



2020 NEBRASKA POWER ASSOCIATION LOAD AND CAPABILITY REPORT

August 2020

2020 Nebraska Power Association Load and Capability Report

Executive Summary

In summary, based on existing and committed resources, the statewide deficit occurs in 2026 for the Minimum Obligation as shown in Exhibit 1. The statewide deficit for the Minimum Obligation in the 2019 report showed a State deficit occurring in 2029. Exhibit 2 is the corresponding load and capability data in tabular format. The deficit year changes due to a combination of slightly higher system demand, lower generating capability and lower firm capacity purchases. The Minimum Obligation, with Planned and Studied resources included, is satisfied in all years as shown in Exhibit 3. The 2039 surplus of 595 MW in this study is actually 114 MW higher than what was shown in the 2019 study; a 2038 end year amount of 481 MW. This is mostly due to increased net generating capability. The “Minimum Obligation” line is the statewide obligation based on the 50/50 forecast (normal weather) and the minimum 12% reserve margin of the Southwest Power Pool (SPP) Reserve Sharing Pool.

Introduction

This report is the Nebraska Power Association (NPA) annual load and capability report, as per Item 3 in the statute below. It provides the sum of Nebraska’s utilities’ peak demand forecasts and resources over a 20-year period (2020-2039).

State Statute (70-1025) Requirement

70-1025. Power supply plan; contents; filing; annual report.(1) The representative organization shall file with the board a coordinated long-range power supply plan containing the following information:(a) The identification of all electric generation plants operating or authorized for construction within the state that have a rated capacity of at least twenty-five thousand kilowatts;(b) The identification of all transmission lines located or authorized for construction within the state that have a rated capacity of at least two hundred thirty kilovolts; and(c) The identification of all additional planned electric generation and transmission requirements needed to serve estimated power supply demands within the state for a period of twenty years.(2) Beginning in 1986, the representative organization shall file with the board the coordinated long-range power supply plan specified in subsection (1) of this section, and the board shall determine the date on which such report is to be filed, except that such report shall not be required to be filed more often than biennially.(3) An annual load and capability report shall be filed with the board by the representative organization. The report shall include statewide utility load forecasts and the resources available to satisfy the loads over a twenty-year period. The annual load and capability report shall be filed on dates specified by the board. Source Laws 1981, LB 302, § 3; Laws 1986, LB 948, § 1.

Demand and Capacity Expectations

Peak Demand Forecast

The current combined statewide forecast of non-coincident peak demand is derived by summing the demand forecasts for each individual utility. Each utility supplied a peak demand forecast and a load and capability table based on the loads having a 50/50 probability of being higher or lower. Over the twenty-year period of 2020 through 2039, the average annual compounded peak demand growth rate for the State is projected at 0.6% per year (individual utilities range from -0.1%/yr to 1.4%/yr). The escalation rate that was shown in last year's report for 2019 through 2038 was 0.7%.

Planning Reserve Margin Requirement/Reserve Sharing Pool

In addition to the load requirements of the State's customers, the state utilities must also maintain reserves above their peak demand forecast ("Minimum Obligation"). This is a reserve requirement of the SPP Reserve Sharing Pool. All SPP Reserve Sharing members must maintain the specified reserve requirement in order to assist each other in the case of emergencies such as unit outages. The reserve requirement of the pool is reduced by having a reserve sharing pool, instead of individual utilities carrying the entirety of their own reserves to protect them from the loss of their largest unit on their system. The 2020 NPA L&C Report utilizes the SPP planning reserve margin of 12% for the 20-year period.

The capacity required to meet the SPP planning reserve margin is a significant resource capability over and above the Nebraska load requirement. This amount of capacity equates to 724 MW in 2020 and 825 MW by 2039.

Resources

Existing/Committed

The State has an "Existing" in-service summer creditable generating resource capability of 7,607 MW. This is up from 7,564 MW shown in the previous 2019 report. The changes were mostly increases in wind accreditation and accrediting OPPD's 55.4 MW Sarpy County #1 along with the addition of OPPD's Sholes Wind Farm. There are 50 MW of "Committed" nameplate resources included in this report (the projects have Nebraska Power Review Board approval if required – PURPA qualifying and non-utility renewable projects do not need NPRB approval). This consists of 50 MW from Grand Island's Prairie Hills Wind Farm to be completed in 2020. South Sioux City's 4.8 MW natural gas generating plant, which may become commercial this summer of 2020, is included as "Existing". There is an additional 18.5 MW of committed renewable behind the meter generation (BTM) to be added between 2020 and 2022. This includes the "Committed" 1.0 MW Norfolk Battery Energy Storage System scheduled to be on-line in 2021.

Planned

“Planned” resources are units that utilities have authorized expenditures for engineering analysis, an architect/engineer, or permitting, but do not have NPRB approval - if that approval is required. OPPD has 400 MW of accredited renewable (solar) resources planned along with 600 MW of conventional resources.

Studied

Resources identified as “Studied” for this report provide a perspective of future resource requirements beyond existing, committed and planned resources. For any future years when existing, committed, and planned resources would not meet a utility’s Minimum Obligation, each utility establishes studied resources in a quantity to meet this deficit gap. These Studied resources are identified based on renewable, base load, intermediate, peaking, and unspecified resources considering current and future needs. The result is a listing of the preferable mix of renewable, base load, intermediate, peaking and unspecified resources for each year. The summation of studied resources will provide the basis for the NPRB and the state utilities to understand the forecasted future need by year and by resource type. This can be used as a joint planning document and a tool for coordinated, long-range power supply planning.

There are 75 MW of “Studied” resources that include 0 MW of nameplate renewable (solar) resources, 25 MW of base load capacity, 0 MW of intermediate capacity, 0 MW of peaking resources and 50 MW of unspecified capacity by 2039.

Committed/Planned/Studied Exhibits

Exhibit 3 shows the statewide load and capability chart considering 7,607 MW of Existing, 50 MW of Committed (nameplate), 1000 MW Planned, and 75 MW of Studied resources. Some existing wind renewables are currently shown at “zero” accredited capability due to the small accreditation values allowable under SPP’s Criteria (explained in next section). Exhibit 4 is the corresponding load and capability table. As intended, these exhibits show how the Minimum Obligation can be met with the addition of the studied resources.

The Committed, Planned, and Studied accredited capability resources are summarized in Exhibit 5, (which includes BTM). Exhibit 6 summarizes the Existing, Committed, Planned, and Studied renewable resources and also includes BTM resources in the tabulation.

Non-Utility Resources

Non-utility wind purchases have also accelerated and are summarized as follows. This information is gathered from publicly available industry publications and newspapers. These projects also do not represent retail choice, as they are not directly attributed to serving retail customers within the state. The 318 MW (nameplate rated) Rattlesnake Creek wind facility began commercial operation in December 2018 and energy from this facility will be purchased by Facebook and Adobe Systems. Facebook is procuring

energy from Rattlesnake Creek for their data facility in Sarpy County. The WEC Energy Group (an electric generation and distribution and natural gas delivery holding company), based in Milwaukee, Wisconsin, signed a Purchase and Sale Agreement for 80% of the Upstream Wind Energy Center (202.5 MW nameplate) located just north of the City of Neligh. Invenergy, the developer, has retained a 20% interest in the project which went commercial in the first part of 2019. Both the J.M. Smucker Company and Vail Resorts have Power Purchase Agreements in place to purchase energy from the 230 MW (nameplate) Plum Creek Wind Project in Wayne County which just went commercial in July 2020. Smucker's purchase is for 60 MW while Vail Resorts will purchase 310,000 MWh annually for 12 years. Hormel Foods has announced a Power Purchase Agreement for wind energy from a new wind farm near Milligan (Milligan 3), located in Saline County 60 miles southwest of Lincoln. This project is also expected to be completed in 2020. The wind farm will be capable of 74 MW (nameplate) of power. There are also reports of a 300 MW Thunderhead Energy Center that is being built in Antelope and Wheeler counties with a completion date of the end of 2020. This wind facility is being built by Invenergy with AT&T reportedly taking all of the energy from it.

