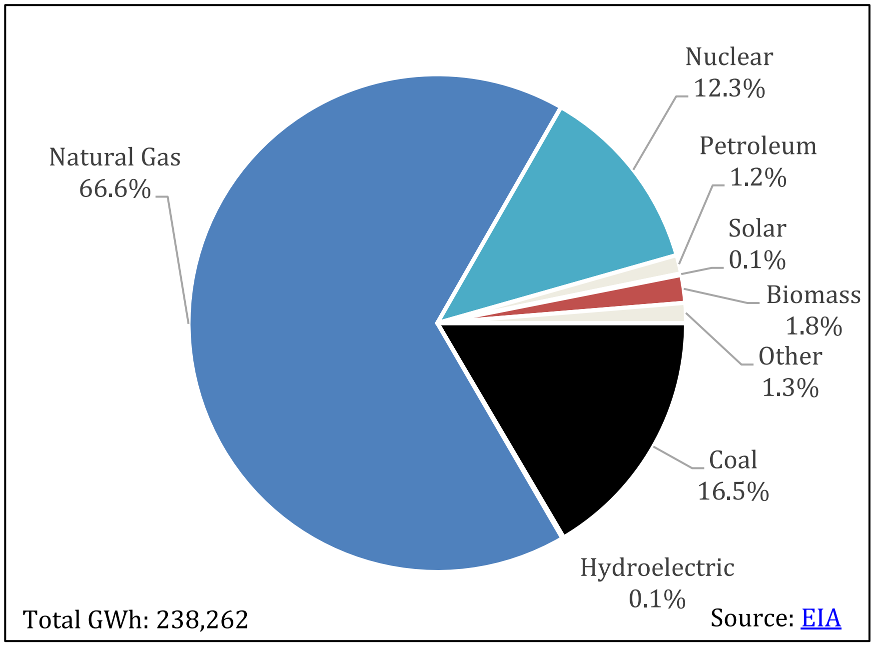
State Brief: Florida

BACKGROUND

Florida's Electricity Mix 2016



Florida is second only to Texas in electricity production, with two-thirds of the state's net generation coming from natural gas. Most of this natural gas comes from five interstate pipelines of the Gulf Coast region. Florida consumes more electricity than it produces and is one of the five largest energy-consuming states. Interestingly, Florida does not have many energy-intensive industries, putting Florida in the five lowest states for *per capita* energy consumption, with the residential sector consuming more than half of the state's electricity.

Florida does not have a renewable energy standard but does have a few renewable energy incentives. The Sunshine State ranks 3rd in the nation for solar potential but is 12th in the nation for installed solar PV capacity.

Climate change presents a great risk to Florida with threats ranging from sea level rise and intensified storms to extreme temperatures. Some southeastern counties formed a Climate Change Regional Compact to help address these concerns and plan for the future. Their recommendations include reducing electricity consumption, increasing renewable energy capacity, and promoting regional resilience and renewable energy use for emergency management and disaster recovery.

Florida's Governor appoints the five-member term-limited Florida Public Service Commission (PSC), which regulates the state's five electric investor-owned utilities (IOUs), natural gas utilities, and pipelines in the state. The state currently has a Republican Governor, Rick Scott, and a Republican majority controls both the House and Senate.

POLICY STRENGTHS AND OPPORTUNITIES[1]

The National Renewable Energy Laboratory (NREL) developed the notion of "policy stacking,"[2] an important framework for policymakers to consider. The basic idea behind policy stacking is that there is an interdependency and sequencing of state policy that, when done effectively, can yield greater market certainty, private sector investment, and likelihood of achieving stated public policy objectives.

In theory, but not always in practice, clean energy policies can be categorized into one of three tiers of the policy stack. Tier 1, market preparation policies, remove technical, legal, regulatory, and infrastructure-related barriers to clean energy technology adoption. Tier 2, market creation policies, create a market and/or signal state support for clean energy technologies. Tier 3, market expansion policies, create incentives and other programs in order to expand an existing clean energy market by encouraging or facilitating technology uptake by additional market participants.

[1] For more information on policy opportunities, please visit the SPOT for Clean Energy. For more information on specific policy actions related to these opportunities, please review the *Clean Energy Policy Guide for State Legislatures*.

