

Fossil Fuels a Thing of the Past by 2030?

By Richard W. Franke

This is the latest installment in our Signs of Sustainability series, organized by Sustainable Tompkins. Visit them online at www.sustainabletompkins.org.

The year is 2030. You live in Tompkins County. One hundred percent of your energy needs are met by wind, water and solar (WWS) power. Fracking was never implemented. Biofuels were phased out and all land in the state is available for food crops, pasture, forest or other uses.

Every year 4,000 fewer residents die prematurely from what had been air pollution 15 years earlier. Fewer get sick now and health care costs have dropped by \$33 billion. New York State produces all of its energy needs and contributes nothing to large-scale climate change.

You leave your home and notice

the solar cells on the roof. As your gaze wanders down the street, you barely notice that all the other homes are partly solar powered; there are 5 million 5 kw photovoltaic roof top systems in New York State. You get into your electric car and drive to work, passing a nearby hill where a few of the state's 4,020 onshore wind turbines spin slowly, now generating 10 percent of the electricity for New York.

You recall a recent salon organized by Sustainable Tompkins in which members of your generation thanked the leaders and activists of 2014 and just after for having adopted a plan to build those onshore wind sites, along with 12,700 offshore near Long Island that generated another 40 percent of the state's energy needs.

A speaker at the salon had noted that switching all power needs over to electricity and using renewables

had made energy production and use in the New York 37 percent more efficient. A complete list of the power sources in 2030 includes:

- 4,020 onshore 5-megawatt wind turbines.
- 12,770 offshore 5-megawatt wind turbines.
- 387 100-megawatt concentrated solar plants.
- 828 50-megawatt photovoltaic power plants.
- 5 million 5-kilowatt residential rooftop photovoltaic systems.
- 500,000 100-kilowatt commercial/government rooftop photovoltaic systems.
- 36 100-megawatt geothermal plants.
- 1,910 0.75-megawatt wave devices.
- 2,600 1-megawatt tidal turbines.
- seven 1,300-megawatt hydroelectric power plants, of which most existed in 2015 when the transition began.

The speaker further recalled that construction of this vast array of electrical generating devices had employed 4.5 million workers for several years of whom 58,000 retained permanent jobs.

The speaker reminded you that your generation of New Yorkers had much for which to thank your elders. Those elders had paid attention to an article by lead author Mark Jacobson in the March 13, 2013, issue of the journal *Energy* that laid out the conversion plan. Local officials and sustainability activists, starting in Tompkins County, had organized a campaign to pull investment funds out of fossil fuels—paralleling a separate divestment movement organized by a former New York Times journalist named Bill McKibben—and moved them into WWS.

Two of the co-authors of the

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Energy Policy article were local Cornell researchers Robert Howarth and Anthony Ingraffea. Enlightened university presidents, directors of pension funds, foundations, local banks and ordinary folk had joined together to spark the implementation of what had been laid out in the article as a feasibility study.

The Energy Policy article did not specifically include a social justice component. Fortunately Tompkins County sustainability activists in a group called "Building Bridges" along with Sustainable Tompkins and other groups and individuals had pressured all the implementing institutions not only to pay above living wages as calculated by Alternatives Federal Credit Union.

They had worked together to put former fossil fuel investment funds into creating worker owned cooperatives so that today children of some of the formerly poorest county residents now earned good money, elected their own managers

and were building up decent pensions. Social justice activists had insisted on making sure that over-coming racial, gender and rural-urban inequalities be an explicit component of each phase of the alternative energy construction. Special consideration was given to persons coming back from prison, many of them victims of a mass incarceration program that this previous generation successfully struggled to undo. The Tompkins County strategy of reforming society as well as energy production led to alliances with social justice groups around the state and the conversion to clean energy became a catalyst for conversion to a more just New York as well.

You arrive at your full-time job at one of New York's wind farms. You thank your parents' generation for all they did. Now it's your turn to look to the needs of a future generation.

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