

Susquehanna *Sierran* March 2019



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Aesthetics in Electricity Generation

by Valdi Weiderpass

To those complaining about the appearance of solar farms or wind turbines: please compare them to climate-disrupting fossil fuel infrastructure.



Cricket Valley gas-fired power plant construction site, Town of Dover, Dutchess County, NY Photo from video by Amy Wu/
Poughkeepsie Journal poughkeepsiejournal.com/story/tech/science/environment/2018/05/30/cricket-valley-energy-center-target-2020-open/600143002/
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Natural gas fracking well, Pennsylvania, 2014
Photo: FracTracker Alliance, fractracker.org/photos



680MW Competitive Power Ventures gas-fired power plant, Town of Wawayanda, Orange County, NY.
Photo: Times Herald-Record, 1/25/2018
recordonline.com/news/20180327/cpv-to-resume-power-plant-tests



Mountaintop removal coal mining near Hazard, Kentucky. Photo: The Mountaintop Removal Road Show, Dave Cooper (posted 2012)
mountainroadshow.com/gallery/index.html



ExxonMobil refinery, Beaumont, Texas (366,000 Barrels/day). Photo: Guiseppe Barranco/The Enterprise, 11/14/2013. beaumontenterprise.com/news/article/Jury-awards-44M-for-Beaumont-refinery-death-13235026.php#photo-10057737



Oil wells, drill rig and flaring near Watford City, North Dakota, in Bakken shale area. Photo: WBUR News, 11/23/2018
wbur.org/npr/669198912/after-struggles-north-dakota-grows-into-its-ongoing-oil-boom



36-inch natural gas pipeline fire near Cleburne TX, 6/7/2010 (one man killed, flames to 1000 ft high). Photo: AP, Dallas Morning News, Courtney Perry
theoaklandpress.com/news/officials-investigate-deadly-texas-gas-explosion/article_f75540b3-78aa-5f61-b3c6-

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The *Aesthetics* of Electricity Generation, continued

Can they be considered pretty: fossil-fuel-fired power plants, oil and gas well rigs, oil refineries, fuel storage tanks, strip mines, and mountaintop removal for coal? Are they pleasant: human health impacts due to fossil-fuel-associated air and water pollution, oil spills on coastlines, lakes, rivers, farm fields, suburban neighborhoods, or explosions/fires at refineries and pipeline leaks? How appealing is it when people are severely injured or killed? And how lovely are hotter, longer heat waves, severe droughts, terrible floods, stronger storms, rising sea levels, and weird, unpredictable weather events due to climate change? Though you may not notice it in your yard or neighborhood, harmful effects from fossil fuel are pervasive.

The Cricket Valley natural gas-fired generating plant (pictured p1) has a construction cost of about \$1.6 billion. This does not account for resulting costs for damages to health, the environment and the climate. If this \$1.6 billion were spent on solar and/or wind generation, coupled with energy storage, we could have cleaner, safer energy, and be more effective in preventing the worst of climate change! The December 5, 2018 article, “The Numbers are In and Renewables are Winning on Price Alone” (<https://blog.aee.net/the-numbers-are-in-and-renewables-are-winning-on-price-alone>) by Advanced Energy Economy, reports recent cost analyses by Lazard, a financial advisory and asset management firm. The analyses show that the unsubsidized cost of new solar- and wind-energy electricity generation has now fallen below the cost of electricity from coal-fired generation and are either equal to or less than natural gas combined-cycle generation! Critics may cite intermittency of generation from solar and wind, requiring expensive additional energy storage. However, the cost of battery-based electricity storage has been dropping rapidly. Green Tech Media reported December 11, 2018, in “5 Predictions for the Global Energy Storage Market in 2019” (<https://www.greentechmedia.com/articles/read/five-predictions-for-the-global-energy-storage-market-in-2019#gs.hFTsJHQZ>), that the price of utility-scale battery storage is conservatively expected to drop about 6 to 8 percent per year, so that by the year 2026 roughly one third of projected new natural gas-fired ‘peaker’ plants would be displaced by lithium-ion battery storage.

Bad news! Last fall, the UN’s Intergovernmental Panel on Climate Change warned that we have just under 12 years to reduce greenhouse gas emissions by 50 percent, and we must reduce them to net zero by about mid-century in order to prevent climate catastrophe and to save a worse but still habitable climate.