[2] V.A. Krasko and E. Doris, *National Renewable Energy Laboratory*, 2012. Strategic Sequencing for State Distributed PV Policies: A Quantitative Analysis of Policy Impacts and Interactions. http://www.nrel.gov/docs/fy13osti/56428.pdf.

For example, before financial incentives for combined heat and power (CHP) will be successful, two key considerations for deployment are having clear interconnection standards and favorable stand-by rates for customers who opt to add CHP. In this example, states should adopt policies to address interconnection and stand-by rates before adopting financial incentive programs.

GRID MODERNIZATION

Policymakers can view grid modernization as creating a policy structure that supports and ties together many other initiatives, such as smart metering infrastructure, customer data management, energy storage, electric vehicle infrastructure, and utility business models.

In the last two decades, new digital technologies have enabled utilities to better manage the grid and provide opportunities for consumers to customize their services to fit their priorities. These technologies allow a two-way flow of information between the electric grid and grid operators and between utilities and their customers. Emerging technologies improve system reliability and resiliency by enabling better tracking and management of resources. These technologies allow grid operators to incorporate central and distributed energy resources, energy storage technologies, electric vehicles, and assist in addressing the challenges associated with planning, congestion, asset utilization, and energy and system efficiency. On the customer's side of the meter, advanced metering infrastructure, dynamic pricing, and other emerging technologies allow an exchange of information and electricity between a consumer and their electric provider.

According to the 2017 Grid Modernization Index, Florida has middle ranking scores for overall grid modernization efforts. While the state energy plan recommends upgrading and modernizing energy infrastructure, the state does not have a grid modernization plan to reach this goal. Duke Energy of Florida will invest $3.4 billion over the next 10 years for a grid modernization effort. When Hurricane Irma reached Florida in 2017, over half of the state was without power, highlighting the necessity of addressing resilience, security, and modernization of the electric grid in state planning.

HB 1133, introduced in January of this year, would have created an energy security and disaster resilience pilot program. The program would have demonstrated the effectiveness of distributed energy generation and energy storage in emergencies and incentivize these efforts, but the bill died in committee.

There are additional supportive policies that Florida's policymakers could adopt to support in-state modernization efforts.

1. Develop a grid modernization strategy through a stakeholder process. Florida may also decide to require utilities to propose a ten-year grid modernization plan within a specified timeframe. Legislation could require plans to outline a clear set of grid modernization goals and describe methods to measure, report, verify, and enforce progress towards those goals. States might also provide incentives or cost recovery mechanisms for utilities to meet grid modernization goals.

2. Require that utilities' ten-year site plans include plans to enhance cybersecurity, integrate distributed energy resources (including electric vehicles and energy storage), increase smart meter deployment and demand response and/or demand-side management (DSM) programs, and measure and report on the results of grid modernization efforts. While there is no statewide policy requiring smart meters in Florida, utilities have taken the lead on residential smart meter deployment.

3. Florida does not have clear state policies governing customer data access and privacy protections. To address this, policymakers should develop legislation or rules that, at minimum, do the following: clarify who owns the energy data associated with consumer energy usage; protect customer privacy; outline the process for allowing direct access of data to third parties; and promote access to the highest resolution of data by third parties. The state could establish customer access to energy data by expanding participation in the Green Button Connect program, for example.

The adoption of incentives for or a requirement to integrate a certain amount of energy storage on the grid alongside enhancing renewable energy and electric vehicle policies would support modernization efforts and improve the chances of successful grid modernization.

ENERGY STORAGE

Energy storage offers a unique opportunity to dynamically manage supply and demand while maximizing the value of grid resources. By deploying storage in strategic locations, utilities can more effectively manage their energy portfolios. First, storage provides management of intermittent demand – helping to flatten peak demand requirements for the utility. Second, the responsiveness of energy storage can allow the utility to implement voltage regulation and other ancillary services, which are useful for improving system efficiency. Third, storage can dispatch power to better integrate intermittent resources like renewable energy. Finally, energy storage can help the commercial sector avoid costly demand charges. As utilities around the country consider extending demand charges to the residential sector, this will become an even more important issue.

The flexibility of battery storage, combined with advanced metering infrastructure, allows customers to control how and when they use energy from the grid or from solar panels installed on their home or business. In most cases, this can provide greater cost savings than standalone solar systems. Combined with time-varying rates or real-time pricing programs, state policy can further support customer choice and open a new market for energy services. Prices that better reflect the time-varying and location-dependent costs of producing and delivering electricity can lead to a number of economic and environmental gains.

