

# Electric Utilities and American Climate Policy

## Supporting Information

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## **A1 Data Description**

- Table A1 presents the list of the utilities in the U.S. using coal and renewable sources together, their net generation, types of utilities, and the states they are located on.
- Table A2 presents the summary statistics for the lobbying from electric utilities for the environmental bills that we consider in this article in 112th Congress.
- Table A3 presents the summary statistics for explanatory variables.
- Table A4 presents the summary statistics for net generation by utility type.
- Table A5 presents the correlation matrix.

| Name                                   | Net Generation | Type        | State | Name                                    | Net Generation | Type        | State |
|--|----------------|-------------|-------|---|----------------|-------------|-------|
| AES                                    | 25443.13       | Independent | MD    | ALABAMA POWER CO                        | 77841.38       | Traditional | AL    |
| ALLEGHENY ENERGY                       | 36813.64       | Traditional | VA    | AMERICAN MUNICIPAL POWER                | 1440.847       | Traditional | WV    |
| APPALACHIAN POWER CO                   | 38595.4        | Traditional | WV    | ARIZONA PUBLIC SERVICE CO               | 57969.98       | Traditional | NM    |
| BASIN ELECTRIC POWER COOPERATIVE       | 23345.17       | Traditional | SD    | BLACK HILLS POWER                       | 2952.607       | Independent | CO    |
| CALPINE MIDATLANTIC GENERATION         | 2781.227       | Independent | MD    | CEDAR BAY OPERATING SERVICES            | 1718.119       | Independent | FL    |
| CITY OF AMES                           | 451.901        | Traditional | IA    | CITY OF COLORADO SPRINGS                | 5744.179       | Traditional | CO    |
| CITY OF COLUMBIA                       | 100.736        | Traditional | MO    | CITY OF GRAND HAVEN                     | 360.444        | Traditional | MI    |
| CITY OF HAMILTON                       | 579.965        | Traditional | OH    | CITY OF MARQUETTE                       | 313.484        | Traditional | MI    |
| CITY OF PELLA                          | 65.971         | Traditional | IA    | CITY OF PERU                            | 91.593         | Traditional | IN    |
| CITY OF VIRGINIA                       | 107.009        | Traditional | MN    | CITY UTILITIES OF SPRINGFIELD           | 2738.541       | Traditional | MO    |
| COLMAC CLARION                         | 267.012        | Independent | PA    | CONSUMERS ENERGY CO                     | 18533.94       | Traditional | MI    |
| CPI USA NC                             | 552.132        | Independent | NC    | CRISP COUNTY POWER COMM                 | 36.414         | Traditional | GA    |
| DAIRYLAND POWER COOP                   | 5975.724       | Traditional | WI    | DTE ENERGY                              | 987.891        | Independent | MI    |
| DUKE ENERGY                            | 165394.4       | Independent | OH    | EASTERN KENTUCKY POWER COOPERATIVE      | 10367.81       | Traditional | KY    |
| EMPIRE DISTRICT ELECTRIC               | 4138.19        | Traditional | KS    | ENTERGY                                 | 115558         | Independent | NY    |
| EXELON                                 | 154281.3       | Independent | PA    | FIRSTLIGHT POWER RESOURCES SERVICES     | 1433.103       | Independent | CT    |
| GAINESVILLE REGIONAL UTILITIES         | 1623.172       | Traditional | FL    | GEORGIA POWER CO                        | 122664.2       | Traditional | GA    |
| GRAND RIVER DAM AUTHORITY              | 8006.298       | Traditional | OK    | GREAT RIVER ENERGY                      | 10129.46       | Traditional | MN    |
| HAWAIIAN COMMERCIAL AND SUGAR          | 198.968        | Independent | HI    | HIBBING PUBLIC UTILITIES COMM           | 174.297        | Traditional | MN    |
| HOOSIER ENERGY R E C                   | 8273.375       | Traditional | IN    | IHI POWER                               | 892.271        | Independent | CA    |
