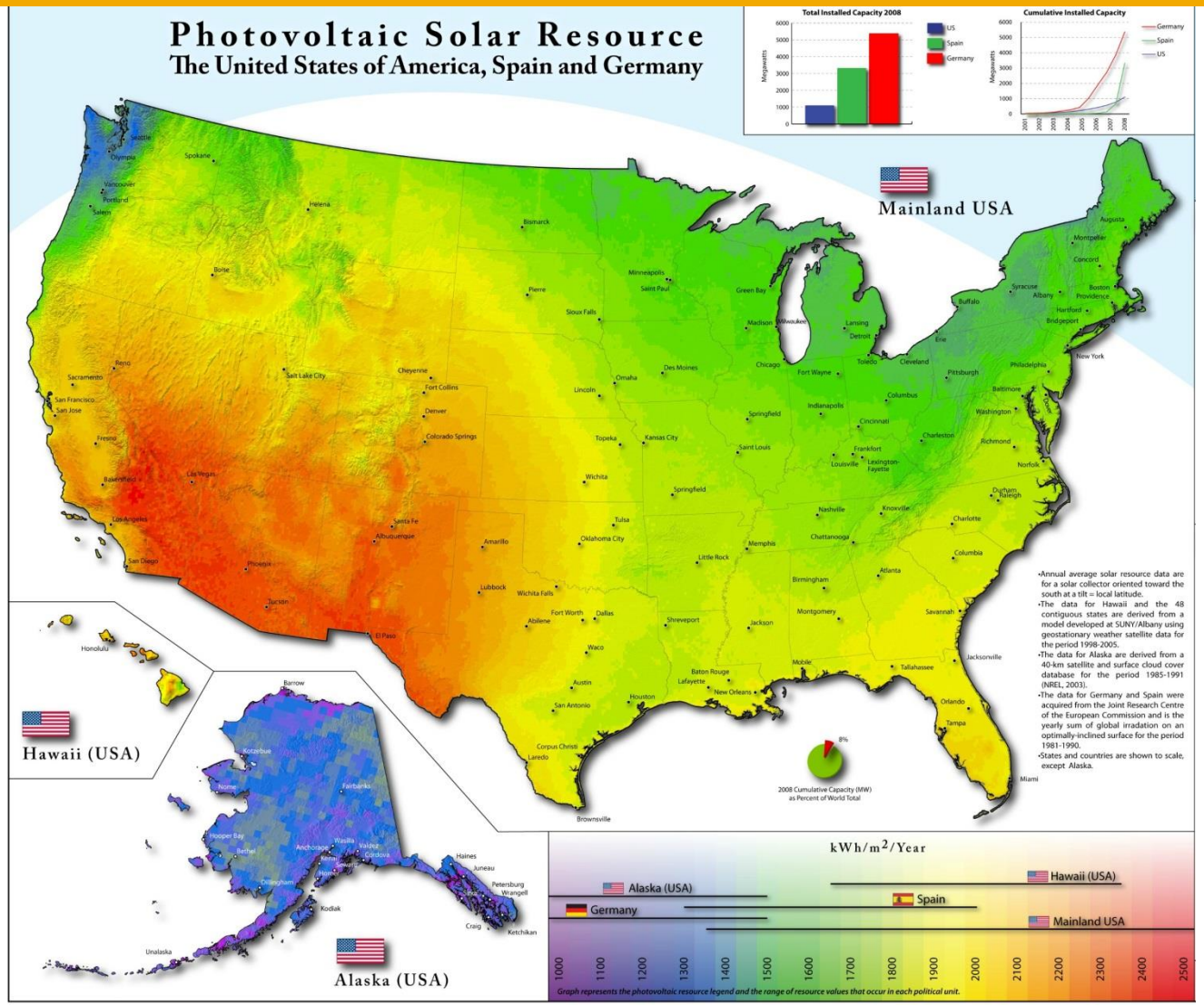
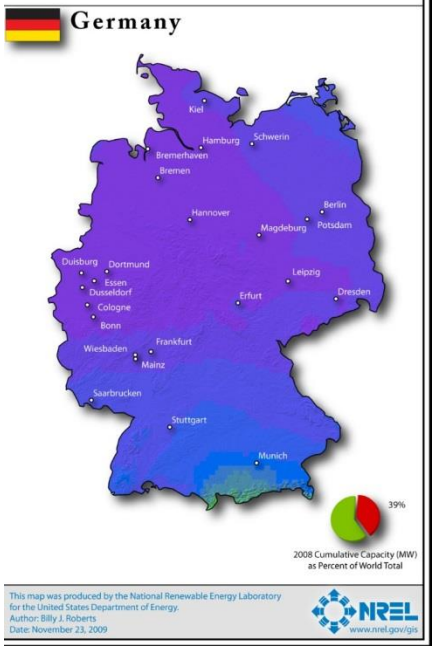
Solar Energy Myths

Presented by:

