

Town Meeting Presentation
Why Lamont Should not Clear-cut its Woods to Build a Solar Farm
Bill Menke, March 13, 2015

Slide 1. I won't be able to stay for the whole meeting today. I have a class downtown at 2. I apologize to you all. Please understand that my leaving doesn't imply any disrespect for any of you, or for the deliberative process.

I believe that the area in which we live has a diversity of life and a natural beauty that is on par with a great National Park. I know that many of you recognize this. Others among you may have your doubts, recalling that you have driven up Route 9W for years, and it all looks to you just like ordinary woods. That's all right. I think it's just human nature for us to become habituated to our surroundings. Consider, however, that the artists of the Hudson River School saw this place as special. I believe they saw truly: this land demands our special consideration.

Slide 2. Like any other technology, solar panels are neither inherently good nor inherently bad. They are merely a tool in our hands to be used to further a goal and can be, at our discretion, applied well or poorly. The great virtue of solar panels is that they are compatible with human society in a way that many other low-carbon footprint energy technologies are not. They can be hung on roofs and put on awnings over parking lots. This use is terrific, because it provides power with minimal damage to the environment and minimal disruption of human society.

A serious limitation of solar panels is that they require a large surface area. Quite a lot of surface area is available within the geographic footprint of human society. However, we will always be tempted to expand that footprint, because, frankly, it is usually the easiest and cheapest option. Nevertheless, clear-cutting forests to make room for solar farms is a terrible option, for a very large amount of habitat if destroyed to make very little power.

Slide 3. Solar farms cause habitat destruction roughly equal to that of a hydroelectric impoundment. A solar farm large enough to power all of New York

City would be almost as large as Rhode Island. The good news is that our geographic footprint in the Northeast is very large – bigger than Rhode Island. The bad news is that, were we to insist that the human geographical footprint be enlarged to accommodate solar farms, very little wild land would be left. Terrible habitat destruction would ensue.

Slide 4. Habitat destruction is the major cause of the loss of species on our planet. Furthermore, any plan that calls for steadily increasing the human geographical footprint cannot possibly be sustainable. Human beings are already heavily utilizing somewhere between one half and two thirds of the land area of the world (excluding Antarctica). Any plan that calls upon expanding that amount by a few percent per year will consume all the rest within a generation.

Slide 5. I therefore believe that we, as environmental scientists, have the ethical responsibility not to engage in unnecessary habitat destruction.

Slide 6. Focusing upon Lamont's solar farm proposal, I hope to convince you of three points: First, that the proposed site consists of significant habitat; second, that the solar farm will destroy some of this habitat and damage more; and third that the project makes negligible contribution to reducing our carbon footprint, and thus is unnecessary.

Slide 7. Lamont's built-up geographic footprint is shown here in yellow, with the residential area of Palisades to the north and natural areas to the south.

Slide 8. Of special significance is the habitat of the Skunk Hollow Valley, a watershed that is almost completely wild. It is perhaps one of the most notable sections of woodlands adjoining Lamont, both because of its abundant wildlife and year-round stream and because of Peanut Leap Falls, the waterfall below Lamont.

Slide 9. I've heard that the proposed solar farm site is on the north side of this valley. If so, its location is especially destructive.

Slide 10. The solar farm would destroy the entire habitat in its immediate vicinity, as did this similarly-sized one in New Jersey.

Slide 11. It would also have a damaging effect on the rest of the valley, including:

Slide 12. Changes in the hydrologic cycle, because the solar farm would store much less moisture than a woodland; disturbances to the edges of the remaining woods, which become more open to sunlight and thus more susceptible to colonization by non-woodland species; and pollution in runoff. I know that solar panels are promoted as clean, and that's true to a point, but six acres of high-tech equipment left out in the weather for twenty years is going to degrade at least to some degree and those degradation products are going to wind up in the watershed. Furthermore, the panels need to be maintained, kept free of weeds and cleaned, causing additional pollution.

Slide 13. A solar farm would reduce our carbon footprint, but only by a little, because NY State already has comparatively low-carbon-footprint power generation.

Slide 14. About 62% of NY State's electricity is from hydro, nuclear and alternative sources, which emit no CO₂, and almost all the rest is from natural gas, which emits only about half as much as coal. Thus, NY States' emission rate per unit of energy produced is only about 20% that of a state that is entirely reliant on coal.

Slide 15. Adding the proposed solar farm decreases that – but only a little - to 18%. Furthermore, Lamont's power needs are said to be growing by 4% a year. The little benefit of the solar farm will disappear in less than four years. This is a microcosm of the problem of growth worldwide. Unbridled growth can overtake any amount of geographical footprint expansion. At an acre and a half a year, Lamont will run out of woods in just a decade or so.

Slide 16. Both we and the world have to move away from geographical footprint expansion. Furthermore, if we do not work to preserve the habitat under our own control, we cannot credibly urge people around the world, who are often living in conditions much tougher than our own, to preserve theirs.

Slide 17. I believe that the only truly green course is for us to commit ourselves to living within our current geographical footprint.

Slide 18. Some people may ask, even if the solar farm doesn't make scientific sense, shouldn't we do it anyway to send a message to the public that Solar Energy is important?

Slide 19. I think that we all know the answer to that: We environmental scientists have the ethical responsibility to teach sound science.

Slide 20. Furthermore, the solar industry is doing just fine without such gestures on our part. It is growing exponentially and, globally, is a fifty billion dollar per year business. At this rate of growth, ten years from now almost every suitable rooftop and parking lot in the US will sport solar panels.