| INDIANA MICHIGAN POWER CO              | 39733.8        | Traditional | IN    | INTERSTATE POWER AND LIGHT CO           | 10142.66       | Traditional | MN    |
| JEA                                    | 14502.22       | Traditional | FL    | KANSAS CITY POWER AND LIGHT CO          | 21578.18       | Traditional | KS    |
| KCPANDL GREATER MISSOURI OPERATIONS CO | 3358.405       | Traditional | MO    | KENTUCKY UTILITIES CO                   | 18066.78       | Traditional | KY    |
| LOS ANGELES DEPTOF WATER AND POWER     | 24201.24       | Traditional | UT    | LOUISVILLE GAS AND ELECTRIC CO          | 18495.04       | Traditional | KY    |
| LOWER COLORADO RIVER AUTHORITY         | 16364.35       | Traditional | TX    | MADISON GAS AND ELECTRIC                | 519.53         | Traditional | WI    |
| MANTOWOC PUBLIC UTILITIES              | 491.127        | Traditional | WI    | MIDAMERICAN ENERGY HOLDINGS             | 31381.13       | Traditional | IA    |
| MINNESOTA POWER                        | 9877.288       | Traditional | MN    | MISSISSIPPI POWER CO                    | 16215.96       | Traditional | MS    |
| MONTANADAKOTA UTILITIES CO             | 966.705        | Traditional | ND    | NEBRASKA PUBLIC POWER DISTRICT          | 17840.91       | Traditional | NE    |
| NIAGARA GENERATION                     | 291.9          | Independent | NY    | NORTHERN INDIANA PUB SERV CO            | 14998.32       | Traditional | IN    |
| NORTHERN STATES POWER MINNESOTA        | 35779.87       | Traditional | SD    | NRG ENERGY                              | 113.995        | Independent | TX    |
| OHIO POWER CO                          | 54195.67       | Traditional | WV    | OKLAHOMA GAS AND ELECTRIC CO            | 28831.15       | Traditional | OK    |
| OMAHA PUBLIC POWER DISTRICT            | 12267.19       | Traditional | NE    | ORLANDO UTILITIES COMM                  | 5879.876       | Traditional | FL    |
| OTTER TAIL POWER CO                    | 7378.499       | Traditional | SD    | PACIFICORP                              | 60803.48       | Traditional | CA    |
| PLATTE RIVER POWER AUTHORITY           | 2187.564       | Traditional | WY    | PORTLAND GENERAL ELECTRIC               | 11284.26       | Traditional | OR    |
| POWERSOUTH ENERGY COOPERATIVE          | 4766.315       | Traditional | AL    | PPL                                     | 59586.76       | Independent | MT    |
| PROGRESS ENERGY                        | 99080.02       | Traditional | FL    | PUBLIC SERVICE ENTERPRISE GROUP         | 62716.11       | Traditional | NH    |
| ROCHESTER GAS AND ELECTRIC             | 345.306        | Traditional | NY    | ROCHESTER PUBLIC UTILITIES              | 233.163        | Traditional | MN    |
| SALT RIVER PROJECT                     | 31226.54       | Traditional | AZ    | SIERRA PACIFIC POWER CO                 | 6176.645       | Traditional | CA    |
| SOUTH CAROLINA ELECTRICANDGAS CO       | 22953.24       | Traditional | SC    | SOUTH CAROLINA PUBLIC SERVICE AUTHORITY | 24002.94       | Traditional | SC    |
| TENNESSEE VALLEY AUTHORITY             | 163571.9       | Traditional | TN    | TES FILER CITY STATION LP               | 482.381        | Independent | MI    |
| TUCSON ELECTRIC POWER CO               | 9947.037       | Traditional | AZ    | UNION ELECTRIC                          | 49211.67       | Traditional | MO    |
| UPPER PENINSULA POWER CO               | 210.933        | Traditional | MI    | US OPERATING SERVICES                   | 7561.859       | Independent | PA    |
| VIRGINIA ELECTRIC AND POWER CO         | 65623.34       | Traditional | NC    | WESTAR ENERGY                           | 19079.21       | Traditional | KS    |
| WHEELABRATOR TECHNOLOGIES              | 5206.606       | Independent | PA    | WISCONSIN ELECTRIC POWER CO             | 20515.09       | Traditional | WI    |
| WISCONSIN POWER AND LIGHT CO           | 13407.38       | Independent | WI    | WISCONSIN PUBLIC SERVICE                | 6916.426       | Traditional | WI    |

