Category	**1.592****	**1.782****	**1.571**	**0.316*****	**0.283*****	**0.428****
	-0.265	**-0.38**	**-0.389**	**-0.085**	**-0.077**	**-0.13**
Generation Owner	1.476	1.473	1.474	1.466	1.479	1.471
	-0.427	-0.426	-0.426	-0.424	-0.429	-0.425
Transmission Owner	3.438**	3.457**	3.450**	3.439**	3.406**	3.440**
	-1.446	-1.454	-1.45	-1.448	-1.435	-1.447
Electric Distributor	**11.327*****	**11.948*****	**12.423*****	**14.910*****	**15.275*****	**14.076*****
	-3.845	**-4.032**	**-4.188**	**-5.052**	**-5.191**	**-4.755**
End-Use Customer	3.521**	3.516**	3.510**	3.514**	3.527**	3.514**
	-1.374	-1.372	-1.369	-1.373	-1.379	-1.372
Capacity Market	**1.698****	1.790**	1.792**	1.803**	1.804**	1.799**
	-0.314	-0.33	-0.331	-0.334	-0.335	-0.333
Demand Response	1.722**	**1.619***	1.727**	1.737**	1.738**	1.734**
	-0.325	**-0.309**	-0.327	-0.33	-0.33	-0.329
ARR & FTR	2.373***	2.379***	**2.282*****	2.402***	2.404***	2.395***
	-0.453	-0.455	**-0.441**	-0.462	-0.463	-0.46
Energy Market	1.575*	1.577*	1.578*	**1.823****	1.586*	1.583*
	-0.312	-0.313	-0.313	**-0.367**	-0.316	-0.315
General Admin	1.348	1.349	1.35	1.354	**1.588***	1.352
	-0.268	-0.268	-0.269	-0.271	**-0.321**	-0.27
Transmission System Planning	1.483	1.484	1.485	1.491	1.491	**1.657***
	-0.303	-0.304	-0.304	-0.307	-0.307	**-0.345**
Out-of-Market Payments & Fuel Costs	1.959**	1.963**	1.965**	1.978**	1.979**	1.974**
	-0.418	-0.42	-0.421	-0.425	-0.426	-0.424
Other System Operations	1.231	1.232	1.233	1.236	1.236	1.235
	-0.267	-0.268	-0.268	-0.27	-0.27	-0.27
/						
lnsig2u	3.657***	3.656***	3.654***	3.669***	3.676***	3.659***
	-0.391	-0.391	-0.391	-0.392	-0.393	-0.391
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Regression 3h - PJM Panel-Data Logit Regression of Participation (EUC x Categories)

	(1) Capacity Market	(2) Demand Response	(3) ARR & FTR	(4) Energy Market	(5) General Admin	(6) Transmission System Planning
Participation						
End-Use Customer x Category	**0.875**	**0.665***	**0.805**	**0.717**	**1.252**	**1.601**
	-0.138	**-0.134**	**-0.176**	**-0.196**	**-0.335**	**-0.48**
Generation Owner	1.474	1.472	1.476	1.473	1.474	1.474
	-0.426	-0.426	-0.426	-0.426	-0.426	-0.426
Transmission Owner	3.465**	3.460**	3.466**	3.459**	3.464**	3.465**
	-1.456	-1.455	-1.457	-1.454	-1.456	-1.456
Electric Distributor	13.057***	13.049***	13.047***	13.008***	13.046***	13.067***
	-4.389	-4.387	-4.386	-4.374	-4.386	-4.392
End-Use Customer	**3.688*****	**3.766*****	**3.617****	**3.611****	**3.450****	**3.410****
	-1.454	**-1.474**	**-1.414**	**-1.41**	**-1.348**	**-1.332**
Capacity Market	**1.825****	1.796**	1.795**	1.795**	1.795**	1.795**
	-0.339	-0.332	-0.332	-0.332	-0.332	-0.332
Demand Response	1.730**	**1.818****	1.730**	1.730**	1.730**	1.730**
	-0.328	**-0.347**	-0.328	-0.328	-0.328	-0.328
ARR & FTR	2.389***	2.389***	**2.451*****	2.388***	2.388***	2.388***
	-0.458	-0.458	**-0.474**	-0.458	-0.458	-0.458
Energy Market	1.580*	1.580*	1.580*	**1.645***	1.580*	1.580*
	-0.314	-0.314	-0.314	**-0.331**	-0.314	-0.314
General Admin	1.351	1.351	1.351	1.351	**1.313**	1.351
	-0.269	-0.269	-0.269	-0.269	**-0.266**	-0.269
Transmission System Planning	1.487	1.487	1.487	1.487	1.487	**1.399**
	-0.305	-0.305	-0.305	-0.305	-0.305	**-0.292**
Out-of-Market Payments & Fuel Costs	1.969**	1.970**	1.969**	1.969**	1.969**	1.969**
	-0.422	-0.422	-0.422	-0.422	-0.422	-0.422
Other System Operations	1.233	1.234	1.233	1.233	1.233	1.233
	-0.269	-0.269	-0.269	-0.269	-0.269	-0.269
/						
lnsig2u	3.651***	3.655***	3.651***	3.652***	3.651***	3.652***
	-0.39	-0.391	-0.39	-0.391	-0.391	-0.391
Observations	12604	12604	12604	12604	12604	12604
Pseudo R^2						

Regression 4a. PJM Panel-Data Probit Regression of Participation (Close Votes)

	(1)	(2)	(3)	(4)
	Vote Score: 33%-66%	Vote Score: 50-83%	Vote Score: 58%-75%	Absolute Value (- Threshold)
Participation				
Close Vote Outcome	**0.119*****	**0.037**	**-0.063***	**0.054***
	(0.03)	**(0.03)**	**(0.03)**	**(0.03)**
Generation Owner	0.211	0.21	0.212	0.211
	(0.16)	(0.16)	(0.16)	(0.16)
Transmission Owner	0.710**	0.703**	0.704**	0.708**
	(0.23)	(0.23)	(0.23)	(0.23)
End-Use Customer	0.695**	0.694**	0.693**	0.691**
	(0.21)	(0.21)	(0.21)	(0.21)
Electric Distributor	1.462***	1.454***	1.455***	1.459***
	(0.18)	(0.18)	(0.18)	(0.18)
Capacity Market	0.273**	0.313**	0.351***	0.333**
	(0.11)	(0.11)	(0.10)	(0.10)
General Admin	0.156	0.159	0.234*	0.208
	(0.11)	(0.12)	(0.12)	(0.11)
Out-of-Market Payments & Fuel Costs	0.318**	0.360**	0.411***	0.392**
	(0.12)	(0.12)	(0.12)	(0.12)
Demand Response	0.259*	0.286**	0.312**	0.311**
	(0.11)	(0.11)	(0.11)	(0.11)
ARR & FTR	0.447***	0.475***	0.536***	0.528***
	(0.11)	(0.11)	(0.11)	(0.11)
Other System Operations	0.118	0.1	0.149	0.131
	(0.12)	(0.12)	(0.12)	(0.12)
Transmission System Planning	0.195	0.209	0.253*	0.244*
	(0.12)	(0.12)	(0.12)	(0.12)
Energy Market	0.232*	0.250*	0.316**	0.308**
	(0.11)	(0.12)	(0.11)	(0.11)
Constant	-1.087***	-1.085***	-1.086***	-1.135***
	(0.13)	(0.13)	(0.13)	(0.14)
/				
lnsig2u	0.118	0.117	0.118	0.117
	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604
Pseudo R^2				

Regression 4b. PJM Panel-Data Logit Regression of Participation (Close Votes)

	(1)	(2)	(3)	(4)
	Vote Score: 33%-66%	Vote Score: 50-83%	Vote Score: 58%-75%	Absolute Value (- Threshold)
Participation				
Close Vote Outcome	**1.262**[***]	**1.066**	**0.908**	**1.092**
	(0.07)	**(0.06)**	**(0.05)**	**(0.05)**
Generation Owner	1.474	1.474	1.477	1.473
	(0.43)	(0.43)	(0.43)	(0.43)
Transmission Owner	3.503[**]	3.458[**]	3.458[**]	3.474[**]
	(1.47)	(1.45)	(1.45)	(1.46)
End-Use Customer	3.529[**]	3.516[**]	3.513[**]	3.500[**]
	(1.38)	(1.37)	(1.37)	(1.36)
Electric Distributor	13.239[***]	13.016[***]	13.015[***]	13.088[***]
	(4.45)	(4.38)	(4.38)	(4.40)
Capacity Market	1.596[*]	1.738[**]	1.850[***]	1.798[**]
	(0.30)	(0.33)	(0.34)	(0.33)
General Admin	1.273	1.287	1.453	1.398
	(0.26)	(0.26)	(0.30)	(0.28)
Out-of-Market Payments & Fuel Costs	1.752[**]	1.906[**]	2.066[***]	2.012[**]
	(0.38)	(0.41)	(0.45)	(0.43)
Demand Response	1.585[*]	1.675[**]	1.751[**]	1.749[**]
	(0.30)	(0.32)	(0.33)	(0.33)
ARR & FTR	2.125[***]	2.263[***]	2.507[***]	2.479[***]
	(0.41)	(0.45)	(0.49)	(0.48)
Other System Operations	1.234	1.194	1.294	1.262
	(0.27)	(0.26)	(0.28)	(0.28)
Transmission System Planning	1.375	1.424	1.535[*]	1.513[*]
	(0.28)	(0.30)	(0.32)	(0.31)
Energy Market	1.405	1.482	1.658[*]	1.639[*]
	(0.28)	(0.31)	(0.33)	(0.33)
/				
lnsig2u	3.663[***]	3.652[***]	3.653[***]	3.652[***]
	(0.39)	(0.39)	(0.39)	(0.39)
Observations	12604	12604	12604	12604
Pseudo R^2				

Regression 4c. PJM Panel-Data Probit Regression of Participation (All Close)

	(1) Generation Owner	(2) Transmission Owner	(3) Electric Distributor	(4) End-Use Customer
Participation				
Sector x Close Vote Outcome (33%-66%)	-0.258***	-0.042	0.766***	-0.249**
	(0.07)	(0.11)	(0.10)	(0.09)
Close Vote Outcome (33%-66%)	0.170***	0.123***	0.045	0.149***
	(0.03)	(0.03)	(0.03)	(0.03)
Generation Owner	0.319*	0.211	0.205	0.21
	(0.16)	(0.16)	(0.16)	(0.16)
Transmission Owner	0.699**	0.727**	0.685**	0.710**
	(0.23)	(0.24)	(0.23)	(0.23)
Electric Distributor	1.466***	1.462***	1.208***	1.464***
	(0.18)	(0.18)	(0.19)	(0.18)
End-Use Customer	0.698**	0.696**	0.693**	0.795***
	(0.21)	(0.21)	(0.22)	(0.22)
Capacity Market	0.276**	0.273**	0.268*	0.274**
	(0.11)	(0.11)	(0.10)	(0.11)
General Admin	0.158	0.156	0.151	0.158
	(0.11)	(0.11)	(0.11)	(0.11)
Out-of-Market Payments & Fuel Costs	0.322**	0.318**	0.313*	0.318**
	(0.12)	(0.12)	(0.12)	(0.12)
Demand Response	0.262*	0.259*	0.255*	0.261*
	(0.11)	(0.11)	(0.11)	(0.11)
Auction Revenue Rights and Financial Transmission Rights	0.451***	0.448***	0.445***	0.449***
	(0.11)	(0.11)	(0.11)	(0.11)
Other System Operations	0.12	0.118	0.117	0.118
	(0.12)	(0.12)	(0.12)	(0.12)
Transmission System Planning, Owner Rev Requirements, and Cost Allocations	0.199	0.196	0.188	0.196
	(0.12)	(0.12)	(0.12)	(0.12)
Energy Market	0.236*	0.232*	0.221*	0.234*
	(0.11)	(0.11)	(0.11)	(0.11)
Constant	-1.111***	-1.088***	-1.048***	-1.100***
	(0.14)	(0.13)	(0.13)	(0.13)
/				
lnsig2u	0.12	0.118	0.134	0.119
	(0.10)	(0.10)	(0.10)	(0.10)
Observations	12604	12604	12604	12604
Pseudo R^2				