Good news! Due to a sea change in political will, a Green New Deal has been introduced in the House of Representatives and has attracted dozens of co-sponsors! It describes a set of ambitious goals for our nation to adopt as part of a WWII-scale urgent effort to prevent the worst of climate change. The Sierra Club is one of several environmental groups that has endorsed the Green New Deal resolution, as reported in “Sierra” magazine, February 7, 2019. Call your elected officials and encourage them to support it!



7.5 MW solar farm, Millard Hill Rd., Town of Newfield, NY. Photo: Binghamton Press & Sun-Bulletin <https://www.pressconnects.com/story/news/local/2018/08/17/solar-power-new-york-state-renewable-energy/848908002/>



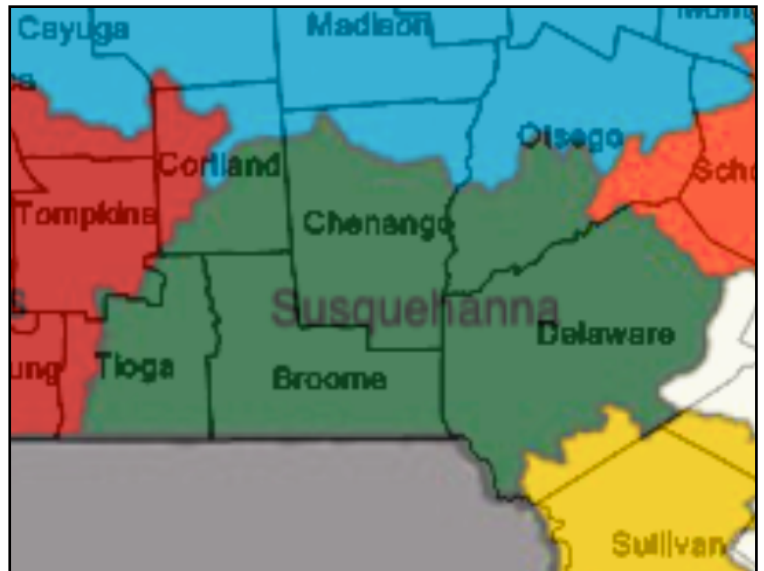
321 MW Maple Ridge wind farm, Lowville, NY (Tug Hill). Photo: Windpower Monthly, posted 3/12/2018 windpowermonthly.com/article/1459285/wind-wins-big-new-york-rfp

Susquehanna Group

(All of Broome, & parts of Chenango,
Cortland, Delaware, Otsego, Tioga Counties)

Chair	*Scott Lauffer (607)341-3746
Vice Chair	*George Catalano
Secretary	*Karen Boba
Treasurer	Kathy Cronin
Political Chair	*Allan Hochberg
Chapter Delegate	*Jim Taft
Newsletter Editor	*Jim Taft
Membership Chairs	*Michael Frys, *Chris Harasta
Outings Chair	*Chris Harasta
Conservation Chair	Doug Gausman
Alt. Chapter Delegate	*Joann Lettis
Webmaster	Jack Davis

* Member Executive Committee



Chris Rounds' Book Corner:

Energy: A Human History, Richard Rhodes

Simon Schuster 2018

The author speaks directly to the purpose of this book in the Preface. "Its serious purpose is to explore the history of energy; to cast light on the choices we're confronting today because of the challenge of global climate change...The current debate has hardly explored the rich *human* history behind today's energy challenges. I wrote *Energy* partly to fill that void... to enliven the debate and clarify choices." [xiii]

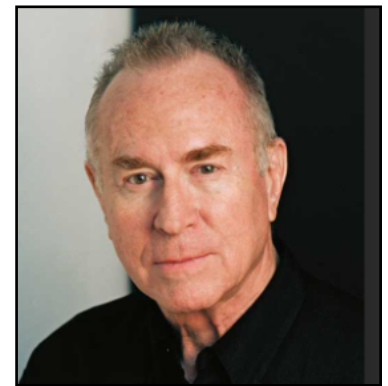
Members of the Sierra Club will find this substantial study both informative and troubling. Rhodes explores four hundred years of the history of energy in loving detail. From reliance on wood, to coal, to oil and to nuclear energy. Each source's characteristics, its harnessing and its evolution is fully explored. Rhodes draws us in through stories about inventors and tinkerers, some well known but many quite unfamiliar.

In terms of our current concerns, Rhodes's purpose is clear. He wants his reader to appreciate how very long it has taken to accomplish each major transition in our energy history. It took a hundred years to make the transition from relying on wood and charcoal to reliance on coal and then oil. Each transition required decades of experimentation and gradual improvement. Each new technology, in its early years, experienced catastrophic failures... its inventors humiliated before their genius was recognized.