Storage provides multiple benefits to both the customer and the utility. State planning and regulatory policies can help maximize these benefits by 1) establishing a framework for easy integration of energy storage into the grid and 2) establishing a marketplace that monetizes the benefits of energy storage for cost effective investment.

While one utility, Florida Power and Light Company, offers a rebate to business customers if they install a thermal energy storage system or other energy efficiency technologies; the state currently does not have any polices to support energy storage development. There are several opportunities for developing supportive state policies:

1. Amend existing interconnection policies to ensure that storage can connect to the grid through a transparent and simple process. The Interstate Renewable Energy Council (IREC) has produced a series of interconnection protocols that states can easily adopt. The state could establish best practices for interconnection in statute, or legislation could provide an instruction to utilities to implement these best practices.

2. Instruct utilities to evaluate the value of energy storage in multiple strategic locations across the utility system and consider a requirement to deploy storage where it will be cost effective, or identify the price point at which it will become cost effective.

3. Require the inclusion of energy storage as a critical piece of the energy system as both a demand and supply management resource. Some states have required that utilities evaluate the cost effectiveness of non-wires alternatives (NWAs) to large transmission and generation investments. Alternatively, states might want to require utilities to develop a distribution investment plan that identifies the locations on the distribution system where energy storage or other distributed resources would offer the greatest value.

4. Consider adding a mandatory energy storage procurement target or requirement for energy storage with a documented process for periodic review of progress towards that goal. Procurement targets can jump-start market creation, spur fast learning, and guide the development of a regulatory framework. Five states currently have energy storage goals that range from five megawatt hours (MWh) to two gigawatts (GW).

5. Finance and incentivize energy storage for customers and utilities. Incentives could enable customers to use storage to manage their electric load and store locally produced renewable energy. Incentives in the form of rebates, grants, and tax credits can provide a bridge to scalable deployment for storage. Incentives can be designed to decline as storage values become more readily monetized. Policymakers could allow utilities that provide incentives to customers to recover the costs of installing smart meters. This would enable dynamic and time-varying energy management from multiple distributed battery systems. This should signal to customers the value of leveraging storage while better aligning customer costs with system costs. Financing energy storage installations for commercial customers would help reduce their demand charges. Policymakers might want to start first with a policy to incentivize solar systems owners.

MAINSTREAMING RENEWABLES

As the renewable energy industry has matured, technology has improved, and global production of generating equipment has increased, renewable energy is increasingly seen as the least cost and lowest risk form of energy (excluding energy efficiency). A Bloomberg New Energy Finance report from this year predicts that at least 50% of total global electricity will be renewable by 2050. With increased deployment, utilities are learning more about how to integrate renewables effectively, investors are becoming more comfortable with the technologies, and building code officials are recognizing common standards and best practices. For these reasons, it is in the interests of policymakers to ensure that their states are well positioned to benefit from the transition to clean and sustainable energy resources.

To reduce barriers to customer and utility participation in the renewable energy market, Florida might consider several policy options.

Customer-Oriented Policies

1. Interconnection, net metering, and streamlined permitting – In general, customers want a clear, streamlined, affordable, and predictable system for connecting renewable energy systems to the grid. To ensure this, Florida's policymakers could consider adopting IREC's model interconnection procedures, removing net metering system size limitations and the aggregate capacity limit, and crediting net excess generation at the customer's retail rate. Allowing aggregated net metering would be especially beneficial to the state's agricultural operations. Other applications for aggregated net metering could include commercial and agricultural properties and public entities like state and local governments, universities, and schools. The state might also consider establishing statewide standards for streamlined permitting processes or resources to support local governments that voluntarily implement a streamlined program, as Orlando and other communities in Florida have done. State incentives, such as tax credits, financial incentives, or loans can be tied to systems that are established within a designated streamlined permitting jurisdiction.