Regression 5a. NY ISO Cross-Sectional Poisson Regression of Participation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Vote Count										
Generation Owners	1.339**	1.311**								
	(0.129)	(0.126)								
Transmission Owners	5.160***	5.055***				3.442***				
	(0.574)	(0.562)				(0.424)				
End Use - Gov. Sm. Cons. & Retail Aggr.	5.295***					6.991***				
	(0.76)					(1.049)				
End Use - Gov. State-wide Cons. Advocate	5.205***					6.873***				
	(1.017)					(1.376)				
End Use - Large Consumer	3.805***					5.024***				
	(0.435)					(0.616)				
End Use - Small Consumer	3.792***					4.963***				
	(0.371)					(0.536)				
Public Power - Environmental	1.728***					2.281***				
	(0.223)					(0.311)				
Public Power - Munis & Co-ops	6.054***					7.955***				
	(0.483)					(0.709)				
Public Power - State Power Authorities	5.744***					2.578***				
	(0.798)					(0.407)				
Electric Distributor		4.287***								
		(0.321)								
End-Use Customer		3.754***								
		(0.301)								
G - Small			1.046							
			(0.071)							
G - Medium			1.12				0.919			
			(0.084				(0.078)			
G - Large			2.139***				1.866***			
			(0.248				(0.216)			
LS - Small			2.258***	2.378***	2.378***					
			(0.138)	(0.144)	(0.144)					

	(1)	(2)	(3)	(4)
LS - Medium	1.851***	1.774***	1.774***	
	(0.216)	(0.199)	(0.199)	
Operable - 100MW		1.022***		1.019***
		(0.002)		(0.003)
Operable - GW			1.239***	
			(0.028)	
Non-Generation Owner x G - Small=1			1.017	
			(0.083)	
Non-Generation Owner x G - Medium=1			2.957***	
			(0.353)	
Non-Generation Owner x G - Large=1			2.925***	
			(0.426)	
Generation Owner x G - Small=0			1.932***	
			(0.237)	
Generation Owner x G - Small=1			4.084***	
			(1.427)	
Generation Owner x G - Medium=0			0.450*	
			(0.142)	
Generation Owner x G - Medium=1			///	
Generation Owner x G - Large=0			///	
Generation Owner x G - Large=1			///	
Renewable				1.656**
				(0.292)
Coal & Oil				2.272***
				(0.275)
Natural Gas				2.337***
				(0.341)

Nuclear										3.808***
										(0.796)
Renewable - 100MW										1.015***
										(0.004)
Coal & Oil - 100MW										1.027***
										(0.008)
Natural Gas - 100MW										1.019***
										(0.006)
Nuclear - 100MW										1.023***
										(0.006)
Observations	114	114	114	114	114	114	48	48	48	48
Pseudo R^2	0.416	0.325	0.117	0.135	0.135	0.469	0.046	0.071	0.105	0.074

Regression Notes:

Exponentiated coefficients
Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

(6) i. GO x G - Medium omitted due to collinearity.
  ii. GO x G - Large omitted due to collinearity.
(7) i. Sample excludes stakeholders that do not own generation assets.
(8) i. Sample excludes stakeholders that do not own generation assets.
(9) i. Sample excludes stakeholders that do not own generation assets.
(10) i. Sample excludes stakeholders that do not own generation assets.

Regression 6a - NY ISO Panel-Data Probit Regression of Participation (GO: Sector x Categories)

	(1)	(2)	(3)	(4)
	Capacity Market	General Admin	Ancillary Services	Transmission System Planning
Participation				
Generation Owner x Category	**0.195**	**-0.403****	**0.359***	**0.249**
	(0.13)	**(0.15)**	**(0.18)**	**(0.25)**
Generation Owner	**0.052**	**0.254**	**0.082**	**0.12**
	(0.22)	**(0.22)**	**(0.21)**	**(0.21)**
Transmission Owner	1.887***	1.892***	1.892***	1.891***
	(0.40)	(0.40)	(0.40)	(0.40)
Public Power - Environmental	0.341	0.341	0.341	0.341
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - Munis & Co-ops	3.057***	3.067***	3.063***	3.063***
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - State Power Authorities	2.270***	2.279***	2.278***	2.277***
	(0.55)	(0.56)	(0.55)	(0.55)
End-Use Customer	1.343***	1.346***	1.346***	1.346***
	(0.23)	(0.23)	(0.23)	(0.23)
Capacity Market	**0.834*****	0.866***	0.875***	0.873***
	(0.18)	(0.18)	(0.18)	(0.18)
General Admin	0.755***	**0.829*****	0.754***	0.752***
	(0.18)	**(0.18)**	(0.18)	(0.18)
Ancillary Services	0.679***	0.666***	**0.593****	0.674***
	(0.19)	(0.19)	**(0.19)**	(0.19)
Transmission System Planning	0.299	0.295	0.299	**0.25**
	(0.20)	(0.20)	(0.20)	**(0.21)**
Constant	-1.691***	-1.727***	-1.698***	-1.703***
	(0.22)	(0.22)	(0.22)	(0.22)
/				
lnsig2u	-0.697***	-0.693***	-0.697***	-0.701***
	(0.18)	(0.18)	(0.18)	(0.18)
Observations	3456	3456	3456	3456
Pseudo R^2				

Regression 6b - NY ISO Panel-Data Probit Regression of Participation (TO: Sector x Categories)

	(1)	(2)	(3)	(4)
	Capacity Market	General Admin	Ancillary Services	Transmission System Planning
Participation				
Transmission Owner x Category	**-0.254**	**0.067**	**-0.186**	**-0.014**
	(0.26)	**(0.28)**	**(0.35)**	**(0.42)**
Generation Owner	0.136	0.136	0.136	0.136
	(0.21)	(0.21)	(0.21)	(0.21)
Transmission Owner	**1.985***	**1.870***	**1.917***	**1.890***
	(0.41)	**(0.40)**	**(0.40)**	**(0.40)**
Public Power - Environmental	0.341	0.341	0.341	0.341
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - Munis & Co-ops	3.062***	3.059***	3.060***	3.060***
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - State Power Authorities	2.275***	2.274***	2.274***	2.274***
	(0.55)	(0.55)	(0.55)	(0.55)
End-Use Customer	1.345***	1.344***	1.344***	1.344***
	(0.23)	(0.23)	(0.23)	(0.23)
Capacity Market	**0.886***	0.871***	0.873***	0.871***
	(0.18)	(0.18)	(0.18)	(0.18)
General Admin	0.754***	**0.747***	0.751***	0.750***
	(0.18)	**(0.18)**	(0.18)	(0.18)
Ancillary Services	0.676***	0.672***	**0.683***	0.673***
	(0.19)	(0.19)	**(0.19)**	(0.19)
Transmission System Planning	0.299	0.297	0.298	**0.298**
	(0.20)	(0.20)	(0.20)	**(0.20)**
Constant	-1.713***	-1.703***	-1.707***	-1.705***
	(0.22)	(0.22)	(0.22)	(0.22)
/				
lnsig2u	-0.700***	-0.701***	-0.701***	-0.701***
	(0.18)	(0.18)	(0.18)	(0.18)
Observations	3456	3456	3456	3456
Pseudo R^2				

Regression 6c - NY ISO Panel-Data Probit Regression of Participation (PP Environmental: Sector x Categories)

	(1) Capacity Market	(2) General Admin	(3) Ancillary Services	(4) Transmission System Planning
Participation				
Public Power - Environmental x Category	**0.397***	**0.321**	**0**	**-0.226**
	(0.19)	**(0.20)**	**(.)**	**(0.39)**
Generation Owner	0.136	0.136	0.134	0.136
	(0.21)	(0.21)	(0.21)	(0.21)
Transmission Owner	1.887***	1.888***	1.887***	1.888***
	(0.40)	(0.40)	(0.40)	(0.40)
Public Power - Environmental	**0.167**	**0.237**	**0.495**	**0.355**
	(0.32)	**(0.32)**	**(0.31)**	**(0.31)**
Public Power - Munis & Co-ops	3.057***	3.059***	3.063***	3.058***
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - State Power Authorities	2.271***	2.273***	2.271***	2.273***
	(0.55)	(0.55)	(0.56)	(0.55)
End-Use Customer	1.343***	1.344***	1.344***	1.344***
	(0.23)	(0.23)	(0.23)	(0.23)
Capacity Market	**0.840*****	0.875***	0.868***	0.871***
	(0.18)	(0.18)	(0.18)	(0.18)
General Admin	0.756***	**0.724*****	0.747***	0.750***
	(0.18)	**(0.18)**	(0.18)	(0.18)
Ancillary Services	0.676***	0.675***	**0.778*****	0.672***
	(0.19)	(0.19)	**(0.19)**	(0.19)
Transmission System Planning	0.3	0.299	0.294	**0.314**
	(0.20)	(0.20)	(0.20)	**(0.20)**
Constant	-1.694***	-1.698***	-1.715***	-1.705***
	(0.22)	(0.22)	(0.22)	(0.22)
/				
lnsig2u	-0.700***	-0.700***	-0.692***	-0.702***
	(0.18)	(0.18)	(0.18)	(0.18)
Observations	3456	3456	3421	3456
Pseudo R^2				

Regression 6d - NY ISO Panel-Data Probit Regression of Participation (PP Munis & Co-ops: Sector x Categories)

	(1)	(2)	(3)	(4)
	Capacity Market	General Admin	Ancillary Services	Transmission System Planning
Participation				
Public Power - Munis & Co-ops x Category	**-0.839***	**0.661***	**0.161**	**0**
	(0.25)	**(0.33)**	**(0.37)**	**(.)**
Generation Owner	0.136	0.136	0.136	0.136
	(0.21)	(0.21)	(0.21)	(0.21)
Transmission Owner	1.893***	1.888***	1.889***	1.892***
	(0.40)	(0.40)	(0.40)	(0.40)
Public Power - Environmental	0.341	0.341	0.341	0.342
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - Munis & Co-ops	**3.426***	**2.929***	**3.039***	**2.965***
	(0.34)	**(0.31)**	**(0.31)**	**(0.31)**
Public Power - State Power Authorities	2.280***	2.273***	2.274***	2.279***
	(0.55)	(0.55)	(0.55)	(0.55)
End-Use Customer	1.347***	1.344***	1.344***	1.347***
	(0.23)	(0.23)	(0.23)	(0.23)
Capacity Market	**0.930***	0.865***	0.870***	0.867***
	(0.18)	(0.18)	(0.18)	(0.18)
General Admin	0.769***	**0.718***	0.749***	0.746***
	(0.19)	**(0.18)**	(0.18)	(0.18)
Ancillary Services	0.689***	0.667***	**0.664***	0.669***
	(0.19)	(0.19)	**(0.19)**	(0.19)
Transmission System Planning	0.306	0.293	0.296	**0.222**
	(0.20)	(0.20)	(0.20)	**(0.20)**
Constant	-1.738***	-1.690***	-1.702***	-1.696***
	(0.22)	(0.22)	(0.22)	(0.22)
/				
lnsig2u	-0.697***	-0.695***	-0.701***	-0.697***
	(0.18)	(0.18)	(0.18)	(0.18)
Observations	3456	3456	3456	3423
Pseudo R^2				

Regression 6e - NY ISO Panel-Data Probit Regression of Participation (PP State Power: Sector x Categories)

