

POWER PRODUCTION INFORMATION SESSION



VIRTUAL EVENT

OCTOBER 14TH | 8:30-11:30 AM CST



RHEA BROWN

DIRECTOR, PROCUREMENT & CONTRACTS
MANAGEMENT





THE FUTURE

- Customers
- Energy transition
- Expectations
- Electrification
- Power systems
- Modernization
- Innovation
- Sustainability
- Changing Workforce
- Partnerships
- Affordable electricity
- Uncertainty





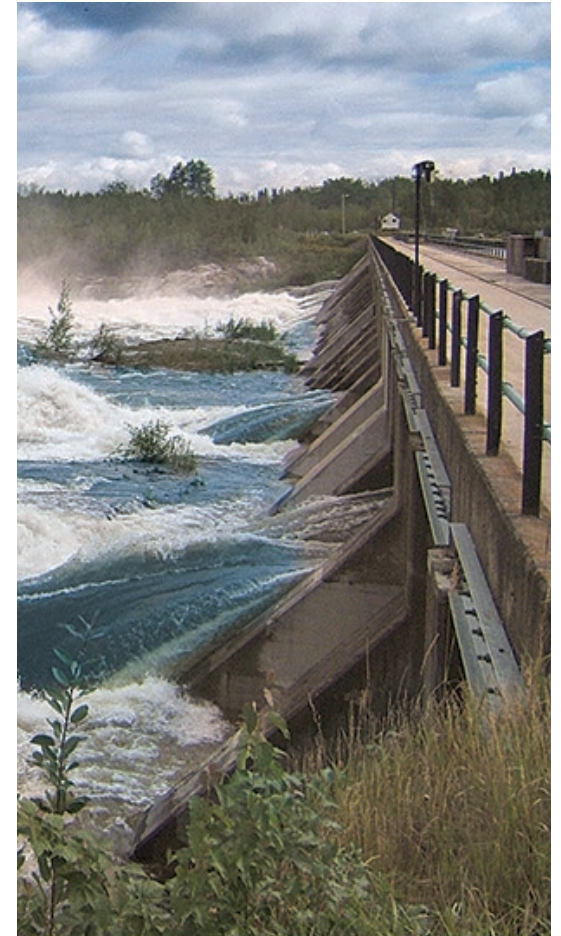
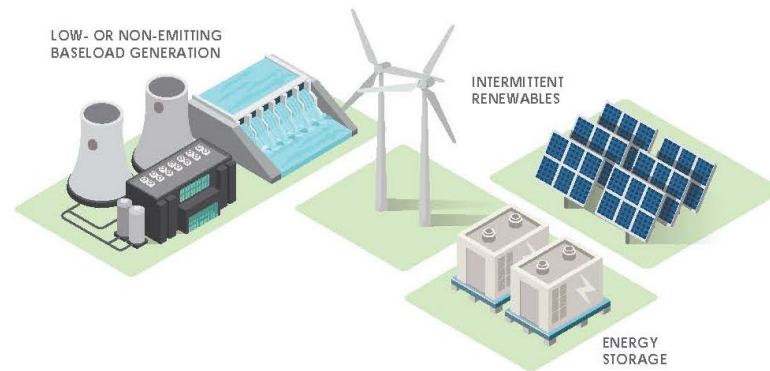
PROCUREMENT INVESTMENT (YTD)

- Annual Procurement Spend ~ **\$800M**
- Indigenous Procurement: **14.8%**
Benchmark target 8.5%
 - YTD: \$47.5M
- Saskatchewan Procurement: **68.6%**
 - Benchmark target 75%
 - YTD: \$320 M
- Supplier Bid Training (Tools for Success)



INCREASED LOW/ZERO CARBON ELECTRICITY SOURCES

- SaskPower must replace over 1,400 megawatts of conventional coal with lower carbon supply options.
- By 2030, up to 50% of generation will be from renewables.
- By 2030, we will reduce GHG emissions 50% from 2005 levels.
- We are planning for a net-zero GHG future by or before 2050.