Slide 21. The upshot is that I urge Lamont to add a solar-electric production capability only if it can be done within our existing geographical footprint and without the clear-cutting of woods. If we need to wait a few years until we can locate resources to be able to afford to put solar panels on rooftops and over the parking lots, then we should wait.

Slide 22. We need a carbon-reduction plan that every environmental scientist can be proud of. We should keep thinking and think out of the box!

Slide 23. Thank you.



The Palisades, George Herbert McCord, 1874

Terrific!

photo by Bill Menke



Rooftop in Tappan NY



Parking lot at Rutgers U

<http://news.rutgers.edu/news-releases/2011/04/rutgers-board-of-gov-20110405#.VP9L0S4YGSo>

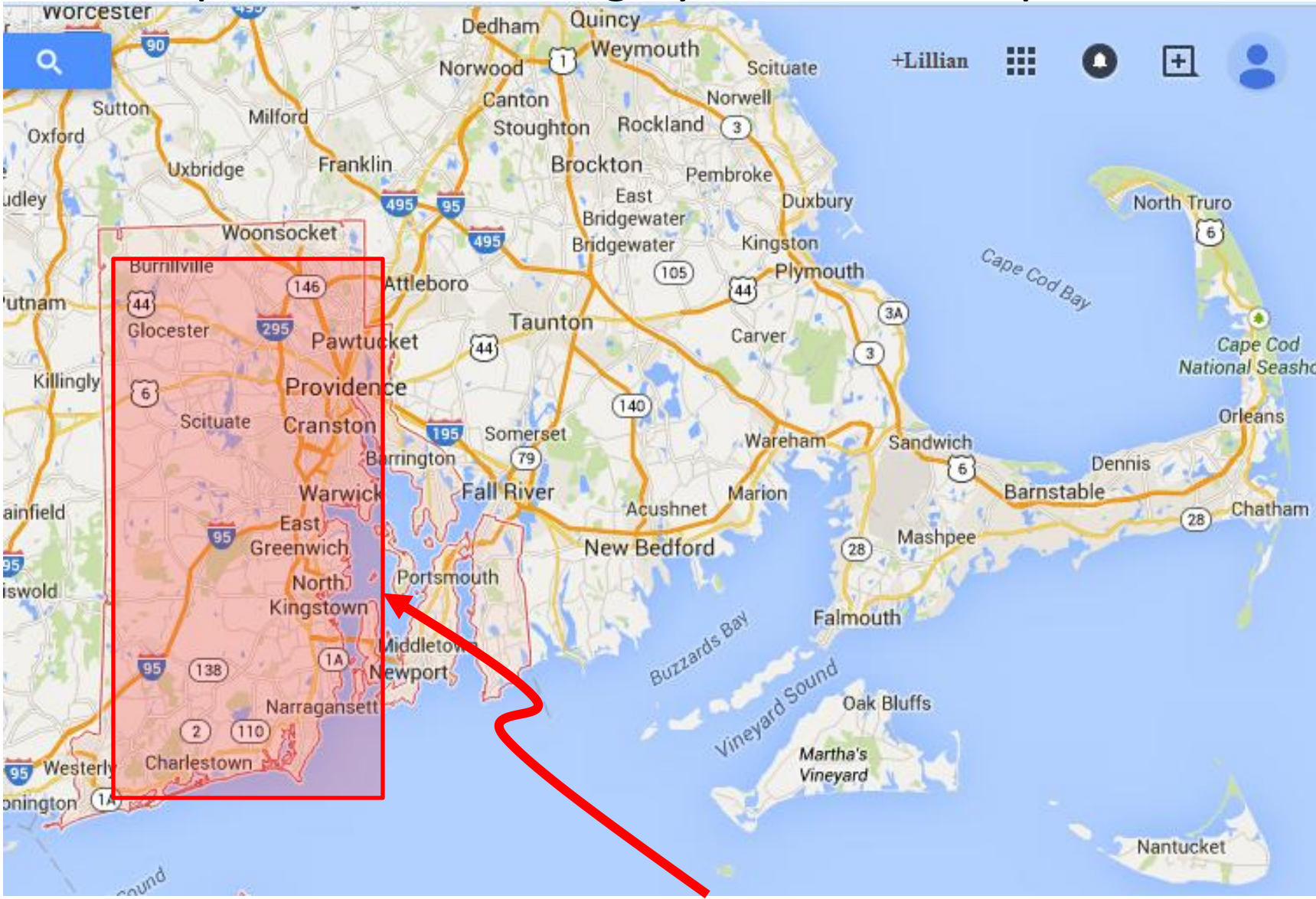
Terrible!



