State Brief: Minnesota

Background

Minnesota is a national leader in wind energy. In 2016, the state ranked sixth in the U.S. for net electric generation from wind. The state also has substantial potential for biomass and hydropower sitting at the headwaters of the Mississippi River with 70,000 miles of streams. The majority of Minnesota’s electricity is generated from coal. The state’s two nuclear power plants, Prairie Island and Monticello, produced 21% of the state’s electric power in 2015. Additionally

The Minnesota Public Utilities Commission has five commissioners, each appointed by the Governor. No more than three commissioners may belong to the same party; currently, there are three Democrats, one Republican, and one Independent. Minnesota’s state legislature has Republican majorities in both chambers, and Governor Mark Dayton is a Democrat.

Policy Strengths and Opportunities

An important framework for policymakers to consider, the notion of “policy stacking” was developed at the National Renewable Energy Laboratory (NREL). The basic idea behind policy stacking is that there is an interdependency and a 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.

A simple 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, policies to address interconnection and stand-by rates should be adopted before financial incentive programs are implemented.

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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.

Energy Storage

Energy storage offers a unique opportunity to dynamically manage supply and demand to maximize the value of grid resources. By deploying storage in strategic locations, utilities can more effectively manage their energy portfolios. First, storage can dispatch power to better integrate intermittent resources like renewable energy. Second, it provides management of intermittent demand – helping to flatten peak demand requirements for the utility. Third, the responsiveness of energy storage can allow the utility to implement voltage regulation and other ancillary services, useful for improving system efficiency. 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.

Storage provides multiple benefits to both the customer and the utility. State planning and regulatory policies can help maximize these benefits through a combination of 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.

Minnesota currently offers rebates for thermal storage technologies. Despite the limited number of formal policy measures, progress toward energy storage is occurring through utilities. Numerous small scale projects are online across the state, and larger projects are in progress. When Xcel completed its one megawatt (MW) Wind-to-Battery project in Luverne, it was the first such project in the U.S. The University of Minnesota’s Energy Transition Lab’s recently reported on Minnesota’s Energy Landscape, which includes a discussion of energy storage projects.

There are several opportunities for developing supportive state policies:

1. Consider adding a procurement target or requirement for energy storage with a documented process for periodic review of progress towards that goal.

2. Amend interconnection policies to ensure that storage can connect to the grid through a transparent and simple process. IREC has produced a series of interconnection protocols that states may easily adopt.
   a. In the latest Freeing The Grid report, Minnesota received a “C” for interconnection rules. The best practices for interconnection could be established in statute, or legislation could provide an instruction to the PSC to implement these best practices.

3. Instruct the utilities commission 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 be cost effective.

4. 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 utilities to evaluate the cost effectiveness of “non-wires” alternatives (NWAs) to large generation investments that are more traditional utility avenues for meeting demand. Or, states may 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 system the greatest value.

5. Provide incentives for customers to purchase storage to both manage their electric load and store locally produced renewable energy. Allow utilities that provide incentives to customers to install smart meters that enable dynamic energy management from multiple distributed battery systems.

6. Adopt clear data access policies that allow third parties to provide energy management services based on signals from the utility to greatly increase the value of efforts to monetize the value stream offered by energy storage.
   a. Minnesota does not have clear state policies governing customer data access and privacy protections. Important aspects of legislation or rules addressing this include the following: clarification of who owns the energy data associated with consumer energy usage; protections for customer privacy; an outline of the process for allowing third parties direct access to data; policy to promote access to the highest
resolution of data by third parties. The state could establish customer access to energy data through the Green Button Connect program, for example.

7. Provide an option for utility customers (targeted at commercial users) to pay an additional charge to be included in a “high reliability zone” provided through a combination of distributed generation and energy storage – forming a utility integrated “microgrid”.

8. Provide financing for commercial businesses to install energy storage to reduce their demand charges.

9. Incentivize energy storage. Policymakers may want to start first with a policy to incentivize those who have solar systems, along with a utility incentive that will allow the utility to maximize the benefit of solar by aligning solar resources with peak load.

Grid Modernization

In the last two decades, digital technologies have been developed that enable utilities to better manage the grid and also 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. This can make the operational side of the utility more efficient. 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. Grid modernization will be associated with greater consumer choice, allowing customers to meet their energy priorities by producing their own energy or to selecting to receive innovative energy efficient or clean energy services from different providers.

Grid modernization efforts compliment other policies such as demand response policies, customer data management, smart metering infrastructure, electric vehicles, and others. Policy approaches around grid modernization should be seen as an umbrella to put in place a structure that supports and ties together these other individual policy initiatives.

Minnesota has ranked fairly high on measures capturing the level of grid modernization. In the most recent Grid Modernization Index (GMI), Minnesota ranked 18th overall. In the state support category, Minnesota received high marks (15th overall) thanks largely to their strong renewable energy requirement. While Minnesota demonstrates leadership in this area, and in line with the notion of policy stacking, discussed above, there are supportive policies that could advance in-state modernization efforts.