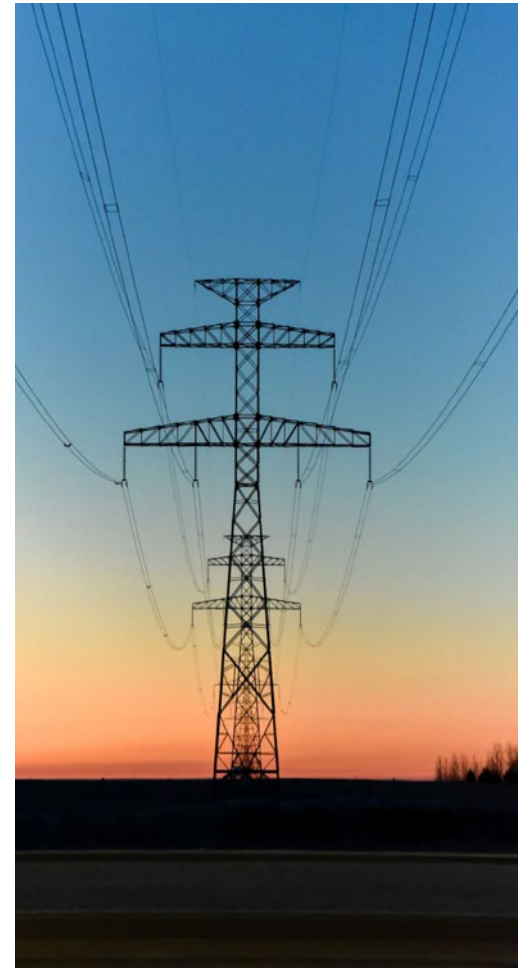


A MODERNIZED GRID FOR SASKATCHEWAN

- Enhanced visibility, control and automation of the grid.
- Customers will see increased reliability and resiliency, reduced emissions, and improved safety.
- Enabling of two-way energy services and increased penetration of Distributed Energy Resources (DERs).

EXPANDED INTERCONNECTIONS

- Flexibility to integrate renewables, accommodate demand uncertainty
- Increased reliability and resiliency in the case of extreme weather.
- Will assist in meeting GHG targets while enabling more renewables and the potential integration of emerging supply technologies.



ESG IN SUPPLY CHAIN

- Environmental, Social and Governance
- Supplier Code of Conduct
- Supplier Diversity Program Expansion
- CEA Sustainable Electricity Company Designation
- PAR Gold Status