NY-Sun PV Trainers Network

MYTH: Not Enough Sun





NEW YORK STATE OF OPPORTUNITY. | NY-Sun

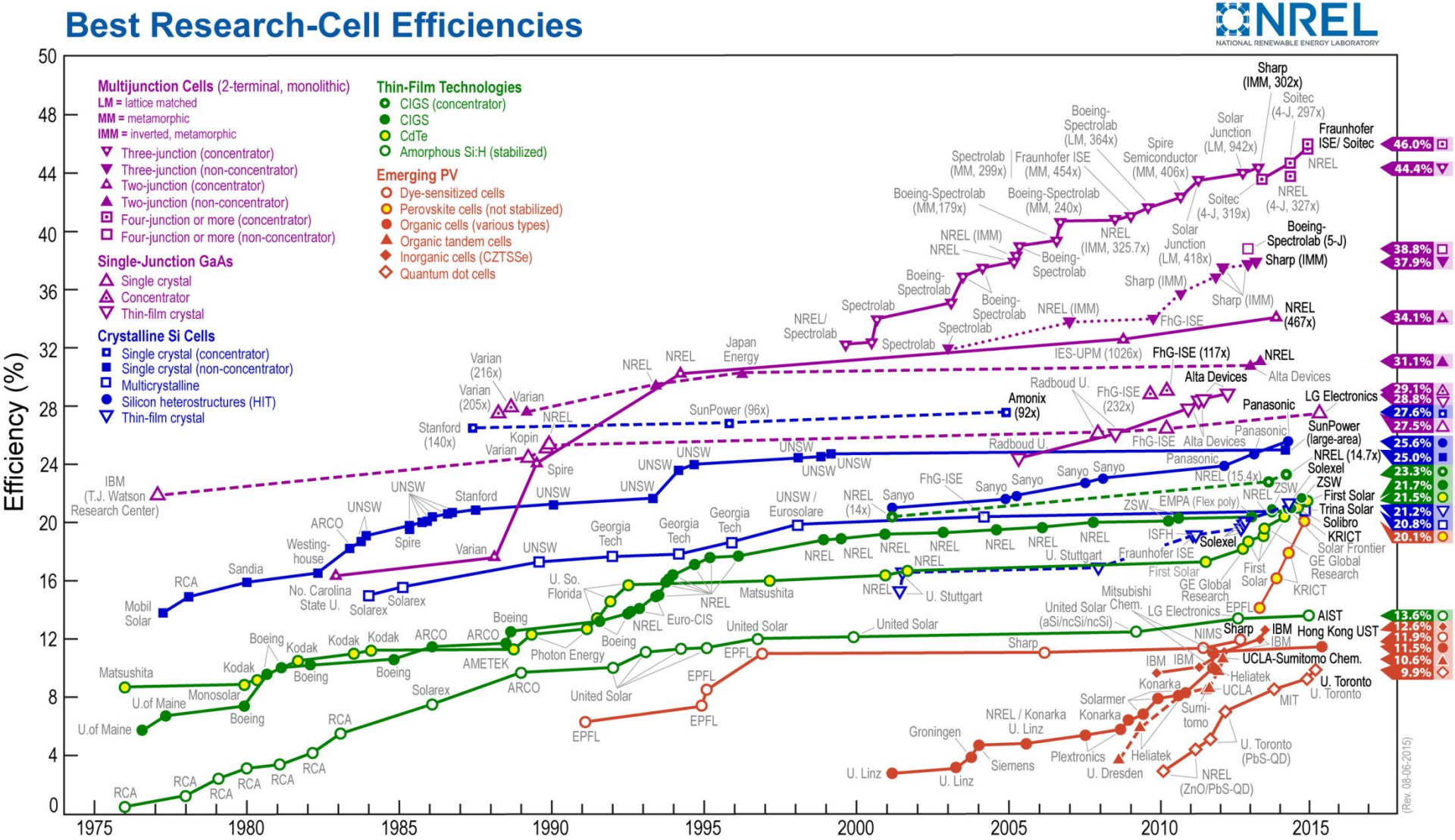
MYTH: Solar Always Has High Up-Front Cost

Solar Ownership Models:

- Third Party Ownership
  - Typically have no up-front cost
  - Lease: Flat monthly fee for use of solar array
  - Power Purchase Agreement: Pay per kWh of solar electricity consumed
- Solar Loan
  - Some loans available for $0 down
  - NYSERDA loan information available at: ny-sun.ny.gov/Get-Solar/NY-Sun-Financing
- Cash Purchase
  - Highest up-front cost, but best overall investment

NEW YORK STATE OF OPPORTUNITY. | NY-Sun

MYTH: Technology Will Become Outdated



Source: National Renewable Energy Laboratory, Best Research-Cell Efficiencies, Available at: http://www.nrel.gov/ncpv/images/efficiency_chart.jpg

NEW YORK STATE OF OPPORTUNITY. | NY-Sun

MYTH: Technology Will Become Outdated (cont.)

