

## **\*1017 NET METERING: DO NON-SOLAR HOMEOWNERS AND UTILITY COMPANIES HAVE A LEGITIMATE GRIPE?**

*Solar electricity is booming. Every 4 minutes a solar electric system is installed on the rooftop of a U.S. home.<sup>1</sup> It is predicted that 2013 will be the first year annual U.S. solar installations will surpass 100,000 systems.<sup>2</sup> This surge has resulted in the U.S. increasing its share of global solar installations from 5 percent in 2008 to 13 percent in 2013.<sup>3</sup> In fact, U.S. solar installations may reach a staggering 3,300 megawatts in 2013, establishing the U.S. as the 4th largest solar market in the world.<sup>4</sup> Solar advocates believe these impressive numbers demonstrate a shift to solar power that will result in undeniable environmental benefits and help break U.S. dependence on fossil fuels. However, a growing number of critics contend that solar is being “propped up” by unsustainable policies and incentives that shift the costs of solar to others. Non-solar consumers and utilities have a legitimate gripe. Lawmakers in several leading solar states have recognized these claims and are taking corrective action.*

### **INTRODUCTION**

Solar power is relatively expensive compared to traditional modes of producing electricity.<sup>5</sup> Researchers estimate the cost of producing solar electricity is between 21 and 25 cents per kilowatt-hour while the cost of coal and nuclear electricity is much lower, around 4 and 6 cents per kilowatt-hour, respectively.<sup>6</sup> U.S. policy makers have adopted programs, such as net metering, to offset the higher costs of solar production allowing solar to be financially feasible to a greater number of homeowners.<sup>7</sup> Arizona became the first state to pursue a net **\*1018** metering in 1981, restricting the program to only qualified facilities.<sup>8</sup> In 1983 Minnesota enacted the first net metering statute.<sup>9</sup> Today, 43 states and the District of Columbia have adopted net metering programs.<sup>10</sup> Participation in net metering in the United States has risen by an average of 56 percent per year between 2003 and 2010 reaching 156,000 in 2010.<sup>11</sup>

The Arizona Corporate Commission defines net metering as “service to an electric utility customer under which electric energy generated by or on behalf of that electric utility customer from a net metering facility and delivered to the utility’s local distribution facilities may be used to offset electric energy provided by the utility.”<sup>12</sup> This policy, and similar policies in other states, encourage and subsidize solar installations by allowing solar households essentially to spin their electric meters backwards if they generate enough energy to push power back into the grid.<sup>13</sup> Any excess electricity that a solar home produces can be sold back through the grid in exchange for a credit on their monthly electric bill.<sup>14</sup> In other words, the electricity generated by a home’s solar panels is first used to meet the power demands of the home. If the panels produce more electricity than is required to power the home, the left over electricity is fed back into the grid where it can be used by other homes.<sup>15</sup>

### **I. RISING COSTS FOR NON-SOLAR CONSUMERS**

Not everyone, however, is thrilled with the rapid growth of residential solar systems. Utility companies and non-solar consumers argue that solar's staggering growth has indirectly increased their costs. One reason why residential solar's growth is particularly troublesome for utilities is because of the extended length of time it takes utilities to recover infrastructure investments.<sup>16</sup> Electric utility capital investment may take more than 30 years to recover, exposing the industry to stranded cost risk.<sup>17</sup> The Arizona Corporation Commission explains, "Because residential rates are typically designed to recover much of \*1019 the utility's fixed costs through volumetric energy rates, [solar] customers effectively pay less of the fixed costs."<sup>18</sup> This ultimately requires non-solar customers to cover these stranded, fixed costs by paying higher energy rates.<sup>19</sup> In other words, when policies incentivize consumers to leave the grid, utilities must redistribute their fixed costs over the remaining consumers to recover the stranded costs incurred by consumers abandoning the industry. Utility companies and their non-solar customers may not be happy about their rising costs but some of the increase may be the financial reality of a shrinking industry.

