

POWER PRODUCTION  
**INFORMATION** SESSION



 Cisco **webex** 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





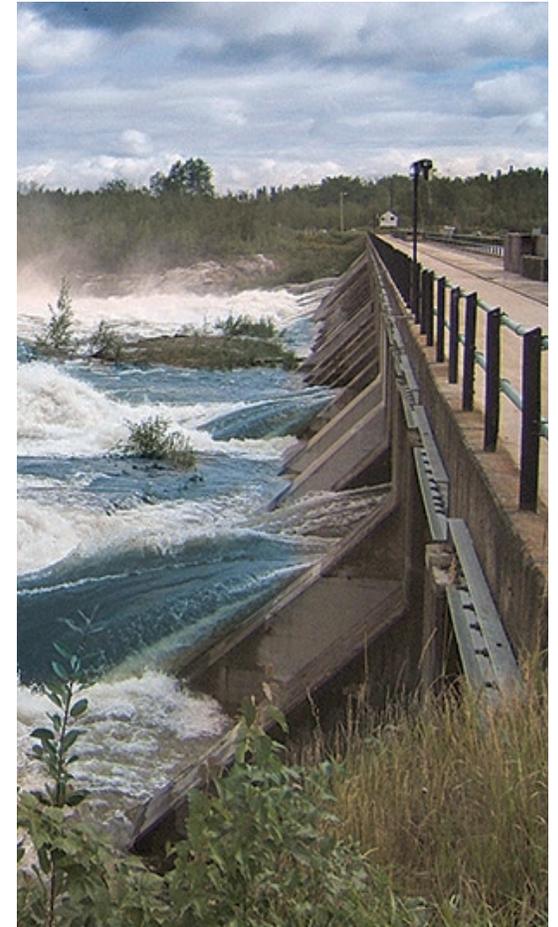
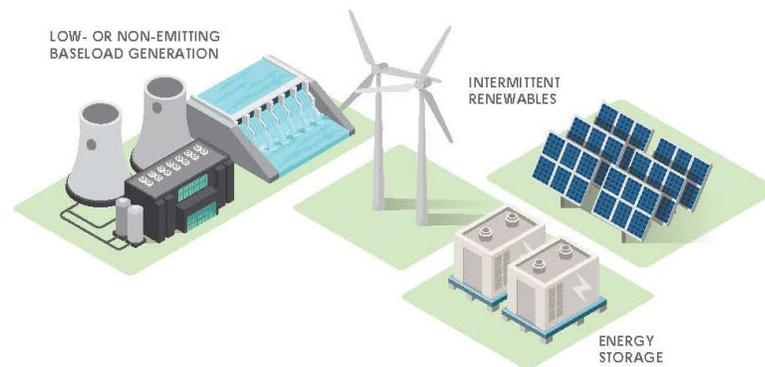
# PROCUREMENT INVESTMENT (YTD)

- 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.



