February 5, 2018

Senator David J. Osmek
Chair, Committee on Energy and Utilities
2107 Minnesota Senate Building
95 University Avenue West
St. Paul, MN 55155-1606

Re: Large Customer Demand for Renewable Energy in Minnesota

Dear Honorable David J. Osmek,

Thank you for your comments and questions regarding the economic development implications of increased access to renewable energy and customer choice in Minnesota. We agree that a market-driven approach to further deploy renewable energy would create a more positive business environment in Minnesota and help companies create jobs while growing the local economy. Minnesota's clean energy economy may be doing reasonably well under the current regulated monopoly system – but for true, expansive growth, we believe that unleashing the clean energy economy is a critical step.

Large businesses and other institutional buyers of renewable energy, including the military and higher education, have dramatically increased their purchases in recent years. Consider these impressive trends and recent developments:

- Overall, 48 percent of the Fortune 500 – 240 companies – have established public goals for acquiring clean energy to power their own operations and supply chain through public commitments.[1]
- 63 percent of Fortune 100 companies have done so already, including companies with a major Minnesota presence such as 3M, Best Buy, Cargill, and Target. These clean energy commitments have saved these companies nearly $3.7 billion in 2016 alone, while decreasing their annual emissions by 155.7 million metric tons of CO_2 equivalent – comparable to retiring about 45 conventional power plants.[2]
- To date, 70 companies – equivalent to 54 million MWh of electrical demand by 2020 – have joined the Corporate Renewable Energy Buyers' Principles, calling for increased access to renewable energy at the state level.[3] Signatories include manufacturers such as 3M and DuPont, retailers such as Staples and Target, and IT leaders such as

[1] WWF, Ceres, Calvert Investments, and CDP, Apr. 2017, "Power Forward 3.0: How the largest US companies are capturing business value while addressing climate change" (https://www.worldwildlife.org/publications/power-forward-3-0-how-the-largest-us-companies-are-capturing-business-value-while-addressing-climate-change).
[2] *Id.*
[3] WWF and World Resources Institute, Sept. 2017, "Six more Companies sign on to Renewable Energy Buyers' Principles" (http://buyersprinciples.org/2017/09/18/six-more-companies-sign-on-to-renewable-energy-buyers-principles/)

Amazon and Facebook. Many of these companies have a major presence in Minnesota, including 3M, General Mills, Sprint, Target, and Walmart.

- Corporate procurement of renewable energy doubled from 2013 to 2014 and again from 2014 to 2015. Although corporate procurement declined slightly in 2016 (2.5 Gigawatts (GW), compared to 3.7 GW in 2015), it remains well above 2014 levels.[4]
- By 2025, large customer demand for renewable energy could translate into a cumulative 60 GW of new off-site capacity – equivalent to slightly less than current installed wind capacity and a tripling of current installed solar capacity in the United States.[5]

The availability of customer choice is a critical factor for a state's attractiveness to corporate and other large institutional buyers of renewable energy. Therefore, Minnesota may not be experiencing the economic growth in the corporate sector that other states are experiencing because the state limits the entry into the clean energy marketplace predominantly to utilities.

Minnesota should consider policies to enable this growing sector by allowing any electric customer to purchase electricity directly from a renewable energy supplier. Minnesota should consider policies that enable (1) customer choice for accessing renewable energy on-site through third-party options, such as Power Purchase Agreements (PPAs) and third-party leasing/third-party sales and (2) cost-competitive utility green tariff programs. Such policies would make it easier for large customers to have greater choice in their options to procure cost-effective renewable energy.

The attached memo addresses each of your questions. We look forward to working with you to seize the renewable energy opportunity in Minnesota. Thank you for your attention on this matter.

Sincerely,

Adam Siegel
Senior Vice President of Research, Innovation and Sustainability
Retail Industry Leaders Association (RILA)

Rick Goss
Senior Vice President, Environment and Sustainability
Information Technology Industry Council (ITI)

[4] Business Council for Sustainable Energy (BCSE), Feb. 2017, "2017 Sustainable Energy in America Factbook" (www.bcse.org/sustainableenergyfactbook/).
[5] Rocky Mountain Institute, Feb. 2015, RMI Launches Business Renewables Center (http://blox.rmi.org/blog_2015_02_02_rmi_launches_business_renewables_center).