1. Require a ten-year grid modernization plan to be proposed by utilities to the utility commission within a specified timeframe. This mandate could include requirements for implementation by utilities within a certain amount of time. Require that plans outline a clear set of grid modernization goals and describe methods to measure, report, verify, and enforce progress towards those goals. In addition to this, states might provide incentives or cost recovery mechanisms for utilities to meet grid modernization goals.

2. Require that utilities’ integrated resource plans include plans to enhance cybersecurity, integrate distributed energy resources (including electric vehicles and energy storage), increase demand response and/or demand-side management (DSM) programs, and measure and report on the results of grid modernization efforts.

3. Customer Data Access – As noted above, policies governing customer data access and privacy protections could be updated. Important aspects of legislation or rules addressing this include the following: clarification of who owns the energy data associated with consumer energy usage; protections for customer privacy; an outline of the process for allowing third parties direct access to data; policy to promote access to the highest resolution of data by third parties.
Clean Energy Financing

Distributed generation (DG) provides localized generation that serves a specific part of the grid. It may include generation serving a specific residence or business, a neighborhood, or a region served by a substation. DG has the benefit of reducing stress on large transmission infrastructure by providing distribution level power (as opposed to central generation). Because these smaller-scale renewable energy systems require large upfront investments, overcoming the upfront cost barrier is arguably the biggest challenge to clean energy deployment at the consumer and local level. Financing is key; and many states provide financing and financial incentives to spur adoption of these technologies.

To ensure wide-spread deployment of DG, there are a handful of policy opportunities in Minnesota.

1. Property Assessed Clean Energy (PACE) – PACE is a financing mechanism used by local governments that allows property owners to finance energy efficiency and renewable energy improvements through their property tax payment. The repayment of qualified energy improvements is done via a voluntary property tax assessment collected by local governments, just as other public infrastructure investments are financed. The financing for PACE projects may be provided by municipal bonds or third-party capital secured by the property assessment payments. Repayment responsibility transfers to the next owner if the property is sold. While PACE programs can be designed for both the residential and the commercial markets, residential PACE takes a much more committed and engaged approach on the part of the state. Commercial PACE programs have been expanding rapidly in recent years with a robust market evolving around these programs. State legislative authority must be in place to allow local governments to establish energy financing districts. Minnesota has PACE enabling legislation and has two successful commercial PACE programs, but does not have an active residential PACE program. In order to implement such a program, legislation might follow the Department of Housing and Urban Development’s (HUD) guidance for determining eligibility for Federal Housing Authority (FHA) insured mortgage financing:
   a. Collection: The PACE obligation is collected and secured by the creditor in the same manner as a special assessment against the property;
   b. Enforcement: The property may only become subject to an enforceable claim (i.e., a lien) that is superior to the mortgage for delinquent regularly scheduled PACE payments. The property shall not be subject to an enforceable claim superior to the mortgage for the full outstanding PACE obligation at any time;
   c. Property Transfer: There are no terms or conditions that limit the transfer of the property to a new homeowner. Provisions to require the consent of a third-party prior to conveyance are prohibited, unless these provisions can be terminated at the option of, and with no cost to, the homeowner;
   d. Disclosure: The existence of a PACE obligation on a property is readily apparent to all parties to an FHA-insured mortgage transaction in the public records and must show the obligation amount, the expiration date and cause of the expiration of the assessment, and in no case, can default accelerate the expiration date.

2. Green/Infrastructure Bank - A green bank blends public and private capital to fund the upfront cost of clean energy improvements. The intent is to reduce the risk for the investor and to scale the market for projects. Sometimes these banks will attempt to address a limitation in the private lending sector – for example, while most bank commercial loans are 5-10 years, the NY Green Bank extends these terms for 20 years and assumes the risk of the investment on the back end. In this way, the public bank is partnering with the private lending institutions to address barriers for businesses. These entities can be housed within an existing state agency with administrative, rule making, and underwriting authority.

3. Third-Party Financing - Traditional purchases of solar systems require large up-front expenditures. Any incentives for such purchases are frequently tax credits, an incentive that is not captured until taxes are submitted – and then only if the customer has sufficient tax liability. Third party ownership attempts to
address affordability by allowing a system to be purchased by a third-party with the generation sold over time to the customer – offsetting the power purchased from a utility. By doing this, the third-party can monetize the tax credits, capitalize on commercial benefits like depreciation, and take advantage of large-scale financing at low rates to procure systems at a very low cost – passing on the savings to the consumer in the form of low price per kilowatt hour (kWh) rates that are comparable, and often lower, than established utility rates. Legislation is often required to allow this because utilities are typically granted monopoly status and are the only entity legally authorized to sell electricity to customers in their territory. Legislation provides an exception to this monopoly authority for third party owners of systems located on the customer side of the meter.

4. Combined Heat and Power Incentives – Minnesota offers loans, tax credits, and other incentives for solar and other DG technologies. To increase the deployment of combined heat and power, the state’s offerings could be expanded to include these technologies.