2. Shared Renewables – Due to building and property attributes and ownership issues, many customers are unable to install renewable energy technologies. Allowing shared, or community, renewable energy projects addresses these barriers. These projects have multiple owners or subscribers who pay for a portion of the generation provided by the system. Orlando Utilities Commission (OUC) allows customers in their service territory to subscribe to a community solar program. To expand program participation, the state might consider adopting a virtual net metering policy. Virtual net metering allows a customer to receive credits from a shared system as if the generation were on site. Virtual net metering is different from a power purchase agreement (PPA), which pays the customer for the proportion of power they produce. Because it is treated as a credit on the customer's bill, the customer can avoid the tax implications of a PPA payment - which can adversely affect the economics of the system (and may come as a surprise to the participant).

   Low credit ratings often deter participation in renewable energy markets; this can affect low- and moderate-income (LMI) households' adoption of renewable energy solutions. Supportive policies for shared renewables can be designed to encourage participation by LMI households; this can increase adoption of renewable technologies and reduce energy costs. Low-income participation can be encouraged either through a percentage mandate for the overall annual contracted capacity, or by offering a higher rate of payment for the portion of shared solar capacity attributed to low-income customers. States that have a shared renewable program may want to coordinate this program with implementation of the federal Weatherization Assistance Program to provide recipients of assistance with participation in a shared renewable system.

   Florida might consider several additional policy options to promote renewable energy uptake by low- and moderate-income consumers. Generally, successful state policies should be tailored to these customers, be cost-effective and financially sustainable, have measurable performance indicators, and be flexible enough to allow later changes in design.

3. Corporate Procurement – Many Fortune 100 and 500 companies have established either climate goals or commitments to purchase renewable energy. In just the last four years, over 9 gigawatts (GW) of renewable contracts have been announced by corporate entities. In the first quarter of 2018 alone, corporations signed 14 agreements for over 1700 MW of renewable energy. This is leading policymakers to provide additional avenues for businesses to procure renewable energy. Florida's policy allows companies to purchase RECs or develop

onsite renewable energy projects. Currently, Florida has no known direct large-scale renewable energy access available. State policy could be updated to address the Corporate Renewable Energy Buyers' Principles or the state might consider allowing companies to enter into onsite third party PPAs. In addition, it is prudent to integrate corporate renewable purchase commitments into the long-term plans that utilities submit to regulators to plan for resource needs over multiple decades. By integrating these renewable purchase commitments into utilities' ten-year site plans, regulators can avoid over-building resources and stranding generation assets.

Utility-Oriented Policies
Florida is one of 13 states without a renewable portfolio standard (RPS) or voluntary renewable energy standard or target. An RPS requires utilities (usually IOUs, but may include municipalities, and/or cooperatives) to sell a certain amount of renewable energy. In addition to adopting an RPS, Some states have created programs that aim to reduce greenhouse gas emissions and increase investments in clean energy resources. States might see an emissions or clean peak standard as the next step in a progression from renewable portfolio standards (RPSs). To increase utility adoption of clean energy technologies, Florida's policymakers might consider the following:

1. In 2007, Governor Charlie Crist signed an executive order setting greenhouse gas emissions targets but GHG monitoring rules were repealed in 2012. Emissions standards can take a technology neutral approach that looks at the total emissions of the utility portfolio and drive emissions down with a combination of renewables, traditional fuels, efficiency, and technological advances. Emissions reductions can be achieved through 1) a carbon portfolio standard approach, or 2) a market-based approach. A portfolio emissions standard sets emissions reduction targets to be met over time. Utilities can implement these standards through the ten-year site planning process or by establishing a maximum allowable rate of emissions per unit. Under a market-based approach, a state or a group of states might set a certain emissions reduction target, for example, the 2007 executive order set targets of 2000 levels by 2017 and 1990 levels by 2025.. This reduction is achieved by the distribution of annual emission allowances that decrease to the point that the standard is met in 2000 or 2025. One of the advantages of a market-based program is that it is designed to reduce emissions in the most economically efficient manner possible. Such a standard can also address other concerns such as pollution, asthma risk, environmental justice and water use.

2. Clean Peak Standards aim to increase the share of clean energy resources used to meet peak demand and decrease energy bills over the long-term by reducing peak demand in the hours when energy costs are highest. These objectives can be met through different policy options including: planning and procurement that focuses on peak demand; a moratorium on the construction of new peaking units or a phase out of existing units; incentives – including carve-outs in states with RPSs – for clean energy resources delivered during peak times; and/or adopting a new clean peak standard that sets a target for clean energy deliveries during peak times.

