

NC Clean Energy Technology Center

October 18, 2017

NC Clean Energy Technology Center

Major Program Areas:

- Renewable Energy
 - Clean Power & Efficiency
 - Clean Transportation
 - Green Building
 - Economic Development
 - Energy Policy
 - Workforce Development
 - Education & Outreach
- Created in 1988, operated by the College of Engineering at N.C. State University
 - Funded by the General Assembly through the state Department of Environmental Quality; plus federal and state grants, foundations, and service fees for consulting
 - Primary mission is **to advance a sustainable energy economy by educating, demonstrating and providing support for clean energy technologies, practices, and policies**

NC STATE

EXTENSION



NC CLEAN ENERGY
TECHNOLOGY CENTER

Renewable Energy

- Provide policy and technical assistance to **state and local governments**, clean energy industry, and potential end users relating to:
 - Solar (PV and thermal)
 - Biomass (Biogas and Wood)
 - Wind
- Complete feasibility assessments for solar PV and hot water, small wind, and small hydroelectric
- Demonstration and testing of solar thermal and solar PV equipment

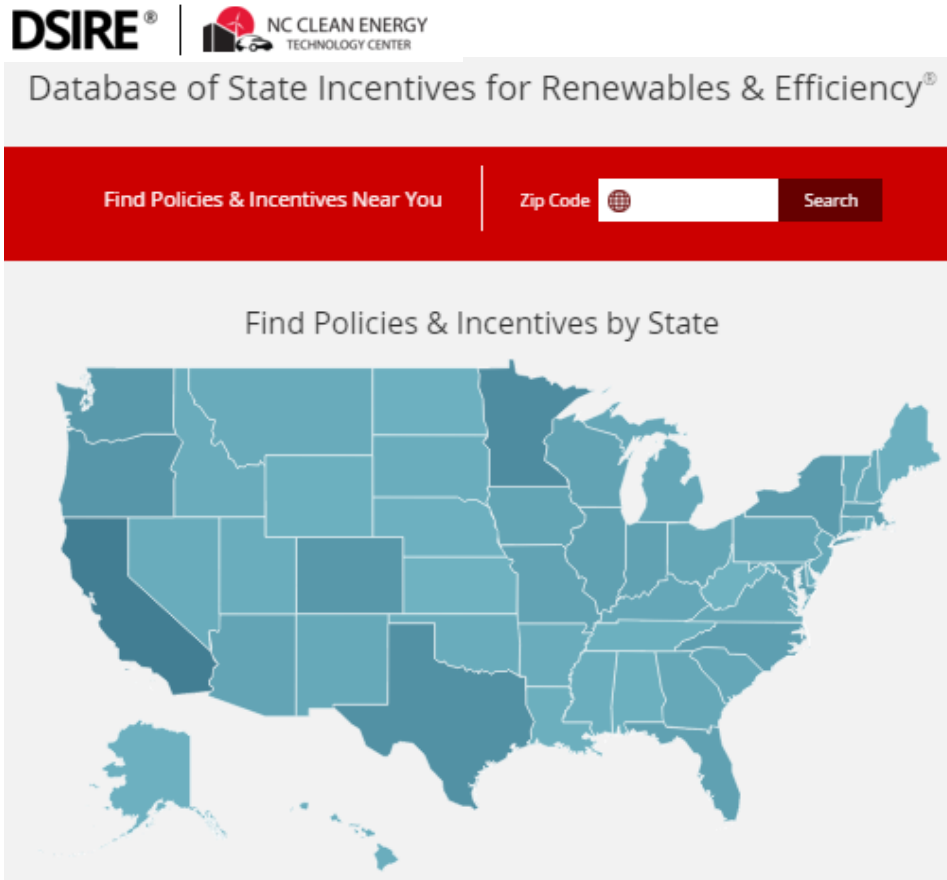


Workforce Development

- Renewable energy, EE Weatherization and clean fleet management and technology courses
 - **In-person and online** non-degree certification courses for professionals and credited courses for NCSU students
 - Hands-on, technical training, current policy information, and a network of energy professionals
 - **Can deliver courses anywhere in the U.S.**
- Customized training for companies, government agencies and the military
- Can train community college instructors
- Can work with local foundations or governments to provide need-based scholarships



