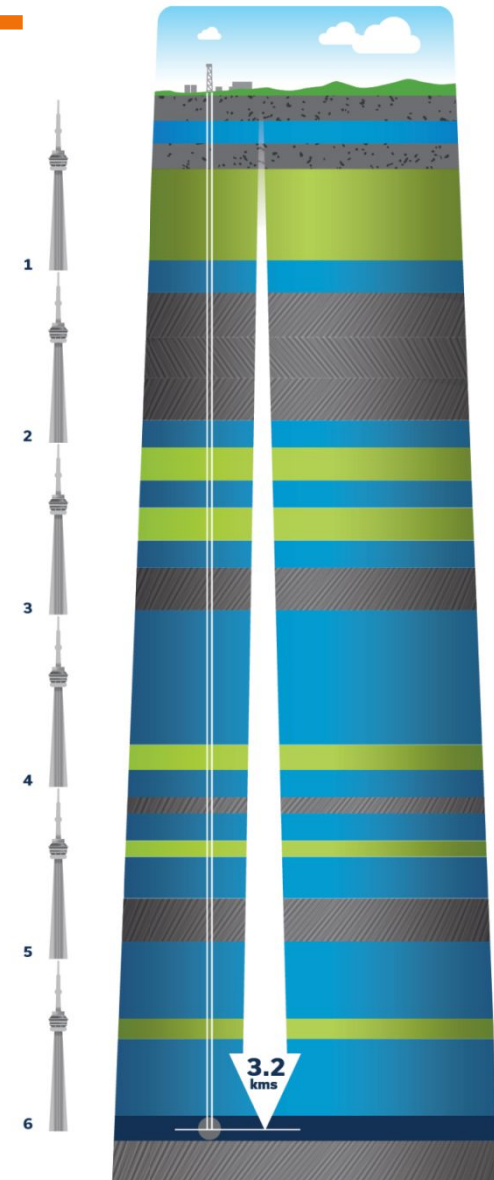




GEOLOGICAL STORAGE

- Pure CO₂ storage with SaskPower's Carbon Storage and Research Centre's host project, Aquistore.
- Independent monitoring project that identifies feasibility of injecting CO₂ into a deep saline reservoir in an effort to reduce GHG emissions.
- Aquistore will receive approximately 350,000 tonnes of CO₂ over its life. Storage is regulated by the Ministry of Environment.
- Will be measured, monitored, verified and audited.
- Saskatchewan has experience with storage due to the Weyburn Midale project. Approximately 25 million tonnes of CO₂ stored and monitored.