Table A1: List of Utilities using both coal and renewables

| Variable              | Mean  | N    |
|-----------------------|-------|------|
| Lobbying for H.R.2454 | 0.049 | 1655 |
| Lobbying for S.1733   | 0.03  | 1655 |
| Lobbying for S.2877   | 0.019 | 1655 |
| Lobbying for S.1462   | 0.031 | 1655 |

Table A2: Summary statistics for the environmental bills in 112th Congress

| <b>Variable</b>                     | <b>Mean</b> | <b>Std. Dev.</b> | <b>Min.</b> | <b>Max.</b> | <b>N</b> |
|-------------------------------------|-------------|------------------|-------------|-------------|----------|
| Net Generation                      | 2401        | 11015            | -274        | 165394      | 1655     |
| Renewable Net Generation            | 212         | 1812             | -1          | 49234       | 1655     |
| Coal Net Generation                 | 1189        | 6407             | -2          | 105499      | 1655     |
| Natural Gas Net Generation          | 486         | 2169             | -2          | 59025       | 1655     |
| Renewable Net Generation (Logged)   | 4.85        | 5.45             | 0           | 17.71       | 1610     |
| Coal Net Generation (Logged)        | 1.97        | 5.02             | 0           | 18.47       | 1610     |
| Petroleum Net Generation (Logged)   | 2.60        | 3.74             | 0           | 15.52       | 1610     |
| Natural Gas Net Generation (Logged) | 4.70        | 5.81             | 0           | 17.89       | 1610     |
| Net Generation (Other, Logged)      | 3.02        | 4.20             | 0           | 18.79       | 1610     |
| RPS                                 | 0.71        | 0.45             | 0           | 2           | 1655     |
| Deregulation                        | 0.35        | 0.47             | 0           | 1           | 1655     |
| Deregulation suspension             | 0.17        | 0.38             | 0           | 1           | 1655     |
| Republican Representatives %        | 42.5        | 24.5             | 0           | 100         | 1654     |
| Republican Senators %               | 35.8        | 39.1             | 0           | 100         | 1655     |
| Independent Generators              | 0.54        | 0.49             | 0           | 1           | 1655     |

The values of net generations are measured in thousands Megawatts per hour

Table A3: Summary statistics for explanatory variables

| <i>Traditional Utilities</i>  |             |                  |             |             |          |
|-------------------------------|-------------|------------------|-------------|-------------|----------|
| <b>Variable</b>               | <b>Mean</b> | <b>Std. Dev.</b> | <b>Min.</b> | <b>Max.</b> | <b>N</b> |
| Net Generation                | 3043        | 12047            | -274        | 163571      | 748      |
| Renewable Net Generation      | 320         | 2607             | -0.4        | 49234       | 748      |
| Coal Net Generation           | 1807        | 7641             | -2          | 97597       | 748      |
| Natural Gas Net Generation    | 423         | 2629             | -2          | 59025       | 748      |
| <i>Independent Generators</i> |             |                  |             |             |          |
| <b>Variable</b>               | <b>Mean</b> | <b>Std. Dev.</b> | <b>Min.</b> | <b>Max.</b> | <b>N</b> |
| Net Generation                | 1871        | 10061            | -13         | 165394      | 907      |
| Renewable Net Generation      | 123         | 608              | -1.2        | 12360       | 907      |
| Coal Net Generation           | 679         | 5122             | 0           | 105499      | 907      |
| Natural Gas Net Generation    | 538         | 1699             | -0.4        | 27590       | 907      |