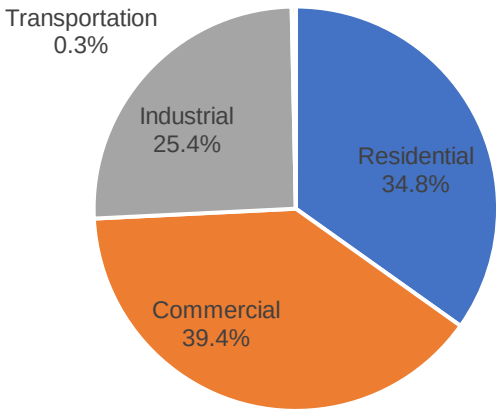
The Corporate Renewable Energy Opportunity in Minnesota

Renewable energy is more affordable than it has ever been. For Minnesota companies, it offers a smart business decision – they can save money with renewable power. Powering facilities with renewable energy allows corporate and other customers to avoid power price fluctuations by locking in rates over a long period of time. Minnesota has tremendous wind and solar resources – state policymakers should do everything they can to help customers capture those economic benefits in Minnesota.

What is the current electricity load profile of commercial and industrial customers in Minnesota?

Commercial and industrial (C&I) customers comprise nearly 65 percent of total electricity load in Minnesota, as shown in Figure 1. In 2015, the total C&I electricity sales in Minnesota is 2.8 million gigawatt-hours, as shown in Table 1.[6]

Figure 1. Percentage of Electricity Sales by Sector in Minnesota, All Utilities, 2015



Source: Energy Information Administration, 2015

Table 1. C&I Total Electricity Sales in Minnesota, All Utilities, 2015

	Electricity Sales, 2015 (GWh)
Commercial	1,683,263
Industrial	1,087,765
Total C&I	2,771,028

Source: Energy Information Administration, 2015

[6] Energy Information Administration, Nov. 2016, "Electric power sales, revenue, and energy efficiency Form EIA-861 detailed data files" (https://www.eia.gov/electricity/data/eia861/).

As of Q3 2017, Minnesota had 3,499 MW of installed wind power capacity.[7] However, the potential far exceeds that amount. The Department of Energy has identified 183,000 MW of potential wind capacity in the state.[8]

What is the trajectory across the country for new load growth, particularly from data centers?

Electricity demand by C&I customers is expected to continue to grow. EIA's *2017 Annual Energy Outlook* projects that total US energy consumption will increase by 5 percent between 2016 and 2040.[9] The EIA model also projects that total industrial energy consumption growth will average nearly 1 percent per year from 2016 to 2040, the highest growth rate of any demand sector.

Across the US, data center electricity consumption also continues to grow. US data center electricity use increased 4 percent from 2010-2014. Previously, data center electricity use increased by 24 percent from 2004 to 2010 and by 90 percent from 2000 to 2005.[10] Data center energy use is projected to continue to grow by 4 percent until 2020.[11]

Many Information Technology (IT) companies have commitments to procure renewable energy. For example:

- **Facebook** has a target to use 50 percent clean and renewable energy in data center mix by 2018.[12]
- **Microsoft** committed to achieve 100 percent renewable energy by 2025 from 2015 consumption levels.[13] The company is already powered by 100 percent renewable electricity in their global operations, when including the use of renewable energy certificates (RECs). Further, in May 2016, Microsoft committed to powering its datacenters with energy that is at least 50 percent wind, hydro and solar by 2018, and 60 percent early next decade, reducing the need for RECs to achieve 100 percent renewable energy powered datacenters.[14]

[7] DOE, "U.S. Installed and Potential Wind Power Capacity and Generation" (https://windexchange.energy.gov/maps-data/321).
[8] *Id.*
[9] EIA, "Annual Energy Outlook 2017 with projections to 2050" (https://www.eia.gov/outlooks/aeo/pdf/0383(2017).pdf).
[10] Lawrence Berkeley National Laboratory, Jun. 2016, "United States Data Center Energy Usage Report" (https://eta.lbl.gov/sites/default/files/publications/lbnl-1005775_v2.pdf).
[11] *Id.*
[12] Facebook, 2017, "Sustainability" (https://sustainability.fb.com/clean-and-renewable-energy/)
[13] WWF, Ceres, Calvert Investments, and CDP, Apr. 2017, "Power Forward 3.0: How the largest US companies are capturing business value while addressing climate change" (https://www.worldwildlife.org/publications/power-forward-3-0-how-the-largest-us-companies-are-capturing-business-value-while-addressing-climate-change).
[14] RE100, 2016, "Microsoft" (http://there100.org/microsoft).