Energy Policy

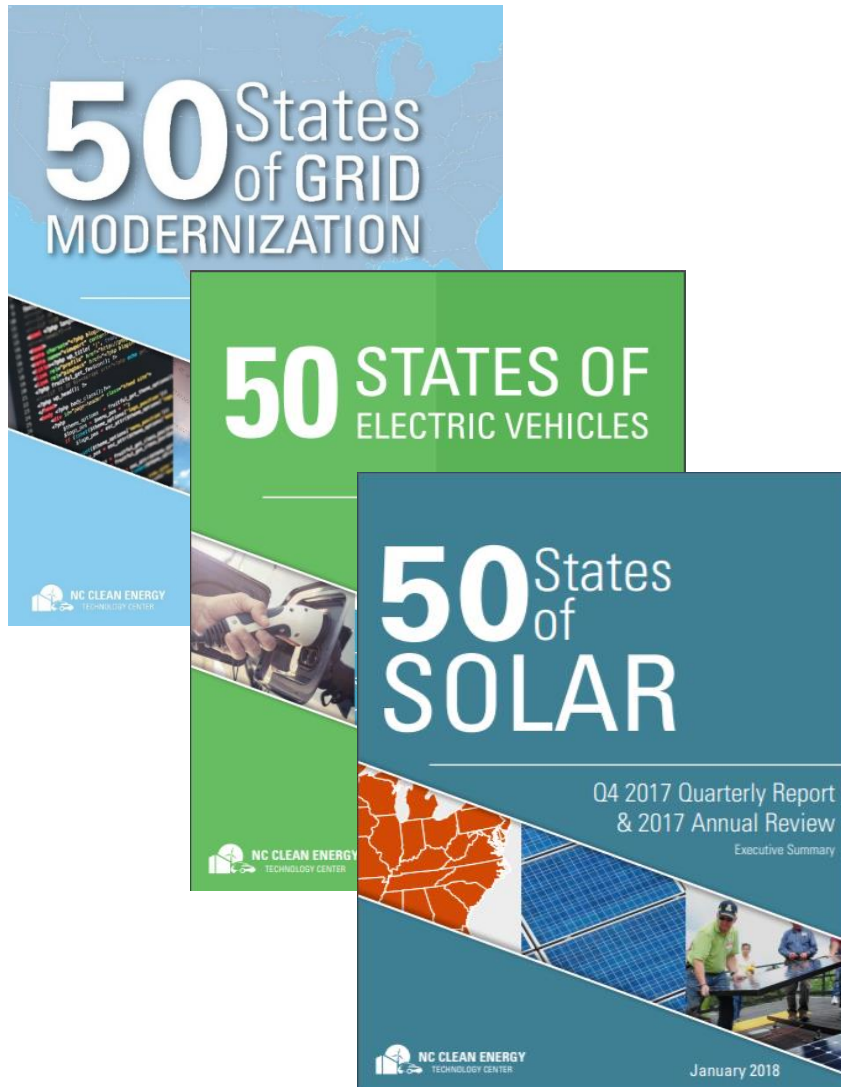


DSIRE Database

- Created in 1995
- > 3000 RE & EE financial incentives & regulatory policies
 - Federal, State, Local, Utility
- Averages ~ 160,000 unique visitors per month
- Became independent of US DOE support in 2017