	(1) Capacity Market	(2) General Admin	(3) Ancillary Services	(4) Transmission System Planning
Participation				
Public Power - State Power Authorities x Category	**0.093**	**0.577**	**-0.477**	**-0.511**
	(0.44)	**(0.53)**	**(0.51)**	**(0.59)**
Generation Owner	0.136	0.136	0.136	0.136
	(0.21)	(0.21)	(0.21)	(0.21)
Transmission Owner	1.889***	1.889***	1.889***	1.888***
	(0.40)	(0.40)	(0.40)	(0.40)
Public Power - Environmental	0.341	0.341	0.341	0.341
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - Munis & Co-ops	3.059***	3.059***	3.060***	3.058***
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - State Power Authorities	**2.244***	**2.145***	**2.361***	**2.345***
	(0.57)	**(0.56)**	**(0.56)**	**(0.56)**
End-Use Customer	1.344***	1.344***	1.344***	1.344***
	(0.23)	(0.23)	(0.23)	(0.23)
Capacity Market	**0.870***	0.869***	0.873***	0.872***
	(0.18)	(0.18)	(0.18)	(0.18)
General Admin	0.750***	**0.741***	0.752***	0.751***
	(0.18)	**(0.18)**	(0.18)	(0.18)
Ancillary Services	0.673***	0.672***	**0.684***	0.673***
	(0.19)	(0.19)	**(0.19)**	(0.19)
Transmission System Planning	0.297	0.297	0.297	**0.313**
	(0.20)	(0.20)	(0.20)	**(0.20)**
Constant	-1.703***	-1.700***	-1.707***	-1.706***
	(0.22)	(0.22)	(0.22)	(0.22)
/				
lnsig2u	-0.702***	-0.701***	-0.701***	-0.702***
	(0.18)	(0.18)	(0.18)	(0.18)
Observations	3456	3456	3456	3456
Pseudo R^2				

Regression 6f - NY ISO Panel-Data Probit Regression of Participation (EUC: Sector x Categories)

	(1)	(2)	(3)	(4)
	Capacity Market	General Admin	Ancillary Services	Transmission System Planning
Participation				
End-Use Customer x Category	**0.016**	**0.062**	**0.463***	**-0.609***
	(0.13)	**(0.14)**	**(0.20)**	**(0.24)**
Generation Owner	0.136	0.136	0.138	0.136
	(0.21)	(0.21)	(0.21)	(0.21)
Transmission Owner	1.889***	1.888***	1.892***	1.883***
	(0.40)	(0.40)	(0.40)	(0.40)
Public Power - Environmental	0.341	0.341	0.341	0.341
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - Munis & Co-ops	3.059***	3.059***	3.063***	3.051***
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - State Power Authorities	2.273***	2.273***	2.278***	2.264***
	(0.55)	(0.55)	(0.55)	(0.55)
End-Use Customer	**1.338***	**1.325***	**1.284***	**1.394***
	(0.23)	**(0.23)**	**(0.23)**	**(0.23)**
Capacity Market	**0.868***	0.870***	0.869***	0.874***
	(0.18)	(0.18)	(0.18)	(0.18)
General Admin	0.750***	**0.736***	0.748***	0.753***
	(0.18)	**(0.19)**	(0.18)	(0.18)
Ancillary Services	0.673***	0.672***	**0.573**	0.675***
	(0.19)	(0.19)	**(0.19)**	(0.19)
Transmission System Planning	0.297	0.297	0.297	**0.448***
	(0.20)	(0.20)	(0.20)	**(0.21)**
Constant	-1.703***	-1.699***	-1.690***	-1.716***
	(0.22)	(0.22)	(0.22)	(0.22)
/				
lnsig2u	-0.702***	-0.701***	-0.698***	-0.702***
	(0.18)	(0.18)	(0.18)	(0.18)
Observations	3456	3456	3456	3456
Pseudo R^2				

Regression 6g. NY ISO Panel-Data Logit Regression of Participation (GO x Categories)

	(1)	(2)	(3)	(4)
	Capacity Market	General Admin	Ancillary Services	Transmission System Planning
Participation				
Generation Owner x Category	**1.391**	**0.505****	**1.786**	**1.635**
	(0.33)	**(0.13)**	**(0.57)**	**(0.72)**
Generation Owner	**1.109**	**1.572**	**1.185**	**1.249**
	(0.44)	**(0.61)**	**(0.46)**	**(0.48)**
Transmission Owner	26.442***	26.735***	26.716***	26.787***
	(18.76)	(19.00)	(18.95)	(18.97)
Public Power - Environmental	1.877	1.879	1.881	1.88
	(1.05)	(1.05)	(1.05)	(1.04)
Public Power - Munis & Co-ops	231.572***	235.398***	234.233***	234.957***
	(131.93)	(134.29)	(133.40)	(133.65)
Public Power - State Power Authorities	53.927***	54.678***	54.570***	54.802***
	(54.17)	(55.00)	(54.80)	(54.96)
End-Use Customer	10.228***	10.303***	10.304***	10.317***
	(4.12)	(4.15)	(4.15)	(4.15)
Capacity Market	**4.950*****	5.208***	5.313***	5.292***
	(1.64)	(1.70)	(1.74)	(1.73)
General Admin	4.255***	**4.802*****	4.245***	4.231***
	(1.40)	**(1.59)**	(1.40)	(1.39)
Ancillary Services	3.715***	3.651***	**3.272*****	3.697***
	(1.27)	(1.24)	**(1.14)**	(1.27)
Transmission System Planning	1.917	1.902	1.916	**1.745**
	(0.69)	(0.68)	(0.69)	**(0.64)**
/				
lnsig2u	1.588*	1.592*	1.586*	1.581*
	(0.29)	(0.30)	(0.29)	(0.29)
Observations	3456	3456	3456	3456
Pseudo R^2				

Regression 6h. NY ISO Panel-Data Logit Regression of Participation (TO x Categories)

	(1)	(2)	(3)	(4)
	Capacity Market	General Admin	Ancillary Services	Transmission System Planning
Participation				
Transmission Owner x Category	**0.626**	**1.059**	**0.725**	**0.956**
	(0.28)	**(0.52)**	**(0.44)**	**(0.67)**
Generation Owner	1.287	1.287	1.287	1.287
	(0.49)	(0.49)	(0.49)	(0.49)
Transmission Owner	**31.538***	**26.166***	**27.979***	**26.754***
	(23.03)	**(18.91)**	**(20.01)**	**(19.07)**
Public Power - Environmental	1.88	1.879	1.879	1.879
	(1.05)	(1.04)	(1.04)	(1.04)
Public Power - Munis & Co-ops	234.181***	232.939***	233.026***	232.919***
	(133.31)	(132.51)	(132.56)	(132.50)
Public Power - State Power Authorities	54.573***	54.346***	54.361***	54.342***
	(54.78)	(54.51)	(54.52)	(54.50)
End-Use Customer	10.297***	10.273***	10.274***	10.273***
	(4.14)	(4.13)	(4.13)	(4.13)
Capacity Market	**5.425***	5.267***	5.285***	5.273***
	(1.79)	(1.72)	(1.73)	(1.73)
General Admin	4.255***	**4.203***	4.227***	4.218***
	(1.41)	**(1.39)**	(1.39)	(1.39)
Ancillary Services	3.716***	3.683***	**3.755***	3.686***
	(1.27)	(1.26)	**(1.29)**	(1.26)
Transmission System Planning	1.918	1.91	1.913	**1.917**
	(0.69)	(0.69)	(0.69)	**(0.70)**
/				
lnsig2u	1.584*	1.582*	1.582*	1.582*
	(0.29)	(0.29)	(0.29)	(0.29)
Observations	3456	3456	3456	3456
Pseudo R^2				

Regression 6i. NY ISO Panel-Data Logit Regression of Participation (PP Env x Categories)

	(1)	(2)	(3)	(4)
	Capacity Market	General Admin	Ancillary Services	Transmission System Planning
Participation				
Public Power - Environmental x Category	**1.879**	**1.733**	**1**	**0.688**
	(0.61)	**(0.58)**	**(.)**	**(0.47)**
Generation Owner	1.286	1.287	1.287	1.287
	(0.49)	(0.49)	(0.49)	(0.49)
Transmission Owner	26.447***	26.621***	26.630***	26.562***
	(18.73)	(18.87)	(18.93)	(18.81)
Public Power - Environmental	**1.416**	**1.568**	**2.445**	**1.918**
	(0.82)	**(0.89)**	**(1.37)**	**(1.07)**
Public Power - Munis & Co-ops	231.202***	233.068***	234.297***	232.316***
	(131.53)	(132.65)	(133.69)	(132.13)
Public Power - State Power Authorities	53.946***	54.346***	54.414***	54.220***
	(54.11)	(54.54)	(54.75)	(54.37)
End-Use Customer	10.229***	10.278***	10.275***	10.261***
	(4.11)	(4.13)	(4.14)	(4.12)
Capacity Market	**4.988*** **	5.310***	5.230***	5.264***
	(1.64)	(1.74)	(1.71)	(1.72)
General Admin	4.254***	**4.015*** **	4.184***	4.212***
	(1.40)	**(1.33)**	(1.37)	(1.39)
Ancillary Services	3.716***	3.709***	**4.481*** **	3.681***
	(1.27)	(1.27)	**(1.54)**	(1.26)
Transmission System Planning	1.919	1.917	1.902	**1.965**
	(0.69)	(0.69)	(0.68)	**(0.71)**
/				
lnsig2u	1.582*	1.584*	1.594*	1.581*
	(0.29)	(0.29)	(0.30)	(0.29)
Observations	3456	3456	3421	3456
Pseudo R^2				

Regression 6j. NY ISO Panel-Data Logit Regression of Participation (PP Muni x Categories)

	(1)	(2)	(3)	(4)
	Capacity Market	General Admin	Ancillary Services	Transmission System Planning
Participation				
Public Power - Munis & Co-ops x Category	**0.192***	**3.494**	**1.272**	**1**
	(0.09)	**(2.30)**	**(0.87)**	**(.)**
Generation Owner	1.288	1.287	1.287	1.287
	(0.49)	(0.49)	(0.49)	(0.49)
Transmission Owner	26.980***	26.578***	26.615***	26.844***
	(19.19)	(18.86)	(18.85)	(19.06)
Public Power - Environmental	1.882	1.879	1.879	1.881
	(1.05)	(1.05)	(1.04)	(1.05)
Public Power - Munis & Co-ops	**488.496***	**181.663***	**225.716***	**193.431***
	(309.92)	**(104.74)**	**(129.78)**	**(110.23)**
Public Power - State Power Authorities	55.262***	54.230***	54.351***	54.933***
	(55.64)	(54.49)	(54.52)	(55.23)
End-Use Customer	10.370***	10.268***	10.275***	10.333***
	(4.19)	(4.14)	(4.13)	(4.16)
Capacity Market	**5.953***	5.163***	5.258***	5.203***
	(2.01)	(1.68)	(1.72)	(1.69)
General Admin	4.453***	**3.971***	4.207***	4.167***
	(1.51)	**(1.30)**	(1.38)	(1.36)
Ancillary Services	3.879***	3.622***	**3.639***	3.645***
	(1.36)	(1.23)	**(1.25)**	(1.24)
Transmission System Planning	1.969	1.892	1.908	**1.671**
	(0.73)	(0.67)	(0.69)	**(0.61)**
/				
lnsig2u	1.595*	1.589*	1.582*	1.590*
	(0.30)	(0.29)	(0.29)	(0.29)
Observations	3456	3456	3456	3423
Pseudo R^2				

Regression 6k. NY ISO Panel-Data Logit Regression of Participation (PP State x Categories)

	(1)	(2)	(3)	(4)
	Capacity Market	General Admin	Ancillary Services	Transmission System Planning
Participation				
Public Power - State Power Authorities x Category	**1.256**	**3.056**	**0.416**	**0.384**
	(1.10)	**(3.42)**	**(0.39)**	**(0.39)**
Generation Owner	1.287	1.287	1.287	1.287
	(0.49)	(0.49)	(0.49)	(0.49)
Transmission Owner	26.603***	26.596***	26.620***	26.573***
	(18.84)	(18.84)	(18.86)	(18.82)
Public Power - Environmental	1.879	1.879	1.879	1.879
	(1.04)	(1.04)	(1.04)	(1.04)
Public Power - Munis & Co-ops	232.816***	232.695***	233.089***	232.435***
	(132.42)	(132.36)	(132.60)	(132.19)
Public Power - State Power Authorities	**50.898***	**42.981***	**63.985***	**63.645***
	(52.48)	**(43.74)**	**(65.68)**	**(65.26)**
End-Use Customer	10.271***	10.270***	10.275***	10.263***
	(4.13)	(4.13)	(4.13)	(4.12)
Capacity Market	**5.248***	5.234***	5.296***	5.292***
	(1.72)	(1.71)	(1.74)	(1.74)
General Admin	4.209***	**4.140***	4.235***	4.233***
	(1.38)	**(1.36)**	(1.40)	(1.40)
Ancillary Services	3.679***	3.664***	**3.761***	3.699***
	(1.26)	(1.25)	**(1.29)**	(1.27)
Transmission System Planning	1.909	1.904	1.915	**1.97**
	(0.69)	(0.68)	(0.69)	**(0.71)**
/				
lnsig2u	1.581*	1.582*	1.582*	1.581*
	(0.29)	(0.29)	(0.29)	(0.29)
Observations	3456	3456	3456	3456
Pseudo R^2				

