

A Majority of Americans Support Net Energy Metering

a report from the National Surveys on Energy and Environment

Net energy metering (NEM), the policy that allows utility customers with onsite electricity sources such as solar panels or small wind turbines to sell excess energy they generate back to the electric grid, has played a significant role in the increased adoption of small-scale renewable energy. This report presents data from the spring 2017 wave of the National Surveys on Energy and Environment (NSEE) to find that there is majority support for NEM across all demographic groups, though groups that tend to be more supportive of increasing the use of solar energy in their state—younger Americans and those who identify as politically liberal—are more strongly supportive of NEM policies than political moderates, conservatives, and Americans over the age of 50.

Key Findings

- A majority of Americans (76%) support net energy metering (NEM), a policy that allows small-scale producers of renewable energy (e.g., through rooftop solar panels) to sell excess power back to their electric utility.
- Support for NEM is highest among self-identified liberals and younger Americans (aged 18-49), two groups that also are more supportive of increasing the use of solar energy in their state.
- Even so, a majority of political moderates, conservatives, and Americans 50 and over also say they support NEM.
- While 80% of respondents who do believe there is solid evidence of climate change say they support NEM, even a majority (64%) of respondents who don't think there is solid evidence of climate change say they support NEM.

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Recent years have seen a significant increase in distributed energy generation, where individual users of electricity (e.g., homes and businesses) produce some of their energy on-site.¹ This largely has taken the form of rooftop solar panels and small, free-standing solar arrays, but it can also refer to small wind or hydroelectric turbines.² This increase in distributed generation can be linked both to economic and policy changes. On the economic side, the cost of renewable energy generally—and solar panels in particular—has decreased precipitously in recent years, making such energy sources increasingly economically viable.³ State policies have also led to increased adoption of distributed generation. In particular, net energy metering (NEM)—a policy that gives small-scale renewable energy producers the ability to sell any excess energy they generate back to the electricity grid—has both reduced the need for expensive battery storage systems and has also helped homeowners more quickly recoup the costs of the solar installation.⁴

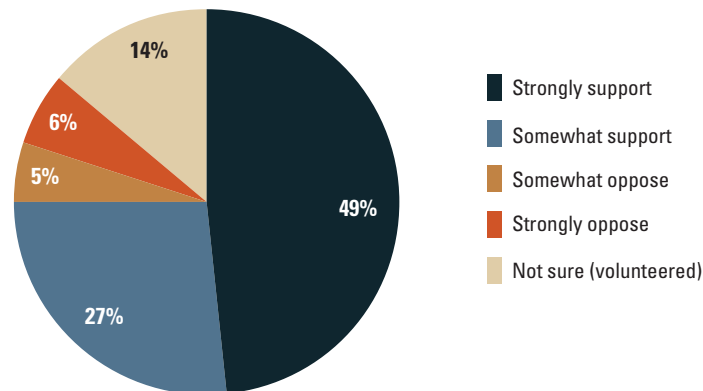
NEM policies, though, have been the subject of much debate. While renewable energy advocates have sought to expand net metering as a way to help achieve climate goals, many utility companies have argued that NEM policies subsidize solar customers at the expense of all others. To arbitrate these differences, public utilities commissions have often turned to solar valuation studies, which aim to put a price tag on both the costs and benefits of distributed generation. Despite most such studies finding NEM provides the grid with more benefits than costs,⁵ it hasn't stopped legislative debate. In the last two years, policy-makers in all but two states (Alaska and Wyoming) have discussed net metering, or related policies.⁶ As of April 2017, 39 states and Washington, D.C. had mandatory rules regarding NEM, while Texas and Idaho had net metering rules that are voluntary.⁷

A Majority of Americans Support Net Metering

The spring 2017 wave of the National Surveys on Energy and Environment (NSEE) finds that such net metering policies are largely reflective of public opinion. Overall, 76% of Americans say they support net energy metering (see *Figure 1*). This includes nearly half of Americans (49%) who say they strongly support NEM, and another 27% who say they somewhat support the policy. By contrast, only 11% of Americans voice opposition to NEM, including only 6% saying they strongly oppose the policy.

The percentage of Americans who say they are uncertain about their stance on NEM is higher than those who say they are in opposition to the policy, with 14% volunteering that they are not sure how they feel about NEM. This level of uncertainty about the policy exceeds the 6% of the same respondents surveyed who say they are unsure how they feel about more common energy policies such as state energy efficiency or renewable energy requirements, but is comparable to attitudes about lesser-discussed climate policies such as California's vehicle emissions waivers.⁸

Figure 1: Support and opposition to Net Energy Metering among Americans



Question text: "There is a policy that allows homes and businesses with solar panels to sell any extra power they generate back to the electric grid for the same price that the utility charges consumers to buy the electricity. This policy is called net metering, since these customers' electric meters run both forward and backward. Would you say you strongly support, somewhat support, somewhat oppose, or strongly oppose this type of policy?"