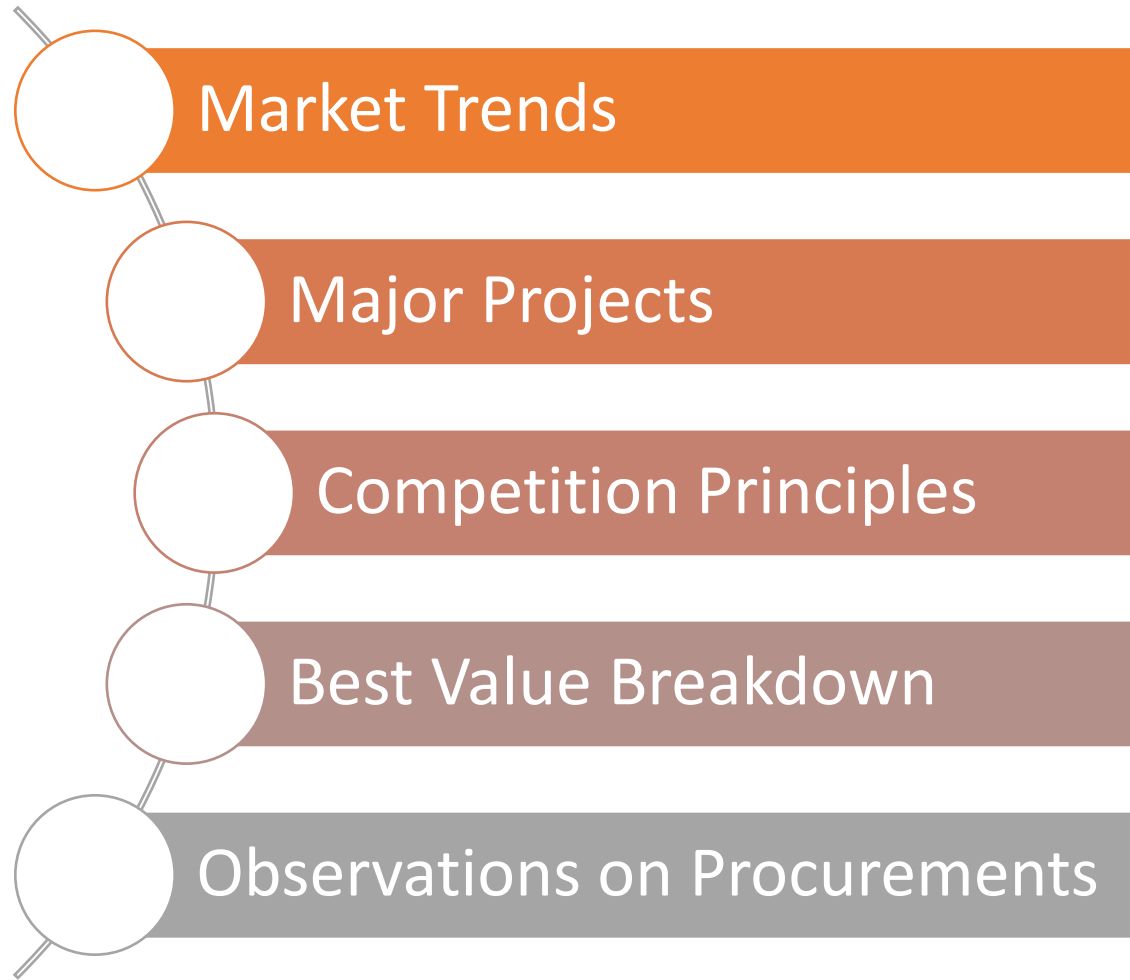


PROCUREMENT OBSERVATIONS

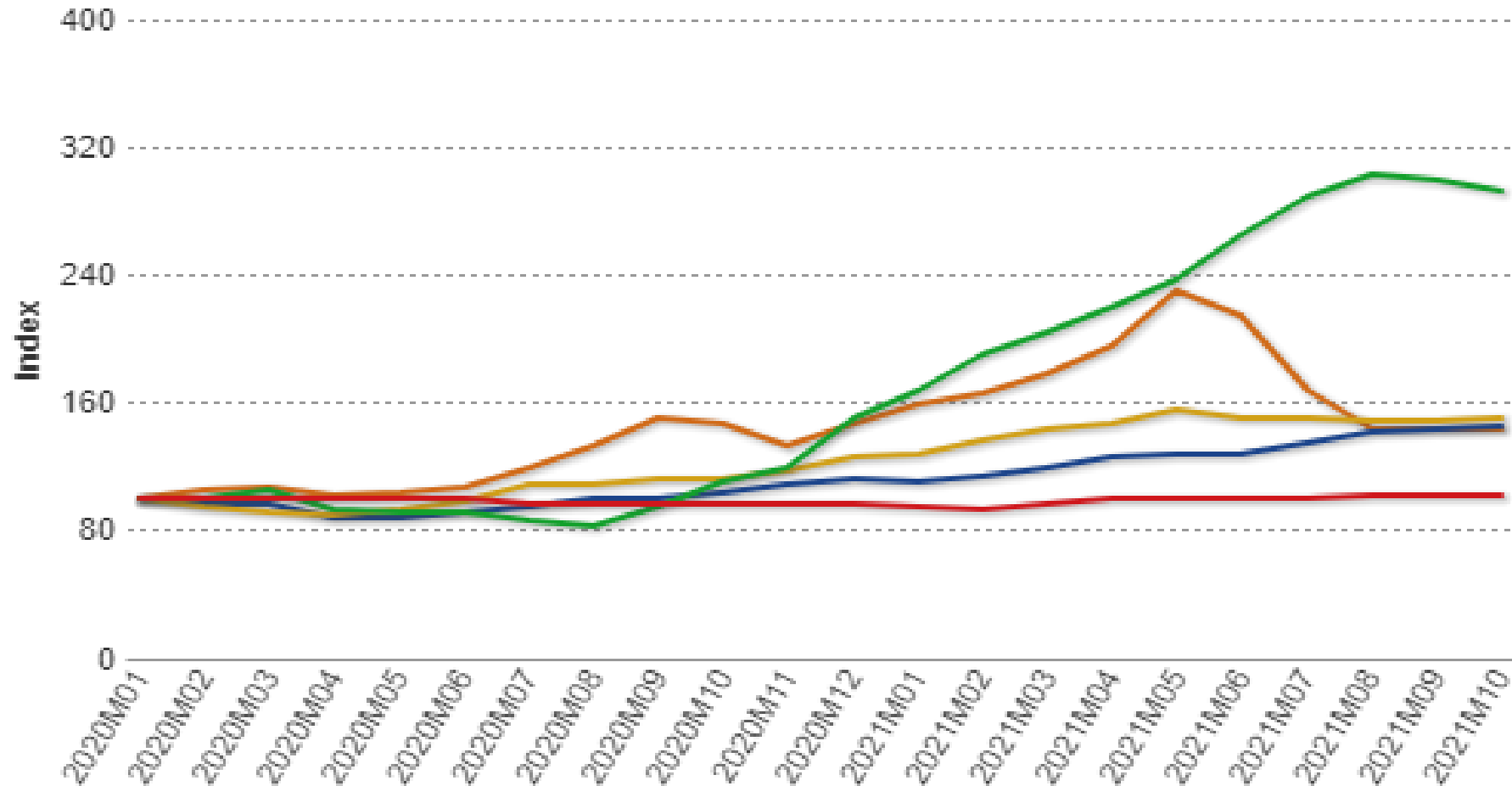
DAN IRVINE

PROCUREMENT MANAGER, MAJOR PROJECTS &
STRATEGIC PLANNING

AGENDA



INDUSTRY OBSERVATIONS

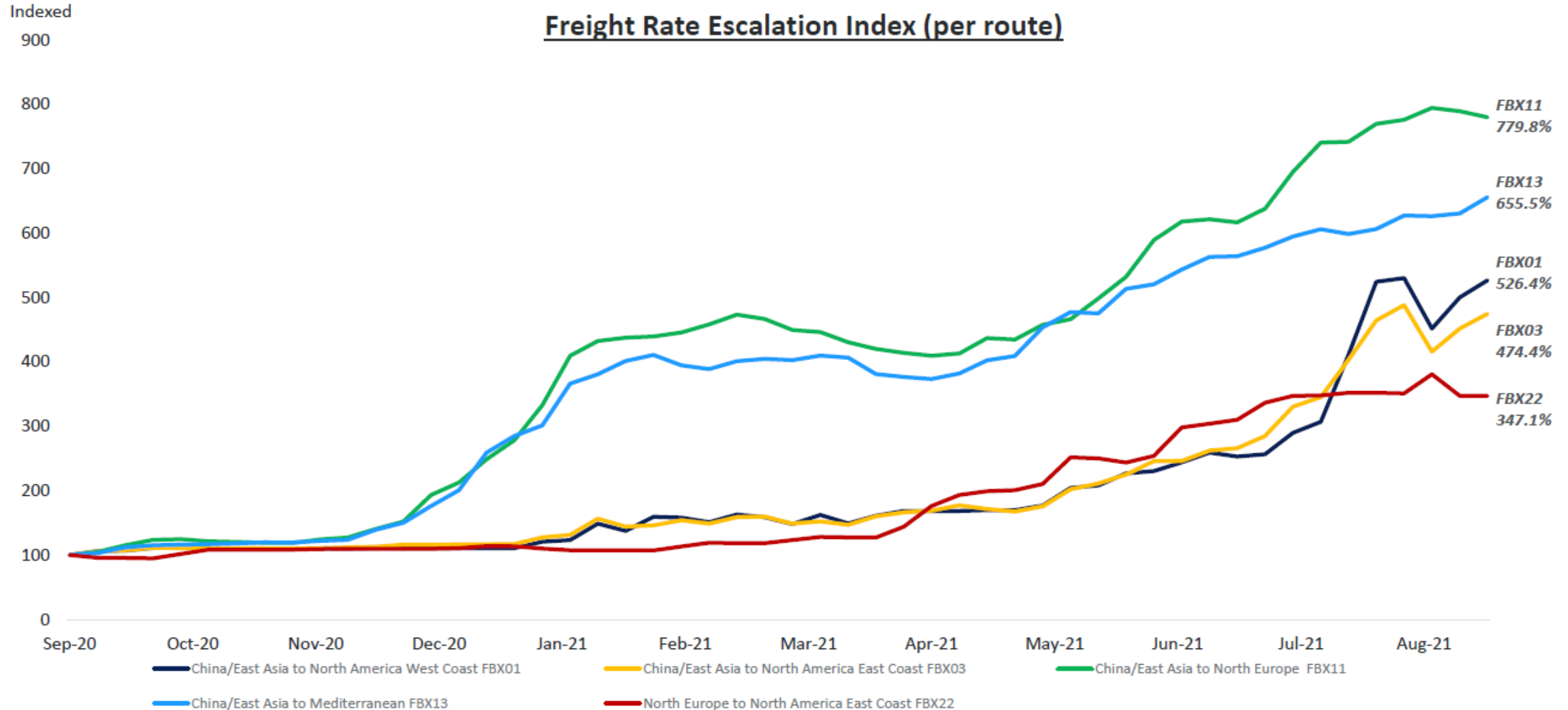


Pandemic by commodity

Yellow - Copper
Green- Steel
Blue - Aluminum
Red - Cement
Orange - Lumber



INDUSTRY OBSERVATIONS



CHALLENGES



COVID

Pricing
Delays
Engagement

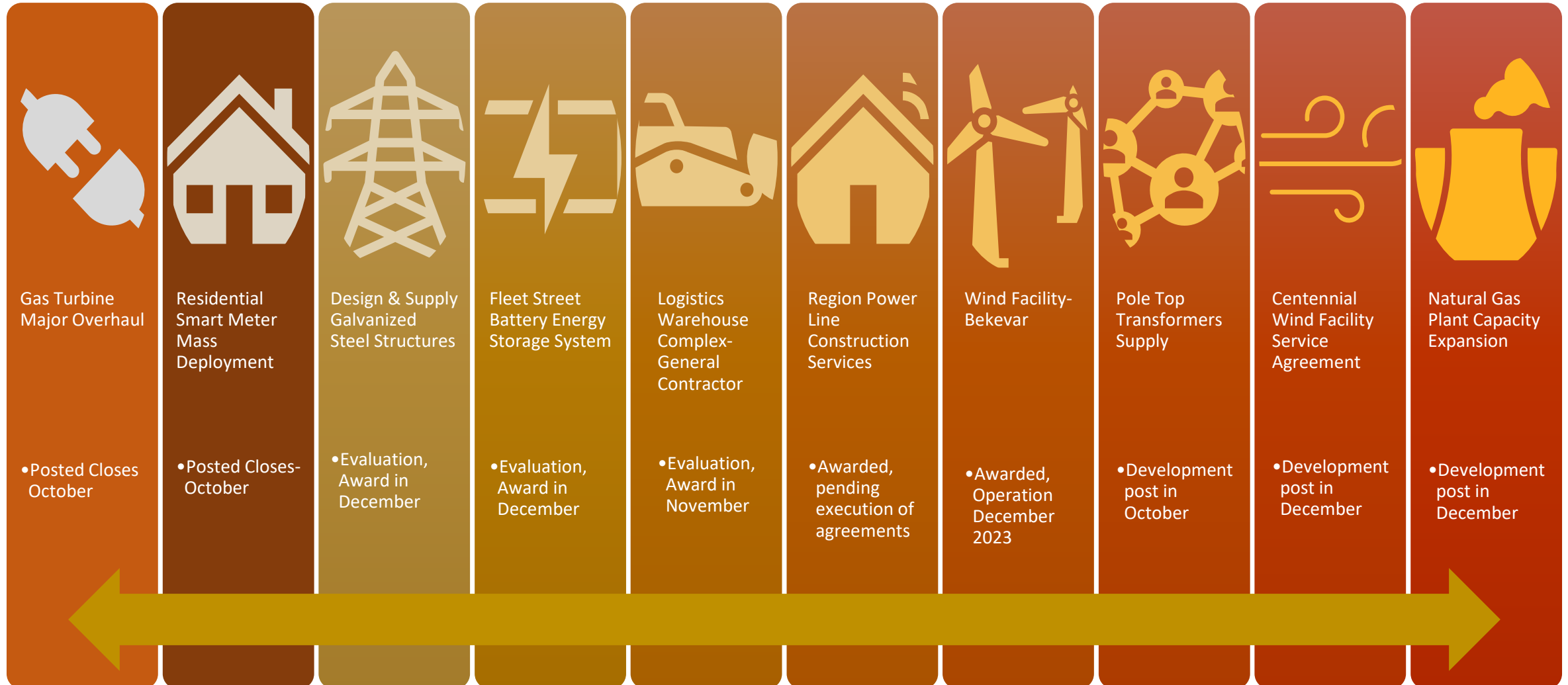