Regression 6l. NY ISO Panel-Data Logit Regression of Participation (EUC x Categories)

	(1)	(2)	(3)	(4)
	Capacity Market	General Admin	Ancillary Services	Transmission System Planning
Participation				
End-Use Customer x Category	**1.001**	**1.103**	**2.234***	**0.369***
	(0.23)	**(0.27)**	**(0.76)**	**(0.15)**
Generation Owner	1.287	1.287	1.287	1.286
	(0.49)	(0.49)	(0.49)	(0.49)
Transmission Owner	26.615***	26.599***	26.728***	26.243***
	(18.85)	(18.84)	(18.97)	(18.59)
Public Power - Environmental	1.879	1.879	1.881	1.876
	(1.04)	(1.04)	(1.05)	(1.04)
Public Power - Munis & Co-ops	232.977***	232.734***	234.374***	228.951***
	(132.54)	(132.39)	(133.55)	(130.26)
Public Power - State Power Authorities	54.353***	54.305***	54.576***	53.422***
	(54.52)	(54.47)	(54.83)	(53.59)
End-Use Customer	**10.269*****	**9.969*****	**9.240*****	**11.202*****
	(4.23)	**(4.08)**	**(3.74)**	**(4.53)**
Capacity Market	**5.270*****	5.253***	5.219***	5.323***
	(1.75)	(1.72)	(1.71)	(1.74)
General Admin	4.217***	**4.114*****	4.182***	4.251***
	(1.39)	**(1.38)**	(1.38)	(1.40)
Ancillary Services	3.686***	3.676***	**3.050****	3.712***
	(1.26)	(1.26)	**(1.07)**	(1.27)
Transmission System Planning	1.91	1.909	1.906	**2.529***
	(0.69)	(0.69)	(0.68)	**(0.95)**
/				
lnsig2u	1.582*	1.582*	1.588*	1.583*
	(0.29)	(0.29)	(0.29)	(0.29)
Observations	3456	3456	3456	3456
Pseudo R^2				

Regression 7a. NY ISO Panel-Data Probit Regression of Participation (Close Votes)

	(1)	(2)	(3)	(4)
	Vote Score: 33%-66%	Vote Score: 50-83%	Vote Score: 58%-75%	Absolute Value (- Threshold)
Participation				
Close Vote Outcome	**0.268*****	**0.027**	**0.045**	**-0.013*****
	(0.06)	**(0.06)**	**(0.06)**	**(0.00)**
Transmission Owners	1.897***	1.889***	1.890***	1.898***
	(0.40)	(0.40)	(0.40)	(0.40)
End-Use Customer	1.355***	1.345***	1.345***	1.357***
	(0.23)	(0.23)	(0.23)	(0.23)
Public Power - Environmental	0.34	0.341	0.341	0.342
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - Munis & Co-ops	3.078***	3.060***	3.060***	3.080***
	(0.31)	(0.31)	(0.31)	(0.31)
Public Power - State Power Authorities	2.301***	2.276***	2.275***	2.305***
	(0.56)	(0.55)	(0.55)	(0.56)
Generation Owners	0.135	0.136	0.137	0.135
	(0.21)	(0.21)	(0.21)	(0.21)
Capacity Market	0.988***	0.881***	0.859***	0.994***
	(0.18)	(0.18)	(0.18)	(0.18)
Energy Market	0.794***	0.537*	0.524*	0.796***
	(0.22)	(0.21)	(0.21)	(0.22)
Ancillary Services	0.835***	0.678***	0.664***	0.819***
	(0.19)	(0.19)	(0.19)	(0.19)
General Admin	0.873***	0.763***	0.738***	0.902***
	(0.18)	(0.18)	(0.18)	(0.19)
Transmission System Planning	0.565**	0.306	0.283	0.569**
	(0.21)	(0.20)	(0.20)	(0.21)
Constant	-1.980***	-1.731***	-1.705***	-1.661***
	(0.23)	(0.22)	(0.22)	(0.22)
/				
lnsig2u	-0.683***	-0.701***	-0.701***	-0.682***
	(0.18)	(0.18)	(0.18)	(0.18)
Observations	3456	3456	3456	3456
Pseudo R^2				

Regression 7b. NY ISO Panel-Data Logit Regression of Participation (Close Votes)

	(1)	(2)	(3)	(4)
	Vote Score: 33%-66%	Vote Score: 50-83%	Vote Score: 58%-75%	Absolute Value (- Threshold)
Participation				
Close Vote Outcome	**1.598*****	**1.023**	**1.077**	**0.979****
	(0.17)	**(0.10)**	**(0.12)**	**(0.01)**
Transmission Owners	27.372***	26.617***	26.632***	27.290***
	(19.54)	(18.85)	(18.87)	(19.46)
End-Use Customer	10.490***	10.275***	10.279***	10.460***
	(4.25)	(4.13)	(4.13)	(4.23)
Public Power - Environmental	1.889	1.879	1.879	1.887
	(1.06)	(1.04)	(1.04)	(1.06)
Public Power - Munis & Co-ops	242.638***	233.014***	233.204***	241.958***
	(139.05)	(132.55)	(132.68)	(138.53)
Public Power - State Power Authorities	56.062***	54.360***	54.394***	55.941***
	(56.64)	(54.52)	(54.57)	(56.47)
Generation Owners	1.289	1.287	1.287	1.289
	(0.49)	(0.49)	(0.49)	(0.49)
Capacity Market	6.492***	5.315***	5.161***	6.523***
	(2.15)	(1.75)	(1.70)	(2.17)
Energy Market	4.477***	2.818**	2.786**	4.452***
	(1.75)	(1.07)	(1.05)	(1.75)
Ancillary Services	4.905***	3.703***	3.632***	4.731***
	(1.71)	(1.27)	(1.24)	(1.65)
General Admin	5.247***	4.262***	4.133***	5.465***
	(1.75)	(1.42)	(1.37)	(1.83)
Transmission System Planning	3.063**	1.925	1.864	3.008**
	(1.15)	(0.70)	(0.67)	(1.13)
/				
lnsig2u	1.608*	1.582*	1.582*	1.605*
	(0.30)	(0.29)	(0.29)	(0.30)
Observations	3456	3456	3456	3456
Pseudo R^2				

Regression 7c. NY ISO Panel-Data Probit Regression of Participation (Sector x Close Votes)

	(1)	(2)	(3)	(4)	(5)	(6)
	Generation Owners	Transmission Owners	End-Use Customer	Public Power - Environmental	Public Power - Munis & Co-ops	Public Power - State Power Authorities
Participation						
Sector x Close Vote Outcome (33%-66%)	**0.153**	**-0.457**	**-0.089**	**0.303**	**-0.3**	***
	(0.13)	**(0.25)**	**(0.13)**	**(0.19)**	**(0.24)**	
Close Vote Outcome (33%-66%)	**0.235*****	**0.289*****	**0.287*****	**0.241*****	**0.282*****	**0.253*****
	(0.07)	**(0.06)**	**(0.07)**	**(0.06)**	**(0.06)**	**(0.06)**
Generation Owners	**0.055**	0.135	0.135	0.135	0.135	0.135
	(0.23)	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)
Transmission Owners	1.894***	**2.115*****	1.898***	1.895***	1.897***	1.896***
	(0.40)	**(0.42)**	(0.40)	(0.40)	(0.40)	(0.40)
End-Use Customer	1.353***	1.357***	**1.396*****	1.353***	1.357***	1.354***
	(0.23)	(0.23)	**(0.24)**	(0.23)	(0.23)	(0.23)
Public Power - Environmental	0.34	0.34	0.34	**0.18**	0.34	0.34
	(0.31)	(0.31)	(0.31)	**(0.33)**	(0.31)	(0.31)
Public Power - Munis & Co-ops	3.075***	3.082***	3.081***	3.075***	**3.208*****	3.077***
	(0.31)	(0.31)	(0.31)	(0.31)	**(0.33)**	(0.31)
Public Power - State Power Authorities	2.295***	2.305***	2.305***	2.296***	2.304***	**1.968*****
	(0.56)	(0.56)	(0.56)	(0.56)	(0.56)	**(0.57)**
Capacity Market	0.983***	0.981***	0.985***	0.984***	0.979***	1.011***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.19)
Energy Market	0.788***	0.786***	0.791***	0.789***	0.782***	0.818***
	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)
Ancillary Services	0.830***	0.824***	0.832***	0.829***	0.824***	0.858***
	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.20)
General Admin	0.868***	0.864***	0.870***	0.868***	0.864***	0.895***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.19)
Transmission System Planning	0.559**	0.553**	0.561**	0.560**	0.554**	0.591**
	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)	(0.21)
Constant	-1.958***	-1.983***	-1.987***	-1.961***	-1.978***	-1.995***
	(0.23)	(0.22)	(0.23)	(0.23)	(0.22)	(0.23)
/						
lnsig2u	-0.680***	-0.680***	-0.682***	-0.682***	-0.684***	-0.683***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
Observations	3456	3456	3456	3456	3456	3422
Pseudo R^2						

Regression 8a. ISO NE Cross-Sectional Probit Regression of Participation

	(1)	(2)	(3)	(4)	(5)	(6)
Active						
ALTERNATIVE RESOURCES	0.58		0.662[*]			
	(0.308)		(0.324)			
END USER SECTOR	1.003[***]		1.092[***]			
	(0.237)		(0.24)			
GENERATION	1.110[**]		0.869			
	(0.371)		(0.696)			
PUBLICLY OWNED ENTITY	1.379[***]		1.492[***]			
	(0.257)		(0.272)			
TRANSMISSION	///		///			
G - Small		0.199				
		(0.241)				
G - Medium		///		///		
G - Large		///		///		
LS - Small		0.796[**]				
		(0.3)				
Non-Generation Owner x G - Small=1			-0.092			
			(0.3)			
Generation Owner x G - Small=0			-0.674			
			(0.928)			
Generation Owner x G - Small=1			//			
Renewable					0.805	
					(0.612)	
Coal & Oil					///	
Natural Gas					1.124	
					(0.616)	
Nuclear					///	
Renewable - 100MW						0.459
						(0.319)
Coal & Oil - 100MW						1.899
						(1.807)
Natural Gas - 100MW						0.391[*]
						(0.164)
Nuclear - 100MW						///
Constant	-0.107	0.322[***]	-0.194	0.712[***]	0	0.397
	-0.13	-0.096	-0.136	-0.215	-0.517	-0.256
Observations	248	235	229	42	48	59

Pseudo R^2	0.14	0.033	0.156	0	0.07	0.216

Regression Notes:

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

(1) i. Transmission Owner predicts success perfectly - dropped and 7 observations not used.
(2) i. G - Medium predicts success perfectly - dropped and 18 observations not used.
    ii. G - Large predicts success perfectly - dropped and 2 observations not used.
(3) i. Transmission Owner predicts success perfectly - dropped and 6 observations not used.
    ii. GO x G - Small omitted due to collinearity.
(4) i. Sample excludes stakeholders that do not own generation assets.
    ii. G - Medium predicts success perfectly - dropped and 18 observations not used.
    iii. G - Large predicts success perfectly - dropped and 2 observations not used.
(5) i. Sample excludes stakeholders that do not own generation assets.
    ii. Coal & Oil predicts success perfectly - dropped and 12 observations not used.
    iii. Nuclear predicts success perfectly - dropped and 2 observations not used.
(6) i. Sample excludes stakeholders that do not own generation assets.
    ii. Nuclear predicts success perfectly - dropped and 3 observations not used.