**Clear-cut land on
Long Island**

<https://www.google.com/maps/@40.863432,-72.8501589,2414m/data=!3m1!1e3>

Why terrible? Potential for habitat destruction tremendous ... comparable to building hydroelectric impoundments



Size of solar farm needed to power NYC

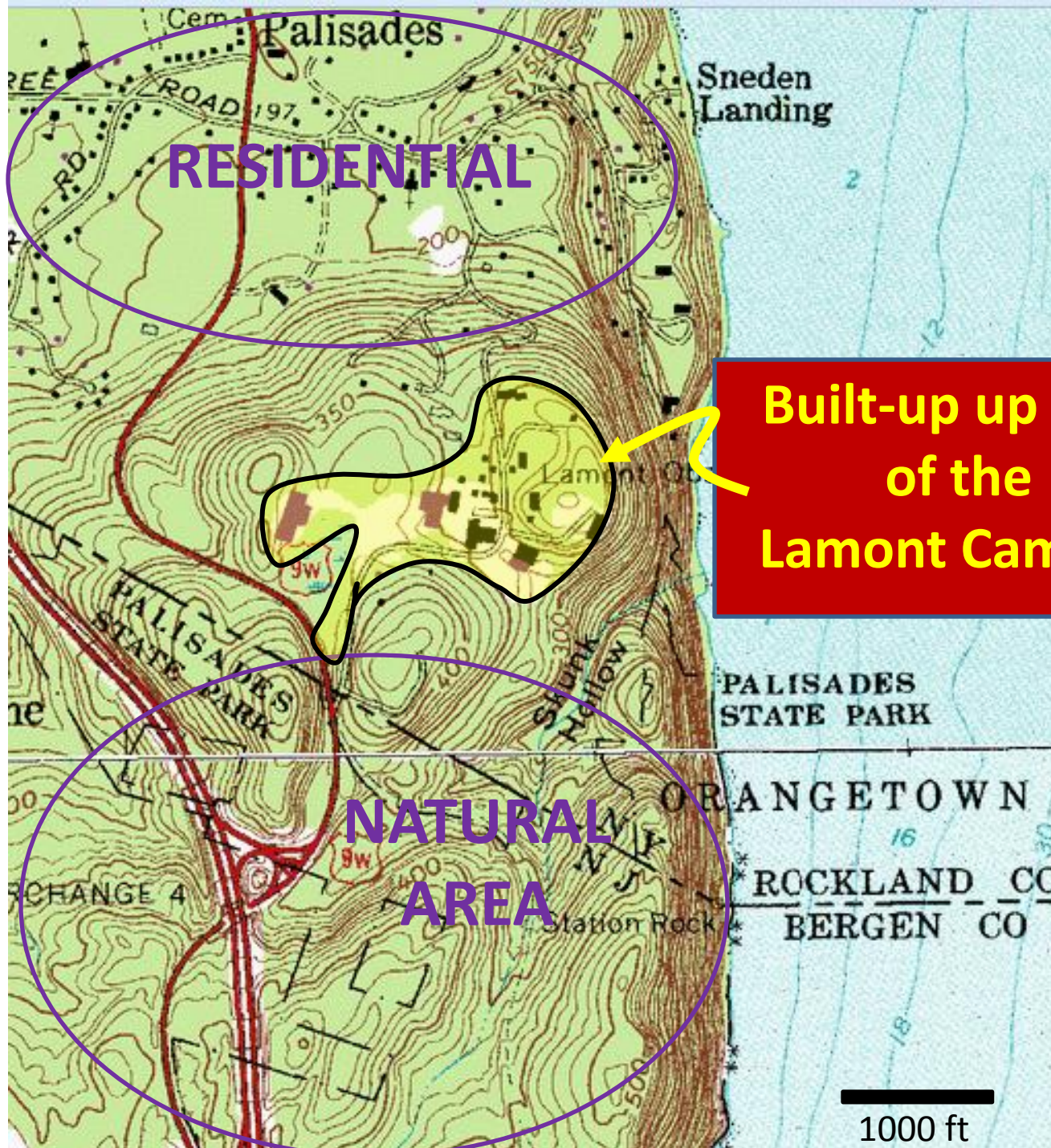
Habitat destruction is *the* major cause of
loss of species on our planet.

A development plan that steadily increases the
human footprint,
already half to two-thirds of the planet,
cannot be considered
sustainable development.

Principle

We environmental scientists
have an ethical responsibility
not to engage in unnecessary
habitat destruction

1. The solar farm site constitutes significant habitat
2. The solar farm will destroy some of it and damage other parts of it
3. The project makes negligible contribution to reducing our carbon footprint, and so is unnecessary.