ELECTRIFICATION OF THE TRANSPORTATION SECTOR

An estimated 55% of new car sales will be electric by 2040 (Bloomberg New Energy Finance). Therefore, a key part of building a modernized grid involves designing infrastructure that will facilitate easy connection of electric vehicles (EVs) to the grid. One of the most important barriers to increased adoption of EVs is the consumer's awareness of the availability of EV charging stations. Ultimately, drivers want to be sure that their car will get them where they need to go. Another important barrier to increased adoption of EVs is their higher up-front cost as compared to similar conventionally fueled vehicles. The good news is that both supportive policies for developing charging infrastructure and technological advancements have eased "range anxiety." See the U.S. Department of Energy's Alternative Fuels Data Center for a map of refueling locations for EVs and other alternative fuel vehicles.

The state of Florida offers High Occupancy Vehicle (HOV) lane exemptions for inherently low emissions vehicles and hybrids and some Florida utilities offer rebates and incentives for EVs and EVSE. Duke Energy of Florida began a Park & Plug pilot program to increase EV charging infrastructure in their service territory. There are additional opportunities to expand the market for EVs in Florida:

1. EV and EVSE Financing and Financial Incentives – Florida is one of a handful of states that qualify EVSE under their property assessed clean energy (PACE) program. Providing additional financial incentives and innovative financing options can help spur greater market penetration of EVs. Sales, property, and income tax credits are some of the simplest methods for addressing high up-front costs of EVs and EVSE. While sales tax credits are typically applied at the time of purchase, property and income tax credits may do less to address upfront cost

barriers as receipt of the credit is typically removed in time from the purchase.[3] Some states have adopted other financial incentives including low-interest loans.

2. Charging Infrastructure Plan – Locating charging infrastructure is different from locating conventional fueling stations. For the most part, EVs are cars used for commuting and local trips. Furthermore, while a driver of a conventional vehicle stops only briefly at a gas station for the specific purpose of filling up, a driver of an EV is generally looking to refuel when they are parked for a longer period of time, for example when going shopping, going to a restaurant, or going to work. Charging infrastructure plans should target these types of locations and attempt to pair the appropriate level of charging infrastructure with a reasonable amount of time a person will be at that location. Legislation could direct a state agency to develop such a plan through a stakeholder process.

   Florida could also participate in a regional plan to promote EV adoption across multiple states. For example, eight Western state governors recently signed a memorandum of understanding to create a regional EV infrastructure plan (the REV West Plan).

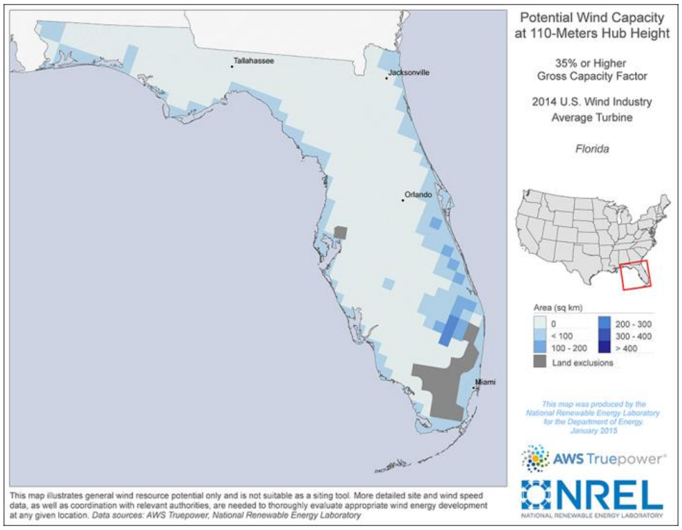
3. Parking Infrastructure Requirements – In tandem with the development of a statewide plan, legislation could set requirements for EV parking infrastructure. Some states have adopted permitting standards for parking lots, requiring, for instance, that for every 100 parking spaces, there must be at least one EV charging space. Legislation could also incentivize utilities to develop make-ready locations. These locations supply power to the point where a utility or third-party developer might install an EV charging station. Florida's statewide building energy code could also be updated to include requirements for EV charging infrastructure.