Non-Carbon, Renewable and Demand Side Resources

The State has 2,188 MW of commercially operating renewable nameplate resources for the peak of 2020, of which 70 MW are behind the utility meter (not net metered) as shown in Exhibit 6. There is also 114 MW of instate hydro for Nebraska use not included in this total. These amounts do not include any wind which may be installed by developers in Nebraska for export to load outside the state. Wind with its intermittency is relied upon by Nebraska utilities for only a small percentage of its full nameplate rating to meet peak load conditions. Correspondingly, for wind and solar the SPP has criteria to determine this specific creditable capacity percentage. The criteria are based on actual performance of solar and wind facilities and how successfully they produce energy during actual utility peak load hours. The rating is determined by following SPP's criteria to calculate the accredited rating for the facility. The accredited rating based on actual performance generally requires a minimum of 3 years' history. SPP criteria allows for a 5% accreditation rating for new wind installations with less than 3 years history and 10% for solar. SPP's Supply Adequacy Working Group is currently pursuing implementation of an effective load carrying capability (ELCC) method of determining wind, solar and storage accreditation which would replace the currently used criteria. The method is scheduled to go into effect for the summer of 2023. The ELCC is a probabilistic based accreditation reflecting an intermittent resource's ability to reliably serve load. The existing accreditation method produces a resulting accreditation which is independent of overall penetration of that type of resource in the SPP footprint. Contrarily, the ELCC is affected by overall penetration level of the resource in a footprint, and the general principle is that as overall penetration grows, the accreditation benefit on a percent of nameplate goes down. During the years before 2023, SPP will provide ELCC accreditation levels on an annual basis to provide SPP members/stakeholders with an indication of the magnitude of percentage accreditation in anticipation of actual implementation for the summer of 2023. Even with low accredited capacity ratings, wind and solar generation

renewable resources are desirable for being emission-free and having a zero fuel cost. Nebraska utilities are adding renewables to take advantage of these attributes.

In order to preserve an additional amount of certainty in the accreditation benefit which Load Responsible Entities (LRE) expect to receive from wind and solar resources, the SPP ELCC methodology allows for a priority tier under the ELCC study. The tier is based on the nameplate of the wind or solar portfolio as a percent of a LRE's recent historical peak load. The tier is 35% for wind and 20% for solar resources that have firm transmission service. This means as LREs across SPP continue to add wind and solar, they know their renewable accreditation for resources within these percentages will be diminished only up to a point. As an individual LRE may choose to add renewables beyond 35 and 20 percent, then those renewables will be included in a larger ELCC renewable tier and be subject to further diminishing ELCC accreditation on renewables. The SAWG is also implementing ELCC accreditation for storage resources which also receive diminished accreditation as the penetration of storage increases.

Demand side resources are loads that can be reduced, shifted, turned-off or taken off the grid with the goal of lowering the overall load utilities have to serve. Ideally this load is best reduced to correspond to utilities' peak load hours. The advantage for utilities is the demand reduction will reduce the need for adding accredited generation in current or future years.

Exhibit 6.1 shows the Statewide Renewable Generation by Nameplate. Exhibit 7.1 shows the Statewide Renewable and Greenhouse Gas Mitigating Resources.

Included below are summaries of the utilities in regard to their renewable and/or sustainable goals and demand side programs.

NPPD

NPPD owns or has agreements with these non-carbon resources:

- 558 MW of hydroelectric generation, including the Western Area Power Administration agreement.
- 770 MW of nuclear power at Cooper Nuclear Station.
- 320 MW of nameplate wind (NPPD's share).
- Monolith Materials has neared completion on Phase 1 of its Olive Creek Facility by Sheldon Station. This facility will produce carbon black. NPPD plans to convert the Unit 2 boiler to burn hydrogen rich tail gas after Monolith completes Phase 2 of its facility. The Monolith Materials load and the Unit 2 conversion will be included in the reporting after successful completion of Phase 1.

For 2019, non-carbon generation resources were approximately 68% of NPPD's Native Load Energy Sales from the resources discussed above. Most of the non-carbon generation is due to nuclear, and 2019 was a non-refueling year.

NPPD's Demand Side Management program consists of Demand Response and Energy Efficiency. NPPD presently has a successful demand response program, called the Demand Waiver Program, to reduce summer billable peaks. The majority of savings in this program are due to irrigation load control by various wholesale customers, which accounted for approximately 641 MW of demand reduction from NPPD's billable peak during the summer of 2017. Due to timely precipitation, 260 MW of demand was reduced in 2019. Another 4 MW of demand reduction was realized from other sources.

NPPD implemented an interruptible rate, Special Power Product #8, allowing qualified large end-use customers (served by wholesale or retail) to curtail demand during NPPD specified periods.

NPPD has a series of energy efficiency and demand-side management initiatives under the EnergyWiseSM name. Annually, these programs have sought to achieve a first year savings of more than 12,000 MWh and demand reductions greater than 2 MW. Accumulated first year energy savings through 2019 are 323,900 MWh and demand reductions are 53 MW.

OPPD

OPPD values a diverse resource mix as a means of achieving its mission of providing affordable, reliable, and environmentally sensitive energy services to its customers. In November of 2019 OPPD's Board of Directors adopted a goal in its Strategic Directives of achieving net zero carbon production by 2050. In alignment with this goal, and balanced with its mission, OPPD is continuing in 2020 to study the addition of both conventional natural gas and solar generation resources to its portfolio to meet its future load growth.

At the close of 2019 OPPD met 30.9% of retail customer electrical energy sales with wind energy, energy from landfill gas and hydro energy. OPPD's renewable portfolio at 2019 year-end consisted of 971.7 MW of wind by nameplate, 5 MW of nameplate solar, 6.3 MW of landfill gas generation as well as purchased hydro power.

The Sholes wind facility located in Wayne County, Nebraska commenced commercial operation in November 2019. The Community Solar Facility located in Washington County, Nebraska began supplying energy to OPPD in December of 2019. With 976.7 MW of wind and solar in OPPD's portfolio at the beginning of 2020, OPPD is continuing to study options for inclusion of utility scale solar into its portfolio in coming years.

OPPD's demand side resource programs can achieve over 100 MW of peak load reduction ability as of the summer of 2019. Existing programs consist of a customer air conditioner management program, thermostat control, lighting incentive programs, and various innovative energy efficiency projects. Additionally, OPPD can reduce its demand with assistance from a number of large customers who utilize OPPD's curtailable rate options. During summer peak days, any demand reductions from these customers are coordinated with OPPD in advance of the peak afternoon hours.

Demand side resource programs have enjoyed the support of OPPD stakeholders. OPPD will continue to grow its demand side programs in the next 10 years. Benefits of this increase in demand side programs include helping OPPD to maintain its SPP reserve requirements. To grow its demand side resource portfolio, OPPD will increase existing programs and promote additional program types. OPPD will build its demand side resource portfolio in manners which are cost effective and take into account customer expectations.

OPPD makes available a net-metering rate to all consumers that have a qualified generator. The qualified generator must be interconnected behind the consumer's service meter located on their premises and may consist of one or more sources as long as the aggregate nameplate capacity of all generators is 25 kW or less. The qualified generator must use as its energy source methane, wind, solar, biomass, hydropower or geothermal.

MEAN

In January 2020, the MEAN Board of Directors approved a resolution establishing MEAN's 2050 Vision, with a goal of achieving a carbon neutral resource portfolio by the year 2050. MEAN's 2022 Integrated Resource Plan will form the initial direction for future actions and resource decisions to realize the 2050 Vision. Following the IRP's direction, MEAN staff will work in collaboration with Participants to construct policies around resource planning, portfolio optimization, and emissions reduction to achieve the 2050 carbon neutral goal.

The results of MEAN's previous IRP analysis and modeling favored a plan that would meet future MEAN capacity and energy needs by incorporating additional renewable resources into the portfolio. Renewable resource portfolios offered comparatively low costs in several scenarios as well as the potential to create local benefits for MEAN communities.