Rhodes' tone changes sharply as his story emerges into the post World War II world. The author we had learned to rely on as a clear-eyed, far-seeing and objective reporter re-emerges as an interested party, an advocate. Rhodes' previous work included *The Making of the Atomic Bomb*, which won a Pulitzer Prize and the National Book Award. Here, in the concluding chapters of *Energy*, he assumes the mantle of defender of nuclear power as an important tool in our efforts to reduce our reliance on hydrocarbons. He dismisses its critics as ignorant of the history he's been elaborating. Every new technology, he points out, has its growing pains. Steam boilers exploded, oil wells exploded, and cars scared horses and broke down regularly. And every technology matured... becoming safer and more efficient as we learned more about it.

The author urges his audience to assess both the pros and cons of each technology. None is without its costs and hazards. Nuclear energy is no different. If we are to seriously and quickly address the challenge of climate change, we will need to keep all energy options open, Rhodes argues, nuclear energy among them. He states that when we look beyond the boundaries of the familiar West, we will recognize that the poor but rapidly growing economies of India and China simply will not give up on the use of coal as an energy source unless we work with them to develop massive and safe nuclear power. In the short run, let's say fifty years, either they will build more and more coal-fired power plants or they will choose the nuclear option. Wind and solar cannot fill the void abandoning coal would create on the scale and at the pace required.

Agree with him or not, Rhodes elucidates fateful challenges in energy planning.



Richard Rhodes

National Sierra Club Elections are Underway - **VOTE!**

The annual election for the Club's Board of Directors is now underway. Your participation is critical for a strong Sierra Club.

Those eligible to vote in the national Sierra Club election will receive in the mail (or by Internet if you chose the electronic delivery option) your national Sierra Club ballot in early March. This will include information on the candidates and where you can find additional information on the Club's web site.

The Sierra Club is a democratically structured organization at all levels. The Club requires the regular flow of views on policy and priorities from its grassroots members in order to function well. Yearly participation in elections at all Club levels is a major membership obligation.

Members sometimes state they don't know the candidates and find it difficult to vote without learning more. Candidate, on the official election ballot, provides a statement about themselves and views on relevant issues. You can learn more by asking questions of your group and chapter leadership and other experienced members you know. You can also visit the Club's election web site for additional information about candidates:

<http://www.sierraclub.org/board/election>

Then make your choice and cast your vote! Even if you receive your election materials in the mail, we encourage you to use the user-friendly Internet voting site to save time and postage. If sending via ground mail, please note your ballots must be received by no later than Election Day, April 24, 2019.

Thank you !



Atlantic Chapter Election for At-Large ExCom Members and Ballot Issue Petitions

Jim Taft

All members may (1) be considered for nomination for election to the Chapter's Executive Committee, (2) organize a ballot issue petition, and (3) vote. Some dates:

- July 6, 2019 Deadline for receipt of names and initial background statements for consideration by the Nominating Committee
- August 30 Deadline for receipt of ballot issue petitions, and personal statements by ExCom candidates not nominated by the Nominating Committee
- September 15 Deadline for receipt by the Elections Committee of final candidate statements.
- October 1 Printing and mailing of ballots.
- December 31 Deadline for postmark of returned ballots and for online voting.
- Jan 10, 2020 Ballots counted by this date, with the exact date, time and place for counting ballots announced by the Election Committee chair or co-chairs.

For more information contact Group Chair Scott Lauffer or Chapter Delegate Jim Taft.

To become a candidate for the Susquehanna Group Executive Committee for 2020, submit a candidate statement of 150 words or less to PO Box 572 Endicott, NY 13760 by November 20, 2019 or email to the Nominating Chair. This Chair will be identified by October 16 via a notification to all members with an email address on file. The Nominating Committee will create a slate of candidates by the end of November 2019, and ballots will be mailed with the December 2019 Newsletter

Bluestone Wind Project, Windsor NY

Public Hearing, February 19, 2019

by Scott Lauffer

On February 19 at a public hearing in Windsor, representatives of Calpine Energy and the NYS Department of Environmental Conservation described the proposed Bluestone Wind Project, and took comments and questions. The project would include 33 turbines sited within about 20 square miles of farms, forests, and exurban residences—29 turbines in the Town of Sanford, 4 in the Town of Windsor. The turbines, some exceeding 600 feet in height, are projected to produce 124 megawatts of electricity, roughly the amount needed to power 20,000 homes.

