South Dakota Infrastructure Rider
2018 Project List and Descriptions

Existing Rider Projects

The following projects were approved for recovery by the Commission in the Company's Infrastructure Rider in Docket No. EL14-058, and re-affirmed for cost recovery most recently in Docket No. EL16-032:

MNGP Extended Power Uprate (Monticello LCM/ EPU) (w/ o 10245258)

PI-9 TN-40 Casks (Prairie Island Casks # 39-47) (w/ o 11101522)

PI-Relicense ISFSI (Prairie Island ISFSI Relicensing) (w/ o 10798851)

PI U2 Generator Replacement (w/ o 11808202)

PI U2 GSU Transformer Replacement (w/ o 11808219)

MNGP EDG Tornado Missile Protection (w/ o 11946062)

MNGP Fukushima Modifications (w/ o 11503439)

PI LR Ph II-U2 MRP-227A Implementation (w/ o 11812440)

PI-NFPA 805 Fire Model (w/ o 11044898)

PI U2 HDTP Speed Control Upgrade (w/ o 11230621)

BRD0C Border Wind ND (w/ o 11551351)

PLV0C Pleasant Valley Wind (w/ o 11869600)

SHC1C U1 Couton Bottom Replacement (w/ o 10935185)

BDS0C Install Package Boiler (w/ o 11345791)

SHC3C Motor Control Sys PL (w/ o 11487734)

Midtown 115kV line (w/ os 11219377 and 11627836)

NSM0953 Galloping Mitigation (w/ o 11892875)

GIST-III Computer Software (w/ o 11465739)

Hiawatha Dam Interconnect Substation (w/ o 11083245)

Scott County 345 kV Expansion, Substation (w/ o 11806389)

BS-Fcst-BD-SW-CM-M (w/ o 11218029)

PI-Repl Instrument Air Compressor (w/ o 10799550)

The following projects were approved for recovery by the Commission in the Company's Infrastructure Rider in Docket No. EL15-038, and re-affirmed for cost recovery most recently in Docket No. EL16-032:

Prairie 3rd 230/ 115 kV tra (w/ o 11491534)

PI Emerg Resp Equipment FLEX (w/ o 11634222)

PI U1 HDTP Speed Control U (w/ o 11101124)

SHC2 U2 DCS Controls Repl (w/ o 11648818)

SHC2C U2 Turbine EHC Ctrls (w/ o 11488127)

Dynamic EMS Environment Phase (w/ o 10818773)

Work and Asset Ph 1 SW MN (w/ o 11491932)

MNGP Security Physical Upgrade (w/ o 12076265)

PI Sfgds CL Pump Redesign (w/ o 12075477)

760-Red Wing to Wabasha (w/ o 11776427)

NSM0953 Galloping Mitigation (w/ o 12077207& 12051340)

HBC7C U7 HGP/ Combustion Inspec (w/ o 10785655)

SHC1C U1 DCS Controls Repl PH (w/ o 11350867)

MNGP Rplc IMUX Front End Proce (w/ o 11366818)

GIST-II Computer SoftwareNSPM (w/ o 11434783)

MNGP Cyber Security 08-09 (w/ o 11468481)

Purch EMS DEMS Ph2 HW MN (w/ o 11584375)

PI Fan Coil Unit Face Repl (w/ o 11812451)

PI NFPA 805 -08 Fire Detection (w/ o 11825933)

MNGP EDG Fuel Oil Train Separa (w/ o 11926489)

PI FLEX Storage Building (w/ o 12035378)

CRT0C Courtenay Wind Farm Construct (w/ o 12173639)

RIV9C-U9 HGP Inspection No 1 (w/ o 11215945)

The following projects were approved for recovery by the Commission in the Company's Infrastructure Rider in Docket No. EL16-032:

SHC 3 Turbine EHC Controls (w/ o 11487740)

PI-Screenhouse Cl Header P (w/ o 11100514)

SHC3 Boiler Intermediate and Finishing Superheater replacement (A.0001574.147)

PI Reactor Coolant Pump Rebuild (A.0000035.211)

MT TSTF-523 Vent Installation (A.0000029.015)

MT EDG Fuel Oil Pump Mtr Rplc 1R28 (A.0000017.116)

MT KM 480VAC Cubicle Rplc (A.0000029.018)

Additional Settlement Agreement Exhibit C Projects

These projects were among those identified on Exhibit C to the Settlement Agreement approved by the Commission in Docket No. EL14-058 and that have forecasted revenue requirements beginning in 2018. Exhibit C provided the list of specific capital projects for which potential Rider cost recovery may be requested in future Infrastructure Rider fillings.

MNGP Hardened Vents & Filt (11871747 / A.0000043.005)
The following compliance requirements for the Vent at the Monticello Nuclear Generating Plant are identified in NRC Order EA-13-109: maintain containment by providing an alternate method to release containment pressure, ensure core cooling is maintained, and mitigate hydrogen build up. Meeting these requirements will increase the plant's ability to respond to a Fukushima-type or Emergency Loss of AC Power (ELAP) event. The project will provide Monticello with venting capabilities from the containment wetwell to prevent severe accidents from occurring and, if necessary, provide venting capability during severe accident conditions. Compliance is required before start-up from Refueling Outage-28 in 2017.

PI 2M 2RS 2RX Transformer (11503758 / A.0000035.170)
This project replaces the 2M Transformer and associated Fire Protection System at the Prairie Island Nuclear Generating Plant. The current 2M Transformer has been in service beyond its design life of forty years. Inspections and monitoring of transformer performance show signs of aging and increased carbon dioxide gas production (a sign of insulation degradation) which put the transformer at increased risk of catastrophic failure and loss of plant electrical production. The 2M

Transformer is the main auxiliary transformer for Unit 2 and provides the normal 4.16 kV power feed for station loads during plant operation.