In serving the needs of its total membership, MEAN's system-wide resource portfolio includes 51% non-carbon resources on the basis of nameplate capacity, consisting of 32% WAPA hydro allocations, 14% renewables (wind, small hydro, and landfill gas), and 5% nuclear.

As a member driven and member owned utility, MEAN procures renewable energy assets at the direction of its owners. Currently, MEAN maintains a wind pool, which allows member communities to subscribe for purchase of a requested amount of wind energy on an annual basis. This allows each community to tailor its resource portfolio to meet its specific demands and obligations as individual municipal utilities have renewable goals that can range from 0% to 100% of energy requirements. MEAN annually surveys its owners to determine individual goals for renewable energy requirements. When there are significant changes in demand for renewable energy, the MEAN Board considers the approval of new renewable purchases. MEAN's wind pool is currently fully subscribed, and the Board is considering the need for additional wind energy.

In 2018, MEAN finalized the latest addition to its renewable energy portfolio. While MEAN's 10.5 MW wind project near Kimball, NE was decommissioned in 2017, a new 30 MW wind farm was constructed at the same Kimball site. MEAN has entered into a PPA to purchase the entirety of the energy generation of the wind farm.

MEAN recently explored community solar garden installations to satisfy community demands for localized green non-carbon initiatives. Based on the results of a 2018 survey soliciting the level of interest in locally-owned solar facilities, MEAN staff contacted Participants to further discussions and determined six communities ready to proceed toward solar procurement. MEAN facilitated a joint RFP for more advantageous pricing. Due to the resulting bid prices and economic climate in the Participant communities, none of the interested parties have decided to move forward with the purchase. MEAN remains responsive to opportunities for utility-scale or community-scale solar projects in the best interest of the membership.

MEAN previously established a committee to focus on the integration of renewable resources within member communities. The increasing presence of renewable distributed generation offers unique opportunities that can benefit both MEAN and local residents. In 2017 and again in 2019, MEAN revised its Renewable Distributed Generation policy to increase the size of allowable community owned and locally-sited renewable energy resources. Should Participant communities desire a larger allowance for community-owned renewables, the Board can take up the issue for an increase in this limitation.

MEAN has utilized a variety of demand side management tools to help reduce load and energy requirements. MEAN presently administers an ENERGYsmart commercial LED lighting program, which includes cash incentives paid directly to commercial customers to help cover the cost of lighting upgrades and replacements. This program is available to commercial businesses of MEAN long-term power participants. In 2019, MEAN initiated additional energy efficiency incentives offered to residential end-use customers of its Participants. These new programs include rebates for programmable thermostats, residential insulation, and HVAC tune-ups.

LES

The LES Administrative Board adopted a five-year sustainability target in late 2011, seeking to meet LES' projected demand growth with renewable generation and demand-side management programs. The five-year projected demand growth is derived from LES' annual long-range load forecasts.

Based on the 2019 forecast, the projected total demand growth through 2024 is 43 MW. LES has 97 MW of sustainable generation and demand reduction resources planned through the end of the current five-year target period. Future projects include the continuation of LES' demand-side management portfolio, the Sustainable Energy Program (SEP), and LES' Peak Rewards, a smart thermostat demand response program.

Under the Peak Rewards program, LES leverages residential customers' own smart thermostats to pre-cool spaces prior to the initiation of an LES controlled event, allowing for a reduction in summer peak demand while still maintaining residential comfort.

LES has two programs that support customers wishing to pursue their own renewable generation. Under LES' net-metering rate rider, customers can install a 25-kW or smaller renewable generator to serve their homes or small businesses. LES also has a renewable generation rate for customers interested in generating and selling all output to the utility rather than serving a home or small business. Systems greater than 25 kW up to 100 kW will qualify for this rate. In addition, customers under each rate will also receive a one-time capacity payment based on the value of the avoided generating capacity on system peak.

The energy payment amount for new installations is based on LES' existing retail rates and is scheduled to be reduced as predetermined, total service area renewable-installation thresholds are met over time. In early 2017, LES reached this first milestone, with applications exceeding 1 MW.

In August 2014, LES launched the SunShares program, allowing customers to voluntarily support a local community solar project through their monthly bill. This program led to LES contracting for a local, approximately 5-MW_{DC}/4-MW_{AC} solar facility, which began commercial operation in June 2016. The facility represents the first utility-scale solar project in Nebraska and is still one of the largest projects in the region.

The community solar project also supports LES' virtual net metering program. As part of this program, customers receive a credit on their monthly bill based on their level of enrollment and the actual output of the facility. Enrollment began in December 2016, with the first credits appearing on bills in January 2017. The enrollment fee was originally a one-time, upfront payment, but in 2019 LES also added the option for customers to pay the associated fee over 36 months via their normal LES bill. The program will run for nearly 20 years, coinciding with the life of the solar project contract.

On a nameplate basis, approximately one-third of LES' resources are fueled by coal, one-third fueled from natural gas, and one-third are renewables (primarily wind and hydro). LES believes this diversity and balance in its resource portfolio are beneficial as they may provide a hedge against future environmental regulations and volatility in fuel prices. In 2019, energy production from renewable sources was equivalent to 46 percent of LES' retail sales.

Hastings Utilities

Hastings Utilities has no formal renewable energy goals but will monitor the economics and interest of renewable energy. Hastings Utilities will work with customers who are interested in pursuing renewable energy to find mutual benefit for a successful project. Hastings Utilities worked with its customer, Central Community College, to implement a 1.7 MW wind turbine on the Hastings CCC campus.

Hastings Utilities has completed the construction of a 1.5 MW Community Solar Project to respond to customer requests for renewable energy. Customers can participate by purchase of solar panels or solar shares. The project was completed in September of 2019. Hastings Utilities is conducting an Integrated Resource Plan (IRP) study of current and future resources of generation.

City of Grand Island Utilities

Grand Island does not have any formal renewable/sustainable goals. The Grand Island City Council has directed the Utilities Department to explore opportunities as they develop. In 2017, Grand Island Utilities signed a Power Purchase Agreement with Sempra for 50 MW of Prairie Hills Wind Farm in Custer County, NE. This wind farm is currently awaiting the completion of the SPP interconnection study. It is expected to be online within a couple of years.

Grand Island Utilities approved its first small scale residential solar installation in 2015. Changes were made to City Code to accommodate demand side resources with an expectation that more resources will follow. Since then, several smaller scale residential solar generators have been installed. Additional changes to City Code have been made to allow larger renewable generation facilities between 25 KW and 100 KW. One facility in this category is anticipated by the end of 2020.

In 2017, Grand Island Utilities signed a Power Purchase Agreement for a 1 MW behind the meter solar installation with Sol Systems. This facility went into service in 2018.

City of Fremont Utilities

Fremont currently operates two solar arrays, which offers residents two options on the project. Electric customers can either purchase their own solar panels or purchase solar shares from the Community Solar Farm. Solar array #1 is 1.32 MW and solar array #2 is 0.99 MW. Fremont also has a Purchase Power Agreement with NextEra for 40.89 MW of wind energy from the Cottonwood Wind Farm in Webster County, NE.

SPP Generator Interconnection Queue

The SPP Generator Interconnection Queue process provides a means for planners and developers to submit new generation interconnection projects into the Queue for validation, study, analysis and, ultimately, execution of a Generator Interconnection Agreement.

A listing of the projects in the Queue from May of this year for Nebraska shows around 1,100 nameplate megawatts for battery storage, 4,500 MW of solar and 9,500 MW of wind. For reference, there is at this time approximately 2,400 MW of nameplate wind installed in the State. Many or most of these proposed projects listed in the SPP Queue will not get built.

Distributed Generation

Distributed generation is providing wholesale and retail power suppliers numerous new opportunities to interface with customers. Power purchase agreements with smaller wind developers are available to retail power suppliers in the magnitude of 1.5 to 10 MW. This is occurring due to agreements between the wholesale power suppliers and the retail power suppliers. These agreements allow for a portion of the retail power supplier's energy requirements to come from private renewable energy developers that are located behind the wholesale power supplier's meter.