www.dsireusa.org

50 States Reports

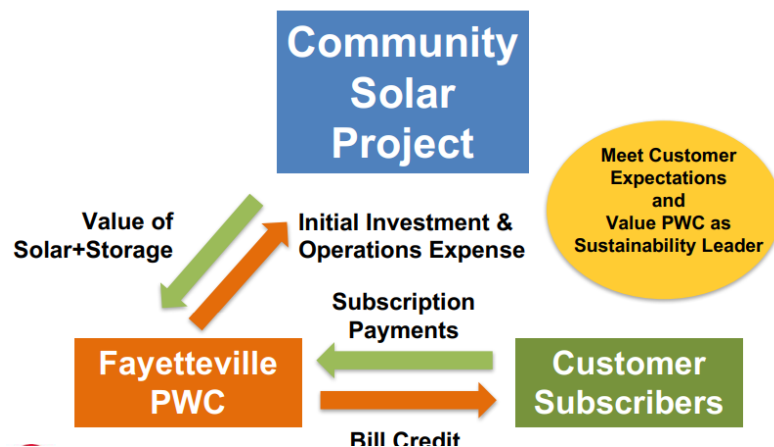


- Free to government employees.
- Quarterly subscription reviews clean energy policy landscape in the US.
- Valuable resource for state officials, policymakers, utilities for comparative research and implementing best practices in the industry.
- Examines Solar, EVs, and Grid Modernization (energy storage, smart grid, AMI, microgrids, and regulatory and rate reforms)

Community Solar for the Southeast

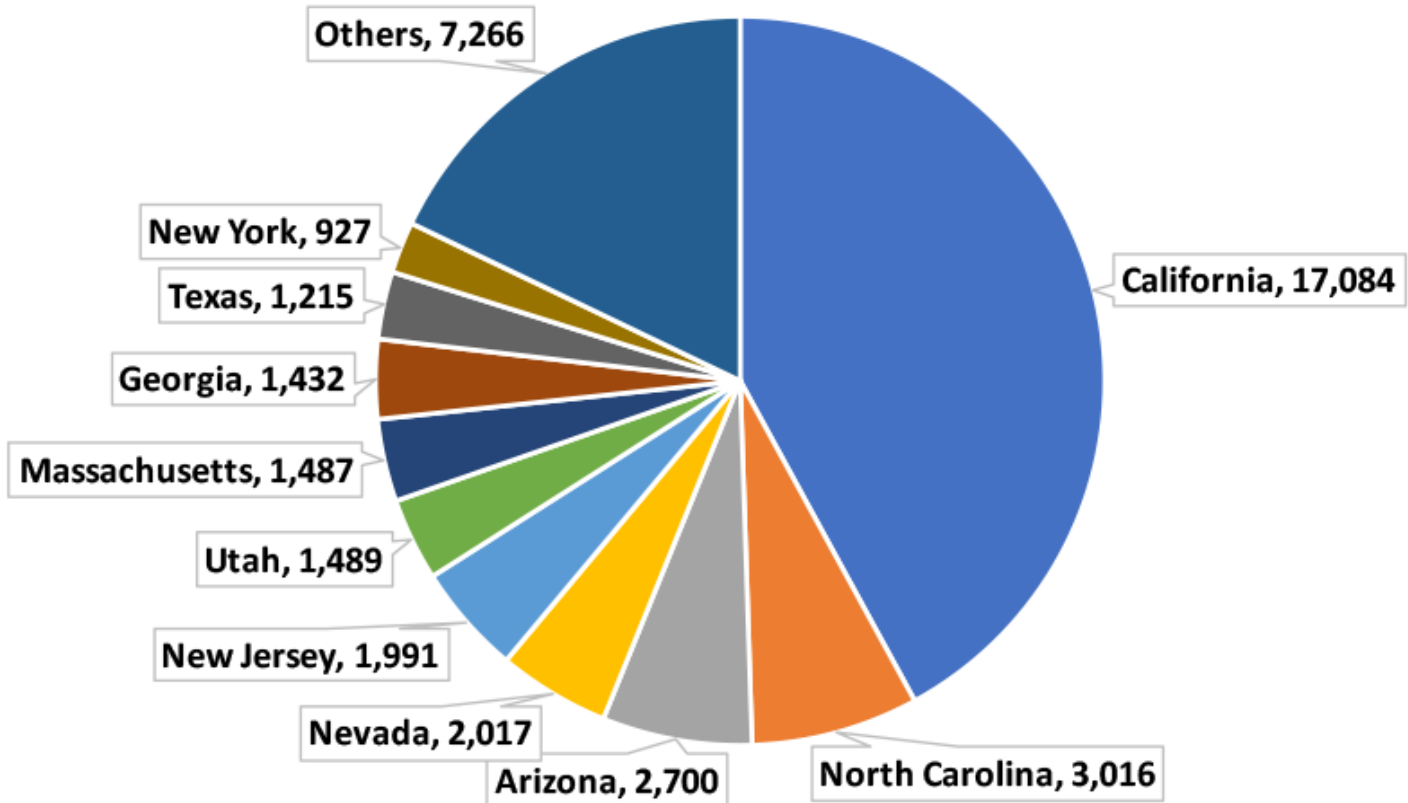
- Department of Energy funded project to expand the deployment of community solar projects in municipal utilities and cooperatives in the southeast.
- Will provide technical and outreach assistance to Co-ops and Municipals across the SE to develop community solar projects at economically sustainable cost that benefits utility AND customer.