Public comments made at the hearing were split between pro and con. There were concerns raised by some residents about effects on the viewscape, noise, health, and taxes. Some voiced distrust of Calpine, and disappointment at the low number of permanent jobs to be created. The Windsor Town board is in favor of the project.



photo: Binghamton Press & Sun-Bulletin
July 6, 2018

Potential impacts of turbines on birds and bats were raised. An Audubon representative advised that a number of bald and golden eagles have been spotted in the area, and asked what measures would be taken to minimize bird deaths. The Calpine representative stated that technological advances can reduce bird mortality. He used the term “curtailment” and indicated that the company will look into it.

My comments at the meeting:

- Renewable energy such as wind turbines must be embraced if we wish to have a livable planet.
 - We all benefit from renewable energy projects.
 - There is a cost to any kind of energy, but the benefits of wind energy far outweigh the costs.
 - When I see wind turbines, I see beauty as they represent hope for a livable future.
 - Wind projects are benign compared to the destruction caused by natural gas infrastructure.
- I'm sure many who felt threatened by these turbines dismissed my views, as I would not be living among them. I understood the opposition, but their concerns seemed overblown, and they failed to account for the greater threats posed by climate change.

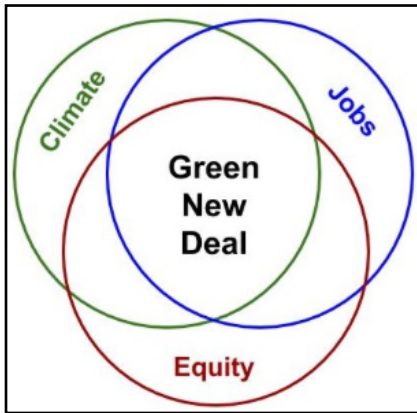
Elizabeth Broad, of New Yorkers for Clean Power, attended the hearing. Speaking at the Susquehanna Group meeting later the same day, she remarked that there were more positive comments at the Windsor hearing than at similar hearings she has attended, and that wind projects had died due to strong local opposition in other parts of the state. The same dynamic can be

found with proposed solar farms. Group members took time before and after the February meeting to send letters of support for the Bluestone Wind Project.

Public hearings expose some of the difficulties of advancing renewable energy in New York. We have a long battle ahead to reach NY's goal of obtaining 50% of its electricity from renewable resources by 2030—one component of preserving our future on Earth.

Member Perspective: The Green New Deal

Chris Rounds



During televised 2016 presidential debates, not a single question was asked related to climate change. The Green New Deal (House Resolution 109 & Senate Resolution 59) introduced by Congresswoman Alexandria Ocasio-Cortez (NY) and Senator Ed Markey (MA) promises to change that in the 2020 campaign. To call the Resolution ambitious is a massive understatement. Choosing the term “New Deal” lets us know that the authors and other sponsors are nothing if not ambitious. The Sierra Club enthusiastically supports the proposal.

For some Sierra Club members, linking climate change with job creation and reducing inequality might seem risky. Why not stick to concerns with wilderness and environment, and leave social issues to other groups? Why link these three elements? In fact, the linkage is essential. Conservatives constantly refer to efforts to address climate change as “job killers.” They argue that closing fossil-fuel burning power plants, developing clean energy, and investing in energy efficiency threaten the jobs of working Americans. By linking climate, jobs and equity, we counter that argument, appeal to voters whose precarious economic positions generally take priority over environmental issues, and forge bonds between moderates and progressives that will be crucial to the outcome of the 2020 elections.

Coming Events

General Meetings are open to all and held at **Central United Methodist Church, 17 Nanticoke Ave, Endicott, 7:30 PM** on the 3rd Tuesday of the month, with the exception of July and August.

March 19 Easing Our Auto Addiction and Rethinking Transportation We are addicted to cars - and that's not changing soon. Solutions to major challenges, such as climate change, regional economic development, and social equity, require rethinking transportation in the Southern Tier. One local planning concept revolves around “complete streets,” which make it easy for pedestrians, bicyclists, bus riders, and drivers to share the roads. Dr. George Homsy, Assistant Professor of Public Administration at Binghamton University, will discuss potential systematic changes in our transportation systems. **Come early, 7pm**, for a walk and mini-street audit, weather permitting, near the Methodist Church. To prepare read <https://www.aarp.org/livable-communities/getting-around/info-2014/aarp-walk-audit-tool-kit.html> and print out the Tool Kit.