Next, with the decline in the cost of solar installations, the continuation of tax benefits and net metering rates, retail customers are installing small scale solar arrays. As these installations prove more cost effective and with the development of small energy storage more of these installations are being constructed. These installations are being installed in both rural and residential applications. Also, larger solar array installations that are not eligible for net metering rates are being considered and installed. Many of these arrays are community solar projects. Lincoln Electric System contracted with a developer to install a 5 MW_{DC} (4 MW_{AC}) array where individuals can purchase shares. NPPD has retail communities with operating community solar facilities ranging in size from 100 kW to 5.7 MW. Other NPPD retail communities are interested in developing community solar array installations in sizes up to 8.5 MW_{AC}. OPPD has a community solar facility sized at 5 MW. OPPD's customers have already subscribed to the full production of this facility. Therefore, more private involvement with local utilities is providing additional opportunities to increase the utilization of renewable energy.

In addition, an NPPD retail community also has plans to tie a 1 MW / 2 MWh Battery Energy Storage System (BESS) to a community solar project. The BESS will be charged through generation provided by the solar unit and discharged daily to accomplish several goals, such as demand management, voltage support, and smoothing and shifting variable renewable energy generation. The BESS unit will store approximately the amount of electricity that a small home would use over the course of two months.

Exhibit 6 lists all of the Nebraska renewable resources, with two columns identifying whether the resource is "Behind the Meter – Utility" or "Behind the Meter – Non Utility". Behind the Meter – Utility resources are those who have a signed Power Purchase contract or are owned by the utility. Exhibit 6A shows just Behind the Meter renewable resources, again classified between utility and non-utility.

Resource Life Considerations

The Nuclear Regulatory Commission (NRC) determined in August 2014 that a new rule making was not required and confirmed that existing license renewals, where granted, provided a robust framework for second license renewals beyond the initial 20-year renewal term. In addition, no changes are needed to environmental regulations to allow for future license renewal activities.

Cooper Nuclear Station's (CNS) operating license is set to expire January 18, 2034. Although NPPD has not fully studied a second operating license renewal, for purposes of this report, it is assumed CNS will continue to operate through 2039.

NPPD's listed North Platte and Columbus hydro facilities operate under a Federal Energy Regulatory Commission license. The North Platte facility is presently operating under a 40-year license, with the license requiring renewal in 2038. The Columbus Hydro facility received a new 30-year operating license, with the license requiring renewal in 2047. Given the focus on carbon free generation resources NPPD and Loup are assuming these facilities will continue to be maintained and licensed and will remain an essential part of NPPD's generation mix for an extended period of time.

The wind farms included in this report are shown at the life listed in the various power purchase agreements (PPA), usually 20 or 25 years. Most agreements have an option for life extension. Utilities will decide whether to exercise those options when the PPAs near their end. In order for those utilities to maintain their renewable goals these utilities will have to either exercise those options or develop other renewable resources.

Nebraska's existing generator capability resources are listed by unit in Exhibit 7. Nebraska has 7,607 MW of existing resources. 1,137 MW or 15% of that total are greater than 50 years old today. Another 2,681 MW or 35% are 41 to 50 years old today. Most of these units have no planned retirement date. By 2039 approximately 3,818 MW will reach 60 years of age in this 20-year study.

Although Nebraska has sufficient generating resources when including studied resources beyond 2039 as shown in Exhibits 3 & 4, utilities may face increased environmental restrictions that could require the retirement of older fossil units. This could advance the statewide need date several years earlier.

For illustration purposes only, if a 60-year in-service life for fossil units is arbitrarily chosen the state would show a deficit in 2022, while a 70-year life of plant would show a state deficit in 2026. This example is considered conservative since fossil units are capable of operating for more than 70 years. Each utility will make their own determination on the life of their generating plants taking into account many factors, including economics. At this time, there are no plans to retire these older units unless stated in the report.

EXHIBIT 1

Statewide Capability vs. Obligation

Committed Resources (Includes Purchases and Sales)

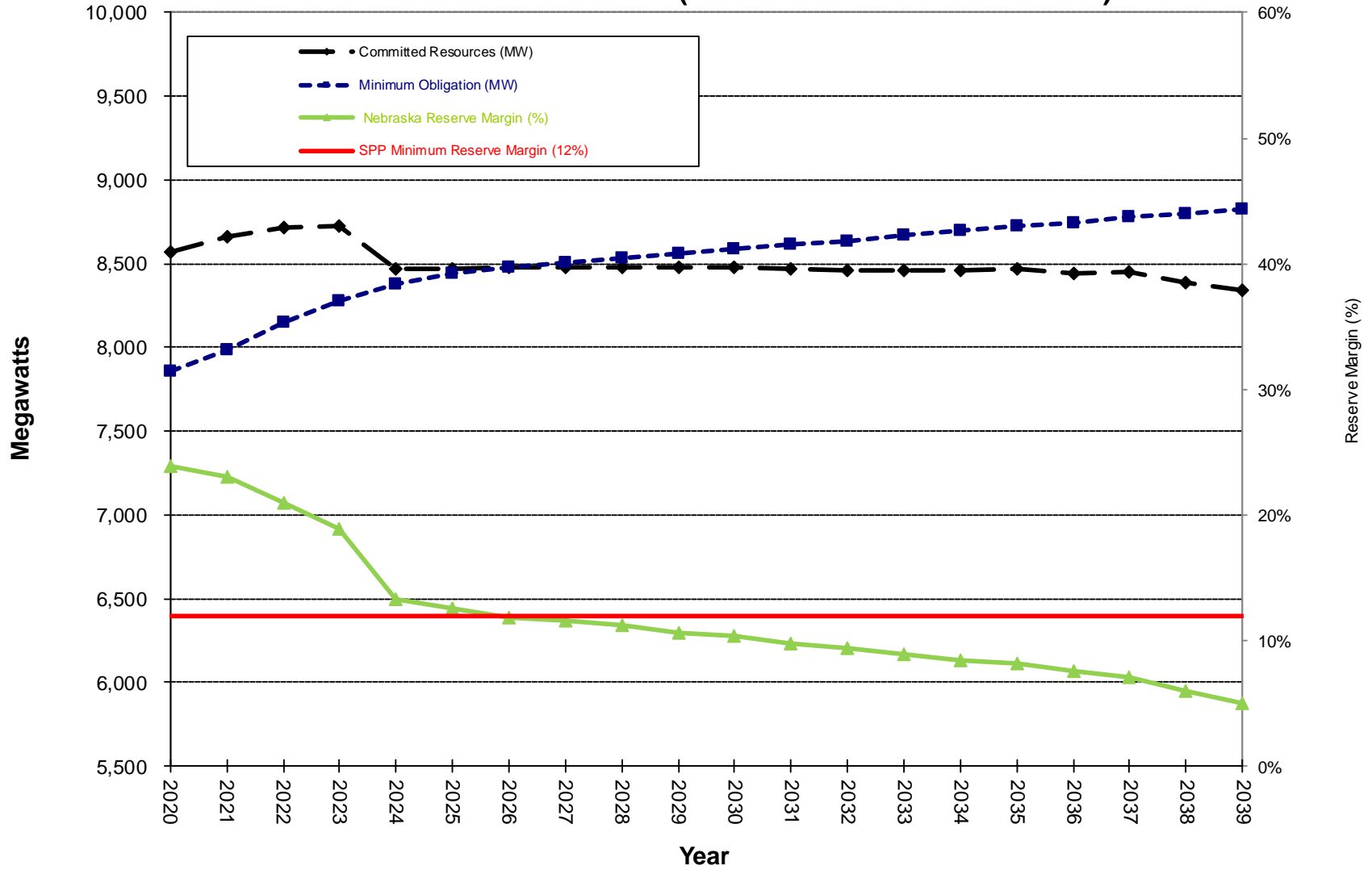


EXHIBIT 2
NEBRASKA STATEWIDE
Committed Load & Generating Capability in Megawatts
Summer Conditions (June 1 to September 30)