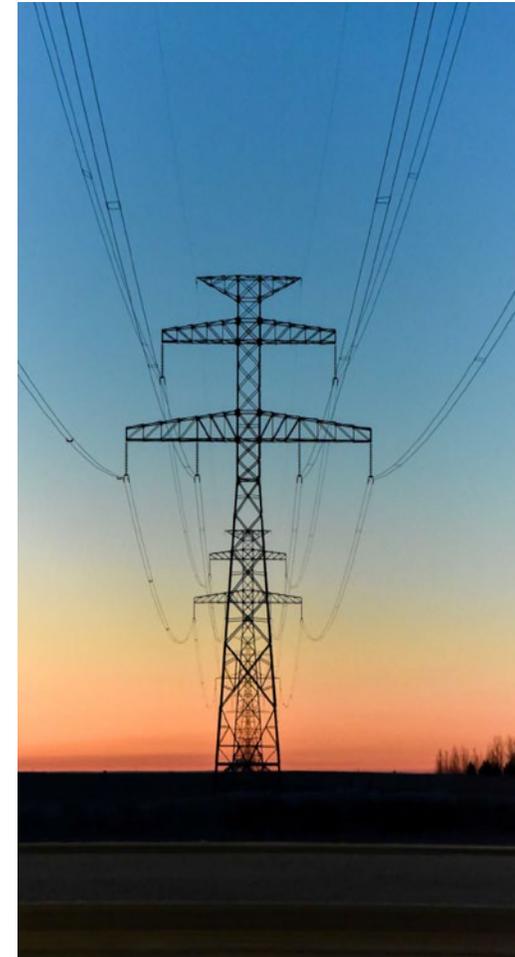


# A MODERNIZED GRID FOR SASKATCHEWAN

- 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

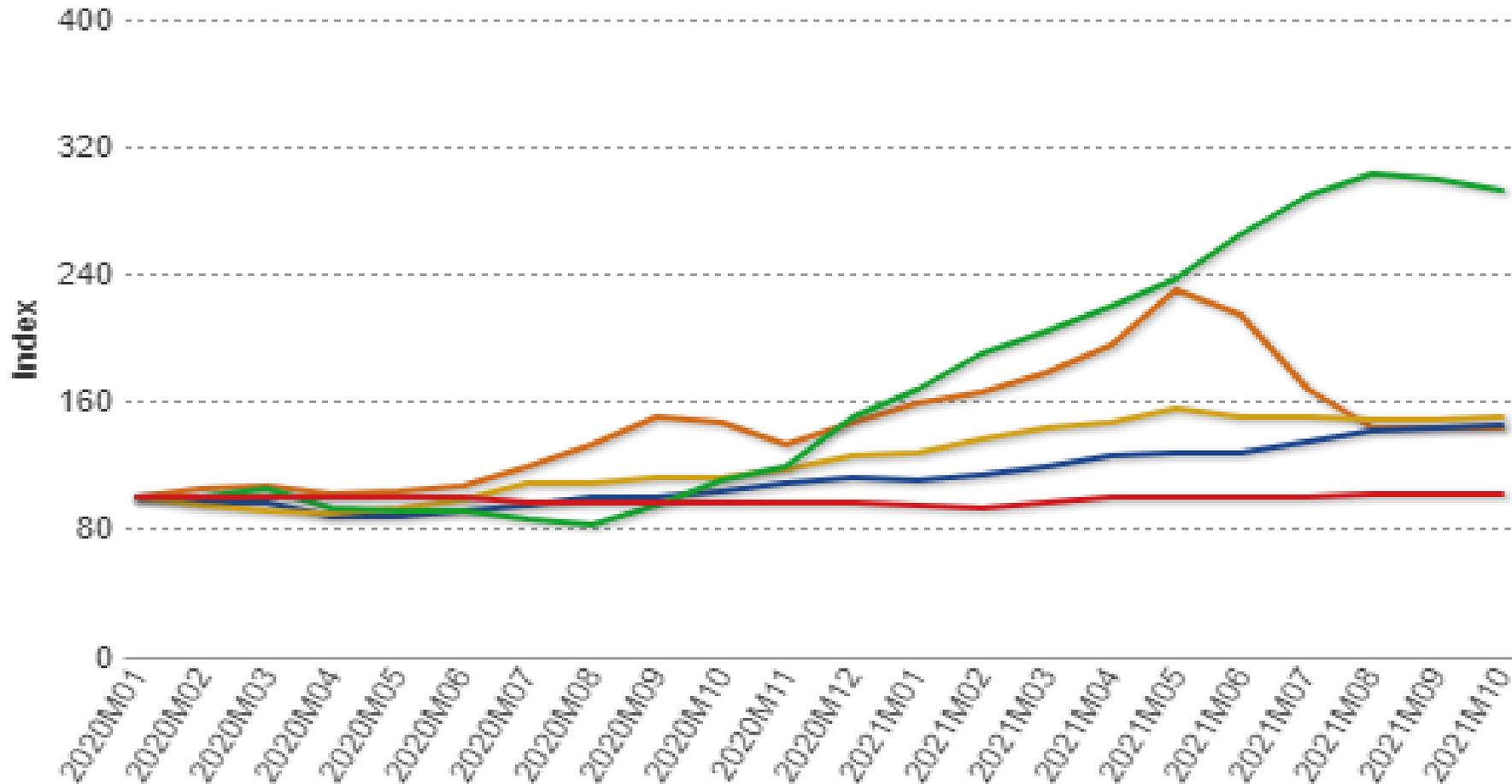
PROCUREMENT MANAGER, MAJOR PROJECTS &  
STRATEGIC PLANNING

# AGENDA

- Market Trends
- Major Projects
- Competition Principles
- Best Value Breakdown
- Observations on Procurements