- **PV technology tends to improve incrementally over long periods of time, as opposed to cellphones, computers, etc. which typically see dramatic improvements in short periods of time**

- **Technological advancements in solar PV are made in terms of efficiency, i.e. the panel's ability to convert sunlight into electricity**
  - The end-product of a solar panel is a kilowatt hour (kWh) of electricity, no matter how efficient
    - A kWh is the amount of energy produced by a PV system and consumed over time
  - Increases in PV panel efficiency translate to less ft^2 required for the same amount of kWh
  - If a significant amount of usage can be offset by a user's current amount of available space for an on-site PV array or a local shared solar installation, it does not make sense to wait

- **Waiting for PV technology improvements is not typically financially advantageous**
  - Opportunity cost - money spent on utility bills while waiting for the technology to improve
  - Current federal, state and local incentives will sunset over the next few years

NEW YORK STATE OF OPPORTUNITY. | NY-Sun

MYTH: Solar Panels Do Not Work in Snow

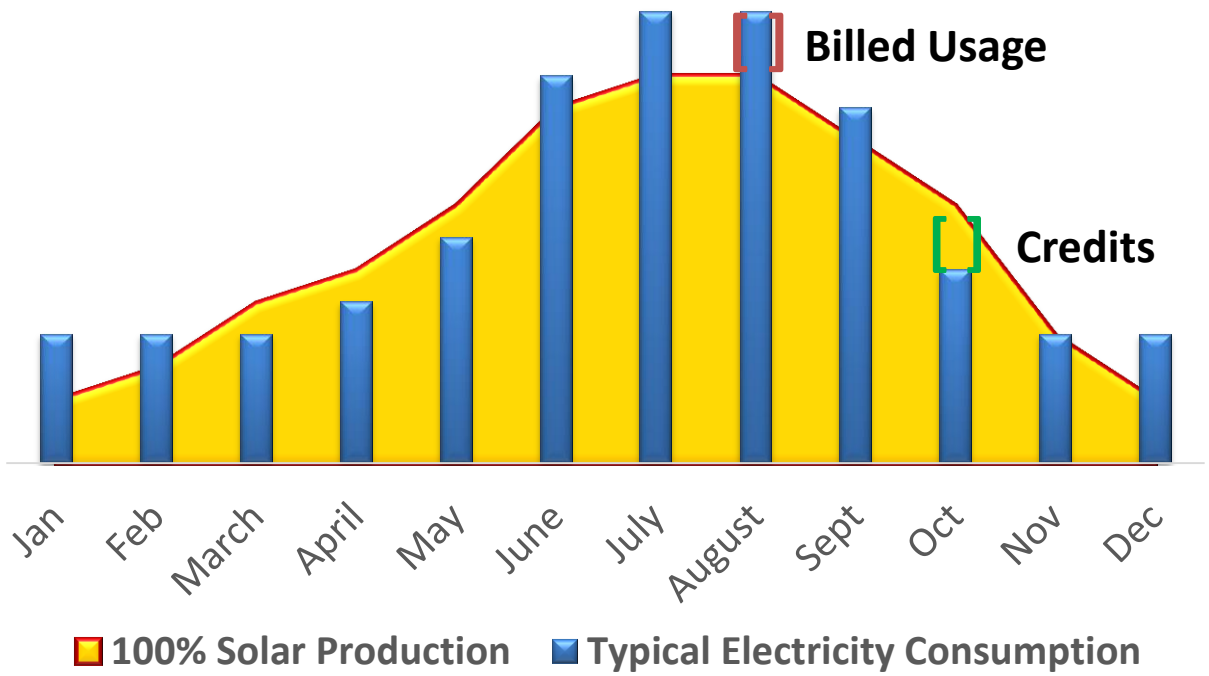
- Solar has been growing exponentially in New York State with over 38,860 installations on New Yorkers' homes according to NYSERDA data as of January 2016

- Solar panels will not produce electricity if they are completely covered in snow, however once the snow melts, panels resume electricity production

- As the photo makes apparent, snow slides easily off panels, and panels are typically located on the part of the roof that gets the most sun