- **Amazon** has a target to use 50 percent renewable energy by end of 2017, and a long-term commitment to achieve 100 percent renewable energy.[15]
- **Google's** parent company **Alphabet** established a target to procure 100 percent renewable energy by 2040 from 2015 consumption levels and triple purchases of renewables by 2025.[16]

Google, for example, is increasingly seeing its desire for renewable energy as an economic development tool. Gary Demasi, Google's Director of Operations for Data Center Location Strategy and Energy, stated, "When it comes to the site selection process itself, increasingly, renewable energy is part of our consideration. Today, it's actually a necessary component…it's a very early consideration in the siting process."[17]

Further, Facebook decided to:

- Build a data center in Texas instead of Ohio that will be powered by a wind farm to be constructed 100 miles away;[18]
- Locate a new data center in Nebraska, in large part because the company made a deal with the local utility to power the facility with 100 percent renewable energy.[19]

Interests in corporate access to renewable energy is an important factor for siting for companies in other sectors as well. For example, General Mills, GM, Nestlé, P&G, Target, Unilever, Walmart stated in a recent letter to the Missouri legislature, "The availability of renewable energy choices is also a key factor for many of us when we choose where to do business."[20]

What public commitments have these existing employers made to procure renewable energy?

Many of the large companies that comprise this electric load want to meet their electricity demand through procuring renewable energy. In addition to the IT companies listed above,

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[15] Amazon, 2017, "AWS & Sustainability" (https://aws.amazon.com/about-aws/sustainability/).
[16] WWF, Ceres, Calvert Investments, and CDP, Apr. 2017, "Power Forward 3.0: How the largest US companies are capturing business value while addressing climate change" (https://www.worldwildlife.org/publications/power-forward-3-0-how-the-largest-us-companies-are-capturing-business-value-while-addressing-climate-change).
[17] American Wind Energy Association, May 8, 2013, "WINDPOWER 2013 Update: Google powering ahead with renewable energy" (http://www.aweablog.org/windpower-2013-update-google-powering-ahead-with-renewable-energy/).
[18] Wind Energy Foundation, May 2017, "24 May New Report: Wind Energy Setback Policy Will Cost Ohio $4.2 Billion Unless Changed" (http://windenergyfoundation.org/2017/05/24/new-report-wind-energy-setback-policy-will-cost-ohio-4-2-billion-unless-changed/).
[19] Omaha World-Herald, AprilApr. 6, 2017, "'We want to move fast': Facebook's new data center near Papillion should be online by 2020" (http://www.omaha.com/money/we-want-to-move-fast-facebook-s-new-data-center/article_0ac9beb4-1943-11e7-8206-ef22f010baa4.html).
[20] Business sign-on letter from General Mills, GM, Nestle, P&G, Target, Unilever, and Walmart to the Missouri House of Representatives and Senate, Feb. 6, 2017 (http://www.dgardiner.com/wp-content/uploads/2017/03/2017-company-letter-on-RE-and-PPA-access-in-Missouri-feb-6.pdf).

many large Minnesota employers have also set ambitious renewable energy goals. For example:

- **3M**, headquartered in St. Paul, MN, has a goal to increase renewable energy to 25 percent of its total electricity use by 2025 from 2015 consumption levels (amounting to nearly 800,000 MWh of renewable energy added globally).[21]
- **Best Buy**, headquartered in Richfield, MN, has a goal to reduce absolute GHG emissions 45 percent by 2020, in part by sourcing renewables or offsetting up to 12 percent of their 2009 baseline.[22]
- **Cargill**, headquartered in Wayzata, MN, aims to increase renewables to 18 percent of its company energy portfolio.[23]
- **General Mills**, headquartered in Minneapolis, MN, has a goal to reduce absolute GHG emissions 28 percent by 2025 through renewable energy procurements, and reduce emissions 41 to 72 percent by 2050.[24]
- **Sprint**, which has its Great Plains Region headquarters located in Edina, MN, aims to secure 10 percent of electrical energy from renewable sources by 2017.[25]
- **Target**, headquartered in Minneapolis, MN, has a goal is to support renewable energy by increasing the number of buildings with rooftop solar panels to 500 by 2020.[26]
- **Walmart**, with retail locations across the state, is committed to sourcing 100 percent of its electricity from renewable energy and aims to produce or procure 7,000 GWh of renewable energy globally by the end of 2020.[27]

Most of the above companies are members of the Renewable Energy Buyers Alliance (REBA), a coalition that seeks to break down barriers to lower-carbon energy. REBA's goal is to see 60 gigawatts of renewable energy deployed in the US by 2025.

