



# Manitoba Hydro General Rate Application hearing

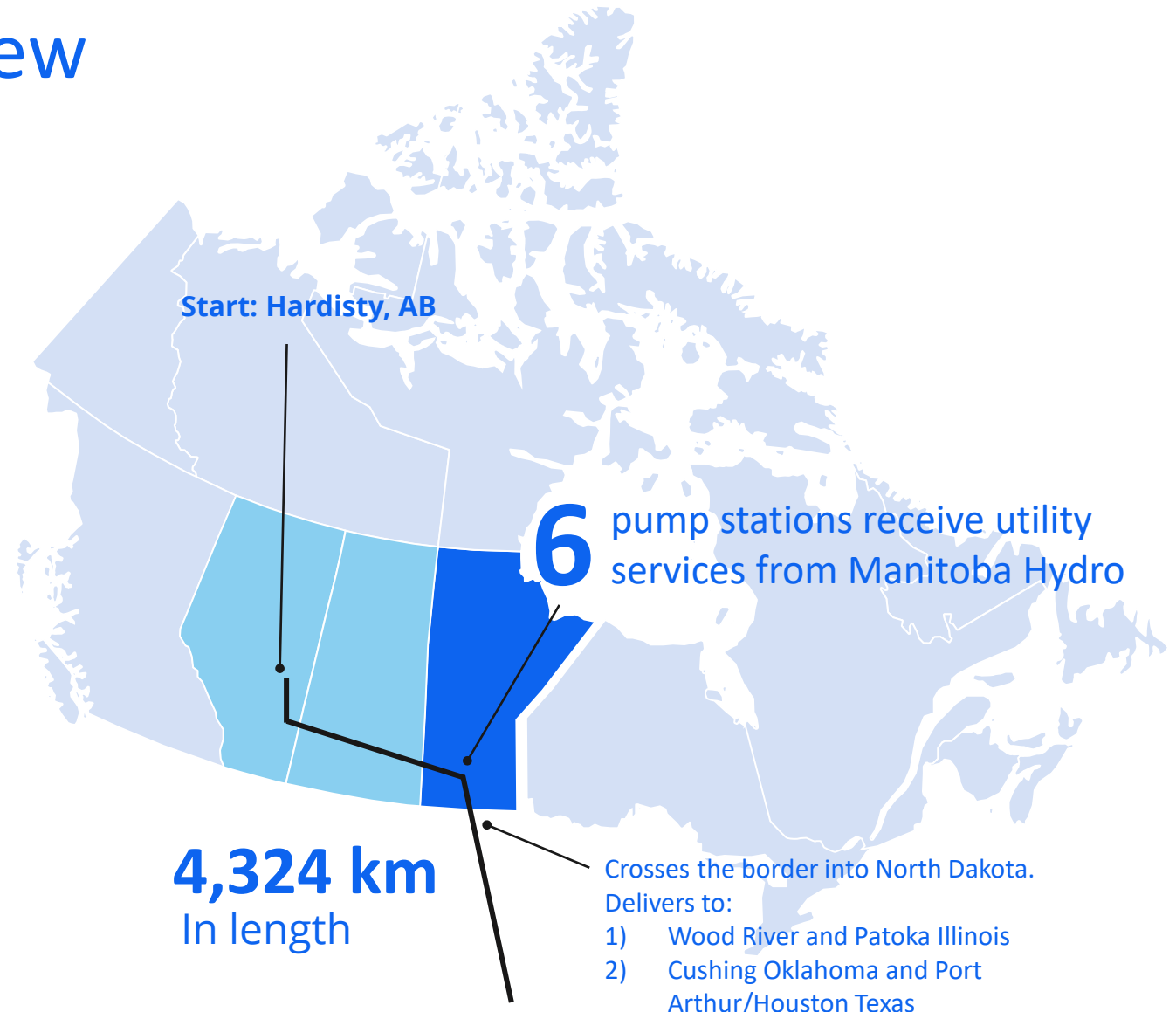
CHRISTOPHER HOST, P.ENG  
JUSTIN CHAN, P.ENG  
RACHEL HALSTED, P.ENG

MAY 16, 2023



# Keystone System Overview

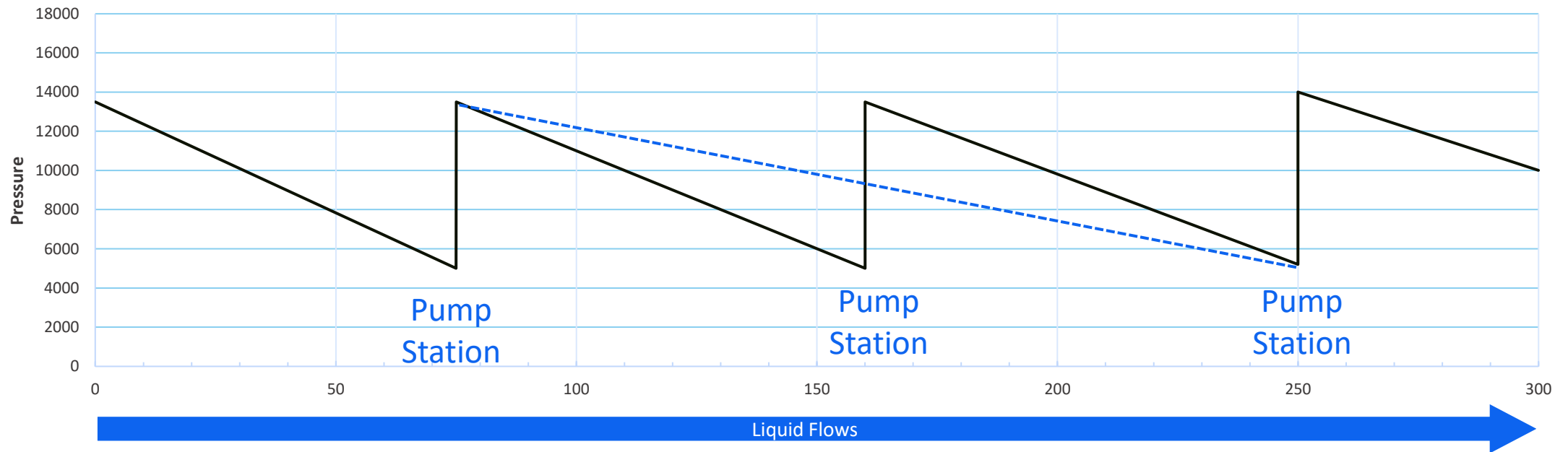
- ❖ Delivers Canadian and U.S crude oil supplies to markets around North America
- ❖ Canada: Hardisty, Alberta to Manitoba
- ❖ 23 pump stations in Canada
- ❖ Transported 3.6+ billion barrels since 2010



# How is Oil Transported?

- ❖ Pressure drives flow
  - Oil flows from high pressure to low pressure
  - Pump stations introduce pressure
- ❖ Pump station outages reduce flow and can shutdown the line

The visuals and graphs used in this presentation are for illustrative purposes and do not represent operating parameters of the Keystone Pipeline.



# Industry KPIs & Manitoba Hydro Performance

Focus on sustained interruption lasting more than **five minutes** as per IEEE 1366-2012