The values of net generations are measured in thousands Megawatts per hour

Table A4: Summary statistics for net generation by utility type

| Variables                               | (1)   | (2)   | (3)   | (4)   | (5)   | (6)   | (7)   | (8)   | (9)   | (10) |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| (1) Coal Net Generation (Logged)        | 1.00  |       |       |       |       |       |       |       |       |      |
| (2) Renewable Net Generation (Logged)   | 0.01  | 1.00  |       |       |       |       |       |       |       |      |
| (3) Natural Gas Net Generation (Logged) | 0.26  | -0.29 | 1.00  |       |       |       |       |       |       |      |
| (4) Net Generation (Other, Logged)      | 0.45  | -0.09 | 0.20  | 1.00  |       |       |       |       |       |      |
| (5) RPS                                 | -0.09 | 0.07  | -0.01 | -0.15 | 1.00  |       |       |       |       |      |
| (6) Deregulation                        | 0.00  | 0.01  | 0.08  | -0.00 | 0.47  | 1.00  |       |       |       |      |
| (7) Deregulation suspension             | -0.09 | 0.12  | 0.07  | -0.14 | 0.08  | -0.34 | 1.00  |       |       |      |
| (8) Republican Representatives %        | 0.08  | -0.16 | 0.04  | 0.09  | -0.50 | -0.37 | -0.10 | 1.00  |       |      |
| (9) Republican Senators %               | 0.09  | -0.12 | 0.12  | 0.04  | -0.45 | -0.07 | -0.33 | 0.51  | 1.00  |      |
| (10) Independent Generators             | -0.13 | 0.22  | 0.08  | -0.26 | 0.26  | 0.29  | 0.20  | -0.32 | -0.17 | 1.00 |

Table A5: Cross-correlation table

## **A2 Full Results**

- Table A6 presents the probit estimation of the lobbying behavior of individual electric utilities with respect to the American Clean Energy and Security Act (H.R. 2454).
- Table A7 presents the probit estimation of the lobbying behavior of individual electric utilities with respect to the Clean Energy Jobs and American Power Act (S. 1733).
- Table A8 presents the probit estimation of the lobbying behavior of individual electric utilities with respect to the American Clean Energy Leadership Act (S. 1462).
- Table A9 presents the probit estimation of the lobbying behavior of individual electric utilities with respect to the American Power Act (S. 2877).

|                                     | (1)                 | (2)                 | (3)                 | (4)                 | (5)                 | (6)                 |
|-------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Coal Net Generation (Logged)        | 0.023**<br>(0.010)  | -0.005<br>(0.012)   | -0.008<br>(0.014)   | -0.006<br>(0.012)   | -0.008<br>(0.012)   | -0.008<br>(0.013)   |
| Renewable Net Generation (Logged)   | 0.076***<br>(0.011) | 0.071***<br>(0.011) | 0.074***<br>(0.013) | 0.071***<br>(0.011) | 0.072***<br>(0.011) | 0.071***<br>(0.012) |
| Natural Gas Net Generation (Logged) | 0.078***<br>(0.011) | 0.066***<br>(0.011) | 0.072***<br>(0.013) | 0.067***<br>(0.011) | 0.064***<br>(0.012) | 0.068***<br>(0.012) |
| Independent Generators              | 0.019<br>(0.128)    | 0.107<br>(0.131)    | 0.168<br>(0.162)    | 0.100<br>(0.141)    | 0.108<br>(0.143)    | 0.122<br>(0.150)    |
| Net Generation (Other, Logged)      |                     | 0.074***<br>(0.013) | 0.090***<br>(0.016) | 0.076***<br>(0.014) | 0.082***<br>(0.014) | 0.086***<br>(0.015) |
| RPS                                 |                     |                     |                     | 0.205<br>(0.164)    | 0.377**<br>(0.184)  | 0.456**<br>(0.198)  |
| Deregulation                        |                     |                     |                     | -0.118<br>(0.171)   | -0.131<br>(0.178)   | -0.209<br>(0.199)   |
| Deregulation suspension             |                     |                     |                     | -0.115<br>(0.189)   | -0.003<br>(0.198)   | 0.063<br>(0.236)    |
| Republican Representatives %        |                     |                     |                     |                     | 0.002<br>(0.003)    | 0.002<br>(0.004)    |
| Republican Senators %               |                     |                     |                     |                     | 0.003*<br>(0.002)   | 0.005**<br>(0.002)  |
| Atlantic                            |                     |                     |                     |                     |                     | -0.001<br>(0.263)   |
| Northeast                           |                     |                     |                     |                     |                     | 0.219<br>(0.260)    |
| Northwest                           |                     |                     |                     |                     |                     | 0.332<br>(0.250)    |
| Midwest                             |                     |                     |                     |                     |                     | 0.045<br>(0.202)    |
| Southeast                           |                     |                     |                     |                     |                     | -0.630<br>(0.397)   |
| State FE                            | NO                  | NO                  | YES                 | NO                  | NO                  | NO                  |
| Observations                        | 1655                | 1655                | 1519                | 1655                | 1654                | 1654                |
| Pseudo $R^2$                        | 0.203               | 0.249               | 0.299               | 0.251               | 0.259               | 0.269               |
| AIC                                 | 525.305             | 497.768             | 533.226             | 502.108             | 501.053             | 505.003             |