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	
1 Annual System Demand	7,129	7,248	7,391	7,512	7,602	7,652	7,692	7,712	7,734	7,766	7,789	7,815	7,829	7,861	7,890	7,912	7,930	7,960	7,979	8,002	0.6%
2 Firm Power Purchases - Total	1,201	1,190	1,179	1,174	1,176	1,178	1,180	1,182	1,184	1,186	1,188	1,190	1,192	1,193	1,195	1,197	1,199	1,201	1,203	1,205	
3 Firm Power Sales - Total	108	93	75	76	76	76	76	75	76	76	76	76	75	75	76	76	76	76	76	76	76
4 Annual Net Peak Demand (1-2+3)	6,037	6,151	6,287	6,413	6,501	6,550	6,588	6,605	6,625	6,656	6,676	6,701	6,713	6,743	6,770	6,791	6,807	6,835	6,852	6,873	
5 Net Generating Capability (owned)	7,607	7,648	7,647	7,647	7,297	7,297	7,295	7,295	7,295	7,290	7,290	7,278	7,266	7,265	7,265	7,265	7,244	7,244	7,184	7,123	
6 Firm Capacity Purchases -Total	994	1,066	891	893	928	821	820	816	816	812	812	809	805	803	804	805	805	805	805	805	814
7 Firm Capacity Sales -Total	1,120	1,148	928	917	858	747	745	741	741	736	736	733	727	726	726	726	726	726	726	726	719
8 Adjusted Net Capability (5+6-7)	7,481	7,567	7,609	7,623	7,367	7,371	7,370	7,370	7,370	7,366	7,366	7,355	7,344	7,343	7,343	7,344	7,323	7,323	7,263	7,218	
9 Net Reserve Capacity Obligation (4 x 0.12)	724	738	754	770	780	786	791	793	795	799	801	804	806	809	812	815	817	820	822	825	
10 Total Firm Capacity Obligation (4+9)	6,761	6,889	7,041	7,183	7,281	7,336	7,379	7,398	7,420	7,455	7,477	7,505	7,519	7,552	7,582	7,606	7,624	7,655	7,674	7,698	
11 Surplus or Deficit (-) Capacity @ Minimum Obligation (8-10)	720	678	568	440	86	35	-9	-28	-50	-89	-111	-150	-175	-209	-239	-262	-301	-332	-411	-480	
12 Nebraska Reserve Margin ((8-4)/4)	23.9%	23.0%	21.0%	18.9%	13.3%	12.5%	11.9%	11.6%	11.2%	10.7%	10.3%	9.8%	9.4%	8.9%	8.5%	8.1%	7.6%	7.1%	6.0%	5.0%	
13 Nebraska Capacity Margin ((8-4)/8)	19.3%	18.7%	17.4%	15.9%	11.8%	11.1%	10.6%	10.4%	10.1%	9.6%	9.4%	8.9%	8.6%	8.2%	7.8%	7.5%	7.0%	6.7%	5.7%	4.8%	
Committed Resources (MW) (8+2-3)	8,573	8,664	8,713	8,721	8,468	8,473	8,474	8,477	8,479	8,476	8,478	8,469	8,461	8,461	8,462	8,465	8,446	8,448	8,390	8,346	
Minimum Obligation (MW) (1+9)	7,854	7,986	8,146	8,281	8,382	8,439	8,483	8,504	8,529	8,565	8,590	8,619	8,635	8,671	8,702	8,727	8,747	8,780	8,801	8,826	

EXHIBIT 3 Statewide Capability vs. Obligation Committed, Planned & Studied Resources (Includes Purchases and Sales)

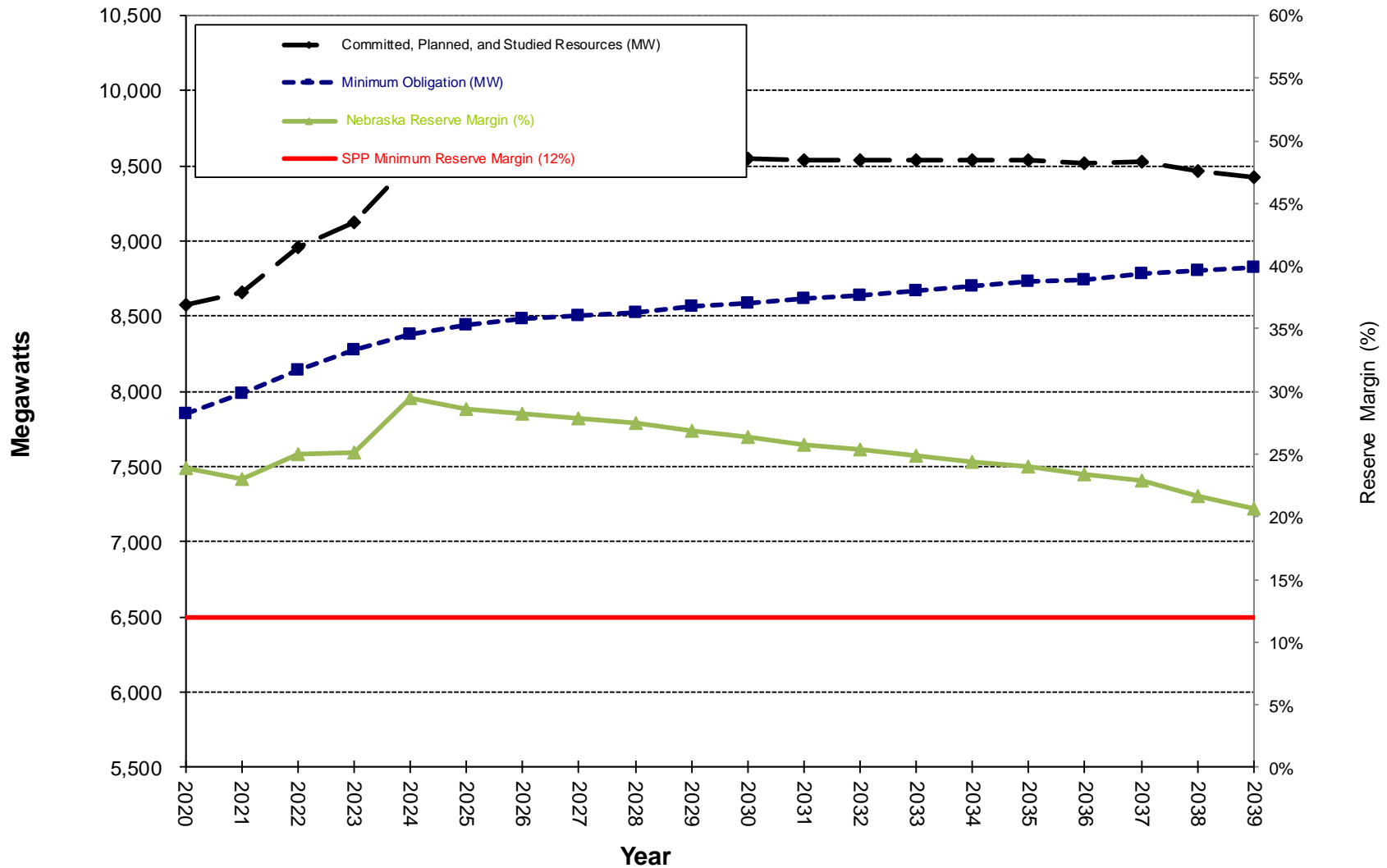


EXHIBIT 4
NEBRASKA STATEWIDE
Committed, Planned & Studied Load & Generating Capability in Megawatts
Summer Conditions (June 1 to September 30)

