



## ReThinking Energy: We are Ready for 100!

In 2015, scientists at the University of Stanford published a peer-reviewed study<sup>1</sup> in the journal *Energy and the Environmental Science* documenting a roadmap for renewable energy for each of the 50 states. Their work built on their groundbreaking 2009 *Scientific American* article which made the following claim: “Current or nearly developed wind, water, and solar technologies could reliably supply power for the planet’s heating and transportation in place of dirtier fossil fuels by 2030.” The authors further claimed that these technologies could also be relied upon to “generate and transmit [power] across the grid” at 4 cents/kWh or less, as compared to the 2007 cost of 7cents/kWh for fossil fuels. In the end, the authors claim that “such a large-scale wind, water, and solar energy system can reliably supply the world’s needs, significantly benefitting climate, air quality, water quality, ecology, and energy security,” and that “the obstacles are primarily political, not technical.”<sup>2</sup>

Jacobson and Delucchi’s 2009 work was one of the first to lay out a plan for showing that an economy powered by green energy was both possible and preferable to one generated by fossil fuels. Their work has since been supplemented by others of similar prestige.<sup>3</sup> But an energy transition is only part of the strategy for reducing greenhouse gas emissions and improving the welfare of our communities and nations. Complementary work on the other dimensions of sustainability, including energy efficiency, points to a similar conclusion: investments in sustainability and energy efficiency benefit local governments and citizens more at the day’s end. Here are some of those ways:

**100% Renewable Energy Brings Jobs:** According to Jacobson and Delucchi’s report, a clean energy transition for Florida could potentially bring approximately 313,000 40-year construction and operation jobs to Florida--nearly 50,000 more jobs than the Oil and Gas industry claimed they created directly or indirectly in 2015.<sup>4</sup> If our local government acts now, those green jobs may come here and to this county.

**100% Energy Efficiency Brings Savings to Local Governments:** Investments in energy efficiency is a key strategy of eliminating the greenhouse gas emissions from a city. What is rarely understood is how much money local governments can save by doing so. In fact, the

---

<sup>1</sup> Jacobson, Mark Z., Mark A. Delucchi, Guillaume Bazouin, Zack A. F. Bauer, Christa C. Heavey, Emma Fisher, Sean B. Morris, Diniana J. Y. Piekutowski, Taylor A. Vencill, and Tim W. Yeskoo. "100% Clean and Renewable Wind, Water, and Sunlight (WWS) All-sector Energy Roadmaps for the 50 United States." *Energy Environ. Sci.* 8.7 (2015): 2093-117. Web. 21 July 2017.

<sup>2</sup> Jacobson, Mark Z., and Mark A. Delucchi. "A Plan to Power 100 Percent of the Planet with Renewables." *Scientific American* Nov. 2009: n. pag. Web. 21 July 2017.

<sup>3</sup> For other studies, see The National Renewable Energy Laboratories Renewable Electricity Futures Study: Executive Summary or the 100% renewable electricity: A roadmap to 2050 for Europe and North Africa or

<sup>4</sup>*Impacts of the Natural Gas and Oil Industry on the US Economy in 2015*. American Petroleum Institute, 2017, *Impacts of the Natural Gas and Oil Industry on the US Economy in 2015*, [www.api.org/~media/Files/Policy/Jobs/Oil-and-Gas-2015-Economic-Impacts-Final-Cover-07-17-2017.pdf](http://www.api.org/~media/Files/Policy/Jobs/Oil-and-Gas-2015-Economic-Impacts-Final-Cover-07-17-2017.pdf).

EPA writes that “for a typical office building, energy represents 30 percent of the variable costs and constitutes the single largest controllable operating cost.”<sup>5</sup> The EPA goes on to say that “energy cost savings on the order of 35 percent or more are possible for many existing buildings...many new and renovated buildings designed for energy efficiency offer energy cost savings of as much as 50 percent when compared with conventional buildings.”<sup>6</sup> The result could be that “the lifetime energy cost savings produced by an energy-efficient building, when compared with a conventional one, can reach millions of dollars.”<sup>7</sup>

**100% Renewable Energy Makes Our Area More Resilient:** In 2015, according to the United States Energy Information Administration (EIA), Floridians consumed 4,242 trillion BTUs of energy.<sup>8</sup> Of that, 1,366.3 trillion BTUs<sup>9</sup>, the largest principal source was from natural gas (NG)--mostly from out of state. While NG is convenient today, natural gas presents various problems for the future. First, the EIA has predicted a rise in natural gas prices in accordance with increased global demand facilitated by the completion of several LNG export terminals.<sup>10</sup> It’s also worth noting that a centralized fossil fuel infrastructure is more vulnerable to massive storms and terrorist attacks when compared to distributed energy sources. That’s why “the technical community has recommended hardening the grid to make it more resilient to attack by using distributed generation and microgrids” and why researchers have suggested policies to fortify the US military grid with distributed energy sources.<sup>11</sup> We believe our local government should follow suit.

### **In Sum: Our Work Can Have a Crucial Impact:**

It’s true that “70% of emissions come from cities and are principal drivers of global warming.”<sup>12</sup> That means there is a tremendous amount we can do on our own. The challenges of adopting a green energy economy begin with local leadership. Municipal governments in Florida--to say nothing of the world<sup>13</sup>--are joining suit for a number of reasons. Cities in Florida, including Orlando and St. Petersburg, have committed to 100% renewable energy and are working on action plans. We hope you’ll consider doing the same.

---

<sup>5</sup> United States. Environmental Protection Agency. Energy Efficiency in Local Government Operations. N.p., 2011. Web. 21 July 2017.

<sup>6</sup> *ibid*

<sup>7</sup> *ibid*

<sup>8</sup> "Florida Profile Data." State Profile and Energy Estimates. U.S. Energy Information Administration, 20 July 2017. Web. 21 July 2017.

<sup>9</sup> *ibid*

<sup>10</sup> United States. Energy Information Agency. Short-Term Energy Outlook. N.p., 11 July 2017. Web. 21 July 2017.

<sup>11</sup> Prehoda, Emily W., Chelsea Schelly, and Joshua M. Pierce. "U.S. Strategic Solar Photovoltaic-powered Microgrid Deployment for Enhanced National Security." *Renewable and Sustainable Energy Reviews* 78 (2017): 167-75. Science Direct. May 2017. Web. 21 July 2017.

<sup>12</sup> *Cities and Climate Change: Global Report on Human Settlements*, 2011. Nairobi: UN-Habitat, 2011. Print.

<sup>13</sup> "Is Your City #ReadyFor100?" Sierra Club, 06 June 2017. Web. 21 July 2017.