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A6: Lobbying for H.R.2454 American Clean Energy and Security Act

|                                     | (1)      | (2)      | (3)      | (4)      | (5)      | (6)      |
|-------------------------------------|----------|----------|----------|----------|----------|----------|
| Coal Net Generation (Logged)        | 0.021*   | -0.011   | -0.011   | -0.013   | -0.016   | -0.012   |
|                                     | (0.012)  | (0.014)  | (0.017)  | (0.014)  | (0.015)  | (0.015)  |
| Renewable Net Generation (Logged)   | 0.072*** | 0.062*** | 0.073*** | 0.062*** | 0.062*** | 0.059*** |
|                                     | (0.013)  | (0.014)  | (0.018)  | (0.014)  | (0.014)  | (0.014)  |
| Natural Gas Net Generation (Logged) | 0.091*** | 0.077*** | 0.095*** | 0.078*** | 0.074*** | 0.077*** |
|                                     | (0.013)  | (0.014)  | (0.018)  | (0.015)  | (0.015)  | (0.015)  |
| Independent Generators              | 0.223    | 0.284*   | 0.415*   | 0.321*   | 0.320*   | 0.307    |
|                                     | (0.166)  | (0.168)  | (0.224)  | (0.182)  | (0.184)  | (0.194)  |
| Net Generation (Other, Logged)      |          | 0.084*** | 0.103*** | 0.088*** | 0.095*** | 0.098*** |
|                                     |          | (0.016)  | (0.020)  | (0.016)  | (0.017)  | (0.017)  |
| RPS                                 |          |          |          | 0.289    | 0.447**  | 0.617**  |
|                                     |          |          |          | (0.200)  | (0.221)  | (0.246)  |
| Deregulation                        |          |          |          | -0.294   | -0.333   | -0.528** |
|                                     |          |          |          | (0.213)  | (0.223)  | (0.262)  |
| Deregulation suspension             |          |          |          | -0.180   | -0.051   | -0.047   |
|                                     |          |          |          | (0.232)  | (0.244)  | (0.289)  |
| Republican Representatives %        |          |          |          |          | -0.000   | 0.001    |
|                                     |          |          |          |          | (0.004)  | (0.005)  |
| Republican Senators %               |          |          |          |          | 0.004*   | 0.006**  |
|                                     |          |          |          |          | (0.002)  | (0.003)  |
| Atlantic                            |          |          |          |          |          | 0.058    |
|                                     |          |          |          |          |          | (0.311)  |
| Northeast                           |          |          |          |          |          | 0.371    |
|                                     |          |          |          |          |          | (0.325)  |
| Northwest                           |          |          |          |          |          | 0.360    |
|                                     |          |          |          |          |          | (0.306)  |
| Midwest                             |          |          |          |          |          | -0.155   |
|                                     |          |          |          |          |          | (0.265)  |
| Southeast                           |          |          |          |          |          | -0.473   |
|                                     |          |          |          |          |          | (0.422)  |
| State FE                            | NO       | NO       | YES      | NO       | NO       | NO       |
| Observations                        | 1655     | 1655     | 1287     | 1655     | 1654     | 1654     |
| Pseudo $R^2$                        | 0.228    | 0.292    | 0.371    | 0.298    | 0.307    | 0.319    |
| AIC                                 | 350.684  | 324.569  | 337.989  | 327.880  | 328.106  | 332.719  |