Majority Support for NEM Across the Political Spectrum, but Highest Among Liberals

As with many climate policies, Americans who identify as politically liberal are more supportive of NEM than those who identify as moderate or conservative (see *Figure 2*). Even so, the majority of Americans across the political spectrum say they support NEM. Among those who identify as very conservative, for example, 62% say they support NEM, while only 21% say they oppose it. Among moderates, there is 76% support and just 10% opposition. Among those who identify as somewhat liberal, 84% say they support NEM, while just 7% say they oppose it.

This trend is largely mirrored in these respondents' support for solar energy more generally, with those Americans who identify as liberal being more strongly supportive of increased solar energy in their state than those who identify as conservative (see *Figure 3*). Among those who identify as very liberal, 84% say they strongly support increasing solar energy in their state and 9% say they somewhat support solar increases, while only 5% say they oppose such increases. For those who identify as very conservative, there is still majority support (83%) for increasing the use of solar energy, but this support isn't quite as strong and there is 15% opposition to such increases.

Figure 2: Support for NEM, by political ideology

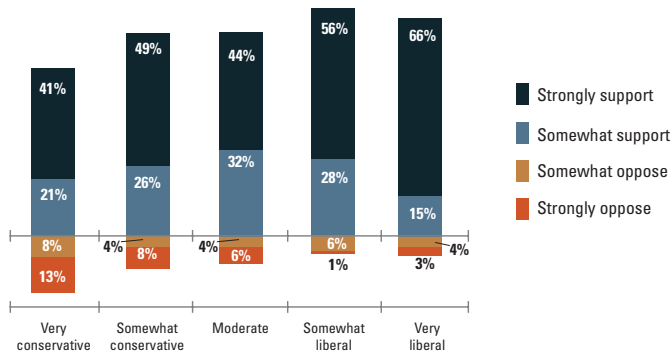
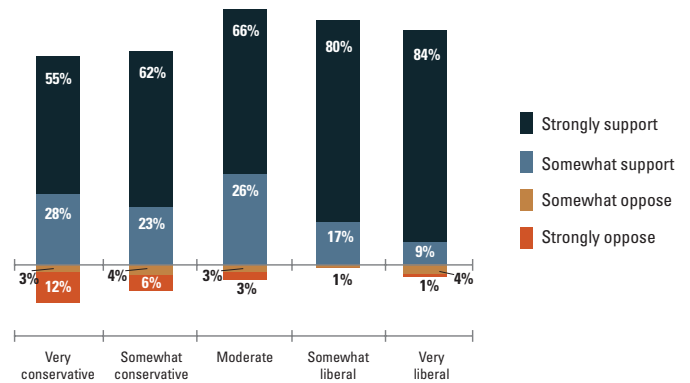


Figure 3: Support for increased use of solar energy in one's own state, by political ideology



Note: "Not sure" responses not shown for Figures 2 and 3

Younger Americans More Supportive of NEM than Those 50 and Over

Support and opposition for NEM also varies based on respondent age. Support for NEM is greatest among Americans ages 18 to 49, though there is majority support for the policy across all age groups (see *Figure 4*). Specifically, 83% of Americans ages 18-34 say they support NEM while only 6% say they oppose it. By contrast, 72% of Americans ages 50-64 support NEM while 14% oppose it, and Americans ages 65 and older voice 66% support and 15% opposition to NEM.

Much like political ideology, differences in support for NEM among different age groups track to their levels of support and opposition for increased use of solar energy more generally. Among Americans ages 18-34 there is 94% support and only 4% opposition to increasing the use of solar energy in their state, while among Americans 65 years and older, these numbers stand at 83% support and 13% opposition (see *Figure 5*).