Value of Community Solar



- NCCETC is leading the project to identify community solar opportunities:
 - Economic savings
 - Increased grid reliability
 - Resiliency to weather and other disruptions
 - Increased customer satisfaction

2016 Year-End Cumulative Solar PV Capacity (MW-dc)



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gtmresearch

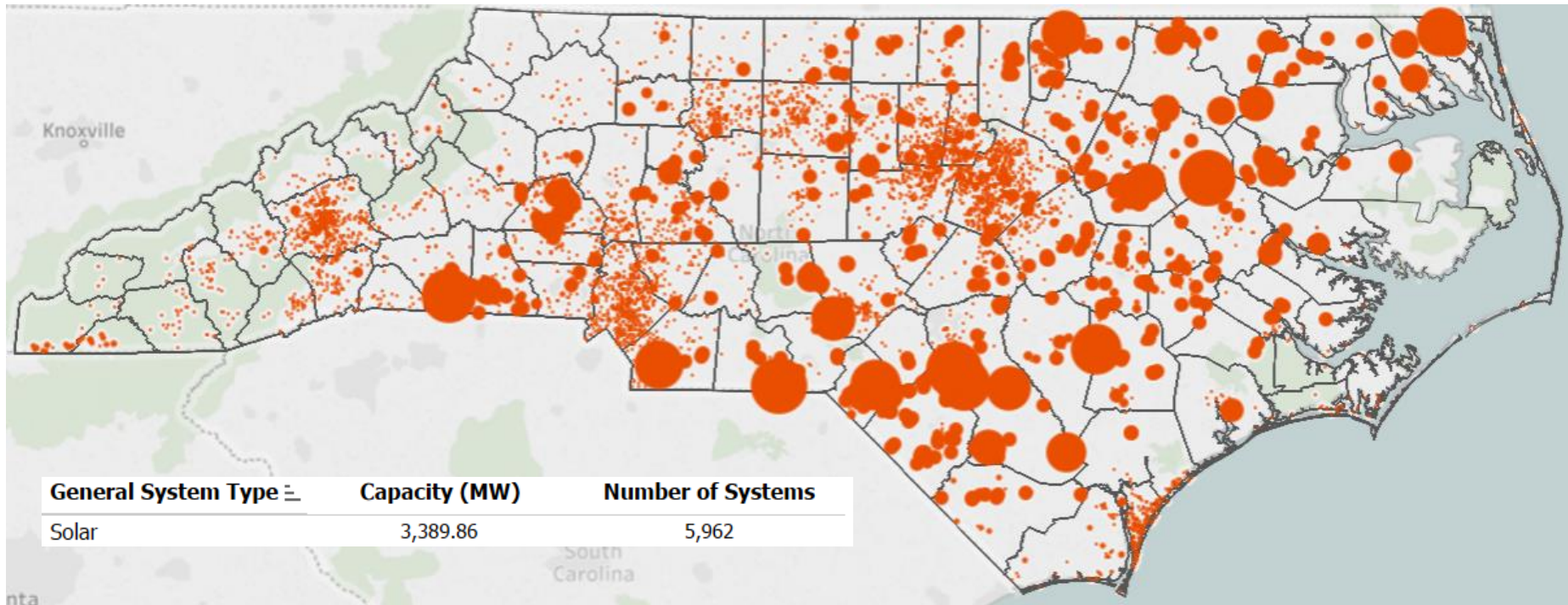
SEIA Solar Energy Industries Association®



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Geographic Distribution

Installed Solar in NC as of March 2018



Source: <https://energync.org/maps/> on March 18, 2018.