RESIDENTIAL

**Built-up up part
of the
Lamont Campus**

**NATURAL
AREA**

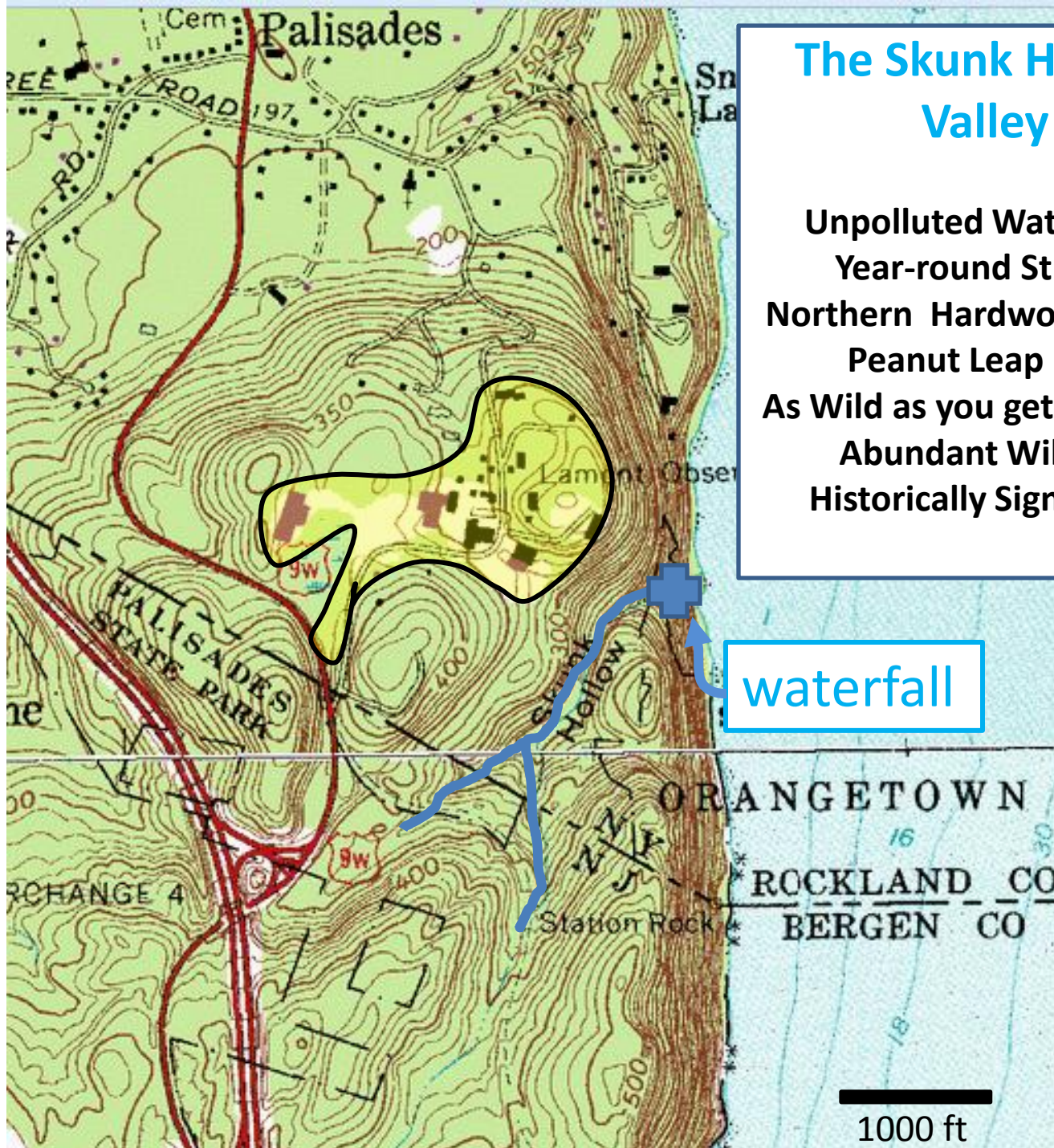
1000 ft

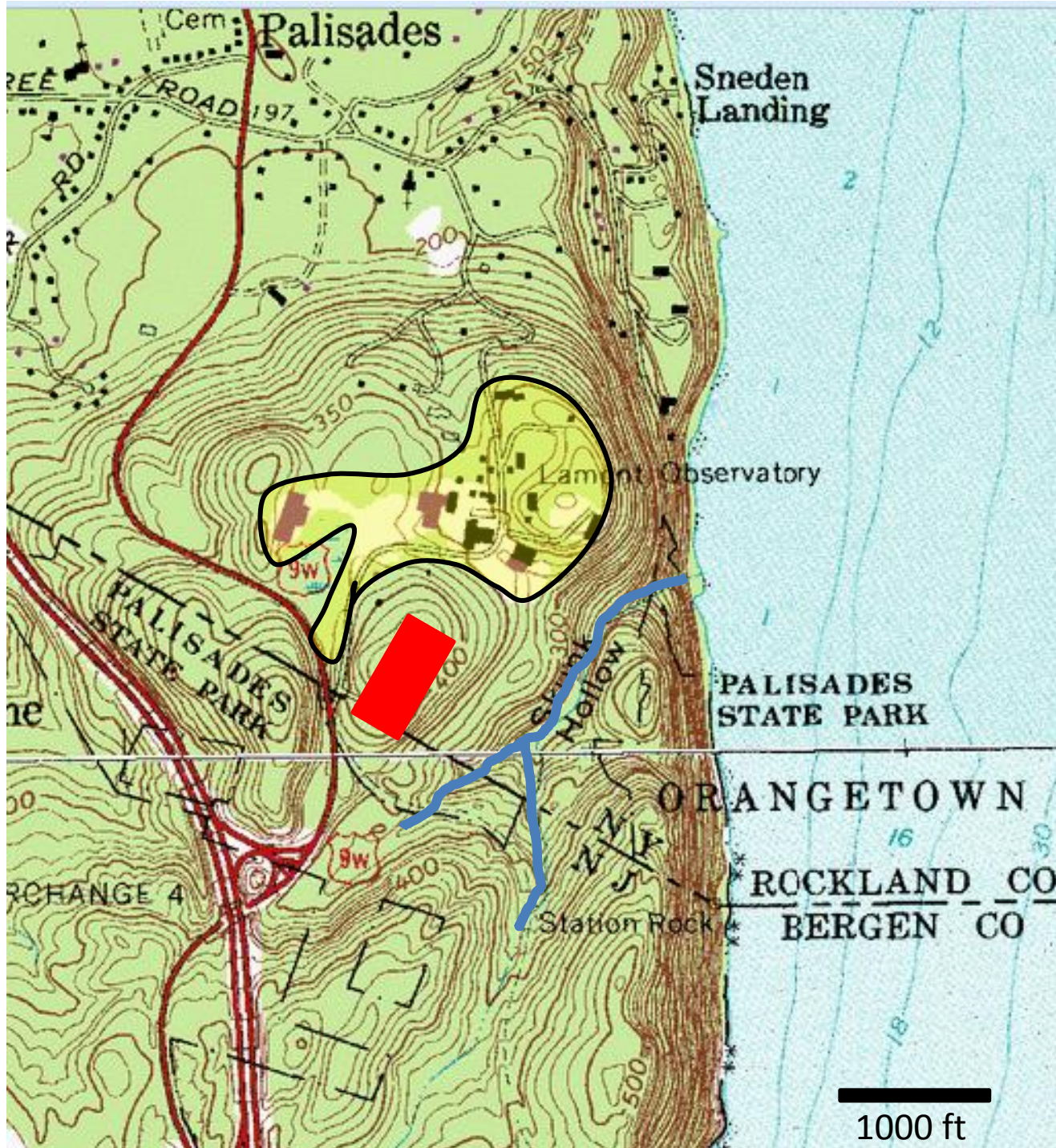
The Skunk Hollow Valley

Unpolluted Watershed
Year-round Stream