NEW YORK STATE OF OPPORTUNITY. | NY-Sun

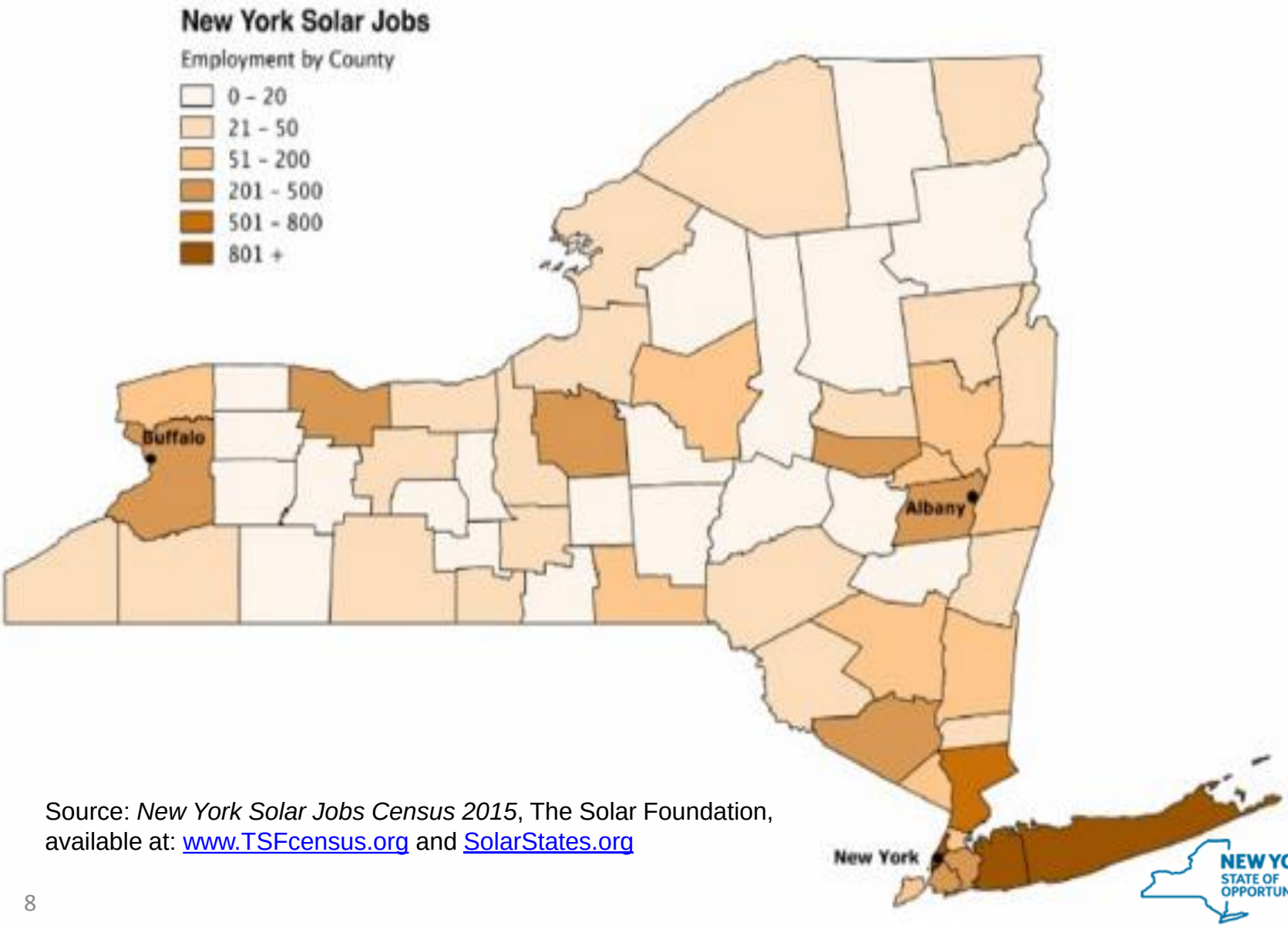
MYTH: The Utility Writes a Check for my Solar



- **Net Metering -** Excess (unused) power travels back into the grid. Utility issues kWh credits for each kWh of excess power produced. Those credits offset future usage.
- **Anniversary Month -** Excess residential net metering credits, if any, are bought out by the utility once a year at the avoided cost of power rate per kWh credit, which is less than the retail rate.

See Sustainable CUNY's educational video for more information on net metering here: https://www.youtube.com/watch?v=syixVpcNInM

MYTH: Solar Harms Local Economies



Source: *New York Solar Jobs Census 2015*, The Solar Foundation, available at: www.TSFcensus.org and SolarStates.org

NEW YORK STATE OF OPPORTUNITY. | NY-Sun

MYTH: Solar Harms Local Economies (cont.)