# INDUSTRY OBSERVATIONS

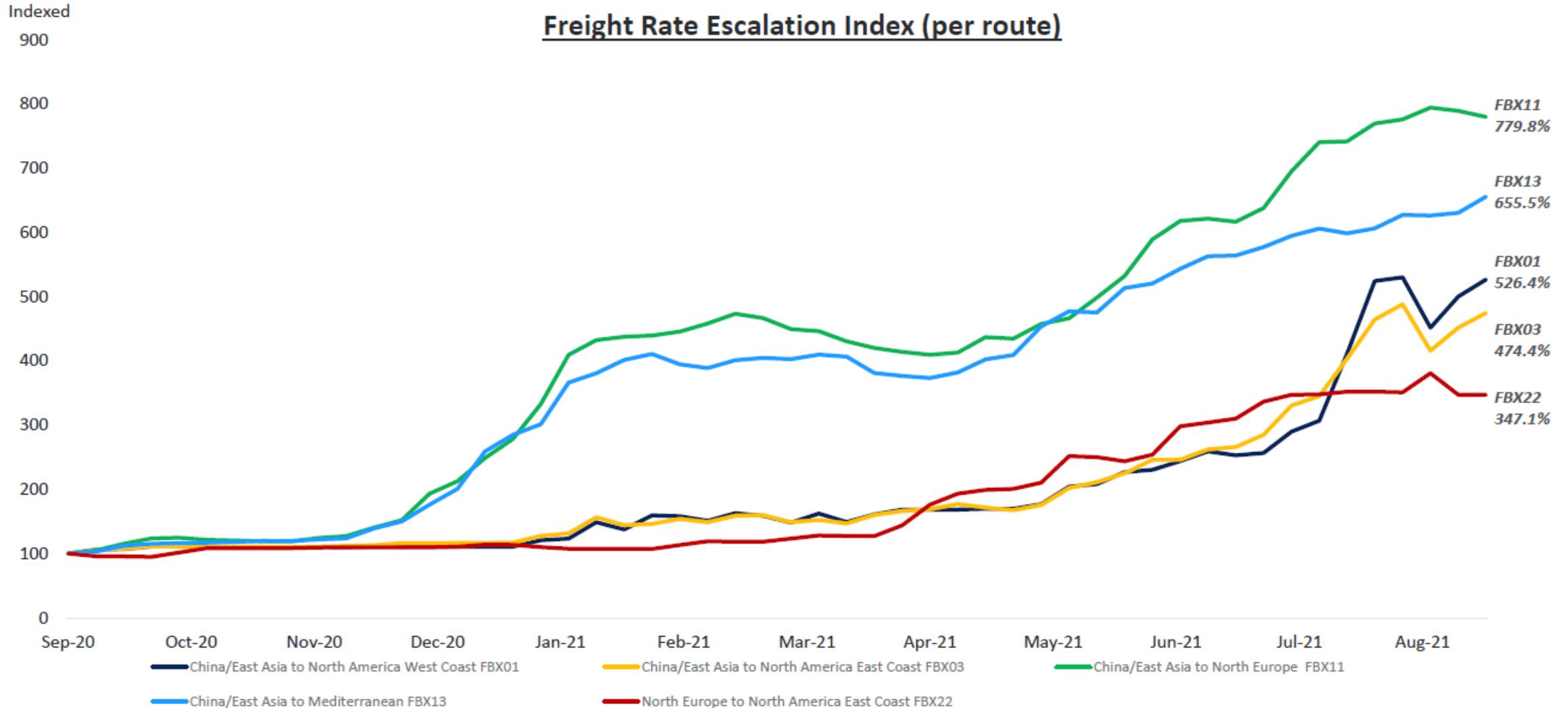


## Pandemic by commodity

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



# INDUSTRY OBSERVATIONS



# CHALLENGES



COVID

Pricing  
Delays  
Engagement

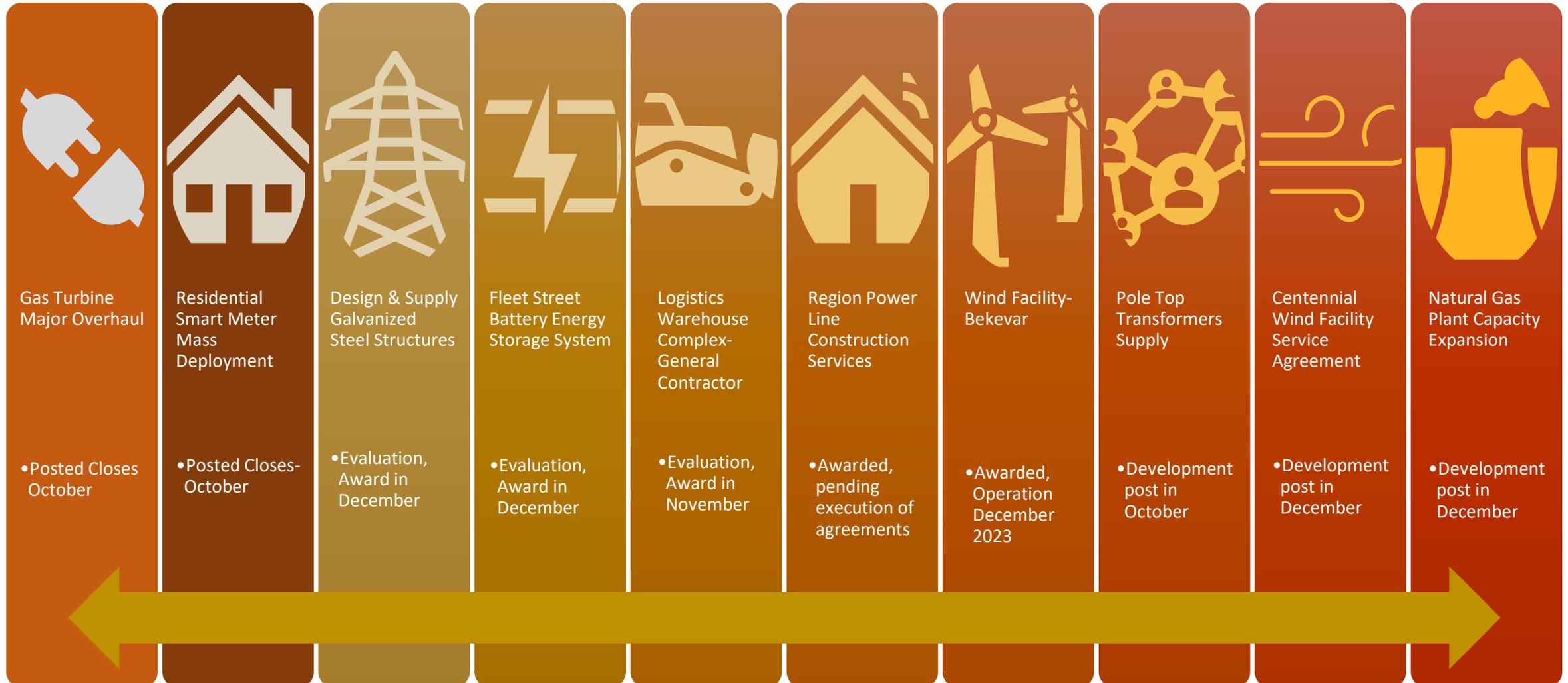


Labor Shortages



Commodity  
Prices Increase

# MAJOR PROCUREMENTS





# COMPETITION PRINCIPLES



BEST VALUE



ENABLING,  
INTUITIVE AND  