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
1 Annual System Demand	7,129	7,248	7,391	7,512	7,602	7,652	7,692	7,712	7,734	7,766	7,789	7,815	7,829	7,861	7,890	7,912	7,930	7,960	7,979	8,002
2 Firm Power Purchases - Total	1,201	1,190	1,179	1,174	1,176	1,178	1,180	1,182	1,184	1,186	1,188	1,190	1,192	1,193	1,195	1,197	1,199	1,201	1,203	1,205
3 Firm Power Sales - Total	108	93	75	76	76	76	76	75	76	76	76	76	75	75	76	76	76	76	76	76
4 Annual Net Peak Demand (1-2+3)	6,037	6,151	6,287	6,413	6,501	6,550	6,588	6,605	6,625	6,656	6,676	6,701	6,713	6,743	6,770	6,791	6,807	6,835	6,852	6,873
5 Net Generating Capability (owned)	7,607	7,648	7,897	8,047	8,347	8,347	8,370	8,370	8,370	8,365	8,365	8,353	8,341	8,340	8,340	8,340	8,319	8,319	8,259	8,198
6 Firm Capacity Purchases -Total	994	1,066	891	893	928	821	820	816	816	812	812	809	805	803	804	805	805	805	805	814
7 Firm Capacity Sales -Total	1,120	1,148	928	917	858	747	745	741	741	736	736	733	727	726	726	726	726	726	726	719
8 Adjusted Net Capability (5+6-7)	7,481	7,567	7,859	8,023	8,417	8,421	8,445	8,445	8,445	8,441	8,441	8,430	8,419	8,418	8,418	8,419	8,398	8,398	8,338	8,293
9 Net Reserve Capacity Obligation (4 x 0.12)	724	738	754	770	780	786	791	793	795	799	801	804	806	809	812	815	817	820	822	825
10 Total Firm Capacity Obligation (4+9)	6,761	6,889	7,042	7,183	7,281	7,336	7,378	7,397	7,420	7,454	7,478	7,505	7,518	7,552	7,583	7,606	7,624	7,655	7,674	7,698
11 Surplus or Deficit (-) Capacity @ Minimum Obligation (8-10)	720	678	817	840	1,136	1,085	1,067	1,048	1,025	987	963	924	901	865	835	813	774	743	664	595
12 Nebraska Reserve Margin ((8-4)/4)	23.9%	23.0%	25.0%	25.1%	29.5%	28.6%	28.2%	27.9%	27.5%	26.8%	26.4%	25.8%	25.4%	24.8%	24.3%	24.0%	23.4%	22.9%	21.7%	20.7%
13 Nebraska Capacity Margin ((8-4)/8)	19.3%	18.7%	20.0%	20.1%	22.8%	22.2%	22.0%	21.8%	21.5%	21.1%	20.9%	20.5%	20.3%	19.9%	19.6%	19.3%	18.9%	18.6%	17.8%	17.1%
Committed, Planned and Studied Resources (MW) (8+2-3)	8,573	8,664	8,963	9,121	9,518	9,523	9,549	9,552	9,554	9,551	9,553	9,544	9,536	9,536	9,537	9,540	9,521	9,523	9,465	9,421
Minimum Obligation (MW) (1+9)	7,854	7,986	8,146	8,281	8,382	8,439	8,483	8,504	8,529	8,565	8,590	8,619	8,635	8,671	8,702	8,727	8,747	8,780	8,801	8,826

EXHIBIT 6.1
Statewide Renewable (Wind, Landfill, Solar and Biofuels) Generation by
Nameplate