Figure 4: Support for NEM, by age

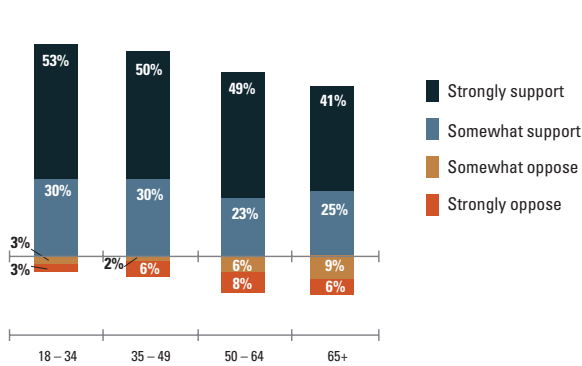
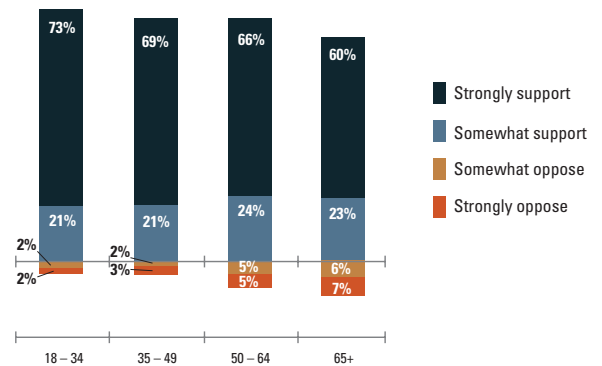


Figure 5: Support for increased use of solar energy in one's own state, by age



Note: "Not sure" responses not shown for Figures 4 and 5



Majority Support for NEM Even Among Climate Skeptics

Much like support for renewable energy more generally, there is majority support for NEM even among those Americans who do not think there is solid evidence of climate change. Among these climate skeptics, 64% say they support NEM while 25% say they oppose such policies (see *Figure 6*). Americans who say they do believe Earth is warming predictably show higher support (80%) and less opposition (8%). Again, these patterns mirror opinions about the increased use of solar energy more generally (see *Figure 7*).

Figure 6: Support for NEM, by belief in solid evidence of climate change

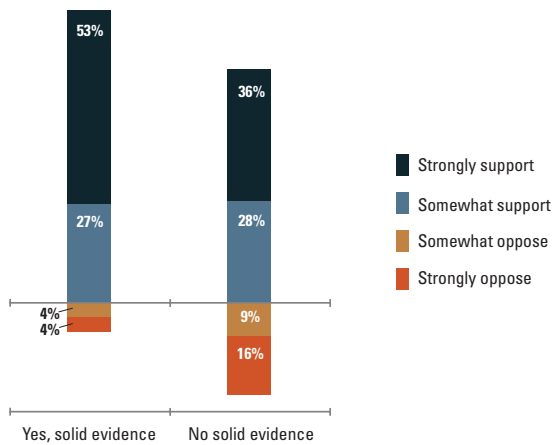
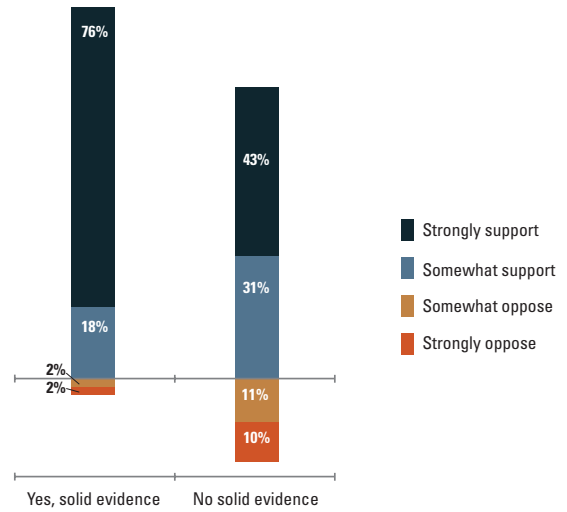


Figure 7: Support for increased use of solar energy in one's own state, by belief in solid evidence of climate change



Note: "Not sure" responses not shown for figures 6 and 7

State Policy Context has No Correlation with Public Attitudes about NEM

It might be reasonable to hypothesize that in states which have a mandatory NEM, more citizens would at least have made up their minds about NEM. In fact, that does not appear to be the case. In the 39 states with mandatory rules regarding NEM, public opinion is similar to that in the 11 states which have no requirements (see *Figure 8*). In states with mandatory NEM rules currently in place, 75% of residents say they support NEM, 11% say they oppose it, and 14% say they are unsure about their opinions towards NEM. In states with no mandatory NEM rules, support is slightly higher at 77%, opposition slightly lower at 10%, and just 12% say they are unsure how they feel about NEM.

Similarly, there is no notable difference in opinion between Americans who live in states with mandatory renewable energy requirements and those who live in states with no such mandate (see *Figure 9*). Among those in states with a mandatory renewable portfolio standard (RPS), 76% support and 10% oppose NEM. By contrast, Americans from states without mandatory RPS policies show 74% support and 13% opposition to NEM.