ENCOMPASSING



FAIRNESS /  
TRANSPARENCY

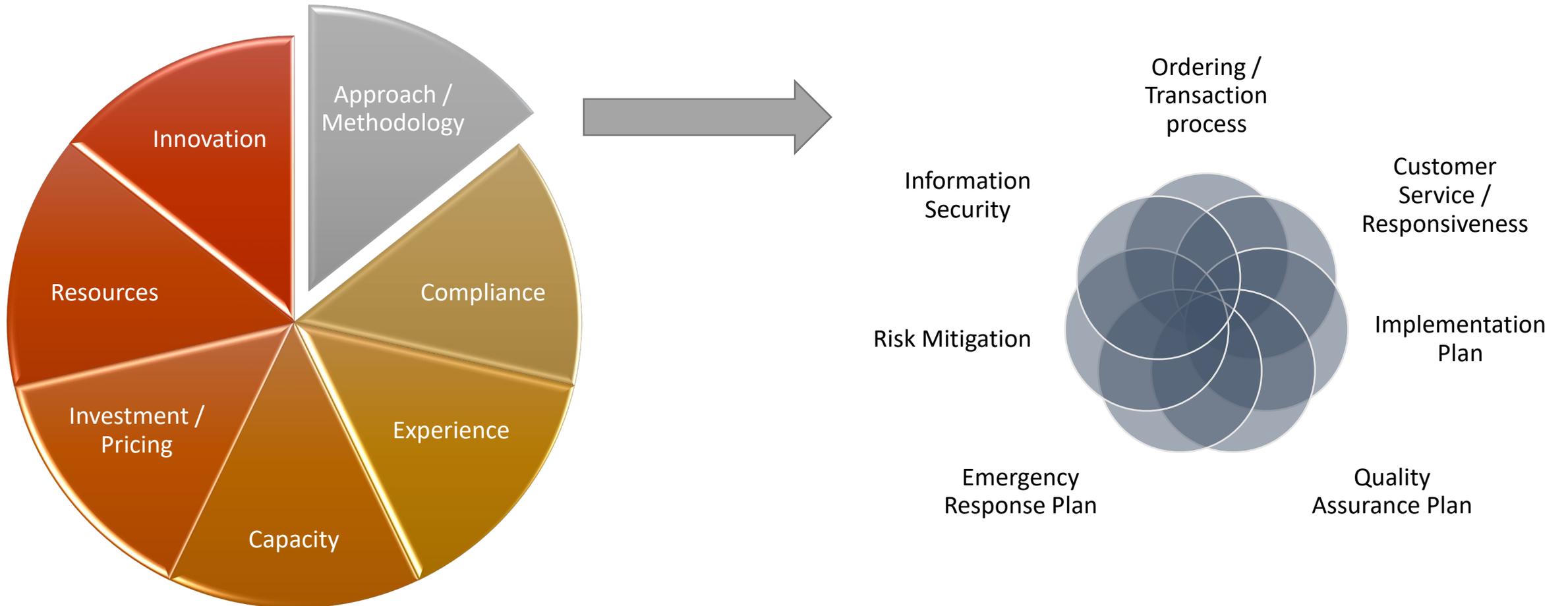


DEFENSIBLE



TRADE AND LEGAL  
COMPLIANCE

# BEST VALUE EVALUATION



# COMMUNITY BENEFITS





# OBSERVATIONS ON PROCUREMENTS

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Questions

Clarifications

Debriefs

Differentiation

Organization structures

ISNet World

Financial Assessment

Conflict of Interest