Regression 8b. ISO NE Cross-Sectional Logit Regression of Participation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Active									
ALTERNATIVE RESOURCES	2.542				2.872*				
	(1.279)				(1.515)				
END USER SECTOR	5.219***				6.027***				
	(2.128)				(2.488)				
GENERATION	6.326**				4.099				
	(4.198)				(4.828)				
PUBLICLY OWNED ENTITY	10.477***				12.427***				
	(5.017)				(6.2)				
TRANSMISSION	///				///				
G - Small		1.385							
		(0.563)							
G - Medium		///					///		
G - Large		///					///		
LS - Small		3.988*	3.867*	3.867*					
		(2.241)	(2.163)	(2.163)					
Operable - 100MW			1.905**				1.992**		
			(0.376)				(0.437)		
Operable - GW				630.356**					
				(1243.153)					
Non-Generation Owner x G - Small=1					0.879				
					(0.469)				
Generation Owner x G - Small=0					0.333				
					(0.51)				
Generation Owner x G - Small=1					///				
Renewable								3.75	
								(3.758)	
Coal & Oil								///	
Natural Gas								6.667	
								(6.904)	
Nuclear								///	
Renewable - 100MW									2.245
									(1.386)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Coal & Oil - 100MW									27.323
									(95.569)
Natural Gas - 100MW									1.986*
									(0.562)
Nuclear - 100MW									///
Observations	248	235	255	255	229	42	62	48	59
Pseudo R^2	0.14	0.033	0.086	0.086	0.156	0	0.198	0.07	0.212

Standard errors in parentheses
$^{*}\ p < 0.05$, $^{**}\ p < 0.01$, $^{***}\ p < 0.001$

Regression Notes:

Standard errors in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

(1) i. Transmission Owner predicts success perfectly - dropped and 7 observations not used.
(2) i. G - Medium predicts success perfectly - dropped and 18 observations not used.
  ii. G - Large predicts success perfectly - dropped and 2 observations not used.
(5) i. Transmission Owner predicts success perfectly - dropped and 6 observations not used..
  ii. GO x G - Small omitted due to collinearity.
(6) i. Sample excludes stakeholders that do not own generation assets.
  ii. G - Medium predicts success perfectly - dropped and 18 observations not used.
  iii. G - Large predicts success perfectly - dropped and 2 observations not used.
(7) i. Sample excludes stakeholders that do not own generation asset
(8) i. Sample excludes stakeholders that do not own generation assets.
  ii. Coal & Oil predicts success perfectly - dropped and 12 observations not used.
  iii. Nuclear predicts success perfectly - dropped and 2 observations not used.
(9) i. Sample excludes stakeholders that do not own generation assets..
  ii. Nuclear predicts success perfectly - dropped and 3 observations not used

Regression 9. ISO NE Cross-Sectional Poisson Regression of Participation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Vote Count									
ALTERNATIVE RESOURCES	0.913				0.966				
	(0.057)				(0.061)				
END USER SECTOR	1.410***				1.643***				
	(0.056)				(0.069)				
GENERATION	1.545***								
	(0.078)								
PUBLICLY OWNED ENTITY	2.958***				3.149***				
	(0.102)				(0.118)				
TRANSMISSION	2.470***				2.503***				
	(0.141)				(0.146)				
G - Small		1.368***							
		(0.038)							
G - Medium		1.274***				0.754***			
		(0.048)				(0.031)			
G - Large		1.829***				1.038			
		(0.163)				(0.094)			
LS - Small		1.768***	1.912***	1.912***					
		(0.046)	(0.048)	(0.048)					
Operable - 100MW			1.019***				0.996		
			(0.002)				(0.002)		
Operable - GW				1.206***					
				(0.023)					
Non-Generation Owner x G - Small=1					1.265***				
					(0.036)				
Non-Generation Owner x G - Medium=1					1.565***				
					(0.089)				
Non-Generation Owner x G - Large=1					3.042***				
					(0.286)				
Generation Owner x G - Small=0					2.106***				
					(0.118)				
Generation Owner x G - Small=1					2.381***				
					(0.462)				
Generation Owner x G - Medium=0					0.511***				
					(0.079)				
Generation Owner x G - Medium=1					///				
Generation Owner x G - Large=0					///				
Generation Owner x G - Large=1					///				
Renewable								1.882***	
								(0.12)	

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Coal & Oil								1.781***	
								(0.091)	
Natural Gas								1.453***	
								(0.09)	
Nuclear								1.655***	
								(0.137)	
Renewable - 100MW									0.942***
									(0.011)
Coal & Oil - 100MW									1.014**
									(0.005)
Natural Gas - 100MW									0.989***
									(0.003)
Nuclear - 100MW									1.009
									(0.005)
Observations	178	178	178	178	178	52	52	52	52
Pseudo R^2	0.282	0.127	0.111	0.111	0.323	0.038	0.002	0.121	0.04

Regression Notes:

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

(5) i. Transmission Owner predicts success perfectly - dropped and 6 observations not used.
   ii. GO x G - Medium omitted due to collinearity
   iii. Non-GO x G - Large omitted due to collinearity.
   iii. GO x G - Large - no observations.
(6) i. Sample excludes stakeholders that do not own generation assets.
(7) i. Sample excludes stakeholders that do not own generation asset
(8) i. Sample excludes stakeholders that do not own generation assets.
(9) i. Sample excludes stakeholders that do not own generation assets.

Table 10a. ISO NE Panel-Data Probit Regression of Participation (GO x Categories)

	(1) [A]	(2) [B]	(3) [C]	(4) [D]	(5) [E]	(6) [F]	(7) [G]	(8) [H]
Participation								
Generation Owner x Category	**0.231****	**0.06**	**-0.479*****	**0.226**	**-0.095**	**-0.284**	**0.001**	**-0.007**
	(0.08)	**(0.11)**	**(0.11)**	**(0.14)**	**(0.15)**	**(0.18)**	**(0.19)**	**(0.22)**
Generation Owner	**0.359**	**0.448**	**0.522***	**0.439**	**0.464**	**0.471**	**0.457**	**0.457**
	(0.26)	**(0.26)**	**(0.26)**	**(0.26)**	**(0.26)**	**(0.26)**	**(0.26)**	**(0.26)**
Transmission Owner	1.257***	1.256***	1.258***	1.256***	1.256***	1.256***	1.256***	1.256***
	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)
Publicly Owned Entity	1.677***	1.676***	1.680***	1.677***	1.676***	1.677***	1.676***	1.676***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
End-Use Customer	0.371*	0.371*	0.371*	0.371	0.371*	0.371	0.371*	0.371*
	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)
Alternative Resources	-0.06	-0.06	-0.059	-0.06	-0.06	-0.06	-0.06	-0.06
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
[A] Capacity Market - General	**-0.029**	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
[B] Capacity Market - De-List Bid & Substitution Auction	0.052	**0.045**	0.051	0.052	0.052	0.052	0.052	0.052
	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[C] Capacity Market - Winter Reliability Program/Fuel Security	0.389***	0.388***	**0.437*****	0.388***	0.388***	0.388***	0.388***	0.388***
	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[D] Transmission System Planning, Owner Rev Req, and Cost Allocations	-0.124	-0.124	-0.125	**-0.147**	-0.124	-0.124	-0.124	-0.124
	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)
[E] Energy Market	0.062	0.062	0.062	0.062	**0.071**	0.062	0.062	0.062
	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)
[F] Financial Assurance Policy	0.169	0.168	0.168	0.168	0.168	**0.197**	0.168	0.168
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)
[G] General Admin	0	0.001	0.001	0.001	0.001	0.001	**0.001**	0.001
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.13)**	(0.12)
[H] Out-of-Market Payments & Fuel Costs	0.255	0.255	0.255	0.255	0.255	0.255	0.255	**0.255**
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	**(0.13)**
Other System Operations	0.111	0.111	0.111	0.111	0.111	0.111	0.111	0.111
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Demand Response	-0.208	-0.208	-0.209	-0.208	-0.208	-0.208	-0.208	-0.208
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Constant	-0.971***	-0.979***	-0.987***	-0.978***	-0.980***	-0.981***	-0.980***	-0.980***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
/								
lnsig2u	-0.290**	-0.291**	-0.288**	-0.290**	-0.291**	-0.291**	-0.291**	-0.291**
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Observations	18156	18156	18156	18156	18156	18156	18156	18156
Pseudo R^2								

Table 10b. ISO NE Panel-Data Probit Regression of Participation (TO x Categories)

	(1) [A]	(2) [B]	(3) [C]	(4) [D]	(5) [E]	(6) [F]	(7) [G]	(8) [H]
Participation								
Transmission Owner x Category	**-0.181**	**0.455****	**-0.392***	**0.489***	**0.185**	**-0.337**	**0.223**	**-0.482**
	(0.11)	**(0.16)**	**(0.16)**	**(0.20)**	**(0.21)**	**(0.24)**	**(0.28)**	**(0.30)**
Generation Owner	0.457	0.457	0.458	0.457	0.457	0.457	0.457	0.457
	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)
Transmission Owner	**1.337*****	**1.193*****	**1.305*****	**1.219*****	**1.244*****	**1.273*****	**1.248*****	**1.271*****
	(0.36)	**(0.36)**	**(0.36)**	**(0.36)**	**(0.36)**	**(0.36)**	**(0.36)**	**(0.36)**
Publicly Owned Entity	1.676***	1.677***	1.678***	1.677***	1.676***	1.677***	1.677***	1.677***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
End-Use Customer	0.371*	0.371	0.371*	0.371	0.371*	0.371*	0.371*	0.371*
	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)
Alternative Resources	-0.06	-0.059	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
[A] Capacity Market - General	**0.003**	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
[B] Capacity Market - De-List Bid & Substitution Auction	0.051	**0.03**	0.051	0.052	0.052	0.052	0.052	0.052
	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[C] Capacity Market - Winter Reliability Program/Fuel Security	0.388***	0.388***	**0.407*****	0.388***	0.388***	0.388***	0.388***	0.388***
	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[D] Transmission System Planning, Owner Rev Req, and Cost Allocations	-0.125	-0.124	-0.125	**-0.147**	-0.124	-0.124	-0.124	-0.124
	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)
[E] Energy Market	0.062	0.062	0.062	0.062	**0.054**	0.062	0.062	0.062
	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)
[F] Financial Assurance Policy	0.168	0.168	0.168	0.168	0.168	**0.185**	0.168	0.168
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)
[G] General Admin	0.001	0.001	0.001	0.001	0.001	0.001	**-0.008**	0.001
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.13)**	(0.12)
[H] Out-of-Market Payments & Fuel Costs	0.254	0.255	0.254	0.255	0.255	0.255	0.255	**0.280***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	**(0.13)**
Other System Operations	0.111	0.111	0.111	0.111	0.111	0.111	0.111	0.111
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Demand Response	-0.209	-0.208	-0.209	-0.208	-0.208	-0.209	-0.208	-0.209
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Constant	-0.983***	-0.977***	-0.982***	-0.978***	-0.979***	-0.980***	-0.979***	-0.980***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
/								
lnsig2u	-0.291**	-0.290**	-0.290**	-0.290**	-0.291**	-0.291**	-0.291**	-0.291**
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Observations	18156	18156	18156	18156	18156	18156	18156	18156
Pseudo R^2								

Table 10c. ISO NE Panel-Data Probit Regression of Participation (POE x Categories)