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A7: Lobbying for S.1733 Clean Energy Jobs and American Power Act



|                                     | (1)                 | (2)                 | (3)                 | (4)                 | (5)                 | (6)                 |
|-------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Coal Net Generation (Logged)        | 0.018<br>(0.012)    | -0.015<br>(0.014)   | -0.013<br>(0.017)   | -0.013<br>(0.014)   | -0.016<br>(0.014)   | -0.012<br>(0.015)   |
| Renewable Net Generation (Logged)   | 0.070***<br>(0.013) | 0.064***<br>(0.013) | 0.069***<br>(0.016) | 0.062***<br>(0.013) | 0.062***<br>(0.013) | 0.060***<br>(0.014) |
| Natural Gas Net Generation (Logged) | 0.075***<br>(0.013) | 0.061***<br>(0.013) | 0.069***<br>(0.016) | 0.059***<br>(0.013) | 0.056***<br>(0.013) | 0.060***<br>(0.014) |
| Independent Generators              | 0.093<br>(0.150)    | 0.199<br>(0.156)    | 0.135<br>(0.203)    | 0.150<br>(0.171)    | 0.147<br>(0.173)    | 0.125<br>(0.183)    |
| Net Generation (Other, Logged)      |                     | 0.085***<br>(0.015) | 0.107***<br>(0.019) | 0.090***<br>(0.016) | 0.096***<br>(0.016) | 0.100***<br>(0.017) |
| RPS                                 |                     |                     |                     | 0.346*<br>(0.199)   | 0.508**<br>(0.219)  | 0.726***<br>(0.244) |
| Deregulation                        |                     |                     |                     | -0.092<br>(0.203)   | -0.136<br>(0.213)   | -0.367<br>(0.252)   |
| Deregulation suspension             |                     |                     |                     | 0.053<br>(0.216)    | 0.169<br>(0.227)    | 0.245<br>(0.282)    |
| Republican Representatives %        |                     |                     |                     |                     | -0.001<br>(0.004)   | 0.001<br>(0.004)    |
| Republican Senators %               |                     |                     |                     |                     | 0.004*<br>(0.002)   | 0.007**<br>(0.003)  |
| Atlantic                            |                     |                     |                     |                     |                     | 0.146<br>(0.305)    |
| Northeast                           |                     |                     |                     |                     |                     | 0.562*<br>(0.300)   |
| Northwest                           |                     |                     |                     |                     |                     | 0.483<br>(0.304)    |
| Midwest                             |                     |                     |                     |                     |                     | -0.090<br>(0.265)   |
| Southeast                           |                     |                     |                     |                     |                     | -0.602<br>(0.464)   |
| State FE                            | NO                  | NO                  | YES                 | NO                  | NO                  | NO                  |
| Observations                        | 1655                | 1655                | 1357                | 1655                | 1654                | 1654                |
| Pseudo $R^2$                        | 0.188               | 0.255               | 0.332               | 0.263               | 0.272               | 0.293               |
| AIC                                 | 379.928             | 351.041             | 366.422             | 353.465             | 353.273             | 353.712             |

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A8: Lobbying for S.1462 American Clean Energy Leadership Act