Electrification of the Transportation Sector

One of the most important barriers to increased adoption of electric vehicles (EVs) is their higher up-front cost as compared to a similar conventionally-fueled vehicle. In addition, there has been a complicated relationship between increased adoption of EVs and the availability of EV charging stations. Put simply, consumers want to be sure 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.” For instance, the most recent GM Bolt has an estimated range of 240 miles.

There are a number of programs that states can adopt to support charging stations. Minnesota’s Connexus Energy offers discounted electricity rates to residential customers in their service territory who charge Plug-In Electric Vehicles (PEVs). Additionally, the state requires that each public utility selling electricity for retail must file a tariff with the Minnesota PUC to allow a customer to purchase electricity for the sole purpose of charging a PEV, neighborhood electric vehicle, or medium-speed electric vehicle.

There are policy opportunities to further encourage and prepare for increased market penetration of EVs.

1. Charging Infrastructure Plan - Locating charging infrastructure is different than locating conventional fueling stations. For the most part, EVs are cars used for commuting and local trips. Furthermore, while one fuels a conventional vehicle when they are going somewhere, stopping at a gas station for the specific purpose of filling up, a driver of an EV is generally looking to refuel when they are stopping somewhere: when going shopping, going into 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 may be stopped at that location.

2. Financing and Financial Incentives - The provision of financial incentives and innovative financing options can increase installations of charging stations. States have adopted a number of financial incentives including income and property tax credits, sales tax credits, low-interest loans, grants, and rebates. A handful of states qualify EV charging stations under their property assessed clean energy (PACE) programs.

3. Building Standards and Codes - Many states and local governments are updating building standards and codes to provide guidance and standards for the installation of charging equipment. Building codes might also be updated to require either higher voltage pre-wiring or the installation of charging infrastructure.

4. Parking Infrastructure Requirements - Some states have adopted permitting standards for parking lots, requiring, for instance, that for every 100 parking spaces, an EV charging spot must be provided. States have also passed Anti-ICEing Legislation. “ICEing” occurs when an internal combustion engine (ICE) car is parked in an EV Only parking space. Some states have passed laws establishing penalties for non-EVs parking in EV only parking spots.

5. Rental Properties and HOAs - Legislation can also make it easier for lessees, renters, and members of a homeowners’ association (HOA) to install charging equipment. Typically, lessors are directed to allow lessees, at their own cost, to install charging systems. In some cases, lessees are required to maintain additional
insurance for the system. Legislation related to HOAs typically directs them to avoid restrictions that would inhibit the installation of charging equipment.

2017 Energy-Related Legislation Introduced by Attendee

<table>
<thead>
<tr>
<th>Bill Number</th>
<th>Bill Summary</th>
<th>Bill Status</th>
<th>Sponsor</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF 17-141</td>
<td>Limits Public Utilities Commission regulation of municipal electric utilities and rural electric cooperatives.</td>
<td>Companion Vetoed</td>
<td>Rosen</td>
</tr>
<tr>
<td>SF 17-728</td>
<td>&quot;Residential biomass heating systems temporary refundable individual income tax credit authorization and report requirement.&quot;</td>
<td>Introduced</td>
<td>Rosen</td>
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<tr>
<td>SF 17-1220</td>
<td>&quot;Ethanol blending on premises authorization; motor fuel marketing and franchise agreements not allowing ethanol blending prohibition.&quot;</td>
<td>Introduced</td>
<td>Rosen</td>
</tr>
<tr>
<td>SF 17-1578</td>
<td>Natural gas electric generation facility property tax exemption.</td>
<td>Introduced</td>
<td>Rosen</td>
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Other 2017 Energy-Related Legislative Activity

Only bills that have passed both chambers are set out below. For all 2017 energy-related legislation, visit aeltracker.org.

<table>
<thead>
<tr>
<th>Bill Number</th>
<th>Bill Summary</th>
<th>Bill Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>HF 17-113</td>
<td>Authorizes the construction and operation of a natural gas combined cycle generating plant.</td>
<td>Enacted</td>
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<tr>
<td>HF 17-234</td>
<td>Would remove PUC oversight of disputes between consumers and municipal or cooperative utilities.</td>
<td>Vetoed</td>
</tr>
<tr>
<td>SF 17-1937</td>
<td>Omnibus jobs, commerce, energy, labor and industry, and employment and economic development appropriations bill. (See bill summary for details.)</td>
<td>Vetoed</td>
</tr>
</tbody>
</table>

News


Other Resources

- Minnesota Department of Commerce Clean Energy: https://mn.gov/commerce/consumers/your-home/energy-info/
- Clean Energy Economy Minnesota: http://www.cleanenergyeconomymn.org/
- U.S Energy Information Administration, Minnesota: https://www.eia.gov/state/?sid=MN
- The Database of State Incentives for Renewables and Efficiency, Minnesota http://programs.dsireusa.org/system/program?fromSir=0&state=MN
- SPOT for Clean Energy, Minnesota: https://spotforcleanenergy.org/state/minnesota/