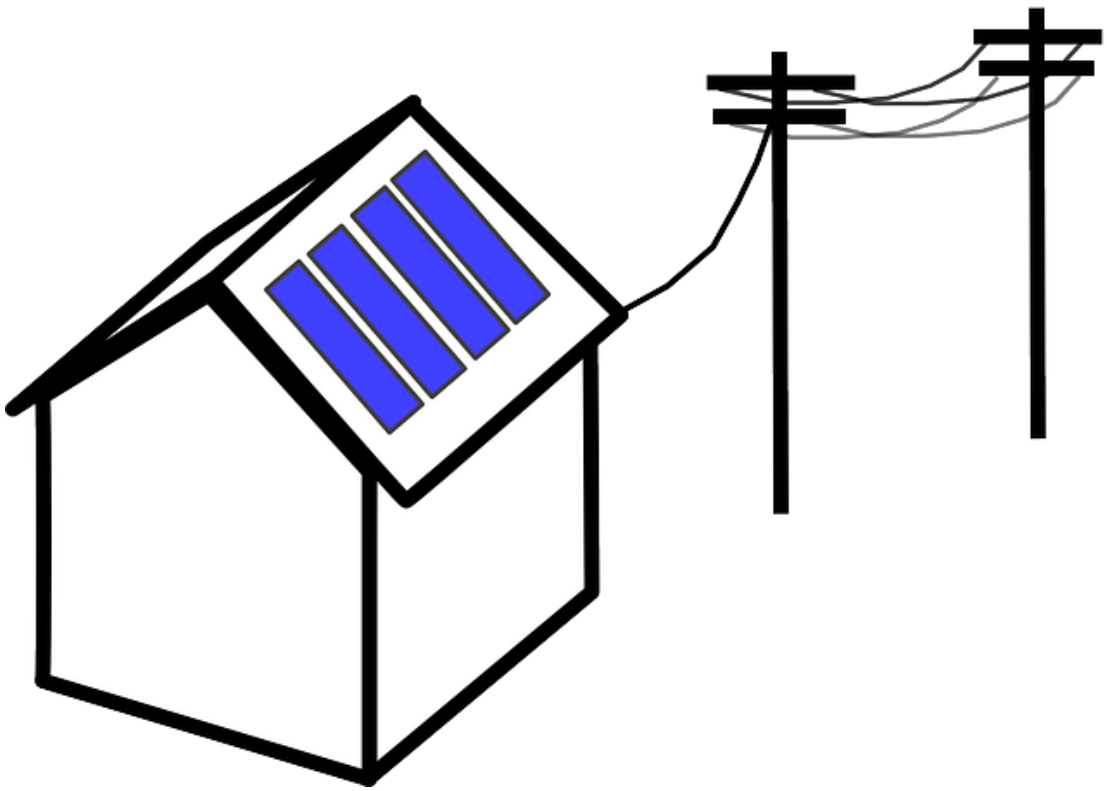
The solar industry employed 8,250 New Yorkers statewide as of November 2015

Research indicates that the solar industry creates living wage jobs that are not likely to be outsourced

Position	New York Median Wage	Mid-Atlantic Median Wage
Solar Installer	$18.00	$20.80
Solar Sales Representative	$24.04	$26.44
Solar System Designer	$24.02	$24.52

Source: *New York Solar Jobs Census 2015*, The Solar Foundation, available at: www.TSFcensus.org and SolarStates.org

MYTH: Solar Harms Low Income Communities



- **All** utility customers still pay basic service charge, even after installing solar
- Solar reduces the need to build new, expensive power plants
- Solar reduces local pollution from fossil fuels that disproportionately affect low income communities
- NYSERDA offers the Affordable Solar program to LMI customers

NYSERDA Affordable Solar program: http://ny-sun.ny.gov/affordablesolar

MYTH: Municipalities Benefit by Taxing Solar

- More than 92% of all jurisdictions in New York State continue to offer an exemption from property taxes

- That means 2133 out of 2308 taxing jurisdictions are supporting local solar jobs and development by maintaining this important policy

- Investment in solar throughout the area brings local jobs, consumer spending, and economic growth. As of 2014, there are already over 7,000 solar jobs all over NY

- Many towns, villages, cities, school boards and counties across NY are investing in solar. These projects bring savings to their operations, community programming opportunities, and educational opportunities for schools

NEW YORK STATE OF OPPORTUNITY. | NY-Sun

MYTH: Solar is not Possible in Historic Districts

- Solar installations are reviewed by the local historic district commission like any other proposed changes or alterations

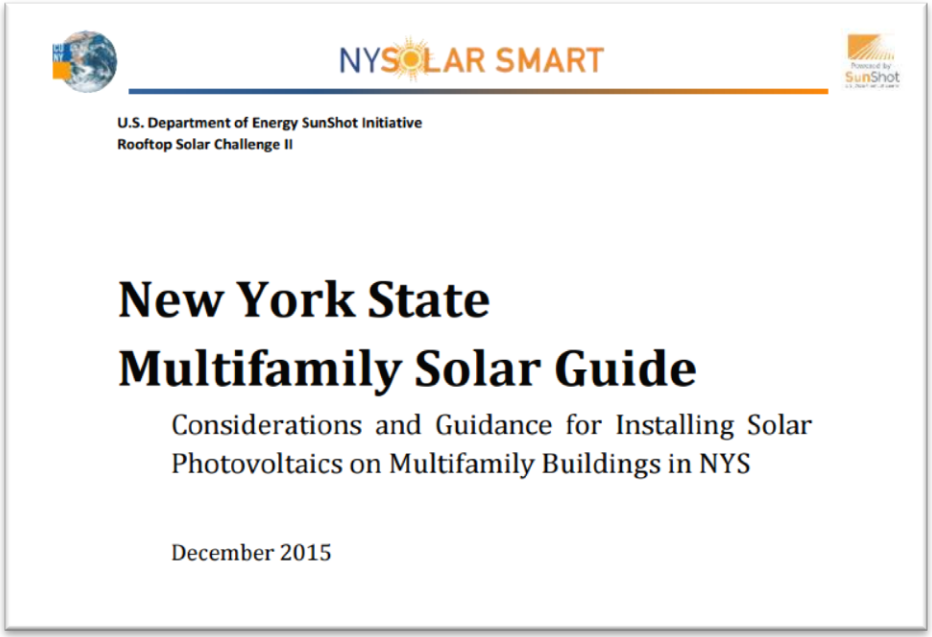
- In some regards, solar is simply a new technology that can and should be integrated into an historic building without harm to either the building or the performance of the installation