Northern Hardwood Forest
Peanut Leap Falls
As Wild as you get near NYC
Abundant Wildlife
Historically Significant

waterfall

US Geological Survey



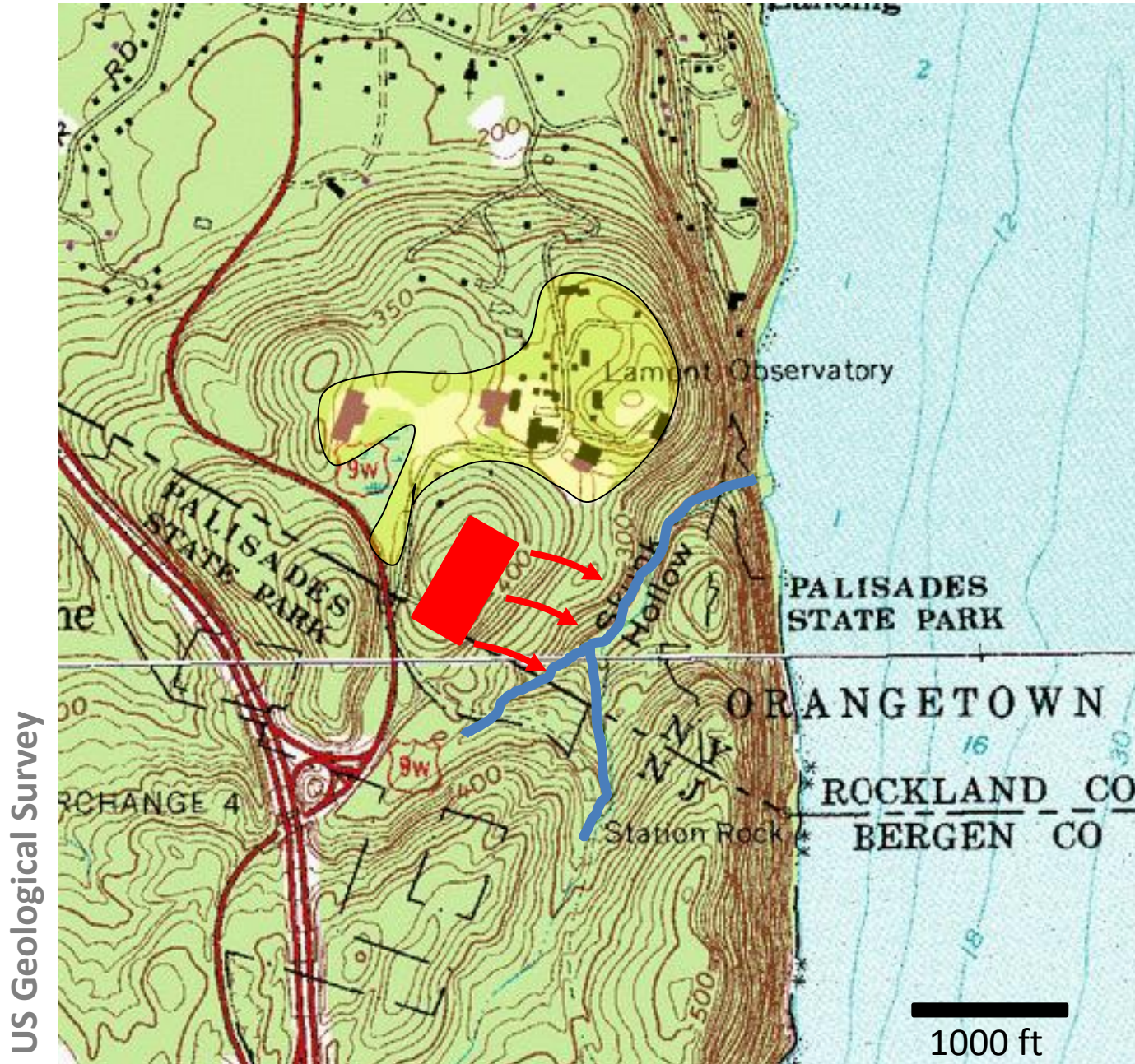




The Project Will Destroy Some of it ...