## **SAIDI:** System Average Interruption Duration Index

- Target\*: < 148 (Table 1 SAMP)
- 2022 Actual T-SAIDI: 474.98

## **SAIFI:** System Average Interruption Frequency Index

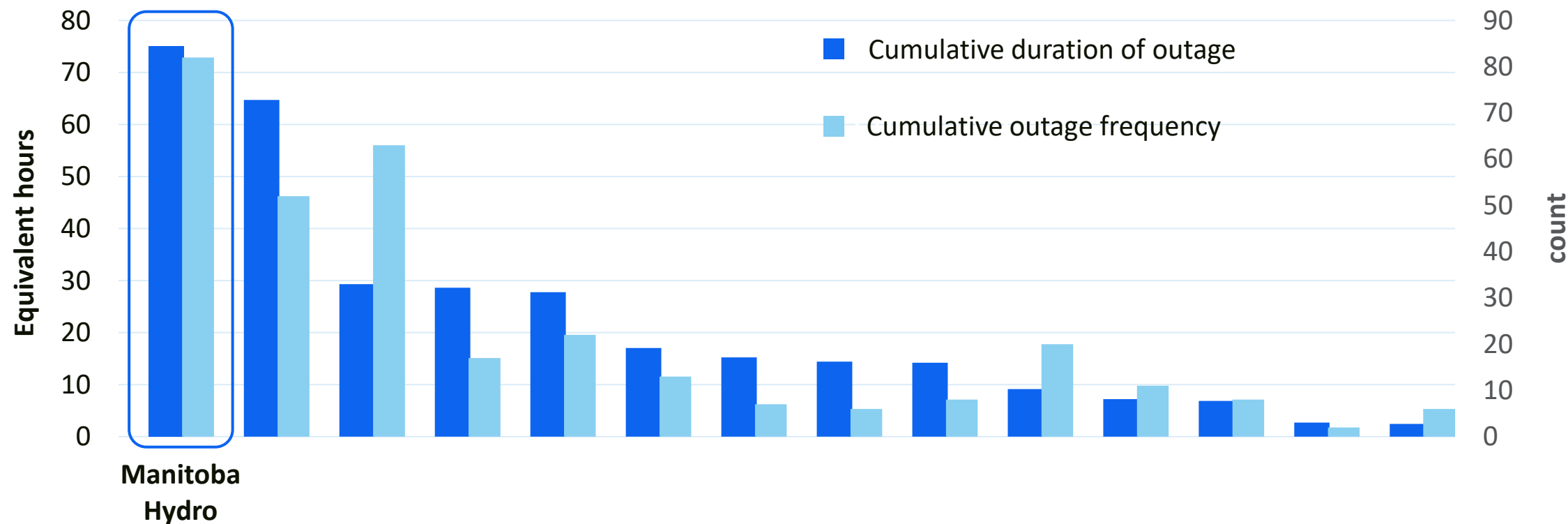
- Target\*: <1.59 (Table 1 SAMP)
- 2022 Actual T-SAIFI\*: 2.33 (Figure 7.4 in Tab 7)

\*Targets: Table 1 Manitoba Hydro Strategic Asset Management Plan

\*Actuals: Figure 7.4 in Tab 7 of the General Rate Application



# Utilities Performance 2020-2022



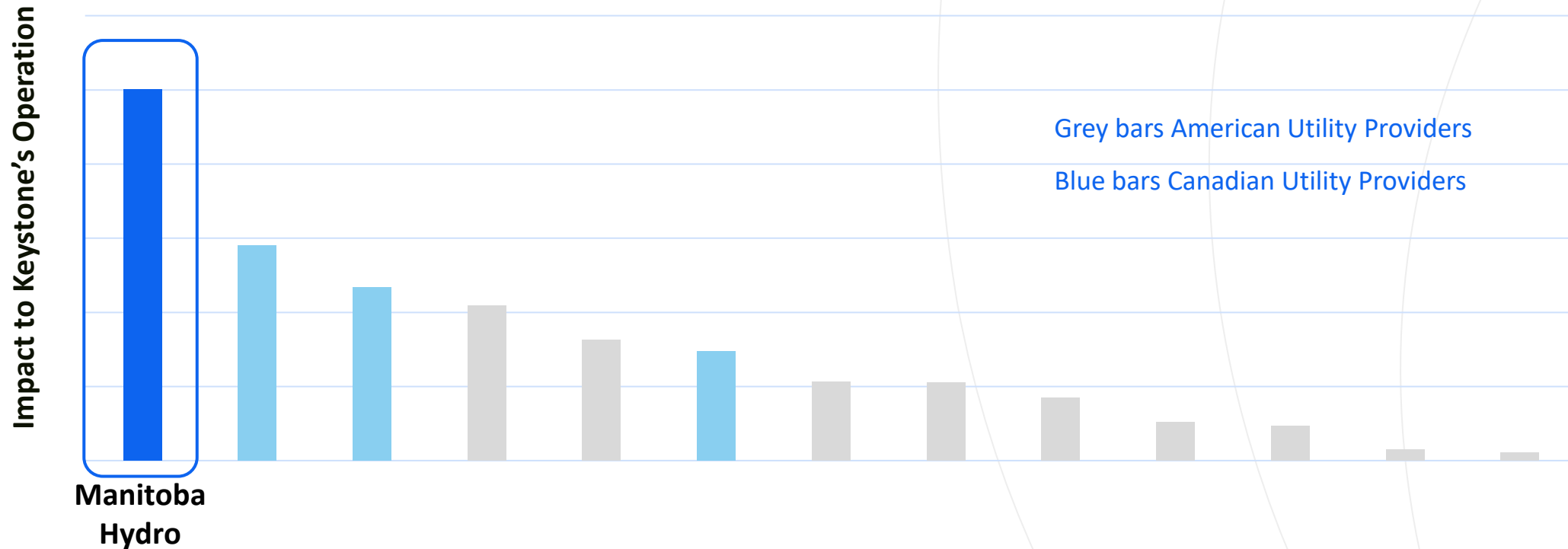
**Outages related to Manitoba Hydro's declining performance resulted in more frequent downtime and longer duration of downtime than any other provider on the Keystone System**