Along with a dwindling consumer base, utility companies argue that solar customers are subsidizing non-solar ones.<sup>20</sup> Net metering allows solar homes the benefit of connecting to the power grid without sharing in the burden of its costs.<sup>21</sup> The policy's dependence on the power grid is undeniable. Net metering would fail to exist and solar's recent success may not have been realized without a reliable electric grid enabling the transfer of energy between homes. Utilities and non-solar consumers want solar customers to share in the costs of the grid as they also benefit from utility investment in wire and pole maintenance, ensuring reliability and safety, and funding necessary grid-expansion.<sup>22</sup> Utility companies are pushing policymakers to address the cross-subsidization between solar and non-solar users and have suggested solutions such as charging solar users a grid-connection fee or a higher rate for electricity.<sup>23</sup>

Proponents of residential solar believe that the utilities' concerns are unsupported.<sup>24</sup> First, solar supporters argue that net metering allows solar homeowners to be fairly compensated for the electricity they provide.<sup>25</sup> Additionally, solar homes may actually add value for the utilities. Individual solar homes generate power closer to where it is used. This benefits utility companies as it reduces stress on the power grid and saves utility companies the cost of building infrastructure and large production facilities.<sup>26</sup> Utilities may also benefit from solar customers producing electricity during peak hours as the "system load factor is improved."<sup>27</sup> Finally, residential solar has become attractive to many public lawmakers because it requires minimal government oversight and public investment.<sup>28</sup>

## **\*1020 II. POSSIBLE SOLUTIONS**

The solar boom, and the associated reduction in traditional electric consumers, has brought the net metering debate to the political forefront in the solar leading states of California and Arizona. A recent controversial report by the California Public Utility Commission estimated that "by 2020 net metering could end up costing non-solar customers between \$370 million and \$1.1 billion annually."<sup>29</sup> Solar critics argue that policymakers relied on net metering only to "help stimulate" the state's solar industry and that the policy was not meant to be a continuing practice.<sup>30</sup> After months of debate, California leaders chose to preserve its current net metering policies but left the door open for its Public Utility Commission to develop a new program in 2017.<sup>31</sup>

In Arizona, one prominent power company, APS, pressed for policy makers to add a \$55 "power grid fee" to the bills of solar homes.<sup>32</sup> Solar advocates argued that such a fee would stunt the growth of solar and its accompanying benefits. Ultimately the governing body created a \$0.70 per kilowatt fee that solar customers must pay to connect to the power grid beginning in January 2014.<sup>33</sup> The additional charge will equate to an additional \$4.90 on each monthly bill for the average solar customer.<sup>34</sup> The decision effectively recognized that solar homes should share some of the costs of the grid but did not establish a significant fee, possibly realizing the likely crippling effect a large fee would have on solar growth in the area.

Lawmakers in other states are considering solutions such as flat net metering fees and fees based off the percentage of kilowatts sold. In Utah, the states' public service commission will soon decide whether or not to grant Rocky Mountain Power's request to add a flat monthly fee of \$4.25 to the bills of solar consumers.<sup>35</sup> An alternative proposal by Xcel Energy of Colorado would allow net metering to continue but set the selling rate below market value, enabling utilities to pay "wholesale" prices for the solar energy.<sup>36</sup> Other \*1021 legislatures are considering a tiered system that would allow excess power to be sold at retail price, but eventually dropping below retail price as the home's credit grows larger.<sup>37</sup>

## CONCLUSION

Utility companies and non-solar consumers have a legitimate gripe. Net metering has allowed solar homes a “free-ride” on the power grid and those that have not shifted to solar have picked up the tab. However, the long-term societal benefits that result from a shift to renewable energy may justify temporarily shifting costs to the masses to ensure the continual growth of solar. Until advances in technology and infrastructure reduce the cost of producing solar energy, solar power’s growth will continue to depend on favorable policies and subsidies. The challenge is that as more consumers convert to solar the burden on the remaining non-solar customers will grow until nearly all consumers will be economically incentivized to abandon utility companies.<sup>38</sup> Policy makers must find a balance between incentivizing solar without overburdening utilities responsible for the grid. Small incremental increases to the electric bills of solar homes, such as Arizona’s minimal \$5 fee, will allow the costs of the grid to be spread to solar consumers in increments, over time. This will enable policymakers to monitor and ensure that incentives to “go solar” do not disappear and everyone’s lights stay on.

### Footnotes

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