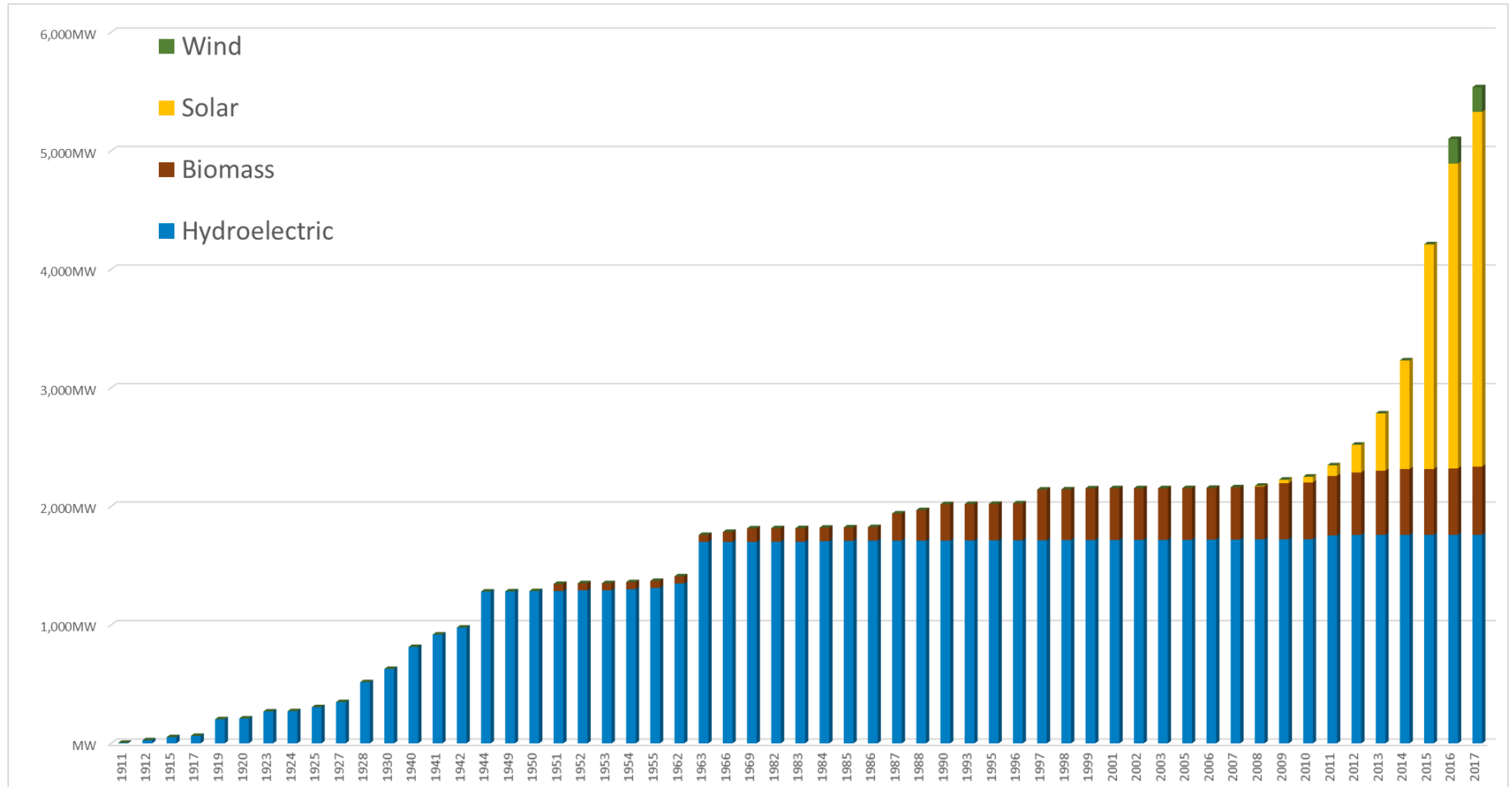


NC SUSTAINABLE
ENERGY ASSOCIATION



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Cumulative NC Renewable Energy Capacity