What is the industry expectation for access to renewable energy, and how might that represent an opportunity for Minnesota?

Minnesota policymakers and utility companies should take significant steps to meet this new corporate customer demand.

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[21] 3M, 2017, "3M 2017 Sustainability Report" (http://multimedia.3m.com/mws/media/1393020O/2017-sustainability-report.pdf)
[22] Best Buy, 2017, "Fiscal Year 2016: Corporate Responsibility & Sustainability Report" (https://corporate.bestbuy.com/wp-content/uploads/2016/06/FY16-Full-Report-FINAL.pdf).
[23] Cargill, 2017, "Momentum: 2017 Annual Sustainability Report" (https://www.cargill.com/doc/1432094802973/2017-annual-report.pdf)
[24] General Mills, 2017, "General Mills 2017 Global Sustainability Report: Our Planet" (https://globalresponsibility.generalmills.com/HTML1/general_mills-global_responsibility_2017_0037.htm?_ga=2.163073212.1045459802.1515608290-196912642.1513880450)
[25] Sprint, 2017, "Greenhouse Gas Emissions and Energy" (http://goodworks.sprint.com/planet/climate/greenhouse-gas-emissions-and-energy/)
[26] Target, 2017, "Sustainable Operations" (https://corporate.target.com/corporate-responsibility/sustainability/sustainable-operations)
[27] RE100, "Companies: Walmart" (http://there100.org/companies)

Businesses aiming to procure renewable energy are looking for markets that allow customer choice for renewable energy. This is relatively easy to do in states with deregulated electricity markets. In states with regulated markets, such as Minnesota, companies usually aim to acquire renewable electricity from their utility through a "green tariff". Alternatively, companies look to acquire renewable electricity from non-utility third party providers through Power Purchase Agreements (PPAs). The renewable energy may come from an on-site source, such as roof top solar, or off-site from a large wind or solar project.

Other policies which can affect corporate customer choice include: strong net metering requirements for onsite solar photovoltaic (PV) generation; policies/regulations that ease the interconnection of distributed generation (DG) systems to the grid; and utility fixed charges on C&I customers for DG.

Companies often prefer to acquire renewable energy from sources which are close to their facilities, which would make Minnesota, with its significant renewable resources, an attractive market. In addition, regardless of how they acquire it, companies want renewable resources which are competitively-priced and to own and retire the Renewable Energy Credits associated with them.

Many states with regulated electricity markets are already adopting policies to make renewable energy available to all customers. In Utah, for example, eBay and other large IT companies worked with policymakers and the state's largest electric utility to pass Senate Bill 12, to allow non-utility energy consumers to buy and transmit power directly from renewable energy developers.[28] The bill makes it possible for customers to purchase large-scale, offsite renewable energy. Dean Nelson, at the time eBay's Vice President, Global Foundation Services told Utah lawmakers, "Companies have been unwilling to site in Utah due to the lack of renewable energy options. This legislation could be the tipping point for these companies, attracting jobs and revenue to the state."[29]

As a direct result of this policy in Utah, eBay doubled down on its investment in the state and announced expansion plans for its existing data center facility (eBay's largest such facility). The company then installed a 655 kilowatt on-site solar array and contracted with a geothermal developer to construct a 5-megawatt off-site waste-heat recovery plant to provide electricity to its data center. In addition, the recently adopted Scheduled 34 tariff in Utah enables customers to work with developers to agree on price and term for large projects and bring such opportunities to Rocky Mountain Power.

For the top ranked states in your report, such as Iowa and Illinois, what key policy and market factors are driving this leadership?