www.qesolar.com/

... and damage other parts of it



US Geological Survey

- **changes to the hydrologic cycle
(more urbanized hydrograph)**

ascelibrary.org/doi/abs/10.1061/%28ASCE%29HE.1943-5584.0000530

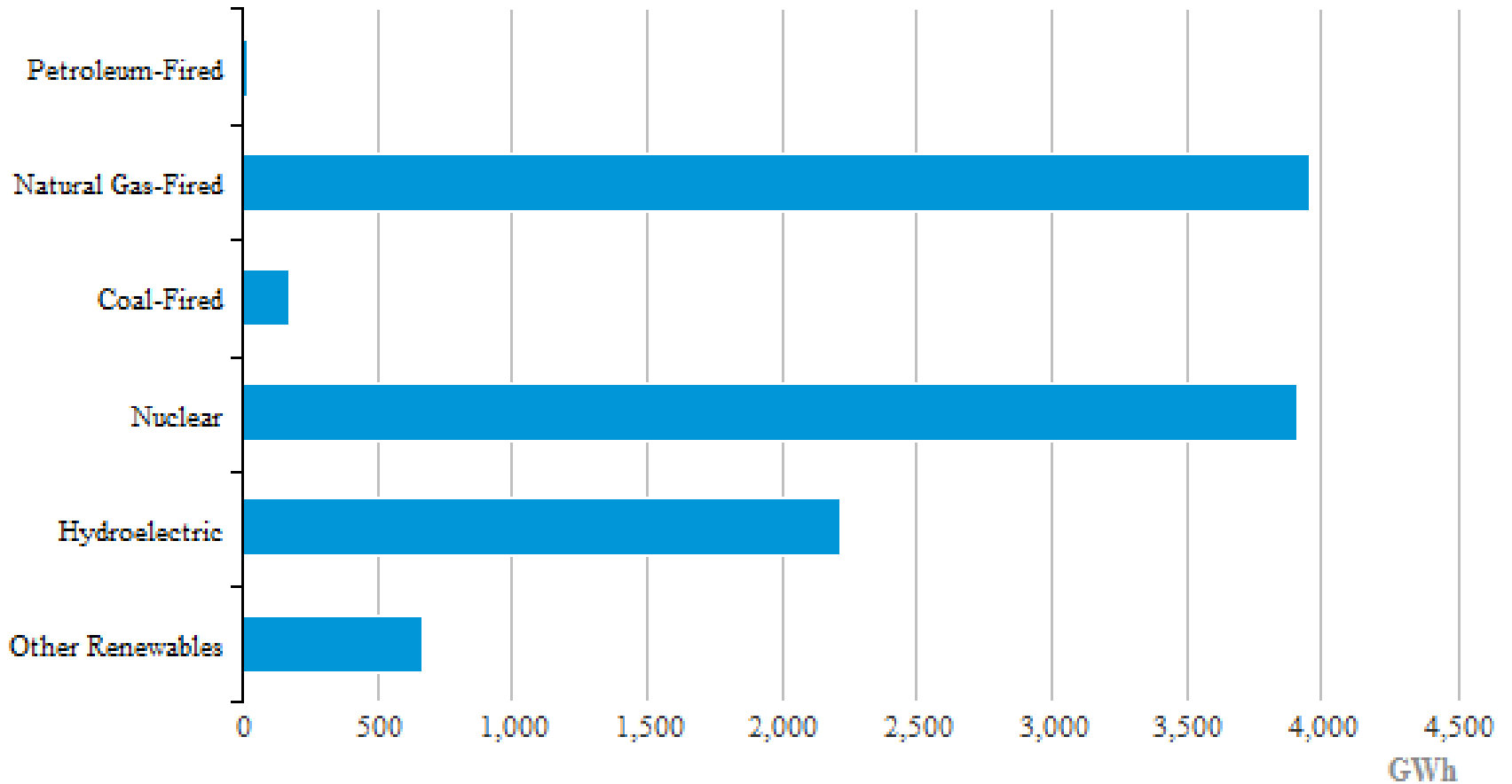
- **disturbed-edge effect
(invasion by non-woodland species)**

www.jstor.org/stable/2261391

- **pollutants in runoff
-(heavy metals from broken cells, organics from
electrical insulation, herbicides, paints)**

