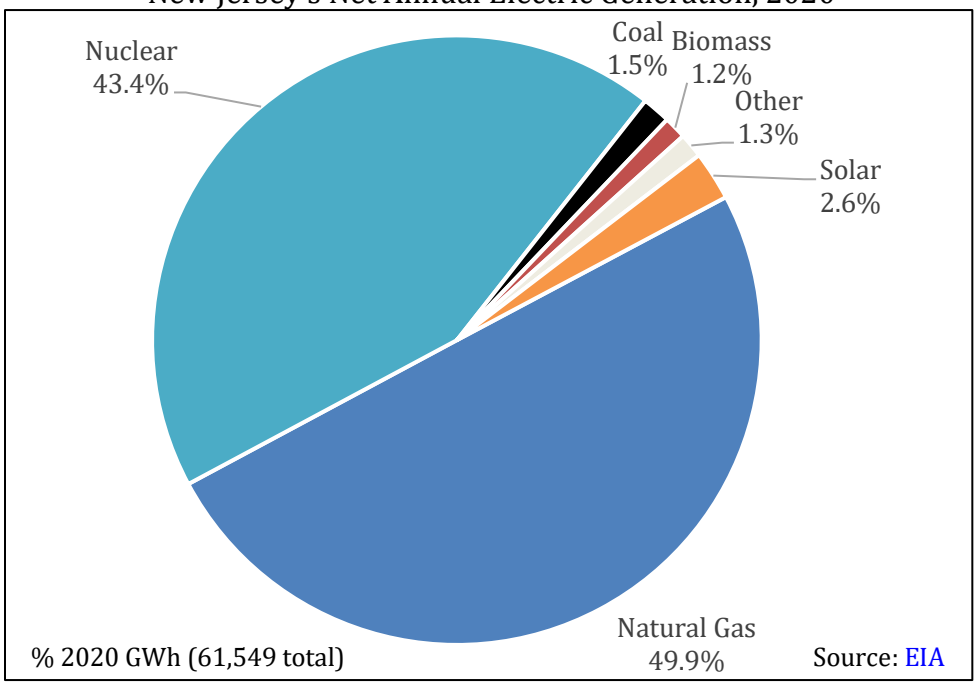
State Brief: New Jersey

BACKGROUND

New Jersey's electricity mix is comprised almost entirely of nuclear and natural gas, accounting for over 93% of the state's net generation in 2020. While the state has no fossil fuel reserves, it is home to two oil refineries, which receive oil via tanker, rail, and pipelines.

The Garden State has a mandatory Renewable Portfolio Standard (RPS) of 35% by 2025 and 50% by 2030. In 2018, Governor Phil Murphy's Executive Order No. 28, directed the creation of a 2019 Energy Master Plan to provide a blueprint for the state to achieve 100% clean energy by 2050.

New Jersey's Net Annual Electric Generation, 2020



By the middle of 2021, New Jersey had nearly 3,600 megawatts (MW) of installed solar capacity, the seventh highest in the country. In 2020, the Solar Energy Industries Association (SEIA) ranked New Jersey 15th in the nation for projected solar energy capacity growth. While a small fraction of New Jersey's renewable electricity is generated by wind, the state has significant offshore wind energy potential along its coastline. In 2019, Governor Murphy's Executive Order No. 92 increased the state's goal of 3,500 MW of offshore wind energy generation by 2030 to 7,500 MW offshore wind energy by 2035. New Jersey is expected to approve up to 2,400 MW of offshore wind energy by the end of June 2021.

The 2020 U.S. Energy and Employment Report found that New Jersey has 64,532 traditional energy workers (1.5% of total state employment). In 2020, New Jersey ranked 23rd nationwide for clean energy jobs (including jobs in energy efficiency and solar) and the industry employed 50,096 New Jerseyites.[1]

The New Jersey Board of Public Utilities (BPU) regulates New Jersey's investor-owned utilities. The board is comprised of five commissioners, all of whom are appointed by the Governor. The state requires that no more than three board members belong to the same political party. Currently, there are three Democrats and two Republicans on the Board. Democrats are in control of both legislative chambers and Democratic Governor Murphy took office in January 2018.

POLICY STRENGTHS AND OPPORTUNITIES

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.

[1] This is in addition to the number of traditional energy jobs in the state.

[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.

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 to expand an existing clean energy market by encouraging or facilitating technology uptake by additional market participants.

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

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, dynamic pricing, advanced metering infrastructure, and other technologies allow an exchange of information and electricity between a consumer and their electric provider. Grid modernization is associated with greater consumer choice by allowing customers to meet their energy priorities by producing their own energy or through contracting innovative clean energy services from different providers.