- A local commission can adopt guidelines for solar installations that can assist property owners to understand the best way to achieve both energy goals and the goals of the local preservation ordinance

Solar shingles are one of many ways to balance solar energy with historic character

Solar in Historic Districts: https://training.ny-sun.ny.gov/resources-5#pvtn-webinars-and-podcasts

MYTH: Condos/Co-ops Can't Go Solar


NYSOLAR SMART

U.S. Department of Energy SunShot Initiative
Rooftop Solar Challenge II

New York State
Multifamily Solar Guide

Considerations and Guidance for Installing Solar Photovoltaics on Multifamily Buildings in NYS

December 2015

CUNY's New York State Multifamily Solar Guide is available at: http://www.cuny.edu/about/resources/sustainability/reports/NYS_Multifamily_Resources_December_Final.pdf

Many multifamily buildings throughout New York State already have solar arrays

- The electric metering configuration of a multifamily building can affect the potential size of a solar system
- Typically, if the units are individually metered only common meters use solar
- If building is master or sub metered, solar can offset both common and individual electric consumption
- Solar can be combined with energy efficiency to reduce the size of the solar array needed to offset the building's energy usage

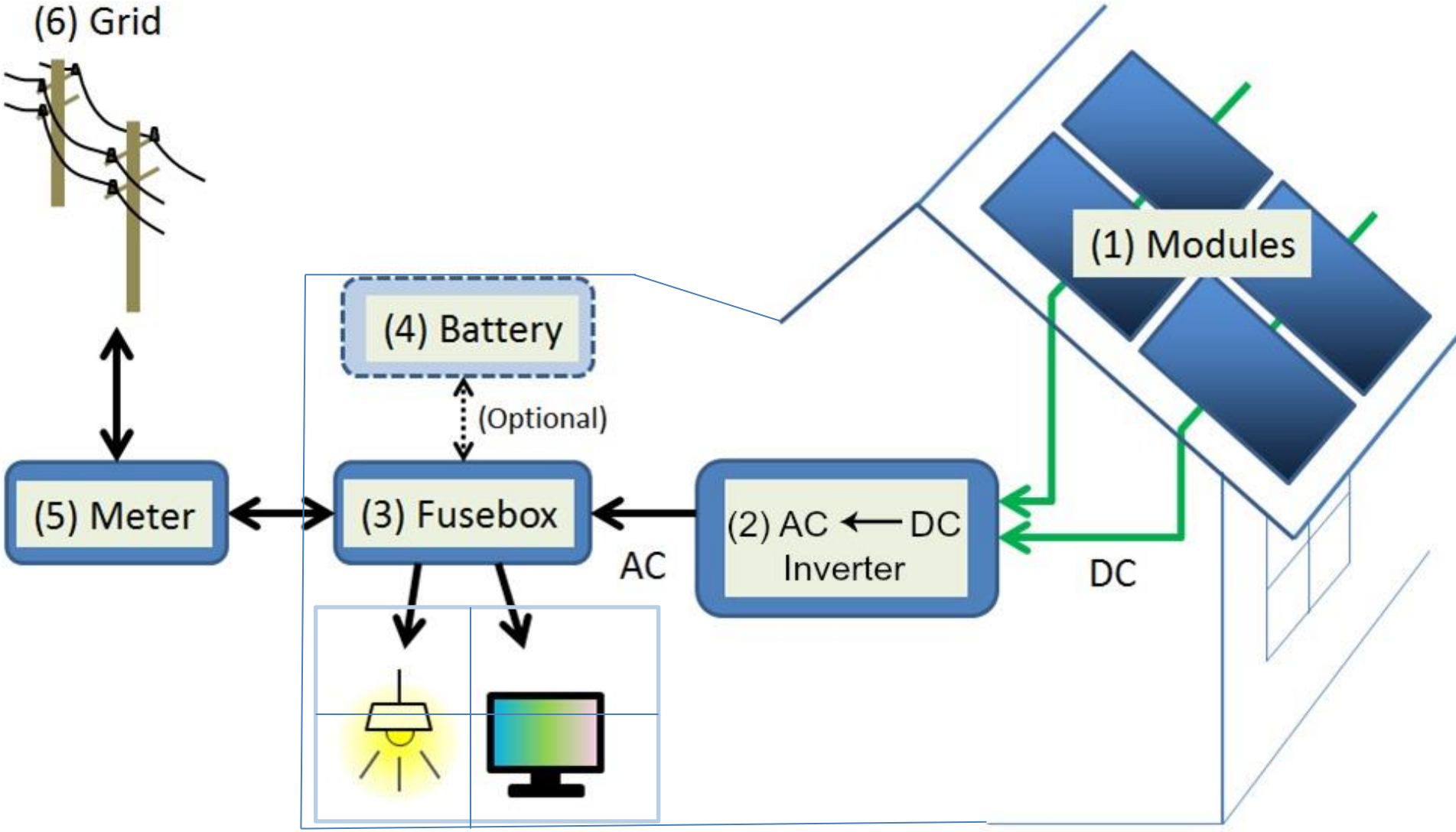
NEW YORK STATE OF OPPORTUNITY. | NY-Sun

MYTH: Solar Arrays Cause Fires

- Like any electrical system, PV arrays go through multiple inspections to ensure code compliance and safety
- Solar arrays rarely cause fires, but they can present additional challenges to first responders if they are attached to a building that is on fire
- The main issues to address are possible hindered access to the roof which can impede ability to ventilate the building and safety of first responders
- Fire codes are being written to ensure adequate access to the roof and space for first responders to traverse and ventilate the building
- Additionally, these challenges are being met with education initiatives like the PVTN "Fire and Safety Considerations for PV" training