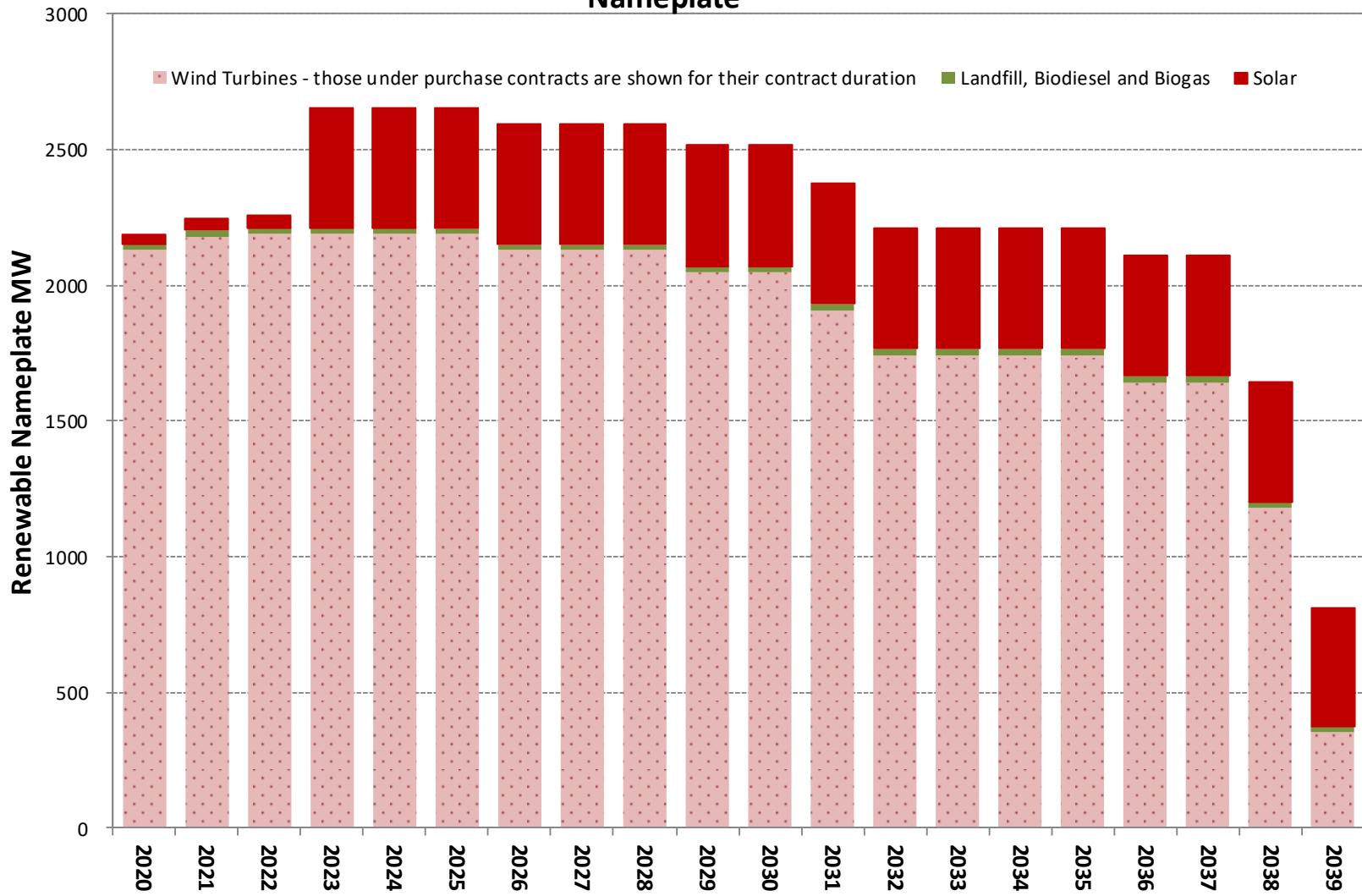


EXHIBIT 7

2020 Statewide Existing Generating Capability Data

Utility	Unit Name	Duty Cycle	Unit Type	Fuel Type	Commercial	Summer	Summer Utility
					Operation	Accredited	
					Date	Capacity	Capacity
Towns/Districts	Cottonwood Wind NNPPD	I	WT	WND	2018	6.00	
	Cottonwood Wind SSC	I	WT	WND	2018	0.78	
	S. Sioux City NG Generation	P	IC	NG	2020	4.85	
Towns/District							11.6
Falls City	Falls City #7	P	IC	NG/DFO	1972	2.00	
	Falls City #8	P	IC	NG/DFO	1981	5.00	
	Falls City	P	IC	NG/DFO	2018	9.00	
Falls City	Total						16.0
Fremont	Fremont #6	B	ST	SUB/NG	1958	15.50	
	Fremont #7	B	ST	SUB/NG	1963	21.00	
	Fremont #8	B	ST	SUB/NG	1976	82.00	
	CT	P	GT	NG/DFO	2003	36.00	
	Cottonwood Wind Farm	I	WT	WND	2018	2.04	
Fremont	Total						156.5
Grand Island	Burdick GT1	P	GT	NG/DFO	1968	13.00	
	Burdick GT2	P	GT	NG/DFO	2003	34.00	
	Burdick GT3	P	GT	NG/DFO	2003	34.00	
	Platte Generating Station	B	ST	SUB	1982	100.00	
	Prairie Breeze 3 Wind	I	WT	WND	2016	0.00	
Grand Island	Total						181.0
Hastings	CCC Hastings Wind	I	WT	WND	2016	0.00	
	DHPC-#1	P	GT	NG/DFO	1972	18.00	
	Hastings-NDS#4	P	ST	NG/DFO	1957	16.00	
	Hastings-NDS#5	P	ST	NG/DFO	1967	24.00	
	Whelan Energy Center #1	B	ST	SUB	1981	76.00	
	Whelan Energy Center #2	B	ST	SUB	2011	220.00	
Hastings	Total						354.0
LES	Arbuckle Mtn. Wind	I	WT	WND	2016	21.00	
	Buckeye Wind	I	WT	WND	2016	60.20	
	J St	P	GT	NG/DFO	1972	29.00	
	Landfill Gas	B	IC	LFG	2014	4.80	
	Laramie River #1	B	ST	SUB	1982	198.00	
	LES Community Solar	B	PV	SUN	2016	0.00	
	Prairie Breeze 2 Wind	I	WT	WND	2016	13.00	
	Rokeby 1	P	GT	NG/DFO	1975	70.50	
	Rokeby 2	P	GT	NG/DFO	1997	90.40	
	Rokeby 3	P	GT	NG/DFO	2001	94.20	
	LES Wind Turbines	I	WT	WND	1999	0.00	
	Terry Bundy	P	CS	NG/DFO	2003	118.20	
	Terry Bundy	P	GT	NG/DFO	2003	45.50	
	Walter Scott #4	B	ST	SUB	2007	103.70	
LES	Total						848.5
MEAN	Alliance #1	P	IC	DFO	2002	1.8480	
	Alliance #2	P	IC	DFO	2002	1.8490	
	Alliance #3	P	IC	DFO	2002	1.8490	
	Ansley #2	P	IC	NG/DFO	1972	0.8500	
	Ansley #3	P	IC	NG/DFO	1968	0.5000	
	Benkelman #1	P	IC	NG/DFO	1968	0.7850	
	Broken Bow #2	P	IC	NG/DFO	1971	3.1000	
	Broken Bow #4	P	IC	NG/DFO	1949	0.8000	
	Broken Bow #5	P	IC	NG/DFO	1959	1.0000	
	Broken Bow #6	P	IC	NG/DFO	1961	2.0000	
	Burwell#2	P	IC	NG/DFO	1962	0.8030	
	Burwell#3	P	IC	NG/DFO	1967	1.0040	
	Burwell#4	P	IC	NG/DFO	1972	1.2110	

EXHIBIT 7

2020 Statewide Existing Generating Capability Data

Utility	Unit Name	Duty Cycle	Unit Type	Fuel Type	Commercial Operation Date	Summer Accredited Capacity	Summer Utility Capacity
MEAN (contd)	Callaway #3	P	IC	DFO	1958	0.4910	
	Callaway #4	P	IC	DFO	2004	0.3840	
	Chappell #5	P	IC	DFO	1982	1.1000	
	Crete #7	P	IC	NG/DFO	1972	6.1510	
	Curtis #1	P	IC	NG/DFO	1975	1.2000	
	Curtis #2	P	IC	NG/DFO	1969	1.0800	
	Curtis #4	P	IC	NG/DFO	1955	0.8000	
	Kimball #1	P	IC	NG/DFO	1955	1.00	
	Kimball #2	P	IC	NG/DFO	1956	1.00	
	Kimball #3	P	IC	NG/DFO	1959	0.90	
	Kimball #4	P	IC	NG/DFO	1960	0.90	
	Kimball #5	P	IC	NG/DFO	1951	0.70	
	Kimball #6	P	IC	NG/DFO	1975	3.50	
	Oxford #2	P	IC	NG/DFO	1952	0.65	
	Oxford #3	P	IC	NG/DFO	1956	0.90	
	Oxford #4	P	IC	NG/DFO	1956	0.68	
	Oxford #5	P	IC	DFO	1972	1.21	
	Pender #2	P	IC	NG/DFO	1973	1.300	
	Pender #4	P	IC	DFO	1961	0.700	
	Red Cloud #2	P	IC	NG/DFO	1953	0.696	
	Red Cloud #3	P	IC	NG/DFO	1960	1.001	
	Red Cloud #4	P	IC	NG/DFO	1968	1.001	
	Red Cloud #5	P	IC	NG/DFO	1974	1.502	
	Stuart #1	P	IC	NG/DFO	1965	0.721	
	Stuart #4	P	IC	NG/DFO	1996	0.822	
	West Point #2	P	IC	NG/DFO	1947	2.200	
	West Point #3	P	IC	NG/DFO	1959	1.130	
West Point #4	P	IC	NG/DFO	1965	0.820		
Wisner #5	P	IC	DFO	2008	<u>1.521</u>		
MEAN	Total						53.7
NPPD	ADM	B	ST	SUB	2009	57.50	
	Ainsworth Wind	I	WT	WND	2005	6.50	
	Auburn #1	P	IC	NG/DFO	1982	1.90	
	Auburn #2	P	IC	NG/DFO	1949	0.00	
	Auburn #4	P	IC	NG/DFO	1993	3.20	
	Auburn #5	P	IC	NG/DFO	1973	2.90	
	Auburn #6	P	IC	NG/DFO	1967	2.20	
	Auburn #7	P	IC	NG/DFO	1987	4.20	
	Beatrice Power Station	I	CS	NG	2005	220.00	
	Belleville 4	P	IC	NG/DFO	1955	0.00	
	Belleville 5	P	IC	NG/DFO	1961	1.40	
	Belleville 6	P	IC	NG/DFO	1966	2.50	
	Belleville 7	P	IC	NG/DFO	1971	3.30	
	Belleville 8	P	IC	NG/DFO	2006	2.80	
	Broken Bow Wind	I	WT	WND	2013	10.70	
	Broken Bow II Wind	I	WT	WND	2014	7.30	
	Cambridge	P	IC	DFO	1972	3.00	
	Canaday	P	ST	NG	1958	99.30	
	Columbus 1	B	HY	WAT	1936	15.00	
Columbus 2	B	HY	WAT	1936	15.00		
Columbus 3	B	HY	WAT	1936	15.00		
Cooper	B	ST	NUC	1974	770.00		