Figure 8: Support for NEM, by state NEM status

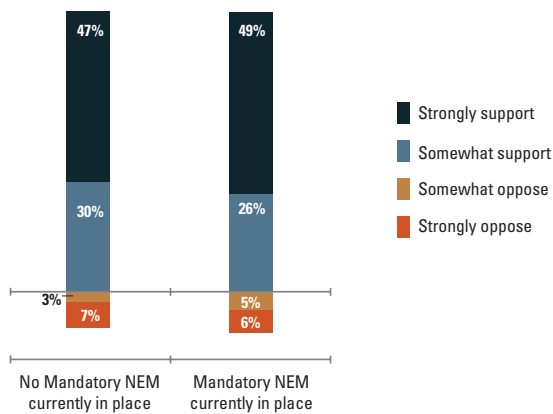
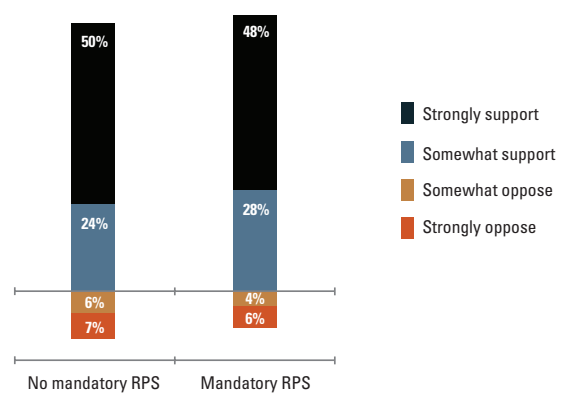


Figure 9: Support for NEM, by state renewable portfolio standard (RPS) status



Note: "Not sure" responses not shown for Figures 8 and 9
 Refer to tables in Appendix to see the states included in each of these categories



Conclusion

Though NEM has been a topic of much debate in nearly all states, the spring 2017 wave of the NSEE finds that the public is clearly in support of NEM. Although there is majority support for NEM across all demographic groups, self-identified liberals, as well as young people, more strongly support such policies which largely tracks with these groups' increased support for solar energy more generally. This suggests that net metering appears to largely be understood by the public as a “pro-solar” policy. Additional public opinion data is needed to understand how robust this support is when both the costs and the benefits are articulated to respondents.

Methods

The Spring 2017 NSEE surveyed 841 adult (age 18 or older) residents of the United States between April 17 and May 16, 2017. Respondents were interviewed in English on both landlines (201) and cell phones (640) by the staff of the Muhlenberg College Institute of Public Opinion (MCIPO) in Allentown, Pennsylvania on the Institute's Computer Aided Telephone Interviewing (CATI) system. Both the landline and cell phone samples were chosen randomly from sampling frames of United States landline and cell numbers provided the Marketing Systems Group (MSG), Horsham, Pennsylvania.

With a randomly selected sample of 841 respondents the margin of error for the surveys is $\pm 3.5\%$ at a 95% level of confidence. Margins of error for questions with smaller sample sizes will be larger. In addition to sampling error, one should consider that question wording and other fielding issues can introduce error or bias into survey results. The sample data has been weighted by age, race, educational attainment, income and gender to reflect 2015 population parameters for these factors provided by the United States Census Bureau. The calculation of sampling error takes into account design effects due to the weighting identified above. In order to reach a representative sample of adult Americans both landlines and cell phones are called up to 10 times. The response rate for this survey as calculated using the American Association of Public Opinion Research (AAPOR) RR3 formula is 9%. Due to rounding, the totals provided in tables may not equal 100.

The instrument was designed by Christopher Borick of Muhlenberg College, Sarah Mills of the University of Michigan, and Barry Rabe of the University of Michigan. For more detailed information on the methods employed please contact the MCIPO at 484-664-3444 or email Dr. Borick at cborick@muhlenberg.edu.