Labor Shortages



Commodity
Prices Increase

MAJOR PROCUREMENTS





COMPETITION PRINCIPLES



BEST VALUE



ENABLING,
INTUITIVE AND
ENCOMPASSING



FAIRNESS /
TRANSPARENCY

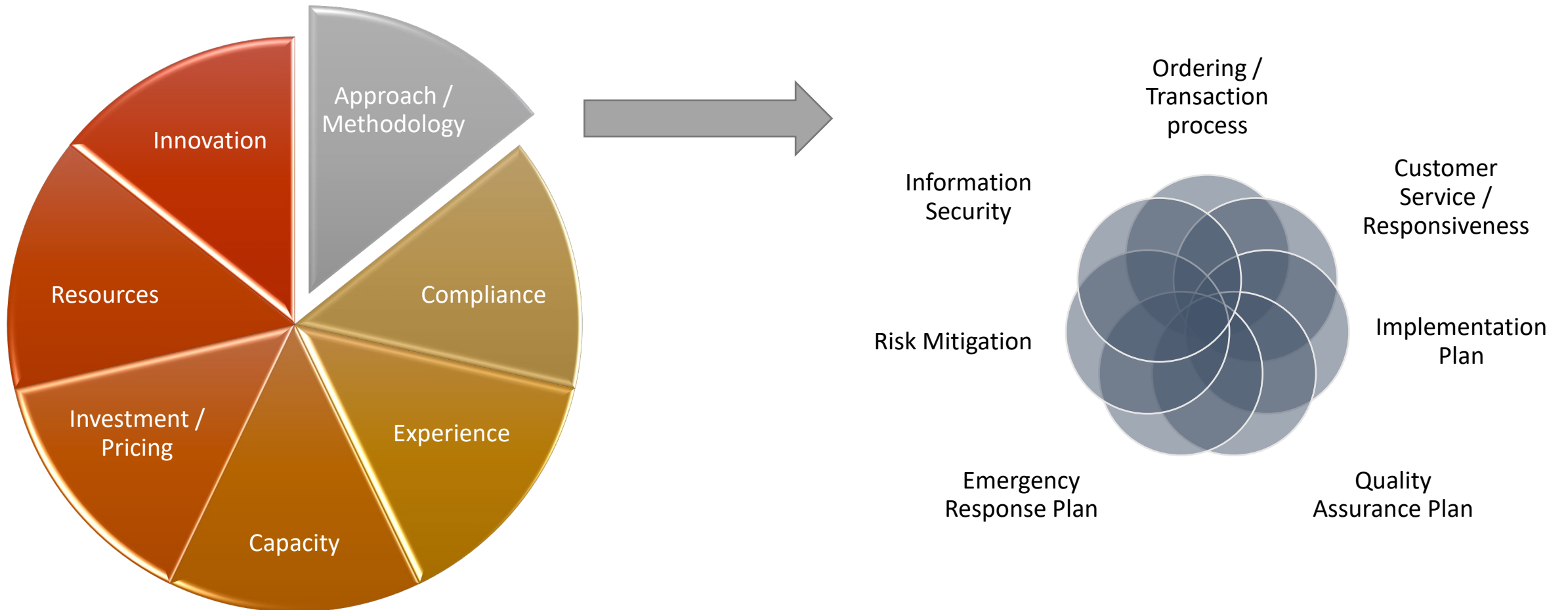


DEFENSIBLE



TRADE AND LEGAL
COMPLIANCE

BEST VALUE EVALUATION



COMMUNITY BENEFITS





OBSERVATIONS ON PROCUREMENTS

Questions

Clarifications

Debriefs

Differentiation

Organization
structures

ISNet World

Financial