EXHIBIT 7

2020 Statewide Existing Generating Capability Data

Utility	Unit Name	Duty Cycle	Unit Type	Fuel Type	Commercial Operation Date	Summer Accredited Capacity	Summer Utility Capacity
NPPD (contd)	Crofton Bluffs Wind	I	WT	WND	2013	6.69	
	David City 1	P	IC	NG/DFO	1960	1.30	
	David City 2	P	IC	DFO	1949	0.80	
	David City 3	P	IC	NG/DFO	1955	0.90	
	David City 4	P	IC	NG/DFO	1966	1.80	
	David City 5	P	IC	DFO	1996	1.33	
	David City 6	P	IC	DFO	1996	1.33	
	David City 7	P	IC	DFO	1996	1.34	
	Elkhorn Ridge Wind	I	WT	WND	2009	7.54	
	Emerson #2	P	IC	NG/DFO	1968	1.00	
	Emerson #3	P	IC	NG/DFO	1948	0.00	
	Emerson #4	P	IC	NG/DFO	1958	0.40	
	Franklin 1	P	IC	NG/DFO	1963	0.65	
	Franklin 2	P	IC	NG/DFO	1974	1.35	
	Franklin 3	P	IC	NG/DFO	1968	1.05	
	Franklin 4	P	IC	NG/DFO	1955	0.70	
	Gentleman 1	B	ST	SUB	1979	665.00	
	Gentleman 2	B	ST	SUB	1982	700.00	
	Hallam	P	GT	DFO	1973	42.50	
	Hebron	P	GT	NG	1973	41.50	
	Jeffrey 1 (CNPPID)	B	HY	WAT	1940	0.00	
	Jeffrey 2 (CNPPID)	B	HY	WAT	1940	0.00	
	Johnson I 1 (CNPPID)	B	HY	WAT	1940	0.00	
	Johnson I 2 (CNPPID)	B	HY	WAT	1940	0.00	
	Johnson II (CNPPID)	B	HY	WAT	1940	0.00	
	Kearney	B	HY	WAT	1921	0.00	
	Kingsley (CNPPID)	B	HY	WAT	1985	41.67	
	Laredo Ridge Wind	I	WT	WND	2011	18.03	
	Madison 1	P	IC	NG/DFO	1969	1.70	
	Madison 2	P	IC	NG/DFO	1959	0.95	
	Madison 3	P	IC	NG/DFO	1953	0.85	
	Madison 4	P	IC	DFO	1946	0.50	
	McCook	P	GT	DFO	1973	18.90	
	Monroe	B	HY	WAT	1936	3.00	
	North Platte 1	B	HY	WAT	1935	12.00	
	North Platte 2	B	HY	WAT	1935	12.00	
	Ord 1	P	IC	NG/DFO	1973	5.00	
	Ord 2	P	IC	NG/DFO	1966	1.00	
	Ord 3	P	IC	NG/DFO	1963	2.00	
	Ord 4	P	IC	DFO	1997	1.40	
	Ord 5	P	IC	DFO	1997	1.40	
	Sheldon 1	B	ST	SUB	1961	104.00	
	Sheldon 2	B	ST	SUB	1965	115.00	
	Spencer 1	B	HY	WAT	1927	0.00	
	Spencer 2	B	HY	WAT	1952	0.00	
	Springview Wind	I	WT	WND	2012	0.39	
	Steele Flats Wind	I	WT	WND	2013	30.54	
	Wahoo #1	P	IC	NG/DFO	1960	1.70	
	Wahoo #3	P	IC	NG/DFO	1973	3.60	
	Wahoo #5	P	IC	NG/DFO	1952	1.80	
	Wahoo #6	P	IC	NG/DFO	1969	2.90	
	Western Sugar	B	ST	SUB	2014	4.55	
	Wilber 4	P	IC	DFO	1949	0.78	
	Wilber 5	P	IC	DFO	1958	0.59	
	Wilber 6	P	IC	DFO	1997	1.57	
NPPD	Total						3,108.7

EXHIBIT 7

2020 Statewide Existing Generating Capability Data

Utility	Unit Name	Duty Cycle	Unit Type	Fuel Type	Commercial Operation Date	Summer Accredited Capacity	Summer Utility Capacity	
Wakefield	Wakefield 2	P	IC	NG/DFO	1955	0.54		
	Wakefield 4	P	IC	NG/DFO	1961	0.69		
	Wakefield 5	P	IC	NG/DFO	1966	1.08		
	Wakefield 6	P	IC	NG/DFO	1971	1.13		
Wakefield	Total						3.4	
Wayne	Wayne 1	P	IC	DFO	1951	0.75		
	Wayne 3	P	IC	DFO	1956	1.75		
	Wayne 4	P	IC	DFO	1960	1.85		
	Wayne 5	P	IC	DFO	1966	3.25		
	Wayne 6	P	IC	DFO	1968	4.90		
	Wayne 7	P	IC	DFO	1998	3.25		
	Wayne 8	P	IC	DFO	1998	3.25		
	Wayne	Total						19.0
Nebraska City	Nebraska City #5	P	IC	NG/DFO	1964	1.60		
	Nebraska City #6	P	IC	NG/DFO	1967	1.50		
	Nebraska City #7	P	IC	NG/DFO	1969	1.50		
	Nebraska City #8	P	IC	NG/DFO	1970	3.50		
	Nebraska City #9	P	IC	NG/DFO	1974	5.60		
	Nebraska City #10	P	IC	NG/DFO	1979	5.80		
	Nebraska City #11	P	IC	NG/DFO	1998	4.00		
	Nebraska City #12	P	IC	NG/DFO	1998	4.00		
	Nebraska City	Total						27.5
	NELIGH	Neligh	P	IC	OBL	2012	1.90	
		Neligh	P	IC	OBL	2012	1.90	
		Neligh	P	IC	OBL	2012	1.91	
Neligh		P	IC	OBL	2012	0.41		
Neligh	Total						6.1	
OPPD	Cass County #1	P	GT	NG	2003	161.70		
	Cass County #2	P	GT	NG	2003	161.10		
	Elk City Station #1-4	B	IC	LFG	2002	3.09		
	Elk City Station #5-8	B	IC	LFG	2006	2.92		
	Flat Water Wind	I	WT	WND	2011	13.20		
	Grande Prairie Wind	I	WT	WND	2016	23.60		
	Jones St. #1	P	GT	DFO	1973	61.20		
	Jones St. #2	P	GT	DFO	1973	62.20		
	Nebraska City #1	B	ST	SUB	1979	654.30		
	Nebraska City #2	B	ST	SUB	2009	691.00		
	North Omaha #1	B	ST	NG	1954	64.80		
	North Omaha #2	B	ST	NG	1957	90.80		
	North Omaha #3	B	ST	NG	1959	86.00		
	North Omaha #4	B	ST	SUB/NG	1963	120.10		
	North Omaha #5	B	ST	SUB/NG	1968	216.20		
	Petersburg Wind	I	WT	WND	2012	7.21		
	Prairie Breeze Wind	I	WT	WND	2014	36.51		
	Sarpy County #1	P	GT	NG/DFO	1972	55.40		
	Sarpy County #2	P	GT	NG/DFO	1972	55.90		
	Sarpy County #3	P	GT	NG/DFO	1996	107.80		
	Sarpy County #4	P	GT	NG/DFO	2000	48.70		
	Sarpy County #5	P	GT	NG/DFO	2000	47.90		
	Sholes Wind	I	WT	WND	2019	39.20		
	Tecumseh #1	P	IC	DFO	1949	0.60		
	Tecumseh #2	P	IC	DFO	1968	1.40		
	Tecumseh #3	P	IC	DFO	1952	1.00		
	Tecumseh #4	P	IC	DFO	1960	1.20		
	Tecumseh #5	P	IC	DFO	1993	2.30		
	OPPD	Total						2,817.3
	SCRIBNER	Scribner #1	P	IC	OBL	2020	2.00	
Scribner #2		P	IC	OBL	2020	2.00		
							4.0	
Nebraska Grand Total							7,607.4	
	Duty Cycle			Fuel Type*				
	B-Base			NUC-Uranium		OBL-Biodiesel		
	I-Intermediate			NG-Natural Gas		WAT-Hydro		
	P-Peaking			DFO-Distillate Fuel Oil		LFG-Landfill Gas		
		Unit Type*		SUB-Subbituminous Coal		WND-Wind		
		IC-Internal Combustion, Reciprocating						
		ST-Steam Turbine, does not include combined cycle						
		GT-Combustion Turbine, including aeroderivatives						
		CS-Combined Cycle, single shaft (combustion turbine and steam turbine share single						
		CA-Combined Cycle, Steam part						
		CT-Combined Cycle, Combustion Turbine part						
		HY-Hydro						
		PV-Photovoltaic						
		WT-Wind Turbine						
		FC-Fuel Cell						
		WH-Waste Heat, used for combined cycle ST without supplemental firing						

EXHIBIT 7.1

Statewide Renewable and Greenhouse Gas Mitigating Resources, MW