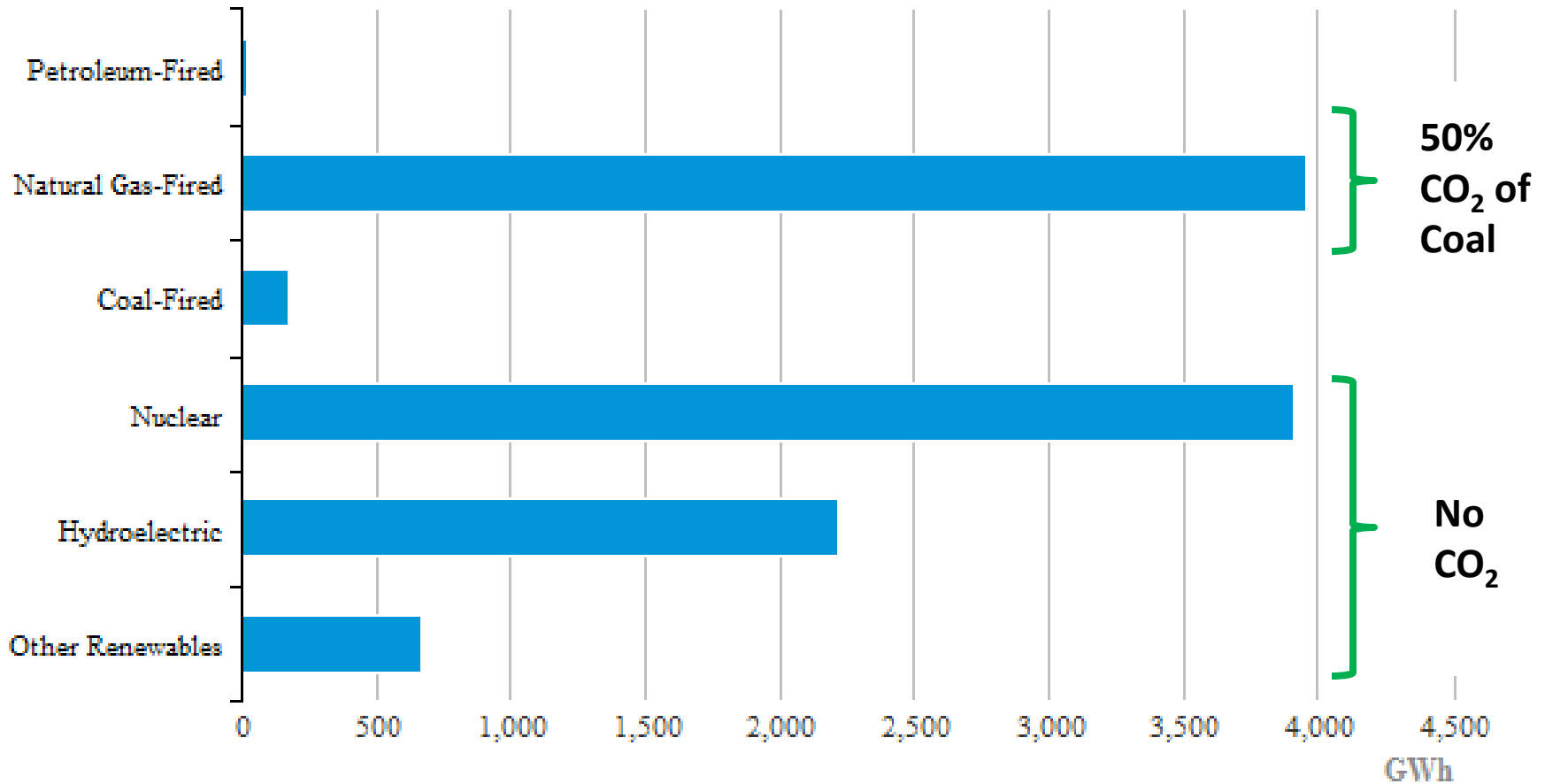
www.denverncweekly.com/news/2014/9/12/5486/solar-farm-proposal-presented-eco-concerns