Assessment

Conflict of
Interest

Complete
Proposals



SASKPOWER SUPPLIER INFORMATION SESSION



October 2021

POWER PRODUCTION CAPITAL PROJECTS UPDATE

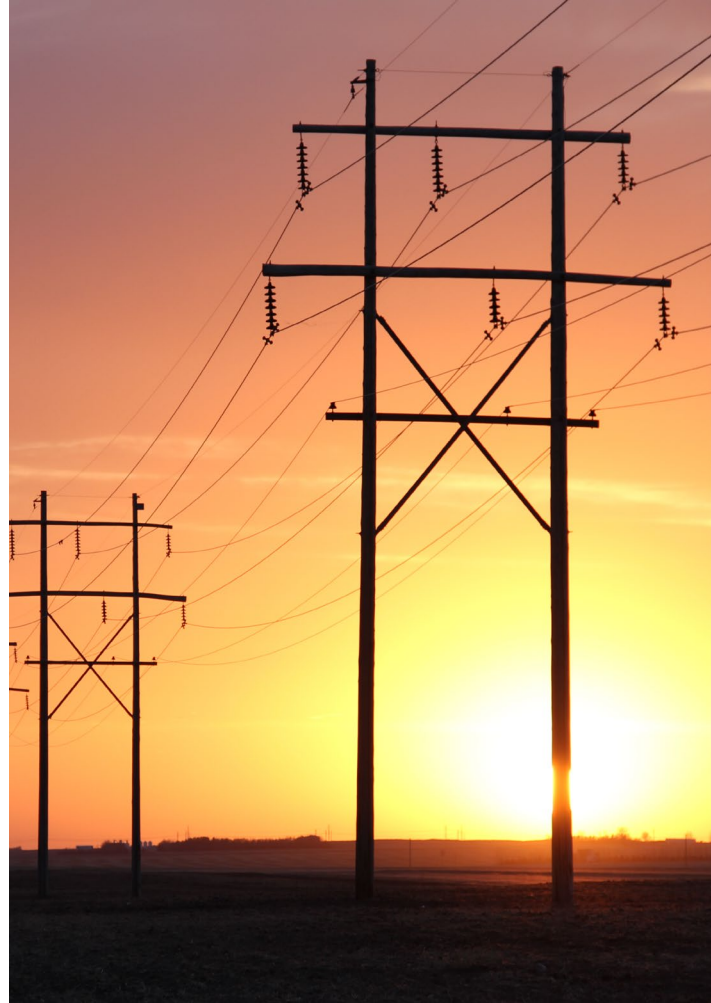
Howard Matthews, VP Power Production

Scott Bannerman, Director, Engineering Services

Justin Lacelle, Director, Field Services

KEY CHALLENGES

- Slowing demand for power
- Federal GHG emission regulations
- Infrastructure investment ongoing
- Integration of renewable generation
- Managing costs – minimizing rate impacts
- Emerging technologies and a competitive electricity market



STRATEGIC DIRECTION TOWARD 2030



Baseload Power for
Resource Sector



Renewables Storage
and Integration



Electrification of
Transportation

ROLE OF RENEWABLES

Goal - reducing GHG emissions by 40% from 2005 levels by 2030

- Wind energy triples
- 100 MW of solar by 2022
- Small scale hydro/hydro imports
- Biomass & geothermal