|                                     | (1)                 | (2)                 | (3)                 | (4)                 | (5)                 | (6)                 |
|-------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Coal Net Generation (Logged)        | 0.027*<br>(0.014)   | 0.002<br>(0.017)    | -0.009<br>(0.022)   | 0.004<br>(0.018)    | 0.005<br>(0.018)    | 0.004<br>(0.019)    |
| Renewable Net Generation (Logged)   | 0.096***<br>(0.018) | 0.083***<br>(0.018) | 0.107***<br>(0.023) | 0.088***<br>(0.019) | 0.088***<br>(0.019) | 0.092***<br>(0.020) |
| Natural Gas Net Generation (Logged) | 0.107***<br>(0.018) | 0.088***<br>(0.018) | 0.101***<br>(0.023) | 0.096***<br>(0.020) | 0.093***<br>(0.020) | 0.101***<br>(0.022) |
| Independent Generators              | 0.690***<br>(0.246) | 0.642***<br>(0.236) | 0.787***<br>(0.300) | 0.581**<br>(0.257)  | 0.572**<br>(0.260)  | 0.681**<br>(0.282)  |
| Net Generation (Other, Logged)      |                     | 0.059***<br>(0.019) | 0.087***<br>(0.024) | 0.066***<br>(0.021) | 0.067***<br>(0.021) | 0.070***<br>(0.022) |
| RPS                                 |                     |                     |                     | 1.038***<br>(0.326) | 1.121***<br>(0.341) | 1.266***<br>(0.375) |
| Deregulation                        |                     |                     |                     | -0.168<br>(0.246)   | -0.257<br>(0.262)   | -0.321<br>(0.298)   |
| Deregulation suspension             |                     |                     |                     | -0.146<br>(0.283)   | -0.076<br>(0.297)   | 0.253<br>(0.401)    |
| Republican Representatives %        |                     |                     |                     |                     | -0.006<br>(0.006)   | -0.002<br>(0.006)   |
| Republican Senators %               |                     |                     |                     |                     | 0.004<br>(0.003)    | 0.006*<br>(0.004)   |
| Atlantic                            |                     |                     |                     |                     |                     | -0.104<br>(0.478)   |
| Northeast                           |                     |                     |                     |                     |                     | 0.770**<br>(0.387)  |
| Northwest                           |                     |                     |                     |                     |                     | 0.593<br>(0.469)    |
| Midwest                             |                     |                     |                     |                     |                     | 0.390<br>(0.372)    |
| Southeast                           |                     |                     |                     |                     |                     | 0.044<br>(0.531)    |
| State FE                            | NO                  | NO                  | YES                 | NO                  | NO                  | NO                  |
| Observations                        | 1655                | 1655                | 1038                | 1655                | 1654                | 1654                |
| Pseudo $R^2$                        | 0.289               | 0.317               | 0.382               | 0.360               | 0.366               | 0.388               |
| AIC                                 | 234.555             | 227.654             | 232.642             | 220.253             | 222.244             | 225.465             |

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A9: Lobbying for S.2877 Clear Act

### **A3 Zero-inflated Negative Binomial Count Model**

- In addition to understanding decisions to lobby on any particular bill, we check if the amount of net generation using different fuel type has impact on the frequency of lobbying activities.
- We create the count variable for the frequency of lobbying decisions on the major climate bills. In order to address a concern about excessive zeros (over 90% of total observations that never lobbied on any bill among the major bills), we implemented a zero-inflated negative binomial estimation that accounts for lobbying and non-lobbying decisions in the logit part of the models and thereby addresses concerns about excessive zeros in the dependent variable.
- Table A10 presents the zero-inflated negative binomial count estimation of the lobbying behavior of individual electric utilities with respect to all of the major climate bills together.
- Across all the specifications, the results show that the amount of renewable net generation and that of natural gas net generation predict non-lobbying activity. Specifically, the amount of renewable net generation and that of natural gas net generation have negative impacts on the lobbying probability on at least one major bill while amount of coal net generation to have little impact on the probability to lobby. However, we did not find evidence that the amount of renewable net generation and that of natural gas net generation predict increase the probability to lobby on one more climate bill.