Grid modernization will require a suite of state and federal policy changes to support advancements in grid technologies, grid management, and utility regulation.

The BPU released the New Jersey Energy Master Plan in 2019, and it focused on grid modernization through electrification and integration of distributed energy resources as a backbone for the rest of the plan. The plan directs public utilities to develop integrated distribution plans (IDPs). In 2020, the BPU launched an investigation of resource adequacy alternatives to develop a strategy by which the state can meet its reliability, clean energy, and environmental objectives. Work group sessions were held between November 2020 and March 2021. The investigation aims to develop policy recommendations for the state.

There remain supportive policies that New Jersey's policymakers can adopt to support and advance in-state modernization efforts.

1. Develop a comprehensive grid modernization strategy through a stakeholder process. States may also decide to require that utilities 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 develop plans to 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. As part of this, the state might revisit and update its existing cybersecurity requirements. Utilities have taken the lead on residential smart meter deployment. In January 2021, the BPU approved the $800 million Public Service Electric & Gas (PSE&G) plan to install 2.3 million smart meters as part of the company's plan to create an 'energy cloud' that tracks real-time outages by the end of 2024.

3. New Jersey 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 data access to energy data through the Green Button Connect program, for

example. The 2021 BPU ruling on PSE&G's smart grid expansion plan came with a stipulation that customer data access issues would be discussed in a separate docket.

4. State departments of workforce services or their equivalent can be directed to work with utilities and other stakeholders to develop training programs for grid technicians and engineers. With new grid technology and distributed energy systems coming online, a new generation of workers can be trained to meet evolving needs, which will keep jobs local, and contribute to economic development.[3]

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 manage supply and demand dynamically while also maximizing the value of grid resources. By deploying storage to strategic locations, utilities can more effectively manage their energy portfolios. First, storage allows utilities to manage intermittent demand – helping reduce peak demand requirements. Because the generation resources that provide peak power are the system's most expensive, reducing peak demand can save consumers money. Second, the responsiveness of energy storage can allow utilities to implement voltage regulation and other ancillary services, which are useful for improving system efficiency. Third, because storage technologies can both store and dispatch power, storage enables better integration of intermittent power generation resources like renewable energy to the grid. Finally, energy storage can help the commercial sector avoid costly demand charges. As utilities around the country consider implementing or extending demand charges to other sectors, energy storage will become more relevant as a customer cost-saving investment.

The flexibility of battery storage, combined with advanced metering infrastructure, allows customers to control, for instance, 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 several economic and environmental gains.

Two major trends have enabled increased deployment of energy storage: declining costs and technological advances. State policies can help maximize these benefits by establishing both a framework for easy integration of energy storage resources onto the grid and a marketplace that monetizes the benefits of energy storage for cost-effective investment.

New Jersey is one of nine states that has an energy storage goal. Assembly Bill 3723, enacted in May 2018, required the BPU to initiate a proceeding to establish a process to achieve a goal of 600 MW of energy storage by 2021 and 2,000 MW of energy storage by 2030. This energy storage goal was seen as one of the most aggressive goals in the nation. The state also offers financial incentives for the development of additional energy storage. There are additional opportunities for developing supportive state policies that take advantage of the growing technological advances and declining costs of energy storage. The recommendations here draw heavily from the Interstate Renewable Energy Council's (IREC) 2017 report, "Charging Ahead – An Energy Storage Guide for Policymakers." Policymakers in New Jersey could consider the following:

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.

[3] For a discussion of specific workforce needs that states might explore see: GridWise Alliance and U.S. Department of Energy. 2020. "Grid Modernization Index Insights into a Transformation: Principles for the Next Decade of Progress."

2. Further 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 storage systems for solar systems owners.

MAINSTREAMING RENEWABLES

As the renewable energy industry matured, technology improved, and global production of generating equipment increased. Renewable energy is increasingly seen as the least cost and lowest risk form of energy (excluding energy efficiency). A 2021 Energy Information Administration report predicts that the share of the United States' electricity generation mix supplied by renewable energy resources will increase from 21% in 2020 to 42% 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 interest 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, New Jersey 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, New Jersey's policymakers could consider adopting IREC's model interconnection procedures and/or removing net metering system size limitations and allowing perpetual rollover of net metering credits. The state might also consider building on existing standards to establish statewide standards for streamlined permitting of small solar and storage systems. Alternatively, the state might adopt incentives to support local governments that voluntarily implement a streamlined program as Haddonfield has 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 where they live or work. 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. Part of Assembly Bill 3723, signed by Governor Murphy in May 2018, BPU was required to adopt rules and regulations for a "Community Solar Energy Pilot Program." In 2021, the pilot program is in its second year.