# Impact from utility service unreliability



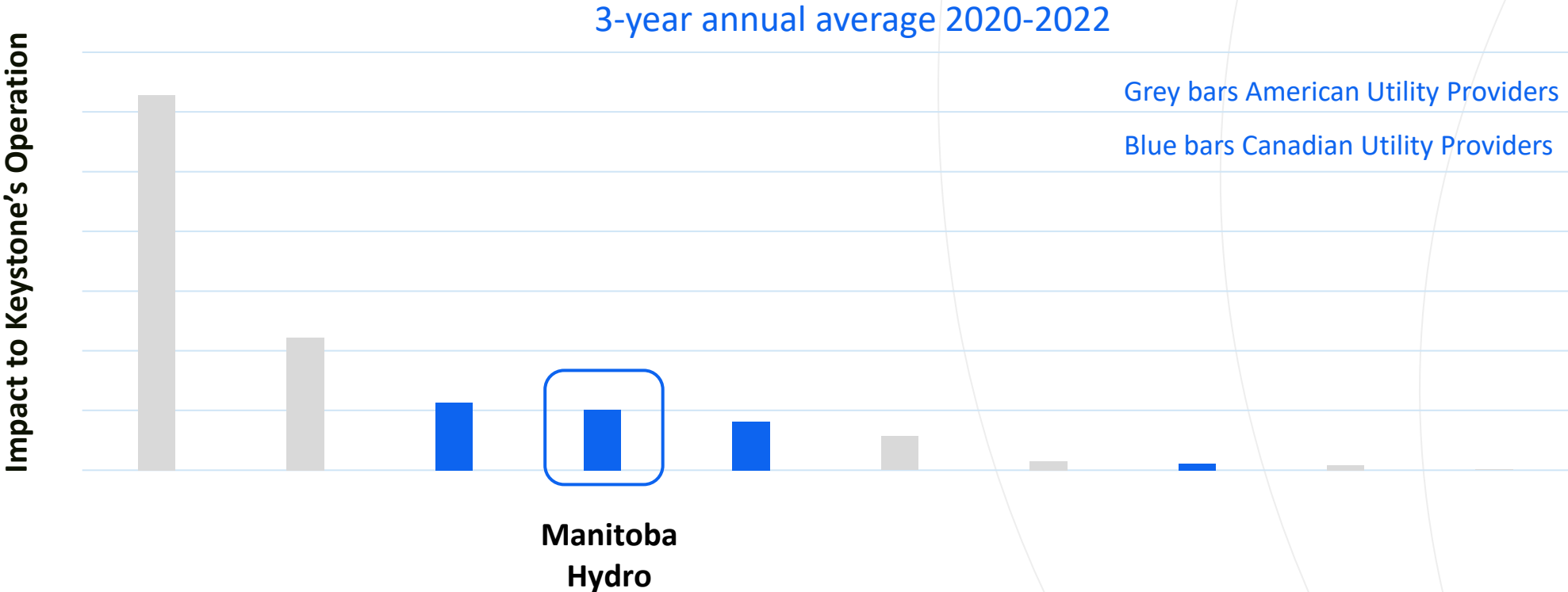
3-year annual average 2020 to 2022



**Manitoba Hydro service reliability results in the largest impact to Keystone Operation relative to any utility provider along the system**



# Throughput Impact due to weather



**Manitoba Hydro weather related reliability results in the 4<sup>th</sup> largest impact to Keystone Operation relative to other utility providers along the system**



# Funds needed to address performance degradation

## PERFORMANCE

*Generation, transmission and distribution system have all reached an age where overall condition has begun to degrade, and declining performance is apparent through common industry metrics*

01



From Tab 7 of the General Rate Application on page 4

## CONSEQUENCE

Degradation of Manitoba Hydro's utility performance impacts the reliable operation of the Keystone System

02



Tracked by TC Energy

## RESOLUTION

Increased capital and operating budgets are essential to improving the reliability of Manitoba Hydro's utility service and therefore critical to minimizing risk to Keystone's ability to deliver Canadian crude to North American markets

03