|                                     | (1)                  | (2)                  | (3)                  | (4)                  | (5)                  |
|-------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| DV=Lobbying count                   |                      |                      |                      |                      |                      |
| Coal Net Generation (Logged)        | 0.003<br>(0.011)     | -0.006<br>(0.012)    | -0.003<br>(0.013)    | -0.004<br>(0.013)    | -0.002<br>(0.015)    |
| Renewable Net Generation (Logged)   | 0.001<br>(0.013)     | 0.001<br>(0.013)     | 0.000<br>(0.013)     | -0.001<br>(0.013)    | -0.001<br>(0.014)    |
| Natural Gas Net Generation (Logged) | 0.032**<br>(0.016)   | 0.022<br>(0.017)     | 0.016<br>(0.018)     | 0.016<br>(0.018)     | 0.018<br>(0.020)     |
| Independent Generators              | 0.213<br>(0.165)     | 0.221<br>(0.165)     | 0.188<br>(0.174)     | 0.188<br>(0.188)     | 0.167<br>(0.194)     |
| Net Generation (Other, Logged)      |                      | 0.027<br>(0.018)     | 0.033*<br>(0.018)    | 0.031*<br>(0.019)    | 0.032<br>(0.020)     |
| RPS                                 |                      |                      | 0.346<br>(0.213)     | 0.326<br>(0.233)     | 0.403<br>(0.261)     |
| Deregulation                        |                      |                      | -0.055<br>(0.209)    | -0.068<br>(0.217)    | -0.119<br>(0.222)    |
| Deregulation suspension             |                      |                      | -0.038<br>(0.246)    | -0.052<br>(0.266)    | 0.064<br>(0.353)     |
| Republican Representatives %        |                      |                      |                      | -0.002<br>(0.006)    | 0.001<br>(0.006)     |
| Republican Senators %               |                      |                      |                      | 0.000<br>(0.003)     | 0.000<br>(0.004)     |
| Atlantic                            |                      |                      |                      |                      | 0.073<br>(0.429)     |
| Northeast                           |                      |                      |                      |                      | 0.422<br>(0.293)     |
| Northwest                           |                      |                      |                      |                      | 0.325<br>(0.353)     |
| Midwest                             |                      |                      |                      |                      | 0.029<br>(0.289)     |
| Southeast                           |                      |                      |                      |                      | 0.211<br>(0.488)     |
| Inflate                             |                      |                      |                      |                      |                      |
| Coal Net Generation (Logged)        | -0.033<br>(0.022)    | 0.017<br>(0.024)     | 0.019<br>(0.025)     | 0.022<br>(0.025)     | 0.020<br>(0.027)     |
| Renewable Net Generation (Logged)   | -0.174***<br>(0.024) | -0.155***<br>(0.024) | -0.154***<br>(0.025) | -0.156***<br>(0.025) | -0.151***<br>(0.026) |
| Natural Gas Net Generation (Logged) | -0.166***<br>(0.024) | -0.142***<br>(0.025) | -0.145***<br>(0.026) | -0.137***<br>(0.026) | -0.141***<br>(0.027) |
| Independent Generators              | -0.163<br>(0.287)    | -0.207<br>(0.286)    | -0.180<br>(0.309)    | -0.183<br>(0.313)    | -0.231<br>(0.328)    |
| Net Generation (Other, Logged)      |                      | -0.132***<br>(0.028) | -0.136***<br>(0.029) | -0.148***<br>(0.030) | -0.156***<br>(0.031) |
| RPS                                 |                      |                      | -0.301<br>(0.376)    | -0.645<br>(0.418)    | -0.827*<br>(0.454)   |
| Deregulation                        |                      |                      | 0.190<br>(0.378)     | 0.266<br>(0.397)     | 0.503<br>(0.452)     |
| Deregulation suspension             |                      |                      | 0.092<br>(0.411)     | -0.127<br>(0.431)    | -0.224<br>(0.535)    |
| Republican Representatives %        |                      |                      |                      | -0.001<br>(0.008)    | -0.001<br>(0.008)    |
| Republican Senators %               |                      |                      |                      | -0.008*<br>(0.005)   | -0.012**<br>(0.005)  |
| Atlantic                            |                      |                      |                      |                      | 0.062<br>(0.610)     |
| Northeast                           |                      |                      |                      |                      | -0.514<br>(0.564)    |
| Northwest                           |                      |                      |                      |                      | -0.569<br>(0.547)    |
| Midwest                             |                      |                      |                      |                      | -0.016<br>(0.458)    |
| Southeast                           |                      |                      |                      |                      | 1.530*<br>(0.886)    |
| Observations                        | 1655                 | 1655                 | 1655                 | 1654                 | 1654                 |
| AIC                                 | 798.993              | 774.822              | 782.198              | 785.371              | 794.962              |

The result from the estimation using state fixed effects is not reported since the model does not converge.

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A10: Zero-Inflated Negative Binomial Count Model Estimation