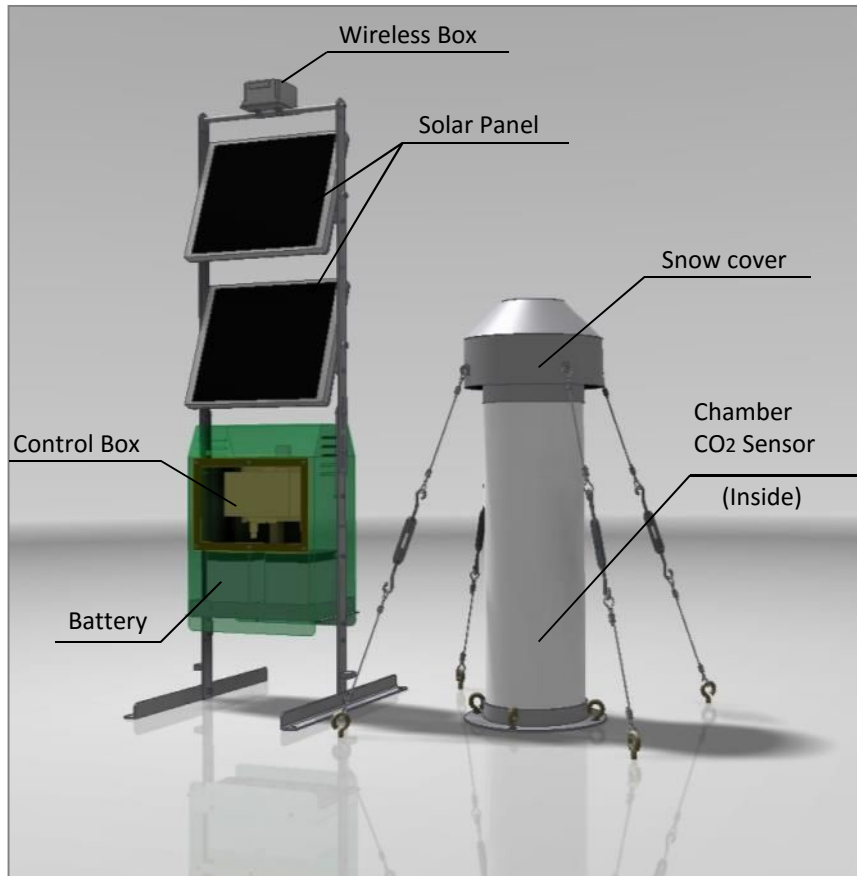
Deep Saline Aquifer Storage

CO2 Ground Monitoring System Verification test in Aquistore site

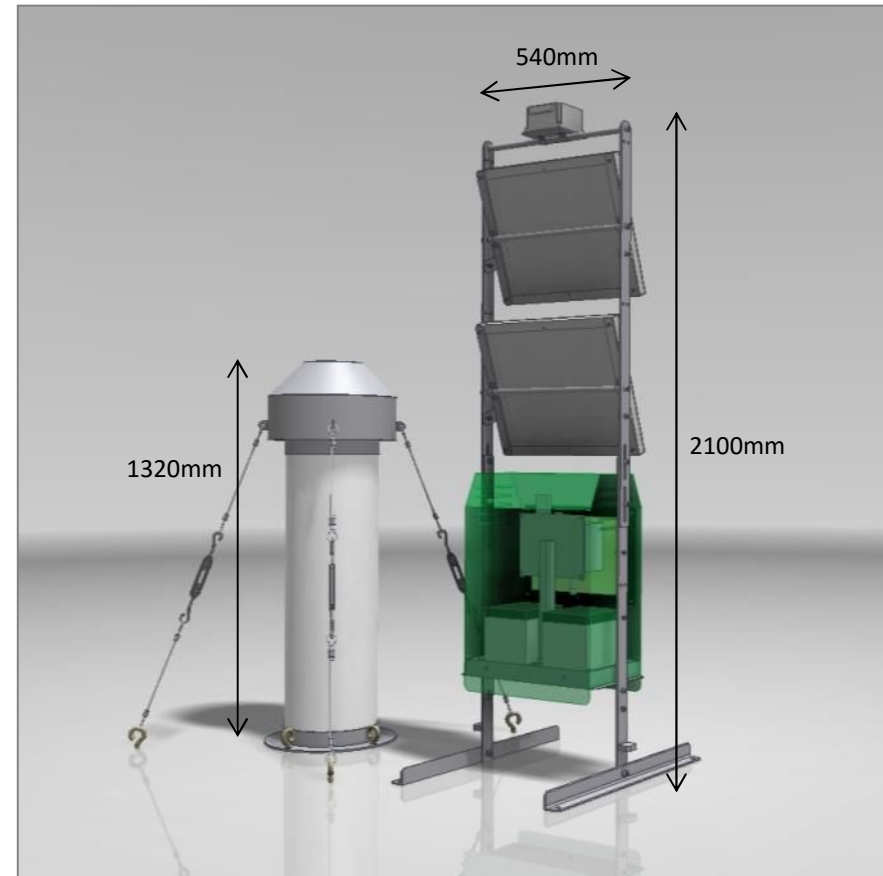


CO2 Ground Monitoring System Verification test in Aquistore

[Composition]