   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.

   There are several additional policy options that New Jersey might consider 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. Since 2016, nearly 31 gigawatts (GW) of renewable contracts have been announced by corporate entities. In 2020 alone, corporations signed 100 agreements for over 10 GW of renewable energy. This is leading policymakers to provide additional avenues for businesses to procure renewable energy. New Jersey was ranked in the top five overall in the Retail Industry Leaders Association's 2020 rankings of state corporate procurement policies. The state's deregulated market offers customers a choice of hundreds of different electricity plans, which vary by the amount of renewable energy included. New Jersey's policy allows companies to purchase RECs or renewable energy through retail market access, enter into onsite power purchase agreements (PPAs), and develop or lease onsite renewable energy projects. New Jersey might consider encouraging corporate participation in shared renewable projects.

Utility-Oriented Policies

Some states have created programs that aim to reduce greenhouse gas emissions and increase investments in clean energy resources. New Jersey has a mandatory RPS of 35% by 2025 and 50% by 2030. Enacted in 2007, Assembly Bill 3301 set an emissions target of 1990 levels by 2020 and 80% below 2006 levels by 2050. While New Jersey met the 2020 greenhouse gas emission targets, research shows that significant new actions will be necessary to meet the 2050 goal. New Jersey is a member of the Regional Greenhouse Gas Initiative (RGGI), an emissions trading scheme that reduces the region's carbon emissions and incentivizes the development of energy efficiency measures and renewable energy projects. 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 environmental justice or water use.

To increase utility adoption of clean energy technologies, New Jersey's policymakers might consider:

1. **Accelerating and Amending Renewable Portfolio Standards –** States can revisit existing RPS policies to increase targets and/or accelerate target dates to continue to spur the development of renewable resources and save ratepayers money. Additionally, states might add one or more carve-outs to further incentivize the development of distributed generation and offshore resources. Embedding an RPS within broader clean electricity or emissions standard can allow technological flexibility.

2. **Clean Peak Standards (CPS) –** 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 58% of new car sales will be electric by 2040. 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. The good news is that both supportive policies for developing charging infrastructure and technological advancements have eased "range anxiety."

The New Jersey Bureau of Mobile Services maintains the Drive Green New Jersey database, which provides basic information on EV ownership, charging, financing, and existing state and utility programs. There are several incentives to promote the purchase of an EV. Some of these include a zero emissions vehicle tax exemption, a high occupancy vehicle lane exemption and discount, an EV toll discount, and rebate and grant programs. In 2020, the Charge Up New Jersey program for point of purchase and post-sale incentives was overwhelmingly popular. These incentive programs were supplemented by $100 million from RGGI funds and Volkswagen Mitigation Trust Funds for use in electrification, equitable mobility, and charging infrastructure in environmental justice communities in New Jersey. In 2020, New Jersey joined 14 other states and the District of Columbia in signing an MOU to support

the deployment of medium- and heavy-duty ZEVs. The state has also adopted California's zero emissions vehicle (ZEV) and low emission vehicle (LEV) requirements and standards.

There are additional opportunities to expand the market for EVs in New Jersey:

1. **Charging Infrastructure Plan** – Locating charging infrastructure is different from locating conventional fueling stations. While some drivers will need to charge more quickly, others will refuel when they are parked for longer periods of time, for example when shopping at the mall or going to work. Charging infrastructure plans should attempt to pair the appropriate level of charging (level 2 or direct current fast charging) with a reasonable amount of time a person will be at that location. The New Jersey Department of Environmental Protection, the BPU, and the New Jersey Economic Development Authority signed an MOU in 2019 to develop a plan to meet the state's goal of 330,000 registered EVs by 2025. Through the New Jersey Partnership to Plug-In, state agencies are working on serval initiatives that compliment the development of a comprehensive charging infrastructure plan.

   Regional collaborations around the U.S. are emerging to coordinate the development of EV transportation and charging infrastructure. In May 2018, New Jersey joined 11 other states and the District of Columbia to release the Northeast Corridor Regional Strategy for Electric Vehicle Charging Infrastructure. The states in this region, from D.C. to Maine, will collaborate to invest in public EV charging infrastructure, promote EV sales across the region, and develop complementary policies and programs. Part of this strategy includes a public-private partnership with automakers. New Jersey is also a member of the Transportation and Climate Initiative (TCI) of Northeast and Mid-Atlantic States, which is exploring regional policy options to reduce emissions from the transportation sector. The state has also deployed a program called ChargEVC to identify high impact EV market development strategies.

2. **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. Adopted in 2021, developers of single-family residences in New Jersey that include designated parking must offer to install charging equipment unless such equipment is already included in the sale of the property.