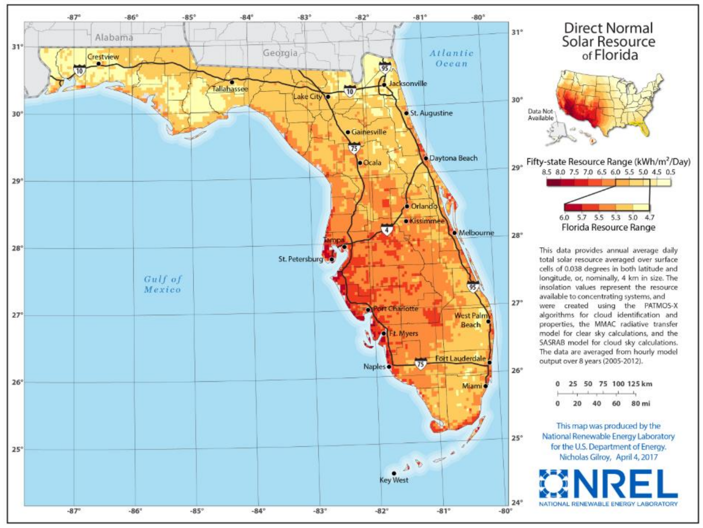
NEWS

- July 15, 2018: Solar Trees to Sprout in South Florida
- July 5, 2018: Customer-Owned Renewables Are Skyrocketing In Florida
- June 29, 2018: Industry Perspective: Florida Utilities Need to Begin Leveraging Intelligent Residential Energy Storage
- June 21, 2018: Florida Business Leaders Concur: Clean and Renewable Energy is the Way Forward
- June 20, 2018: Florida Regulators Review Power Restoration Issues after 2017 Storms
- June 18, 2018: How a Florida Utility Became the Global King of Green Power
- June 11, 2018: Few Southeast Cities Have Climate Targets, but That's Slowly Changing
- April 27, 2018: Florida Regulators Approve 'Experimental' DSM Program for Gulf Power
- April 21, 2018: Fishing for Energy: Ocean Debris Turned into Fuel in Florida
- January 9, 2018: Could Florida be the Next Hot Spot for Energy Storage?
- December 8, 2017: Sunshine State Lags on Solar Power, Doubles Down on Natural Gas

[3] A study by the Congressional Budget Office however suggests that tax credits are important tools for ensuring increased adoption of alternative-fueled vehicles.

FLORIDA'S WIND AND SOLAR RESOURCES
WIND https://windexchange.energy.gov/states/fl[4]
SOLAR https://www.nrel.gov/gis/solar.html





OTHER RESOURCES

- American Wind Energy Association (AWEA), Florida: http://awea.files.cms-plus.com/FileDownloads/pdfs/Florida.pdf
- Florida Office of Energy: https://www.freshfromflorida.com/Divisions-Offices/Energy
- The American Council for an Energy-Efficient Economy State and Local Policy Database, Florida: http://database.aceee.org/state/florida
- The Database of State Incentives for Renewables and Efficiency, Florida: http://programs.dsireusa.org/system/program?fromSir=0&state=FL
- U.S. Energy Information Administration, Florida: https://www.eia.gov/state/?sid=FL
- National Renewable Energy Laboratory Biomass Maps: https://www.nrel.gov/gis/biomass.html
- U.S. Department of Energy's Alternative Fuels Data Center, Florida: https://www.afdc.energy.gov/states/fl
- SPOT for Clean Energy, Florida: https://spotforcleanenergy.org/state/florida/
- The Rocky Mountain Institute: From Gas to Grid – Building Charging Infrastructure to Power Electric Vehicle Demand
- The GridWise Alliance, Inc., EVs - Driving Adoption, Capturing Benefits: http://gridwise.org/evs-driving-adoption-capturing-benefits/
- The Regulatory Assistance Project, Performance-Based Regulation: https://www.raponline.org/event/performance-based-regulation-the-power-of-outcomes-part-1/

Our Resources

CNEE Homepage: http://cnee.colostate.edu/

The SPOT for Clean Energy: https://spotforcleanenergy.org/

The Advanced Energy Legislation (AEL) Tracker: https://www.aeltracker.org/

Clean Energy Policy Guide for State Legislatures: http://cnee.colostate.edu/cleanenergypolicyguide/

The Energy Policy Podcast: http://energypodcast.colostate.edu/

CNEE Contact Information

Tom Plant, Senior Policy Advisor; Tom.Plant@colostate.edu

[4] Please see your packet for a higher resolution wind energy capacity map.