	(1) [A]	(2) [B]	(3) [C]	(4) [D]	(5) [E]	(6) [F]	(7) [G]	(8) [H]
Participation								
Publicly Owned Entity x Category	**0.283***	**0.270***	**0.237**	**-0.259**	**-1.123***	**0.704***	**-1.279***	**0.705***
	(0.05)	**(0.07)**	**(0.08)**	**(0.09)**	**(0.09)**	**(0.13)**	**(0.12)**	**(0.17)**
Generation Owner	0.459	0.458	0.456	0.457	0.461	0.457	0.459	0.457
	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)
Transmission Owner	1.260***	1.256***	1.254***	1.255***	1.263***	1.256***	1.261***	1.256***
	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)
Publicly Owned Entity	**1.559***	**1.640***	**1.651***	**1.700***	**1.771***	**1.649***	**1.749***	**1.660***
	(0.18)	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**
End-Use Customer	0.371	0.371	0.37	0.371*	0.371	0.371	0.371	0.371
	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)
Alternative Resources	-0.06	-0.059	-0.06	-0.06	-0.055	-0.058	-0.058	-0.059
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
[A] Capacity Market - General	**-0.09**	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
[B] Capacity Market - De-List Bid & Substitution Auction	0.05	**-0.025**	0.051	0.052	0.053	0.051	0.053	0.052
	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[C] Capacity Market - Winter Reliability Program/Fuel Security	0.381**	0.386***	**0.333**	0.390***	0.396***	0.387***	0.395***	0.387***
	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[D] Transmission System Planning, Owner Rev Req, and Cost Allocations	-0.121	-0.123	-0.124	**-0.039**	-0.129	-0.124	-0.128	-0.124
	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)
[E] Energy Market	0.061	0.062	0.062	0.062	**0.398**	0.062	0.062	0.062
	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)
[F] Financial Assurance Policy	0.164	0.167	0.167	0.169	0.172	**-0.003**	0.172	0.168
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.13)**	(0.12)	(0.12)
[G] General Admin	0.006	0.002	0.001	0	-0.004	0.002	**0.432***	0.001
	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)	(0.12)	**(0.13)**	(0.12)
[H] Out-of-Market Payments & Fuel Costs	0.249	0.253	0.254	0.256*	0.260*	0.254	0.259*	**0.092**
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	**(0.14)**
Other System Operations	0.109	0.111	0.111	0.112	0.114	0.111	0.113	0.111
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Demand Response	-0.206	-0.208	-0.208	-0.209	-0.211	-0.208	-0.211	-0.208
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Constant	-0.945***	-0.969***	-0.971***	-0.986***	-1.009***	-0.971***	-1.001***	-0.975***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
/								
lnsig2u	-0.286*	-0.289**	-0.290**	-0.290**	-0.272*	-0.286*	-0.273*	-0.288**
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Observations	18156	18156	18156	18156	18156	18156	18156	18156
Pseudo R^2								

Table 10d. ISO NE Panel-Data Probit Regression of Participation (EUC x Categories)

	(1) [A]	(2) [B]	(3) [C]	(4) [D]	(5) [E]	(6) [F]	(7) [G]	(8) [H]
Participation								
End-Use Customer x Category	**-0.239***	**-0.367***	**0.249**	**-0.284**	**1.054***	**-0.132**	**0.541***	**-0.522***
	(0.05)	**(0.08)**	**(0.08)**	**(0.10)**	**(0.10)**	**(0.12)**	**(0.13)**	**(0.16)**
Generation Owner	0.456	0.457	0.456	0.457	0.455	0.457	0.457	0.457
	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)
Transmission Owner	1.253***	1.256***	1.253***	1.255***	1.255***	1.256***	1.255***	1.256***
	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)
Publicly Owned Entity	1.675***	1.677***	1.673***	1.675***	1.679***	1.677***	1.679***	1.678***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
End-Use Customer	**0.466***	**0.420***	**0.332**	**0.390***	**0.285**	**0.378***	**0.346**	**0.386***
	(0.19)	**(0.19)**	**(0.19)**	**(0.19)**	**(0.19)**	**(0.19)**	**(0.19)**	**(0.19)**
Alternative Resources	-0.06	-0.061	-0.06	-0.06	-0.065	-0.06	-0.06	-0.06
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
[A] Capacity Market - General	**0.056**	-0.005	-0.007	-0.006	-0.008	-0.006	-0.007	-0.006
	(0.12)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
[B] Capacity Market - De-List Bid & Substitution Auction	0.054	**0.143**	0.051	0.052	0.049	0.052	0.051	0.052
	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[C] Capacity Market - Winter Reliability Program/Fuel Security	0.389***	0.389***	**0.320**	0.388***	0.389***	0.388***	0.389***	0.389***
	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[D] Transmission System Planning, Owner Rev Req, and Cost Allocations	-0.12	-0.122	-0.126	**-0.059**	-0.129	-0.124	-0.126	-0.124
	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)
[E] Energy Market	0.063	0.062	0.062	0.062	**-0.224**	0.062	0.062	0.062
	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)
[F] Financial Assurance Policy	0.169	0.168	0.168	0.168	0.168	**0.204**	0.168	0.168
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.13)**	(0.12)	(0.12)
[G] General Admin	0.004	0.002	0	0.002	-0.002	0.001	**-0.133**	0.001
	(0.13)	(0.13)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.13)**	(0.12)
[H] Out-of-Market Payments & Fuel Costs	0.256*	0.256	0.254	0.255	0.254	0.255	0.255	**0.387**
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	**(0.14)**
Other System Operations	0.111	0.111	0.111	0.111	0.11	0.111	0.111	0.111
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Demand Response	-0.209	-0.209	-0.208	-0.209	-0.209	-0.208	-0.209	-0.209
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Constant	-1.006***	-0.993***	-0.968***	-0.985***	-0.958***	-0.982***	-0.974***	-0.984***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
/								
lnsig2u	-0.287**	-0.287**	-0.289**	-0.290**	-0.276*	-0.291**	-0.286*	-0.290**
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Observations	18156	18156	18156	18156	18156	18156	18156	18156
Pseudo R^2								

Table 10e. ISO NE Panel-Data Probit Regression of Participation (AR x Categories)

	(1) [A]	(2) [B]	(3) [C]	(4) [D]	(5) [E]	(6) [F]	(7) [G]	(8) [H]
Participation								
Alternative Resources x Category	**-0.101**	**0.327****	**-0.105**	**0.176**	**-0.353**	**-0.303**	**0.356**	**0.23**
	(0.09)	**(0.12)**	**(0.12)**	**(0.16)**	**(0.19)**	**(0.20)**	**(0.21)**	**(0.23)**
Generation Owner	0.457	0.457	0.457	0.457	0.457	0.457	0.457	0.457
	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)
Transmission Owner	1.255***	1.256***	1.256***	1.256***	1.256***	1.256***	1.256***	1.256***
	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)
Publicly Owned Entity	1.676***	1.677***	1.677***	1.677***	1.677***	1.677***	1.677***	1.676***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
End-Use Customer	0.371*	0.371	0.371*	0.371*	0.371	0.371*	0.371*	0.371
	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)
Alternative Resources	**-0.02**	**-0.113**	**-0.044**	**-0.073**	**-0.04**	**-0.043**	**-0.075**	**-0.068**
	(0.27)	**(0.27)**	**(0.27)**	**(0.27)**	**(0.27)**	**(0.27)**	**(0.27)**	**(0.27)**
[A] Capacity Market - General	**0.001**	-0.005	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
[B] Capacity Market - De-List Bid & Substitution Auction	0.051	**0.025**	0.051	0.052	0.051	0.051	0.052	0.052
	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[C] Capacity Market - Winter Reliability Program/Fuel Security	0.387***	0.390***	**0.397****	0.389***	0.388***	0.388***	0.389***	0.388***
	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[D] Transmission System Planning, Owner Rev Req, and Cost Allocations	-0.125	-0.124	-0.125	**-0.137**	-0.125	-0.125	-0.124	-0.124
	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)
[E] Energy Market	0.062	0.062	0.062	0.062	**0.083**	0.062	0.062	0.062
	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)
[F] Financial Assurance Policy	0.167	0.169	0.168	0.168	0.168	**0.192**	0.168	0.168
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)
[G] General Admin	0.001	0.001	0.001	0.001	0.001	0.001	**-0.025**	0.001
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.13)**	(0.12)
[H] Out-of-Market Payments & Fuel Costs	0.254	0.256*	0.254	0.255	0.254	0.254	0.255	**0.234**
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	**(0.13)**
Other System Operations	0.11	0.112	0.111	0.111	0.111	0.111	0.112	0.111
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Demand Response	-0.208	-0.209	-0.208	-0.208	-0.208	-0.208	-0.208	-0.208
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Constant	-0.982***	-0.977***	-0.981***	-0.979***	-0.981***	-0.981***	-0.979***	-0.979***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
/								
lnsig2u	-0.291**	-0.290**	-0.291**	-0.291**	-0.290**	-0.291**	-0.291**	-0.291**
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Observations	18156	18156	18156	18156	18156	18156	18156	18156
Pseudo R^2								

Table 10f. ISO NE Panel-Data Logit Regression of Participation (GO x Categories)

	(1) [A]	(2) [B]	(3) [C]	(4) [D]	(5) [E]	(6) [F]	(7) [G]	(8) [H]
Participation								
Generation Owner x Category	**1.491****	**1.096**	**0.447*****	**1.417**	**0.877**	**0.615**	**0.955**	**1.01**
	(0.19)	**(0.20)**	**(0.09)**	**(0.33)**	**(0.22)**	**(0.18)**	**(0.31)**	**(0.38)**
Generation Owner	**1.868**	**2.186**	**2.476***	**2.159**	**2.236**	**2.27**	**2.22**	**2.215**
	(0.87)	**(1.01)**	**(1.14)**	**(0.99)**	**(1.03)**	**(1.04)**	**(1.02)**	**(1.02)**
Transmission Owner	9.117***	9.100***	9.147***	9.106***	9.100***	9.103***	9.100***	9.100***
	(5.79)	(5.77)	(5.81)	(5.78)	(5.77)	(5.78)	(5.77)	(5.77)
Publicly Owned Entity	18.974***	18.929***	19.047***	18.946***	18.928***	18.937***	18.928***	18.928***
	(6.13)	(6.11)	(6.16)	(6.12)	(6.11)	(6.12)	(6.11)	(6.11)
End-Use Customer	1.947*	1.946*	1.948*	1.946*	1.945*	1.946*	1.945*	1.945*
	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)
Alternative Resources	0.897	0.897	0.897	0.897	0.897	0.897	0.897	0.897
	(0.43)	(0.42)	(0.43)	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)
[A] Capacity Market - General	**0.955**	0.997	0.997	0.997	0.997	0.997	0.997	0.997
	(0.19)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
[B] Capacity Market - De-List Bid & Substitution Auction	1.1	**1.089**	1.1	1.1	1.1	1.1	1.1	1.1
	(0.23)	**(0.23)**	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
[C] Capacity Market - Winter Reliability Program/Fuel Security	1.938**	1.937**	**2.115*****	1.937**	1.937**	1.937**	1.937**	1.937**
	(0.40)	(0.40)	**(0.44)**	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)
[D] Transmission System Planning, Owner Rev Req, and Cost Allocations	0.823	0.823	0.823	**0.792**	0.823	0.823	0.823	0.823
	(0.17)	(0.17)	(0.17)	**(0.17)**	(0.17)	(0.17)	(0.17)	(0.17)
[E] Energy Market	1.101	1.101	1.101	1.101	**1.116**	1.101	1.101	1.101
	(0.24)	(0.23)	(0.23)	(0.23)	**(0.24)**	(0.23)	(0.23)	(0.23)
[F] Financial Assurance Policy	1.328	1.327	1.328	1.328	1.327	**1.398**	1.327	1.327
	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	**(0.31)**	(0.29)	(0.29)
[G] General Admin	1.04	1.04	1.04	1.04	1.04	1.04	**1.046**	1.04
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	**(0.24)**	(0.23)
[H] Out-of-Market Payments & Fuel Costs	1.56	1.559	1.56	1.559	1.559	1.559	1.559	**1.558**
	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	**(0.36)**
Other System Operations	1.218	1.218	1.218	1.218	1.218	1.218	1.218	1.218
	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)
Demand Response	0.695	0.696	0.696	0.696	0.696	0.696	0.696	0.696
	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
/								
lnsig2u	2.354***	2.351***	2.358***	2.352***	2.351***	2.352***	2.351***	2.351***
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
Observations	18156	18156	18156	18156	18156	18156	18156	18156
Pseudo R^2								