Complete Proposals



# SASKPOWER SUPPLIER INFORMATION SESSION



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October 2021

# POWER PRODUCTION CAPITAL PROJECTS UPDATE

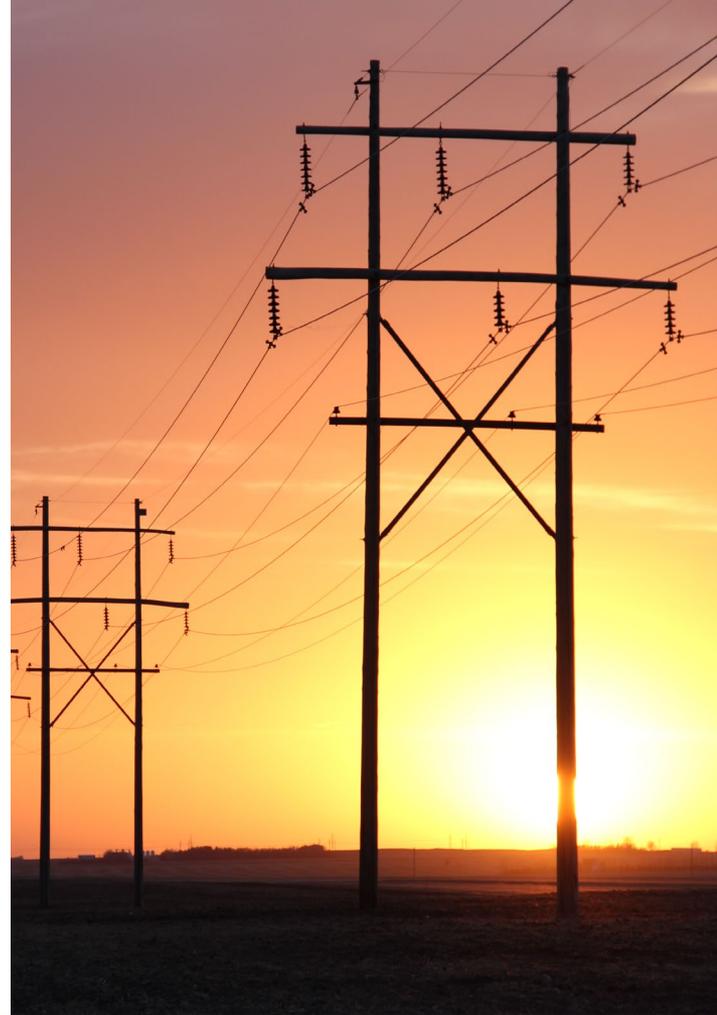
Howard Matthews, VP Power Production

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

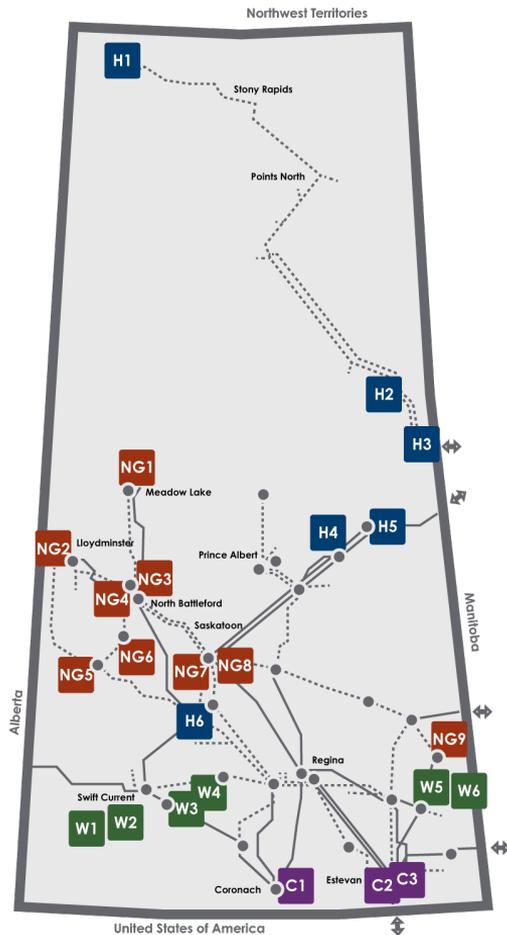
NG7 - Cory Cogeneration Station – 246 MW