SASKPOWER'S PLAN FOR WIND

Existing Wind Facilities

- 241 MW, including 20 MW recently added at our Western Lily site

In Development Wind Facilities - 387 MW

- Riverhurst (10 MW)
- Blue Hill (177 MW)
- Golden South (200 MW)

Future Wind Facilities

- Next procurement underway – 300 MW
- Longer term by 2030 – possible 600-1000 MW



SAFETY RECORD

- 2015: second-worst safety ranking of similar electrical utilities in Canada
- 60% improvement in lost time injury rate
- 2018: we're in the middle of the pack compared to the rest of Canada



SASKPOWER SYSTEM MAP

TOTAL GENERATING CAPACITY FROM ALL SOURCES – 4,993 MEGAWATTS (MW)

HYDRO TOTAL CAPACITY - 989 MW

H1 - Athabasca Hydroelectric System

H1A – Wellington Hydroelectric Station – 5 MW

H1B – Waterloo Hydroelectric Station – 8 MW

H1C - Charlot River Hydroelectric Station – 10 MW

H2 - Island Falls Hydroelectric Station – 111 MW

H3 - Manitoba Hydro Power Purchase Agreements – 125 MW

H4 - Nipawin Hydroelectric Station – 255 MW

H5 - E.B Campbell Hydroelectric Station – 289 MW

H6 - Coteau Creek Hydroelectric Station – 186 MW

NATURAL GAS TOTAL CAPACITY - 2,172 MW

NG1 - Meadow Lake Power Station – 41 MW

NG2 - Meridian Cogeneration Station* – 228 MW

NG3 - North Battleford Generating Station* - 289 MW

NG4 - Yellowhead Power Station – 135 MW

NG5 - Ermine Power Station – 90 MW

NG6 - Landis Power Station – 78 MW

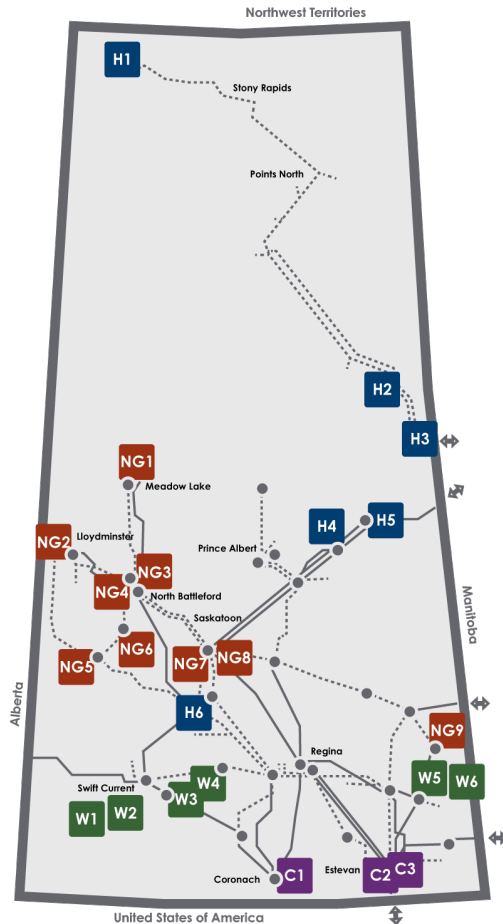
NG7 - Cory Cogeneration Station – 246 MW

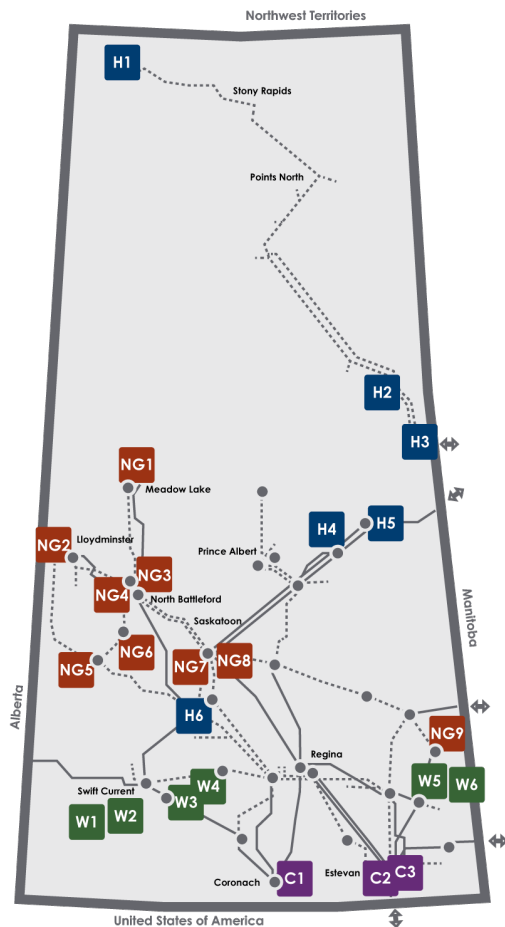
NG8 - Queen Elizabeth Power Station – 623 MW