NY State Electricity Production

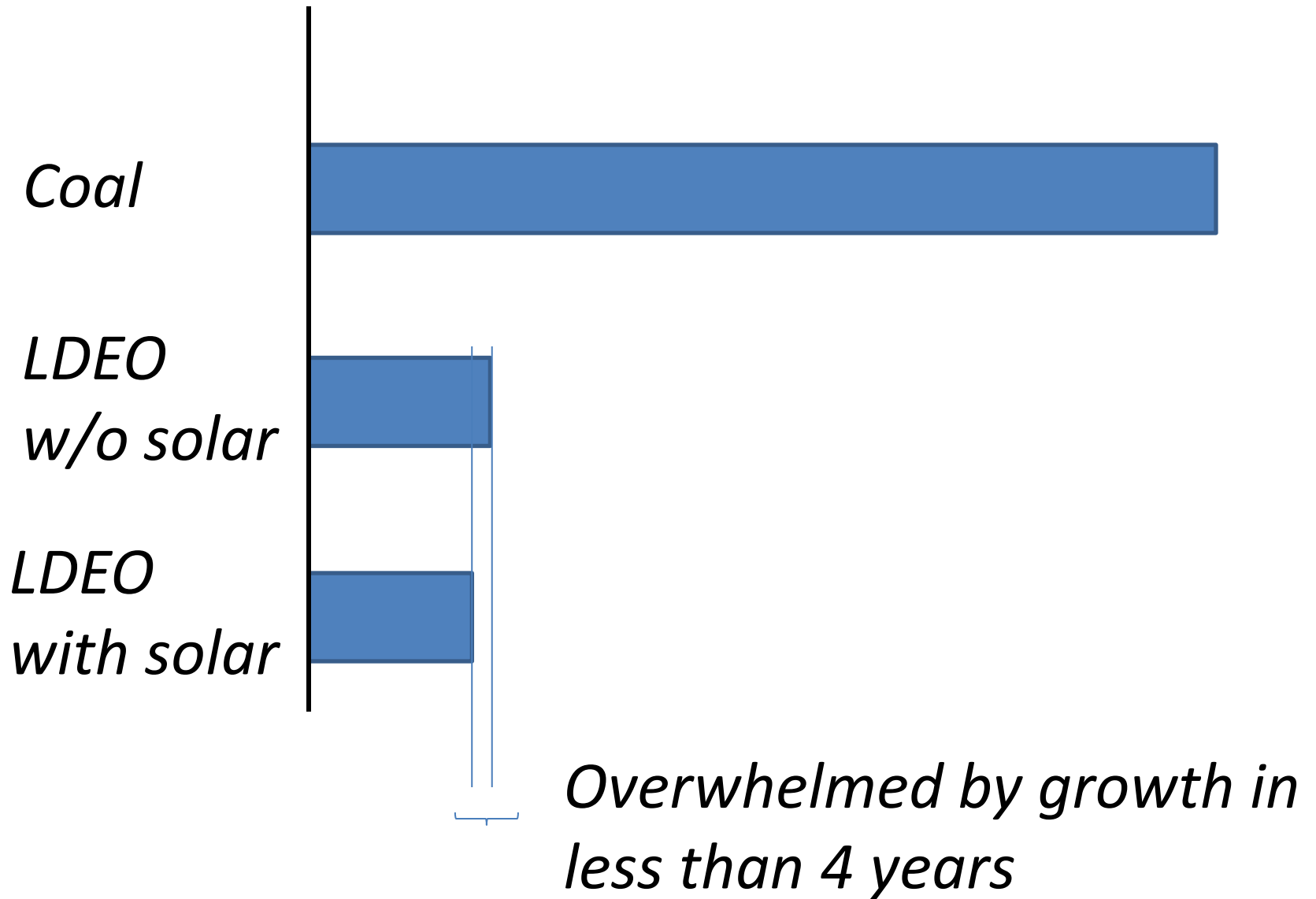


NY State Electricity Production

low CO₂ footprint



Net: 20% CO₂ of Coal



If we do not work to preserve the habitat under
our own control

we cannot credibly urge people around the
world

who are often living in conditions much tougher
than our own

to preserve theirs

We should commit ourselves to
living within our
current geographical footprint

Rhetorical Question

Even if the solar farm
doesn't make scientific sense,

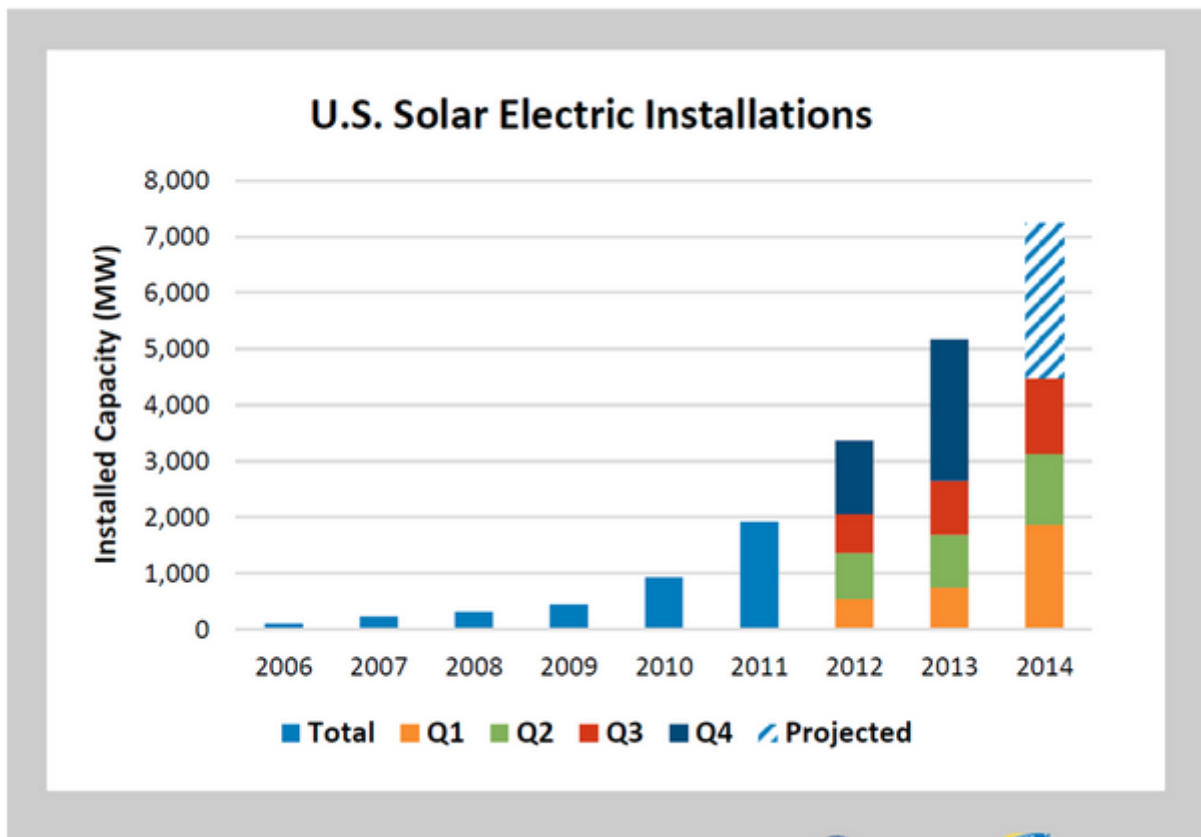
shouldn't we do it anyway to
send a message to the public
that Solar Energy is important?

NO, because ...

**We environmental scientists
have an ethical responsibility
to teach sound science**

and NO, because ...

solar power is doing just fine
without such “gestures”



\$50G/yr
worldwide

upshot

we should add solar-electric production
only within our current
geographic footprint
and without
clear-cutting the woods

We need a carbon-reduction plan of which every environmental scientist can be proud.



We should keep thinking and think out of the box!

kongregate.wikia.com/wiki/File:Cardboard-box-open-lg-1



Thank you