Table 10g. ISO NE Panel-Data Logit Regression of Participation (TO x Categories)

	(1) [A]	(2) [B]	(3) [C]	(4) [D]	(5) [E]	(6) [F]	(7) [G]	(8) [H]
Participation								
Transmission Owner x Category	**0.748**	**2.124****	**0.510***	**2.222***	**1.35**	**0.572**	**1.339**	**0.437**
	(0.13)	**(0.56)**	**(0.14)**	**(0.75)**	**(0.48)**	**(0.23)**	**(0.62)**	**(0.23)**
Generation Owner	2.216	2.216	2.218	2.217	2.216	2.216	2.216	2.216
	(1.02)	(1.02)	(1.02)	(1.02)	(1.02)	(1.02)	(1.02)	(1.02)
Transmission Owner	**10.366*****	**8.199*****	**9.880*****	**8.556*****	**8.918*****	**9.358*****	**8.997*****	**9.329*****
	(6.63)	**(5.21)**	**(6.28)**	**(5.43)**	**(5.66)**	**(5.94)**	**(5.71)**	**(5.92)**
Publicly Owned Entity	18.916***	18.932***	18.973***	18.948***	18.928***	18.933***	18.929***	18.937***
	(6.11)	(6.12)	(6.13)	(6.12)	(6.11)	(6.12)	(6.11)	(6.12)
End-Use Customer	1.945*	1.946*	1.947*	1.946*	1.945*	1.946*	1.946*	1.946*
	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)
Alternative Resources	0.897	0.897	0.897	0.897	0.897	0.897	0.897	0.897
	(0.42)	(0.43)	(0.43)	(0.43)	(0.42)	(0.42)	(0.42)	(0.42)
[A] Capacity Market - General	**1.013**	0.997	0.997	0.997	0.997	0.997	0.997	0.997
	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
[B] Capacity Market - De-List Bid & Substitution Auction	1.1	**1.059**	1.1	1.1	1.1	1.1	1.1	1.1
	(0.23)	**(0.22)**	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
[C] Capacity Market - Winter Reliability Program/Fuel Security	1.939**	1.936**	**2.004*****	1.937**	1.937**	1.938**	1.937**	1.938**
	(0.40)	(0.40)	**(0.42)**	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)
[D] Transmission System Planning, Owner Rev Req, and Cost Allocations	0.823	0.823	0.823	**0.789**	0.823	0.823	0.823	0.823
	(0.17)	(0.17)	(0.17)	**(0.17)**	(0.17)	(0.17)	(0.17)	(0.17)
[E] Energy Market	1.101	1.101	1.101	1.101	**1.084**	1.101	1.101	1.101
	(0.23)	(0.23)	(0.23)	(0.23)	**(0.23)**	(0.23)	(0.23)	(0.23)
[F] Financial Assurance Policy	1.328	1.327	1.328	1.327	1.327	**1.367**	1.327	1.328
	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	**(0.30)**	(0.29)	(0.29)
[G] General Admin	1.04	1.04	1.04	1.04	1.04	1.04	**1.025**	1.04
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	**(0.23)**	(0.23)
[H] Out-of-Market Payments & Fuel Costs	1.56	1.559	1.56	1.559	1.559	1.56	1.559	**1.627***
	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	**(0.38)**
Other System Operations	1.218	1.218	1.218	1.218	1.218	1.218	1.218	1.218
	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)
Demand Response	0.696	0.696	0.696	0.696	0.696	0.696	0.696	0.696
	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
/								
lnsig2u	2.351***	2.353***	2.354***	2.353***	2.351***	2.352***	2.351***	2.352***
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
Observations	18156	18156	18156	18156	18156	18156	18156	18156
Pseudo R^2								

Table 10h. ISO NE Panel-Data Probit Regression of Participation (POE x Categories)

	(1) [A]	(2) [B]	(3) [C]	(4) [D]	(5) [E]	(6) [F]	(7) [G]	(8) [H]
Participation								
Publicly Owned Entity x Category	**0.283*** **	**0.270*** **	**0.237** **	**-0.259** **	**-1.123*** **	**0.704*** **	**-1.279*** **	**0.705*** **
	(0.05)	**(0.07)**	**(0.08)**	**(0.09)**	**(0.09)**	**(0.13)**	**(0.12)**	**(0.17)**
Generation Owner	0.459	0.458	0.456	0.457	0.461	0.457	0.459	0.457
	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)
Transmission Owner	1.260***	1.256***	1.254***	1.255***	1.263***	1.256***	1.261***	1.256***
	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)
Publicly Owned Entity	**1.559*** **	**1.640*** **	**1.651*** **	**1.700*** **	**1.771*** **	**1.649*** **	**1.749*** **	**1.660*** **
	(0.18)	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**	**(0.18)**
End-Use Customer	0.371	0.371	0.37	0.371*	0.371	0.371	0.371	0.371
	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)
Alternative Resources	-0.06	-0.059	-0.06	-0.06	-0.055	-0.058	-0.058	-0.059
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
[A] Capacity Market - General	**-0.09**	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
[B] Capacity Market - De-List Bid & Substitution Auction	0.05	**-0.025**	0.051	0.052	0.053	0.051	0.053	0.052
	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[C] Capacity Market - Winter Reliability Program/Fuel Security	0.381**	0.386***	**0.333** **	0.390***	0.396***	0.387***	0.395***	0.387***
	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
[D] Transmission System Planning	-0.121	-0.123	-0.124	**-0.039**	-0.129	-0.124	-0.128	-0.124
	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)	(0.12)
[E] Energy Market	0.061	0.062	0.062	0.062	**0.398** **	0.062	0.062	0.062
	(0.12)	(0.12)	(0.12)	(0.12)	**(0.12)**	(0.12)	(0.12)	(0.12)
[F] Financial Assurance Policy	0.164	0.167	0.167	0.169	0.172	**-0.003**	0.172	0.168
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	**(0.13)**	(0.12)	(0.12)
[G] General Admin	0.006	0.002	0.001	0	-0.004	0.002	**0.432*** **	0.001
	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)	(0.12)	**(0.13)**	(0.12)
[H] Out-of-Market Payments & Fuel Costs	0.249	0.253	0.254	0.256*	0.260*	0.254	0.259*	**0.092**
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	**(0.14)**
Other System Operations	0.109	0.111	0.111	0.112	0.114	0.111	0.113	0.111
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Demand Response	-0.206	-0.208	-0.208	-0.209	-0.211	-0.208	-0.211	-0.208
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Constant	-0.945***	-0.969***	-0.971***	-0.986***	-1.009***	-0.971***	-1.001***	-0.975***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
/								
lnsig2u	-0.286*	-0.289**	-0.290**	-0.290**	-0.272*	-0.286*	-0.273*	-0.288**
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Observations	18156	18156	18156	18156	18156	18156	18156	18156
Pseudo R^2								

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10i. ISO NE Panel-Data Logit Regression of Participation (EUC x Categories)

	(1) [A]	(2) [B]	(3) [C]	(4) [D]	(5) [E]	(6) [F]	(7) [G]	(8) [H]
Participation								
End-Use Customer x Category	**0.666***	**0.554***	**1.558***	**0.609**	**6.684***	**0.82**	**2.321***	**0.422**
	(0.06)	**(0.07)**	**(0.21)**	**(0.11)**	**(1.17)**	**(0.17)**	**(0.52)**	**(0.11)**
Generation Owner	2.213	2.216	2.211	2.215	2.222	2.216	2.217	2.218
	(1.02)	(1.02)	(1.02)	(1.02)	(1.03)	(1.02)	(1.02)	(1.02)
Transmission Owner	9.073***	9.106***	9.050***	9.085***	9.175***	9.103***	9.112***	9.120***
	(5.77)	(5.79)	(5.75)	(5.77)	(5.87)	(5.78)	(5.79)	(5.79)
Publicly Owned Entity	18.862***	18.949***	18.801***	18.888***	19.133***	18.937***	18.962***	18.981***
	(6.10)	(6.13)	(6.08)	(6.10)	(6.23)	(6.12)	(6.13)	(6.13)
End-Use Customer	**2.296***	**2.115***	**1.816**	**2.012***	**1.686**	**1.965***	**1.881**	**1.999***
	(0.78)	**(0.72)**	**(0.61)**	**(0.68)**	**(0.57)**	**(0.66)**	**(0.64)**	**(0.67)**
Alternative Resources	0.897	0.897	0.897	0.897	0.897	0.897	0.897	0.897
	(0.43)	(0.43)	(0.43)	(0.43)	(0.43)	(0.42)	(0.43)	(0.43)
[A] Capacity Market - General	**1.107**	0.997	0.997	0.997	0.997	0.997	0.997	0.997
	(0.22)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
[B] Capacity Market - De-List Bid & Substitution Auction	1.099	**1.278**	1.1	1.1	1.101	1.1	1.1	1.1
	(0.23)	**(0.27)**	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
[C] Capacity Market - Winter Reliability Program/Fuel Security	1.933**	1.936**	**1.717****	1.936**	1.949**	1.937**	1.939**	1.937**
	(0.40)	(0.40)	**(0.36)**	(0.40)	(0.41)	(0.40)	(0.40)	(0.40)
[D] Transmission System Planning, Owner Rev Req, and Cost Allocations	0.824	0.823	0.823	**0.929**	0.821	0.823	0.823	0.823
	(0.17)	(0.17)	(0.17)	**(0.20)**	(0.18)	(0.17)	(0.17)	(0.17)
[E] Energy Market	1.1	1.101	1.101	1.101	**0.657**	1.101	1.101	1.101
	(0.23)	(0.23)	(0.24)	(0.23)	**(0.14)**	(0.23)	(0.24)	(0.23)
[F] Financial Assurance Policy	1.326	1.327	1.328	1.327	1.331	**1.399**	1.328	1.327
	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	**(0.31)**	(0.29)	(0.29)
[G] General Admin	1.04	1.04	1.041	1.04	1.041	1.04	**0.83**	1.04
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	**(0.19)**	(0.23)
[H] Out-of-Market Payments & Fuel Costs	1.557	1.558	1.561	1.559	1.566	1.559	1.56	**1.956****
	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	**(0.47)**
Other System Operations	1.217	1.218	1.218	1.218	1.22	1.218	1.218	1.218
	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)
Demand Response	0.697	0.696	0.695	0.696	0.693	0.696	0.695	0.696
	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
/								
lnsig2u	2.359***	2.358***	2.357***	2.354***	2.393***	2.351***	2.356***	2.354***
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
Observations	18156	18156	18156	18156	18156	18156	18156	18156
Pseudo R^2								

Table 10j. ISO NE Panel-Data Logit Regression of Participation (AR x Categories)