NG9 - Spy Hill Generating Station* – 89 MW

NG10 - Chinook Power Station – 353 MW

*Large Independent Power Producer





SASKPOWER SYSTEM MAP

TOTAL GENERATING CAPACITY FROM ALL SOURCES – **4,993 MEGAWATTS (MW)**

WIND TOTAL CAPACITY - 241 MW

- W1 - Cypress Wind Power Facility – 11MW
- W2 - SunBridge Wind Power Facility* – 11MW
- W3 - Centennial Wind Power Facility – 150 MW
- W4 - Morse Wind Energy Facility* – 23 MW
- W5 - Red Lily Wind Energy Facility* – 26 MW
- W6 – Western Lily Wind Energy Facility* - 20 MW

COAL TOTAL CAPACITY - 1530 MW

- C1 - Poplar River Power Station – 582 MW
- C2 - Boundary Dam Power Station – 672 MW
- C3 - Shand Power Station – 276 MW

TRANSMISSION

- 230 kilovolt (kV)
- - - 138 kV / 115 kV / 110 kV
- Switching Station
- ↔ Interconnection

*Large Independent Power Producer

Success Elements

- Schedules – Providing, updating, meeting
- Safety Documentation up front – D&A records, certifications
- A *strong* safety culture – safety toolbox meetings, work observations
- Flexibility with working with other contractors
- Timely red-line submissions
- Regular communication with construction staff
- Understanding SaskPower's Standard Protection Code

HYDRO-ELECTRIC LIFE EXTENSION

- EB Campbell 1-6, 2019 - 2025
 - Turbine, generator, eBOP, mBOP
 - Roof, Concrete, foundation
- Coteau Creek, 2023-2025
 - Significant eBOP, mBOP, Site Infrastructure, storage buildings
- Next
 - Island Falls 1-3, 7 (*)
 - Athabasca (*)
 - Nipawin 2030s



HYDRO & RENEWABLES, 2021 - 2023

- Athabasca – Remote Operation
- Surge tank – Wellington
- Stop Logs – Waterloo & IF
- HMI Replacement – IF, EBC
- Nipawin – eBOP (Governor, Protection, Switchgear, HVAC)
- NH Public Safety
- CC GSU & AVR
- EB Intake Gate, eBOP, mBOP



WESTERN PLANTS/QUEEN ELIZABETH, 2021-2023

- 2021 QE Fire System, Lifting Lugs, & CW Outfall Rework
- Roof Replacements
- QE C Life Extension
- Cory Cogeneration
 - Valve, Controls/HMI Upgrades
 - Inlet Filter Housing
 - Plant Life Extension
- ER/YH CT Air Inlet Pre-heating



BOUNDARY DAM POWER STATION, 2021-2024

- CCS Process Modifications
- Aquistore Well
- BD Chemical Storage
- HVAC/Plant Heating & Fire System
- Common System, BD3, & CCS DCS/HMI Upgrades
- Unit Lay Up Infrastructure
- Pulverizer Performance Upgrades
- Boiler Shielding



SHAND POWER STATION, 2021-2023

- Shand Life Extension, 2020/2022*
 - eBOP, mBOP, Controls, Generator
- Roof Replacements



POPLAR RIVER POWER STATION, 2021-2024

- DCS HMI Control Upgrades
- Sewage Treatment Plant
- Switchgear Arc Flash Upgrades PII
- Pulverizer Life Extension
- Ash Lagoon 4W



Great Plains Power Station, Moose jaw

- 350MW combined cycle facility
- Supports base load & integration of renewables
- Great Plains Power Station, Moose Jaw:
 - Burns & McDonnell – EPC Partner
 - Local & Indigenous Targets
 - 2021 – Earthwork, Piling, Foundation, & Roads, Administration Building, Cold & Warm Storage Buildings
 - In-Service 2024



SUPPLY PLAN, NEXT STEPS

- Plant Siting, Interconnections
 - Natural gas, small modular reactors
 - Transmission
- 2025-2027, Simple Cycle Generation
 - Ermine Expansion, 50MW
 - Yellowhead & Landis, TBD
- 2028-2030, Combined Cycle Generation
 - Dependent on interconnections
 - Siting, Federal Environmental Submissions
- Chinook, Cory CTG Uprates, Hydrogen
- Support base load & integration of renewables
 - Additional IPP Wind
 - Additional IPP Solar



Questions?