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

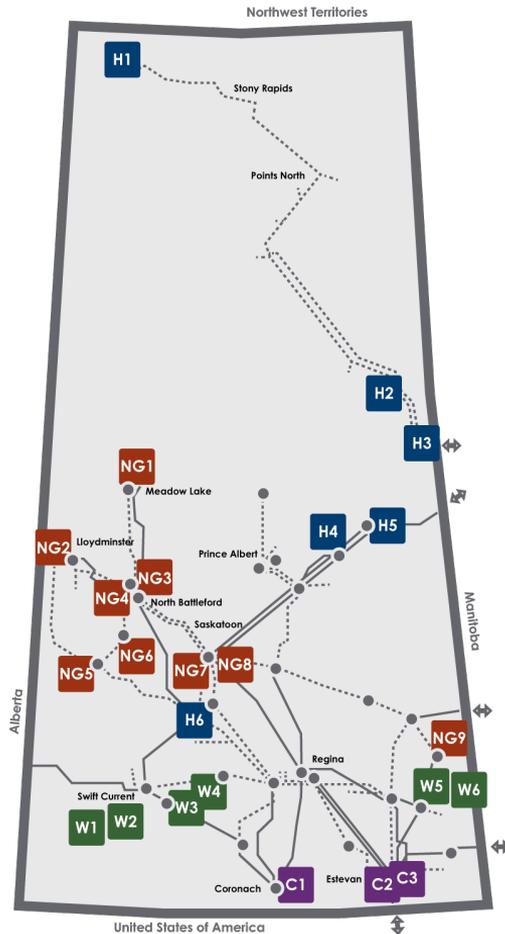
- W1 - Cypress Wind Power Facility – 11MW
- W2 - SunBridge Wind Power Facility\* – 11MW
- W3 - Centennial Wind Power Facility – 150 MW
- W4 - Morse Wind Energy Facility\* – 23 MW
- W5 - Red Lily Wind Energy Facility\* – 26 MW
- W6 – Western Lily Wind Energy Facility\* - 20 MW

## 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?