Fire and Safety Considerations for PV: https://training.ny-sun.ny.gov/resources-5#pvtn-webinars-and-podcasts

MYTH: I Will Not Lose Power in an Outage



PVTN Resilient Solar Podcast: https://training.ny-sun.ny.gov/resources-5#pvtn-webinars-and-podcasts

MYTH: Size of PV Array Determined by Roof Size

Other Considerations:

1. Annual electricity usage
   - NY-Sun Incentive eligibility for residential customers requires systems sized to produce ≤110% of annual usage
   - Excess NEM credits are bought at avoided cost of power rate annually

2. Orientation of the roof
   - South-facing roof is ideal
   - Southeast and Southwest orientation are good

3. Obstructions and shading issues
   - Estimate 100 ft.^{2} of unobstructed roof space for each kW capacity

MYTH: EMF From Solar Panels Cause Cancer

"The strength of electromagnetic fields produced by photovoltaic systems do not approach levels considered harmful to human health established by the International Commission on Non-Ionizing Radiation Protection." *– State of Oregon*

Table 3: Potential Magnetic Field Strength from Various Components of West Linn Solar Array

Source	Field Type	Field strength at 3 ft. (Milligauss)	Field strength at 10 ft. (Milligauss)	Corresponding ICNIRP exposure limit for the general public (Milligauss)
Parallel string of PV modules	Static	1,697	509	4,000,000
DC to AC power inverter	Power frequency	344	3	830
Grid interconnection	Power frequency	14	n/a	830

Sources: State of Oregon Department of Transportation, *Scaling Public Concerns of Electromagnetic Fields Produced by Solar Photovoltaic Arrays,* Available at: "http://www.oregon.gov/odot/hwy/oipp/docs/emfconcerns.pdf
State of Oregon Department of Transportation, *Health and Safety Concerns of Photovoltaic Solar Panels,* Available at: http://www.oregon.gov/odot/hwy/oipp/docs/life-cyclehealthandsafetyconcerns.pdf

NEW YORK STATE OF OPPORTUNITY. | NY-Sun

MYTH: Solar Has Harmful Environmental Impacts

Land Use

- Large scale solar PV arrays can impact land use
- Minimize impacts by siting on lower quality lands: brownfields, capped landfills

Water Use

- Solar does not use water in generating electricity
- Some water is used for manufacturing solar PV components