	(1) [A]	(2) [B]	(3) [C]	(4) [D]	(5) [E]	(6) [F]	(7) [G]	(8) [H]
Participation								
Alternative Resources x Category	**0.835**	**1.780****	**0.873**	**1.352**	**0.61**	**0.508**	**1.813**	**1.419**
	(0.13)	**(0.36)**	**(0.19)**	**(0.38)**	**(0.20)**	**(0.19)**	**(0.66)**	**(0.58)**
Generation Owner	2.216	2.217	2.217	2.216	2.216	2.216	2.216	2.216
	(1.02)	(1.02)	(1.02)	(1.02)	(1.02)	(1.02)	(1.02)	(1.02)
Transmission Owner	9.095***	9.104***	9.105***	9.103***	9.099***	9.103***	9.101***	9.098***
	(5.77)	(5.78)	(5.78)	(5.78)	(5.77)	(5.78)	(5.78)	(5.77)
Publicly Owned Entity	18.916***	18.937***	18.942***	18.938***	18.928***	18.936***	18.932***	18.924***
	(6.11)	(6.12)	(6.12)	(6.12)	(6.11)	(6.12)	(6.12)	(6.11)
End-Use Customer	1.945*	1.946*	1.946*	1.946*	1.945*	1.946*	1.946*	1.945*
	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)	(0.66)
Alternative Resources	**0.963**	**0.817**	**0.917**	**0.878**	**0.924**	**0.925**	**0.875**	**0.885**
	(0.46)	**(0.39)**	**(0.44)**	**(0.42)**	**(0.44)**	**(0.44)**	**(0.41)**	**(0.42)**
[A] Capacity Market - General	**1.01**	0.997	0.997	0.997	0.997	0.997	0.997	0.997
	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
[B] Capacity Market - De-List Bid & Substitution Auction	1.099	**1.052**	1.1	1.1	1.1	1.1	1.1	1.1
	(0.23)	**(0.22)**	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
[C] Capacity Market - Winter Reliability Program/Fuel Security	1.935**	1.940**	**1.959****	1.938**	1.936**	1.936**	1.938**	1.938**
	(0.40)	(0.40)	**(0.41)**	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)
[D] Transmission System Planning, Owner Rev Req, and Cost Allocations	0.823	0.823	0.823	**0.806**	0.823	0.823	0.823	0.823
	(0.17)	(0.17)	(0.17)	**(0.17)**	(0.17)	(0.17)	(0.17)	(0.17)
[E] Energy Market	1.101	1.101	1.101	1.101	**1.138**	1.101	1.101	1.101
	(0.23)	(0.24)	(0.23)	(0.23)	**(0.24)**	(0.23)	(0.23)	(0.23)
[F] Financial Assurance Policy	1.327	1.328	1.327	1.328	1.327	**1.392**	1.328	1.328
	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	**(0.31)**	(0.29)	(0.29)
[G] General Admin	1.04	1.041	1.04	1.04	1.04	1.04	**0.993**	1.04
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	**(0.22)**	(0.23)
[H] Out-of-Market Payments & Fuel Costs	1.558	1.561	1.559	1.56	1.559	1.559	1.56	**1.514**
	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)	**(0.35)**
Other System Operations	1.218	1.218	1.218	1.218	1.218	1.218	1.218	1.218
	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)
Demand Response	0.696	0.695	0.696	0.696	0.696	0.696	0.696	0.696
	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
/								
lnsig2u	2.351***	2.354***	2.351***	2.351***	2.352***	2.352***	2.352***	2.351***
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
Observations	18156	18156	18156	18156	18156	18156	18156	18156
Pseudo R^2								

Regression 11a. ISO New England Panel-Data Probit Regression of Participation (Close Votes)

	(1) Vote Score: 33%-66%	(2) Vote Score: 50-83%	(3) Vote Score: 58%-75%	(4) Absolute Value (- Threshold)
Participation				
Close Vote Outcome	**0.062*****	**0.047**	**0.097*****	**-0.003****
	(0.03)	**(0.02)**	**(0.03)**	**(0.00)**
TRANSMISSION	1.256***	1.256***	1.256***	1.256***
	(0.36)	(0.36)	(0.36)	(0.36)
PUBLICLY OWNED ENTITY	1.677***	1.677***	1.678***	1.678***
	(0.18)	(0.18)	(0.18)	(0.18)
END USER SECTOR	0.371*	0.371	0.37	0.371
	(0.19)	(0.19)	(0.19)	(0.19)
ALTERNATIVE RESOURCES	-0.061	-0.06	-0.061	-0.061
	(0.27)	(0.27)	(0.27)	(0.27)
GENERATION	0.457	0.457	0.457	0.457
	(0.26)	(0.26)	(0.26)	(0.26)
Capacity Market - General	-0.047	0.012	0.061	0.043
	(0.12)	(0.11)	(0.12)	(0.11)
Capacity Market - De-List Bid & Substitution Auction	-0.002	0.076	0.123	0.098
	(0.12)	(0.12)	(0.12)	(0.12)
Capacity Market - Winter Reliability Program/Fuel Security	0.360**	0.425***	0.471***	0.465***
	(0.12)	(0.12)	(0.12)	(0.12)
Financial Assurance Policy	0.118	0.187	0.227	0.206
	(0.13)	(0.12)	(0.12)	(0.12)
Out-of-Market Payments & Fuel Costs	0.193	0.286*	0.319*	0.320*
	(0.13)	(0.13)	(0.13)	(0.13)
Other System Operations	0.111	0.111	0.112	0.134
	(0.16)	(0.16)	(0.16)	(0.16)
General Admin	0.001	0.014	0.077	0.056
	(0.12)	(0.13)	(0.13)	(0.13)
Transmission System Planning	-0.163	-0.105	-0.051	-0.071
	(0.12)	(0.12)	(0.12)	(0.12)
Energy Market	0.009	0.075	0.106	0.085
	(0.12)	(0.12)	(0.12)	(0.12)
Demand Response	-0.208	-0.208	-0.111	-0.18

		(0.16)	(0.16)	(0.16)	(0.16)
Constant		-0.980***	-1.027***	-1.077***	-0.974***
		(0.18)	(0.18)	(0.18)	(0.18)
/					
lnsig2u		-0.290**	-0.290**	-0.288**	-0.289**
		(0.11)	(0.11)	(0.11)	(0.11)
Observations		18156	18156	18156	18156
Pseudo R^2					

Regression 11b. ISO New England Panel-Data Logit Regression of Participation (Close Votes)

	(1)	(2)	(3)	(4)
	Vote Score: 33%-66%	Vote Score: 50-83%	Vote Score: 58%-75%	Absolute Value (- Threshold)
Participation				
Close Vote Outcome	**1.109**[*]	**1.078**	**1.166**[***]	**0.995**[**]
	(0.05)	**(0.05)**	**(0.05)**	**(0.00)**
Sector (RTO) TRANSMISSION	9.106[***]	9.104[***]	9.116[***]	9.112[***]
	(5.78)	(5.78)	(5.79)	(5.78)
Sector (RTO) PUBLICLY OWNED ENTITY	18.947[***]	18.940[***]	18.972[***]	18.961[***]
	(6.12)	(6.12)	(6.13)	(6.13)
Sector (RTO) END USER SECTOR	1.946[*]	1.946[*]	1.946[*]	1.946[*]
	(0.66)	(0.66)	(0.66)	(0.66)
Sector (RTO) ALTERNATIVE RESOURCES	0.897	0.897	0.897	0.897
	(0.43)	(0.42)	(0.43)	(0.43)
Sector (RTO) GENERATION	2.217	2.217	2.218	2.217
	(1.02)	(1.02)	(1.02)	(1.02)
Capacity Market - General	0.931	1.027	1.107	1.077
	(0.19)	(0.21)	(0.23)	(0.22)
Capacity Market - De-List Bid & Substitution Auction	1.005	1.145	1.231	1.184
	(0.21)	(0.24)	(0.26)	(0.25)
Capacity Market - Winter Reliability Program/Fuel Security	1.847[**]	2.053[***]	2.207[***]	2.185[***]
	(0.38)	(0.43)	(0.46)	(0.46)
Financial Assurance Policy	1.222	1.368	1.456	1.409
	(0.27)	(0.30)	(0.32)	(0.31)
Out-of-Market Payments & Fuel Costs	1.406	1.640[*]	1.728[*]	1.732[*]
	(0.33)	(0.38)	(0.40)	(0.40)
Other System Operations	1.218	1.218	1.218	1.261
	(0.34)	(0.34)	(0.34)	(0.36)
General Admin	1.04	1.06	1.167	1.129
	(0.23)	(0.24)	(0.26)	(0.25)
Transmission System Planning	0.771	0.846	0.923	0.893
	(0.17)	(0.18)	(0.20)	(0.19)
Energy Market	1.007	1.125	1.176	1.142
	(0.22)	(0.24)	(0.25)	(0.24)
Demand Response	0.696	0.696	0.811	0.728
	(0.20)	(0.20)	(0.23)	(0.21)

/				
lnsig2u	2.353***	2.352***	2.355***	2.354***
	(0.27)	(0.27)	(0.27)	(0.27)
Observations	18156	18156	18156	18156
Pseudo R^2				

Regression 11c. ISONE Panel-Data Regression of Stakeholder Participation (Sector x Close Votes)

	(1)	(2)	(3)	(4)	(5)
	GENERATION	TRANSMISSION	PUBLICLY OWNED ENTITY	END USER SECTOR	ALTERNATIVE RESOURCES
Participation					
Sector x Close Vote Outcome (33%-66%)	0.284***	0.135	0.281***	-0.425***	0.157
	(0.08)	(0.11)	(0.05)	(0.05)	(0.09)
Close Vote Outcome (33%-66%)	0.034	0.056*	-0.018	0.172***	0.051
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
GENERATION	0.268	0.457	0.458	0.456	0.457
	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)
TRANSMISSION	1.256***	1.170**	1.257***	1.258***	1.256***
	(0.36)	(0.36)	(0.36)	(0.36)	(0.36)
PUBLICLY OWNED ENTITY	1.677***	1.677***	1.501***	1.680***	1.677***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
END USER SECTOR	0.371	0.371*	0.371	0.640***	0.371
	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)
ALTERNATIVE RESOURCES	-0.06	-0.06	-0.059	-0.063	-0.166
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
Capacity Market - General	-0.046	-0.046	-0.048	-0.043	-0.046
	(0.12)	(0.12)	(0.11)	(0.12)	(0.12)
Capacity Market - De-List Bid & Substitution Auction	-0.002	-0.002	-0.004	0.001	-0.001
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Capacity Market - Winter Reliability Program/Fuel Security	0.361**	0.360**	0.356**	0.364**	0.361**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Financial Assurance Policy	0.119	0.119	0.118	0.123	0.119
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
Out-of-Market Payments & Fuel Costs	0.193	0.193	0.195	0.197	0.193
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
Other System Operations	0.112	0.111	0.109	0.111	0.113
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
General Admin	0	0.001	0.008	0.01	0.002
	(0.13)	(0.12)	(0.12)	(0.13)	(0.13)
Transmission System Planning	-0.163	-0.163	-0.164	-0.159	-0.162
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Energy Market	0.01	0.009	0.005	0.014	0.01
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Demand Response	-0.208	-0.208	-0.205	-0.211	-0.209
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Constant	-0.962***	-0.976***	-0.927***	-1.056***	-0.973***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)

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lnsig2u	-0.288**	-0.290**	-0.286*	-0.281*	-0.290**
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Observations	18156	18156	18156	18156	18156
Pseudo R^2					

Rule Proposal. October 2016 NYISO MC Rule Proposal

The Management Committee hereby approves tariff language not inconsistent with the following paragraph. The Management Committee hereby approves the proposed tariff language to the extent it is not inconsistent with the following proposal, the methodology in the NYISO's Export Capacity Proposal as presented to the Management Committee on October 26, 2016 on an interim basis, due to the lack of sufficient time to adequately analyze the NYISO's methodology and pending further analysis of the methodology and possible alternatives; provided, however, that due to a very large and sudden impact of ISO-NE rule changes on New York consumers that gave rise to the NYISO proposal, the NYISO proposal will be phased in so that **for ISO-NE's 2017/2018 Capability Year, the NYISO will set the Locality Exchange Factor for exports from the G-J Locality to ISO-NE to 80% to offset the impact of capacity exports[3]**, if any, rather than modifying the ICAP demand curve to offset the portion of exported capacity identified in the NYISO proposal. ICAP demand curves for the NYCA will remain unmodified; consequently, capacity exports to neighboring control areas will be fully reflected in capacity prices set using the NYCA ICAP demand curve, just as under the NYISO's proposal. The NYISO's Export Capacity Proposal, as presented to the Management Committee on October 26, 2016, will be fully implemented starting in the 2018/2019 Capability Year and continuing until and unless the NYISO receives FERC approval to implement a different treatment of capacity exports from a locational capacity zone to a neighboring region. Additionally, the NYISO commits to work with Stakeholders further on this issue in 2017. The ISO will conduct an evaluation with its stakeholders of additional modifications to the rules addressing Locational Export Capacity from Import Constrained Localities presented at the October 20, 2016 BIC meeting. The NYISO shall report on its progress at the January and April BIC meetings in 2017, and to the NYISO Board at its January and April 2017 meetings. On or before June 1, 2017, the ISO will file with the Commission either an informational report on the evaluation or a filing proposing to amend the ISO Tariffs. (NYISO MC, 2016)

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[3] The G-J Locality comprises the area around the city (with the exception of Long Island which is Locality K).