NEWS

- July 1, 2021: New Jersey Approves Two 1 Gigawatt+ Offshore Wind Projects
- June 28, 2021: NJ's Largest Energy Company Sets New Climate Goal
- June 15, 2021: New Warehouses in NJ Would be Required to Have Solar-Ready Roofs
- June 11, 2021: U.S. to Auction Leases for 8 Wind Power Sites Off New York and New Jersey
- June 11, 2021: Towns Tasked with Fighting Climate Change Impact
- May 28, 2021: NJ Transit Lays Out Road Map to Green Future
- May 20, 2021: As Solar Power Grows, a Roadblock Remains in Place
- May 18, 2021: NJEDA Board Approves NJ Wind Turbine Tech Training Challenge
- May 17, 2021: New Jersey Launches Brownfield Solar Project at Delanco Landfill
- May 14, 2021: New Jersey Solar, Gas Power Plans Spotlight Justice Concerns
- April 28, 2021: New Jersey Extends ZECs for Nuclear Plants

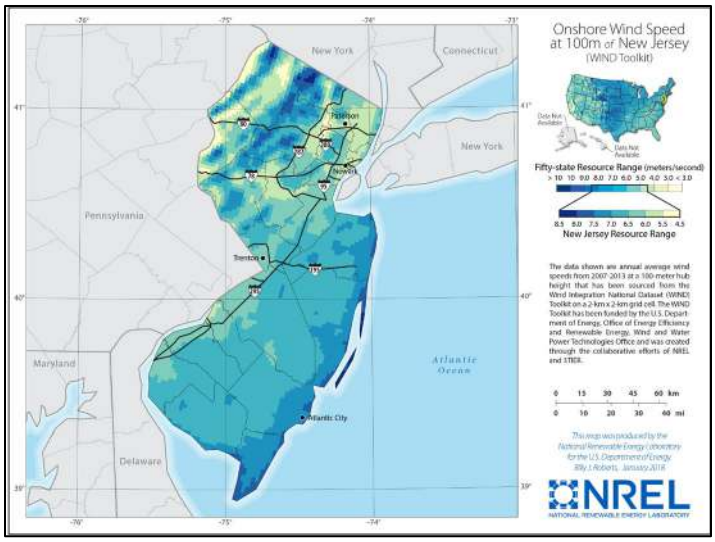
OTHER RESOURCES

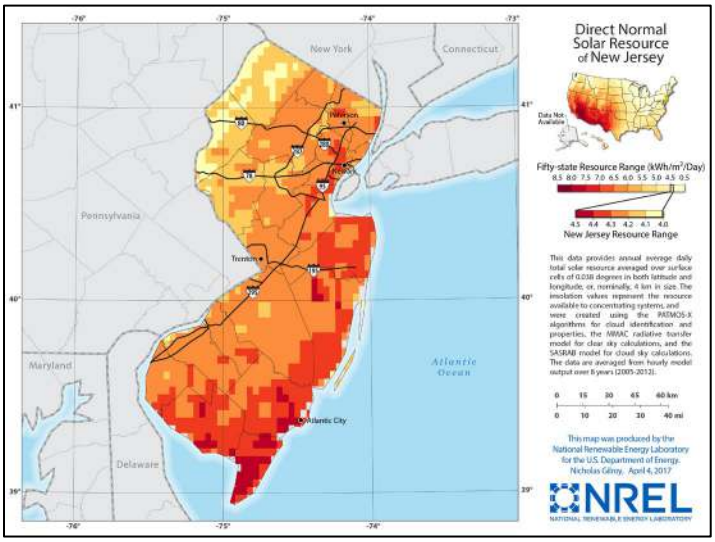
- New Jersey's Clean Energy Program: https://www.njcleanenergy.com/
- American Clean Power Association, New Jersey State Fact Sheet: https://cleanpower.org/wp-content/uploads/2021/05/New-Jersey_clean_energy_factsheet_Q2-2021.pdf
- The American Council for an Energy-Efficient Economy State and Local Policy Database, New Jersey: https://database.aceee.org/state/new-jersey
- The Database of State Incentives for Renewables and Efficiency, New Jersey: https://programs.dsireusa.org/system/program?state=NJ

- U.S. Department of Energy's Alternative Fuels Data Center, New Jersey: https://www.afdc.energy.gov/states/nj
- U.S. Energy Information Administration, New Jersey: https://www.eia.gov/state/?sid=NJ
- SPOT for Clean Energy, New Jersey: https://spotforcleanenergy.org/state/new-jersey/

NEW JERSEY'S WIND AND SOLAR RESOURCES

WIND https://windexchange.energy.gov/states/nj





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/

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