Hazardous Materials/Chemicals

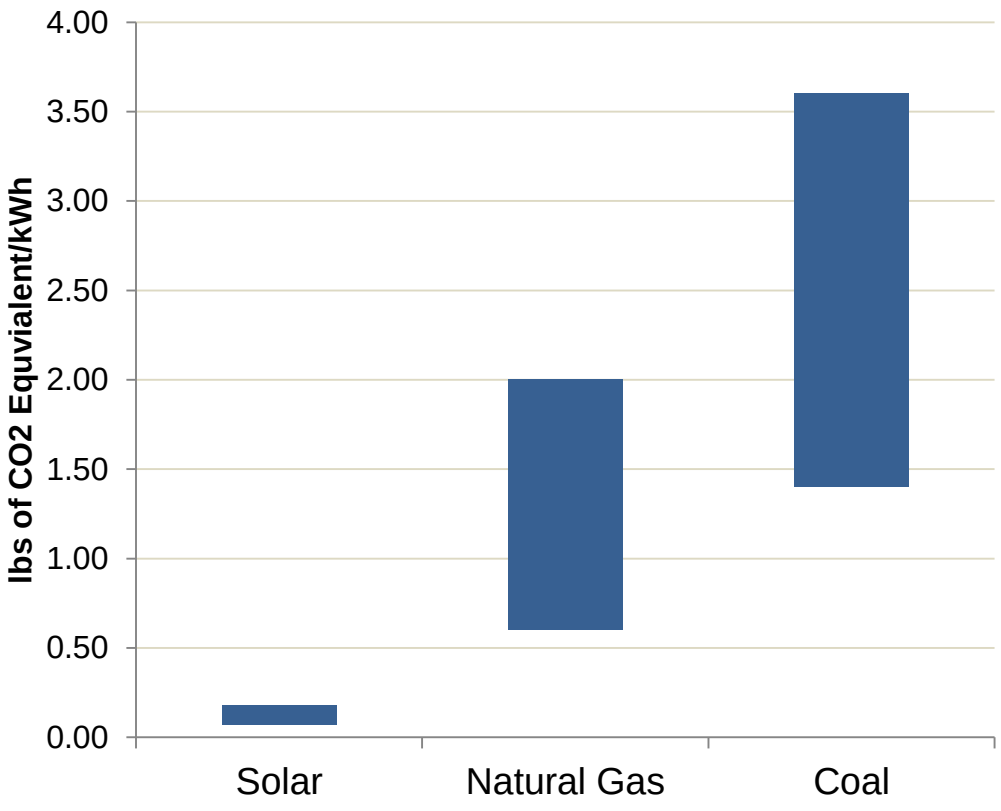
- PV does not generate any solid, liquid, or gaseous byproducts when producing electricity
- PV manufacturing requires some hazardous materials
- Manufacturers follow U.S. laws to ensure safety of processes and workers

Sources: National Renewable Energy Laboratory (2014), Renewable Electricity Futures Study: http://www.nrel.gov/analysis/re_futures/
Union of Concerned Scientists, Environmental Impacts of Solar Power: http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/environmental-impacts-solar-power.html#.VruPIfkrKUk

MYTH: Solar Has Harmful Environmental Impacts

Life Cycle GHG Emissions

- No GHG emissions from generating electricity
- Minimal GHG emissions associated with manufacturing, materials transportation, installation, maintenance, decommissioning and dismantlement
- Solar PV life cycle GHG emissions are minimal



Source: IPCC, 2011: IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation. Prepared by Working Group III of the Intergovernmental Panel on Climate Change [O. Edenhofer, R. Pichs-Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, C. von Stechow (eds)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1075 pp: http://srren.ipcc-wg3.de/report/

Media Out of Context

- The National Report, a satirical news website, initially posted the claim that solar panels drain the sun's energy in a satirical article about two years ago
- Another tongue-in-cheek article entitled "The Hazards of Solar Energy" was used in earnest as the basis of a January 2013 blog post
- When sources are not properly vetted misinformation can be shared widely, possibly perpetuating solar energy myths

NATIONAL REPORT

AMERICA'S #1 INDEPENDENT NEWS SOURCE

ADVERTISE WITH NR | FAN MAIL | MEDIA INQUIRIES | STAFF | CONTRIBUTE

HOME › SCIENCE/TECH › SOLAR PANELS DRAIN THE SUN'S ENERGY, EXPERTS SAY

Solar Panels Drain the Sun's Energy, Experts Say

Posted about 2 years ago | 1,823 comments

340K Share Log In Tweet 974 G+1 0 reddit 10 Email

(AP Photo/Toby Talbot)

<National Report>This week, a scientific research facility in Wyoming made a startling discovery that is certain to change the way millions of Americans look at the environmentalism movement, after they found conclusive evidence that solar panels not only convert the sun's energy into usable energy, but that they are also draining the sun of its own energy, possibly with catastrophic consequences far worse than global warming.

NEW YORK STATE OF OPPORTUNITY. | NY-Sun

Additional Resources

- **PVTN Website**: www.training.ny-sun.ny.gov
- **NY-Sun Website**: www.ny-sun.ny.gov/
- **NYSERDA Website**: www.nyserda.ny.gov
- **US Department of Energy Website**: www.energy.gov
- **CUNY New York City Multifamily Solar Guide**: http://www.cuny.edu/about/resources/sustainability/solar-america/installer-resources/Multifamily_Resources_Final_Final.pdf
- **The Solar Foundation's New York Solar Jobs Census 2015**: Available at www.tsfcensus.org
- **NYSEIA Webinar on NYS Property Tax Exemption:** http://www.nyseia.org/#!webinars/c1bj5
- **CUNY Resilient Solar + Storage Resources:** http://www.cuny.edu/about/resources/sustainability/SmartDGHubEmergencyPower.html

NEW YORK STATE OF OPPORTUNITY. | NY-Sun

Thank You!

Questions?

Contact us:
info@training.ny-sun.ny.gov