April 16 Panel: Climate Crisis: Through the Eyes of Those that Didn't Make It, But Are Tasked with Unmaking It Binghamton University student climate activists and Susquehanna Group members will engage on the Climate Crisis. The students recently conducted a series of Climate Crisis teach-ins motivated by the UN's recent Climate report which stated that we have only 11 years to change society to be sustainable and regenerative instead of exploitative. Student Georgia Kerkezis: “We are the first generation that will feel the impacts of Climate Change and the last generation that can do anything about it. This crisis is not of our making but it must be of our un-making. This un-making begins with un-telling. We must tirelessly challenge all the stories that have driven us into this crisis.”

May 21 Health Impacts of Fossil Fuels Presentation by Nancy Jacobson, Lecturer, Biology Department, Ithaca College. Both the extraction and the combustion of fossil fuels lead to health impacts that include respiratory and cardiac disease, problems with reproduction and development, and cancer. We'll look at the specifics of what diseases are linked to which fossil fuels. Some of these, like black lung disease, are restricted to the workers, while others are more widespread, being more prevalent in the neighborhoods where the extraction or combustion occurs than elsewhere. We will also look at how these health impacts lead to environmental justice concerns. Finally, we will consider what has and can be done to reduce the use or impact of fossil fuels.

Learning from Cuba's Agricultural Reform: How America Can Curb Climate Change

Georgia Kerkezis

In October 2018 the United Nations Intergovernmental Panel on Climate Change (IPCC) released its most recent report. It stated that we will likely experience climate crises as early as 2030. These may include more frequent and severe weather events, the near-complete die-off of coral reefs, higher sea levels, and the loss of entire ecosystems. Coastal communities may be washed away, hundreds of millions of people may face food shortages and poverty, and the economic systems on which we depend may falter. The environment may be dramatically altered for the worse, leading to the degradation of our livelihoods.

The report went on to state, more optimistically, that we have a chance at avoiding these worst-case scenarios if we immediately begin to make “rapid, far-reaching and unprecedented changes in all aspects of society.” It will be difficult, but not impossible, as it’s been done once before.

In the 1990s Cuba experienced a drastic economic depression. The breakup of the Soviet Union caused the island to lose almost all its petroleum imports. For the survival of its citizens in the face of joblessness and hunger, the government dramatically restructured its economy, much like what the IPCC’s climate report asks of us today. By mimicking aspects of Cuba’s transformation the United States may similarly restructure its economy to combat climate change while simultaneously improving both environmental and social conditions.

We stand to learn the most from Cuba’s most important reform—that of agriculture. Cuba drastically reduced the energy it used while improving energy efficiency. Before the oil crisis, Cuban agriculture was largely industrialized, centralized, mechanized, and dependent on high energy inputs, mainly in the form of fossil fuels used to power machines and create pesticides, herbicides, and fertilizers. With just 10% of its pre-1990 petroleum available, Cuba adopted agricultural practices which required far fewer inputs. Agriculture actually functioned better without them.

Permaculture specialists assisted the transformation, teaching Cubans a form of organic agriculture that works with nature rather than against it. Cubans learned to mimic in their farming the relationships and resiliencies that naturally occur in ecosystems. This involved practices such as crop rotation, intercropping, green manure, biological pest control, and draft animals. Before these transformations an average ton of food required 274 kilograms of fertilizer, but afterwards only 29.

Additionally, state farms were divided and redistributed, encouraging families to grow food for themselves and to sell surpluses at local markets. In cities, Cubans came together to create urban gardens wherever possible, such as empty lots, roof-tops, and patios. These agricultural reforms used far less fossil fuel, and used it more efficiently. As a result Cuba is the only country today that meets the World Wildlife Fund’s criteria for sustainability.

Cuba was forced to adapt to a sudden, drastic reduction in fossil fuels which immediately threatened its citizens. In the United States, climate crises may present a less abrupt challenge to the well-being of people and the environment, but I believe that the IPCC’s climate report strongly advises us to quickly transform agriculture and other elements of our society and economy. We may be able to accomplish this transformation by mimicking many aspects of Cuba’s agricultural reform. Successful transformation of our society may include localization, bottom-up alliances, and natural, wholistic, creative solutions that de-emphasize the use of fossil fuels and large-scale mechanization.

Note: Georgia Kerkezis is a junior at Binghamton University, majors in Environmental Science and minors in Geographical Information Systems.



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