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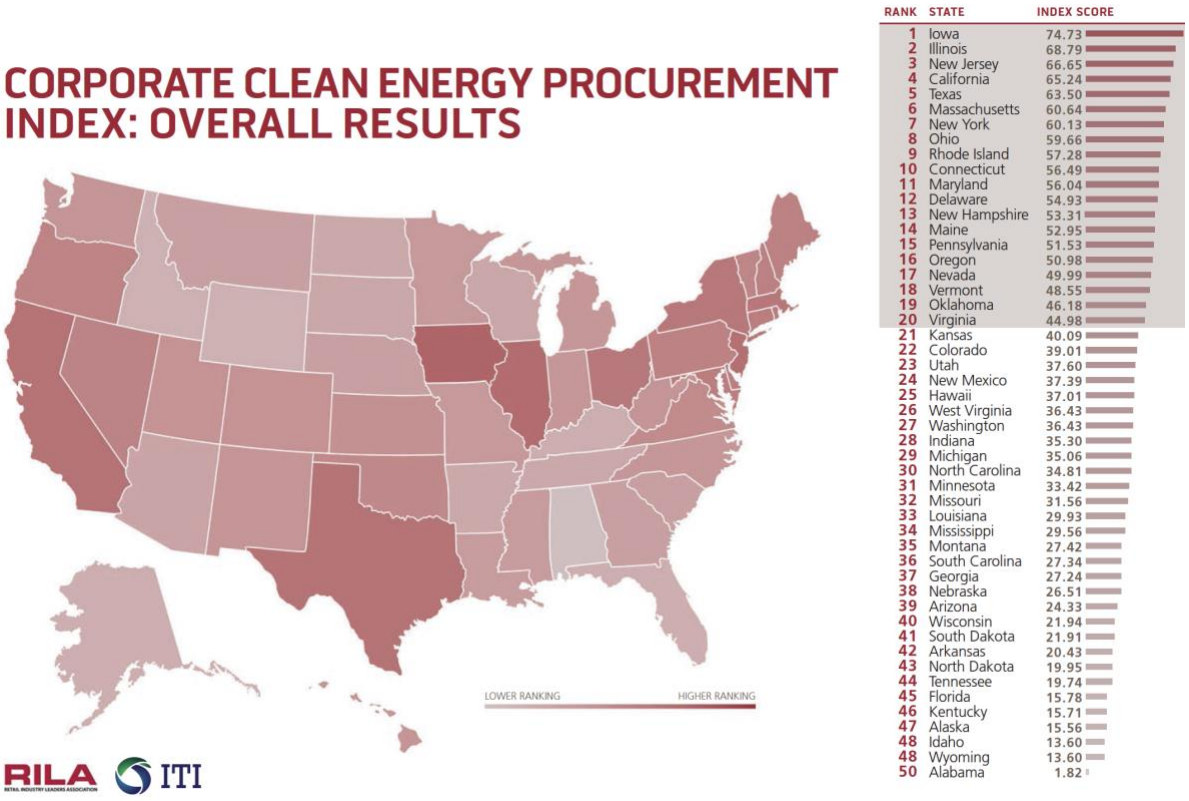
[28] eBay, Mar. 2012, "eBay's Clean Energy Leadership in Utah" (https://www.ebayinc.com/stories/news/ebays-clean-energy-leadership-in-utah/).

[29] Lubber, Mindy, Mar. 2012, "eBay and Republican Lawmaker Score Clean Energy Win In Utah" (http://www.forbes.com/sites/mindylubber/2012/03/22/ebay-and-republican-lawmaker-score-clean-energy-win-in-utah/#7e5f090246b0).

Large customers seek more options to procure renewable energy in Minnesota. The state currently falls behind many other states in terms of clean energy offerings for businesses and other large energy customers. The *Corporate Clean Energy Procurement Index: State Leadership & Rankings* report ranks Minnesota 31st nationally for the overall ease with which large customers can procure renewable energy for their operations (26th for utility-scale options; 22nd for third-party purchasing options; and 36th for onsite/direct deployment). Minnesota policymakers have an opportunity to offer greater energy choices for the many Minnesota businesses looking to procure clean energy, without adversely affecting other ratepayers.

In the Index, Iowa, Illinois, New Jersey, California, and Texas are the highest ranked states, as shown in Figure 2. Iowa ranks at number one in the Utility Purchasing category (which considers opportunities available to procure renewable energy through utilities in the state) and number 10 in Third-Party Purchasing (which considers how readily companies can procure renewable energy through third-party, non-utility developers). Offsite deployment is a big strength as well. Iowa joins Oklahoma, Virginia, and North Carolina as the only states with measurable deployment via both green tariffs/direct utility purchases and offsite power purchase agreements (PPAs). New Jersey, California, and Texas are all national leaders in corporate renewable energy deployment: New Jersey in onsite solar, Texas in offsite PPAs, and California in both.