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Notes

1. Hodge, T., & Sukunta M. (2017). EIA adds small-scale solar photovoltaic forecasts to its monthly Short-Term Energy Outlook. Washington, D.C.: U.S. Energy Information Administration. Retrieved from <https://www.eia.gov/todayinenergy/detail.php?id=31992#>
2. U.S. Department of Energy. *Net metering*. Washington, D.C.: U.S. Department of Energy. Retrieved from <https://energy.gov/savings/net-metering-20>
3. Fu, R., Chung, D., Lowder, T., Feldman, D., Ardani, K., & Margolis, R. (2016). U.S. Solar Photovoltaic System Cost Benchmark: Q1 2016. Golden, CO: National Renewable Energy Laboratory. Retrieved from <https://www.nrel.gov/docs/fy16osti/66532.pdf>
4. Darghouth, N. R., Wisler, R. H., Barbose, G., & Mills, A. D. (2016). Net metering and market feedback loops: Exploring the impact of the retail rate design on distributed PV deployment. *Applied Energy*, 162, 713-722. doi: 10.1016/j.apenergy.2015.10.120 Retrieved from <http://www.sciencedirect.com/science/article/pii/S0306261915013562>
5. Muro, M., & Saha, D. (2016). *Rooftop solar: Net metering is a net benefit*. Washington, D.C.: Brookings Institution. Retrieved from <https://www.brookings.edu/research/rooftop-solar-net-metering-is-a-net-benefit/>
6. Proudlove, A., Lips, B., Sarkisian, D., & Shrestha, A. (2017). *The 50 states of solar: 2016 policy review and Q4 2016 quarterly report*. Raleigh, NC: North Carolina Clean Energy Technology Center. Retrieved from https://nccleantech.ncsu.edu/wp-content/uploads/Q42016_ExecSummary_v.3.pdf; Inskepp, B., Case, E., Daniel, K., Lips, B., Proudlove, A., Sarkisian, D., Shrestha, A., Wright, K., Cook, R., Laurent, C., Gessesse, E., & Hanley, W. (2016). *The 50 states of solar: 2015 policy review and Q4 2015 quarterly report*. <http://www.mc-group.com/wp-content/uploads/2016/02/50sosQ4-FINAL.pdf>
7. Database of State Incentives for Renewables & Efficiency. (April 2017). *Net Metering* [map]. Raleigh, NC: North Carolina Clean Energy Technology Center at North Carolina State University. Retrieved from http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2017/04/DSIRE_Net_Metering_April2017.pdf
8. Data for this question is available on the NSEE online webtables at <http://closup.umich.edu/national-surveys-on-energy-and-environment/nsee-data-tables/nsee-2017-spring/#Q27>



Appendix

State	NEM Status [1]	RPS Status [2]
AK	Mandatory	none
AL	Not Mandatory	none
AR	Mandatory	none
AZ	Not Mandatory	mandatory
CA	Mandatory	mandatory
CO	Mandatory	mandatory
CT	Mandatory	mandatory
DE	Mandatory	mandatory
FL	Mandatory	none
GA	Not Mandatory	none
HI	Not Mandatory	mandatory
IA	Mandatory	mandatory
ID	Not Mandatory	none
IL	Mandatory	mandatory
IN	Mandatory	voluntary
KS	Mandatory	voluntary
KY	Mandatory	none
LA	Mandatory	none
MA	Mandatory	mandatory
MD	Mandatory	mandatory
ME	Not Mandatory	mandatory
MI	Mandatory	mandatory
MN	Mandatory	mandatory
MO	Mandatory	mandatory
MS	Not Mandatory	none
MT	Mandatory	mandatory
NC	Mandatory	mandatory
ND	Mandatory	voluntary
NE	Mandatory	none
NH	Mandatory	mandatory
NJ	Mandatory	mandatory
NM	Mandatory	mandatory
NV	Not Mandatory	mandatory
NY	Mandatory	mandatory
OH	Mandatory	mandatory
OK	Mandatory	voluntary

State	NEM Status [1]	RPS Status [2]
OR	Mandatory	mandatory
PA	Mandatory	mandatory
RI	Mandatory	mandatory
SC	Mandatory	voluntary
SD	Not Mandatory	voluntary
TN	Not Mandatory	none
TX	Not Mandatory	mandatory
UT	Mandatory	voluntary
VA	Mandatory	voluntary
VT	Mandatory	mandatory
WA	Mandatory	mandatory
WI	Mandatory	mandatory
WV	Mandatory	none
WY	Mandatory	none

Sources:

[1] Those marked as “mandatory” have state level rules that require NEM for certain utilities, and those marked as “not mandatory” do not have state level rules that require NEM for utilities, according to: Database of State Incentives for Renewables & Efficiency. (July 2017). Net Metering [map]. Raleigh, NC: North Carolina Clean Energy Technology Center at North Carolina State University. Retrieved from http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2017/07/DSIRE_Net_Metering_July2017.pdf

[2] Those marked as “voluntary” have voluntary state renewable energy requirements in place, “mandatory” have mandatory state renewable energy requirements in place, according to: Durkay, J. (2017). State renewable portfolio standards and goals. Washington, D.C.: National Conference of State Legislatures. Retrieved from <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>



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