Positive Impacts of Renewables

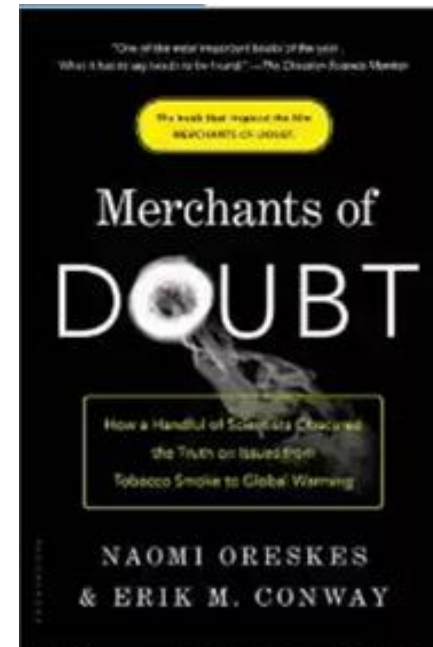
- Economic Development (Jobs & Spending)
- Increased Local Property Tax Income with No Additional Services
- Increased Landowner Revenue
- Improved Energy Security and Resilience – Distributed Assets, No Fuel Needs
- Local Power Generation – No Shipping or Purchasing of Fuels
- Cleaner Air & Water – Public Health Improvement
- Reduced Environmental Risk – Coal Ash, Greenhouse Gases, Etc.
- Improved System Efficiency – Reduced Line Losses During Transport

BUT...

**This led to LOTS of
Questions**

AND

**LOTS of Internet-
based Myths Being
Perpetuated**



Threshold Issues for Landowners

- Development Cycle and Project Development Process - Site Selection and Access to Grid
- Compatibility with Future Use - Zoning Ordinances and Special Use Permits
- Land Lease or Purchase Contract Process and Landowner Protection
- Do You Have a Good Title?
- Easements
- Tax Implications of Solar for Landowners
- NIMBY Issues

Policymaker and Neighbor Concerns

- Health & Safety Concerns
 - Toxicity, EMF/Radiation, Electric Shock, Fire
 - go.ncsu.edu/solar-health-and-safety
- Land Use & Land Impacts Concerns
 - Agricultural land tradeoffs, Returning the land to original state, Decommissioning
 - go.ncsu.edu/solar-and-ag
- Aesthetics Concerns
 - Sound, Glare, Visual Impacts
- Local Economic and Regulatory Issues
 - Property Taxes, Permitting & Local Ordinances
 - Impact on property values – site and neighbors
 - Model Ordinance



Our Response? Education and Assistance

2013 NC Template Solar Ordinance Working Group



Template Solar Energy Development Ordinance for North Carolina

- Designed to be adapted and then adopted by jurisdictions across the state and to serve as the basis for local development ordinances in their respective communities.
- Provides valuable guidance while still allowing flexibility that local governments may want to help them best address local interests.
- go.ncsu.edu/template-solar-ordinance

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Solar Community Education Workshops

- In partnership with NC Cooperative Extension, with support from Energy Foundation and NC Solar Industry (no strings on presentation)
- 1-2 Hour Q&A Educational Workshops (some repeat performances – for specific policymaking bodies)
- Usually in Coop Extension, COGs or local government facilities – open to landowners, policymakers and the general public
- Coop Extension surveys local leaders for topics of special interest
- 27 counties to date – providing support to new efforts in VA, SC, GA
- If you want a session or sample materials, let me know

NCSU Solar Information Resources

- NC Clean Energy Technology Center – www.nccleantech.ncsu.edu
- NC Cooperative Extension – www.ces.ncsu.edu & search for “solar” in the upper right:
 - What is Solar?
 - Threshold Issues for Landowner Solar Leasing
 - Landowner Solar Leasing: Contract Terms Explained
 - Solar and Wind Energy Development Opportunities: Tax Implications
 - Solar Generation Property Taxation
 - Solar Energy Resources for Local Government and Residents in North Carolina
- Template Solar Energy Development Ordinance for North Carolina – go.ncsu.edu/template-solar-ordinance

Thanks!

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