Figure 2. Corporate Clean Energy Procurement Index: State Leadership & Rankings



RANK	STATE	INDEX SCORE
1	Iowa	74.73
2	Illinois	68.79
3	New Jersey	66.65
4	California	65.24
5	Texas	63.50
6	Massachusetts	60.64
7	New York	60.13
8	Ohio	59.66
9	Rhode Island	57.28
10	Connecticut	56.49
11	Maryland	56.04
12	Delaware	54.93
13	New Hampshire	53.31
14	Maine	52.95
15	Pennsylvania	51.53
16	Oregon	50.98
17	Nevada	49.99
18	Vermont	48.55
19	Oklahoma	46.18
20	Virginia	44.98
21	Kansas	40.09
22	Colorado	39.01
23	Utah	37.60
24	New Mexico	37.39
25	Hawaii	37.01
26	West Virginia	36.43
27	Washington	36.43
28	Indiana	35.30
29	Michigan	35.06
30	North Carolina	34.81
31	Minnesota	33.42
32	Missouri	31.56
33	Louisiana	29.93
34	Mississippi	29.56
35	Montana	27.42
36	South Carolina	27.34
37	Georgia	27.24
38	Nebraska	26.51
39	Arizona	24.33
40	Wisconsin	21.94
41	South Dakota	21.91
42	Arkansas	20.43
43	North Dakota	19.95
44	Tennessee	19.74
45	Florida	15.78
46	Kentucky	15.71
47	Alaska	15.56
48	Idaho	13.60
48	Wyoming	13.60
50	Alabama	1.82

In Minnesota, large customers should be enabled to invest in, buy, or build wholesale energy from new renewable energy projects in the state. Such efforts should seek to enable:

1. A cost-competitive utility green tariff program that works for the diverse business community in Minnesota. To meet the needs of business and other large energy users, the underlying goal of the program should be to provide all large customers with easy access to cost-effective renewable energy with low transaction costs, without affecting other ratepayers. Such a utility green tariff should:

- Pass on to participating businesses the **long-term price stability** that renewable energy investments can provide, over the volatility of fossil fuel prices.
- **Reflect the actual cost of service to** participate based on a fair accounting of costs and benefits, rather than charging a set premium.
- **Be sourced through a competitive process** to meet customer demand, whether sourced directly by the customer or by the utility.
- **Allow meter aggregation** to enable retailers and other end users with multiple locations to participate; this will ensure the program meets the needs of a wide range of corporate customers.
- **Lead to additional renewable energy deployment**, and not simply assign renewable energy credits (RECs) or use currently installed systems to meet demand.

These elements will ensure a Minnesota utility green tariff program will meet the needs of businesses that are seeking affordable options to purchase renewable energy. These green tariff programs, such as Xcel Energy's Renewable*Connect program, offer customers greater choice in procurement options, opportunities to work with utilities and regulators to expand choices for buying more renewable energy, increased access to third-party financing vehicles, and longer- and variable-term contracts.[30] However, high green tariff prices prohibit many companies from participating in these programs. Minnesota has an opportunity to improve on these examples.

2. More choices for companies to access renewable energy on-site through third-party options, including Power Purchase Agreements (PPAs) and third-party leasing/third-party sales. Opening up the electricity market for corporate buyers – and others – to purchase renewable energy would provide more cost-effective clean energy options and would help companies contribute to an even more robust local economy. PPAs or third-party leasing allow companies to procure renewable energy without major up-front capital expenditures or taking on risks of owning and operating a power generation system. Choice and competition in the renewable energy sector is as important as it is in the many other aspects of business. Many states allow for third-party PPAs, including regulated states such as Nevada, Utah, and Arizona.

The availability of customer choice is a critical factor for a state's attractiveness to corporate and other large institutional buyers of renewable energy. States that wish to gain the job creation and economic development benefits of corporate renewable energy-powered facilities should enable customer choice.

Overall, we emphasize that the establishment of free markets and consumer choice is key to renewable energy deployment. Minnesota should consider policies to enable this growing sector by allowing any electric customer to purchase electricity directly from a renewable energy supplier. Such policies would make it easier for large customers to have greater choice in their options to procure cost-effective renewable energy.

[30] WWF and World Resources Institute, accessed Jun. 26, 2017, "U.S. Renewable Energy Map: A Guide for Corporate Buyers" (http://buyersprinciples.org/corporate-re-strategy-map/).