This project originally included scope for replacement of the 2RS and 2RX transformers in addition to 2M. However, due to better performance history and inspection results of 2RS and 2RX as well as these transformers having less impact to plant operations, they were removed from the scope of this project. This shifted the overall project in-service date from 2018 to 2017.

PI U1 Generator Replacemnt (11808178 / A.0000037.003)
This project replaces the Unit 1 Electric Generator and auxiliary equipment (i.e.: exciter, lead box, Seal Oil System, and associated monitoring equipment) at the Prairie Island Nuclear Generating Plant. The original Unit 1 Generator was designed for a 30 year life and has currently been in service for over 40 years. Periodic inspections and condition monitoring performed for the Unit 1 Generator have identified increased hydrogen leakage through generator shaft seals, stator core hotspots, reduced insulation resistance (indicating degraded insulation), and increased vibrations. These signs of degradation increase the risk of sudden, potentially catastrophic, equipment failure and an extended loss of generation. Completion of this project will ensure reliable operation of Unit 1 through the end of licensed life in 2033.

New Proposed Rider Projects

The Company seeks eligibility determination for the following projects:

MNGP DAS & PPCS Rplc (A.0000017.003)
This project is to replace existing Plant Processing Computer System (PPCS) and Data Acquisition System (DAS) equipment at the Monticello Nuclear Generating Plant with new hardware and software. The PPCS and DAS equipment was installed in 1984 and is obsolete and unrepairable. The present equipment vendor cannot obtain required component parts to perform repairs on certain critical components. Existing spares are not reliable and attempts to repair them have not been successful. If this equipment is not replaced, system module failure will result in increased frequency of unplanned capacity losses as reactor power will have to be reduced. Failure of certain critical components would render the PPCS non-functional, resulting in an inability to meet Technical Specification requirements for reactor fuel thermal limits. NRC commitments for Safety Parameter Display System (SPDS) and emergency response facilities could not be met. Plant operators would lose the ability to closely monitor over 2,500 plant process parameters.

MNGP 2018 Dry Fuel Storage Loa (A.0000060.001)
The project will procure ten NUHOMS®-61BTH Dry Shielded Canisters (DSCs) and eight Type HSM-H Horizontal Storage Modules (HSMs) from TN-Americas (TNA). The eight HSMs were installed at the MNGP Independent Spent Fuel Storage Installation (ISFSI) in summer 2017. The ten DSCs will be loaded with spent fuel and placed in-service in spring / summer 2018. The project is required to store spent fuel from the reactor and the spent fuel pool in order to allow for space in the spent fuel pool for reactor refueling.

BDS0C Black Dog U6 Simple Cycl (A.0001634.001)
The Company is constructing a 215 MW natural gas-fired combustion turbine unit (Unit 6) at our existing Black Dog Generating Plant in Burnsville, Dakota County, Minnesota. The combustion turbine (CT) will be a simple-cycle unit with dry low-nitrogen oxide (NOx) burners and the use of good combustion practices for emissions control. No add-on emission controls are needed. The unit is intended for limited use (permitted with an approximately 33% capacity factor), with fast start capability (capable of approximately a 48% load within 10 minutes of startup).

Black Dog Unit 6 will provide approximately 215 MW of nominal peaking capabilities and be located in the existing powerhouse building for Unit 4. Both Units 3 and 4 were retired in early spring 2015. Construction began in June 2016 with foundation work for the new unit. Initial startup is planned for early 2018, with commercial operation beginning in March 2018.

The Black Dog Unit 6 Project was selected and approved by the Minnesota Public Utilities Commission in the Company's competitive resource acquisition proceeding (MPUC Docket No. E002/ CN-12-1240) and further discussed in the March 16, 2015 Supplement to the Company's 2016-2030 Upper Midwest Resource Plan (MPUC Docket No. E002/ RP-15-21). Black Dog Unit 6 will utilize existing infrastructure at the Plant and feed power directly to the existing 115 kV transmission system that serves distribution substations throughout the largest load center – the Minneapolis-St. Paul metropolitan area. The Black Dog Unit 6 Project is designed to ensure generation at the Black Dog Plant to provide power to the lower voltage system delivery directly to customers. This system configuration exposes customer power supply to fewer equipment failures and thus enhances reliability.

PI 4.16 KV Bus Modifications (A.0000040.016)
This is a regulatory-driven project that will install relaying to detect and protect Prairie Island Nuclear Generating Plant safety equipment from an electrical voltage

unbalance or Open Phase Condition. This will eliminate a design vulnerability that was recognized to exist throughout the nuclear industry, and ensure that plant safety equipment remains operable. The project will install equipment to monitor the voltage condition of off-site electrical power sources such that a voltage unbalance/ disturbance can be detected, and important electrical equipment will be protected from operating if such an adverse electrical condition were to occur. Through implementation of this project, Prairie Island will remain in compliance with industry regulations. The 4.16kV Bus Modification Project will be placed in-service in 2018.

NSPM Tline ELR 2016 69kV Line (A.0000504.025)
This project replaces defective transmission cross arms, poles and other line appurtenances which have been reported as defective by routine foot and aerial patrols and are nearing their end of life in the NSP System. The project is part of the End of Life (ELR)/ renewal program which is intended to extend the life of NSP transmission line assets when full line replacement is not necessary. These individualized replacements are spread throughout the Company's service territory.