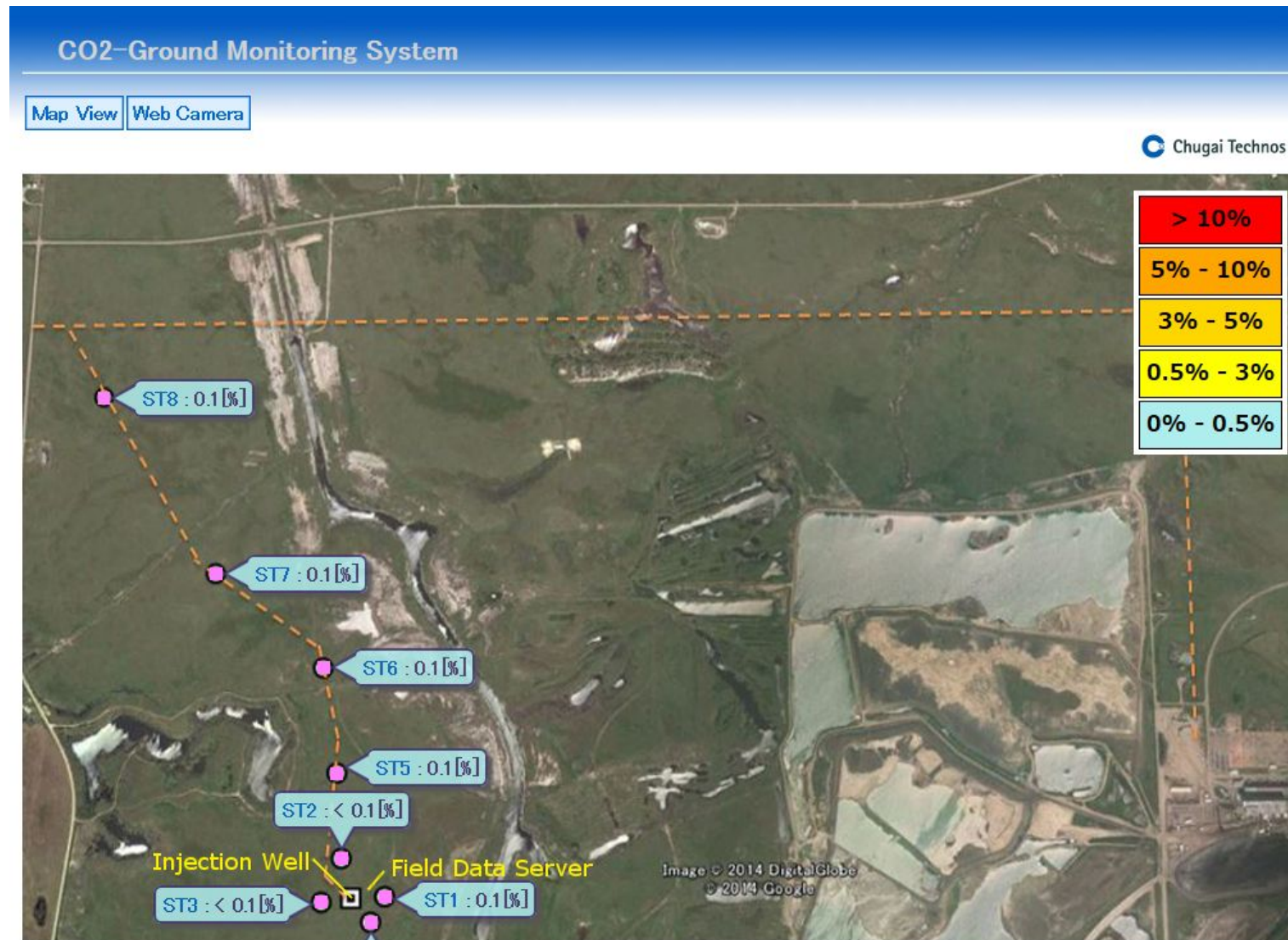


[Size]



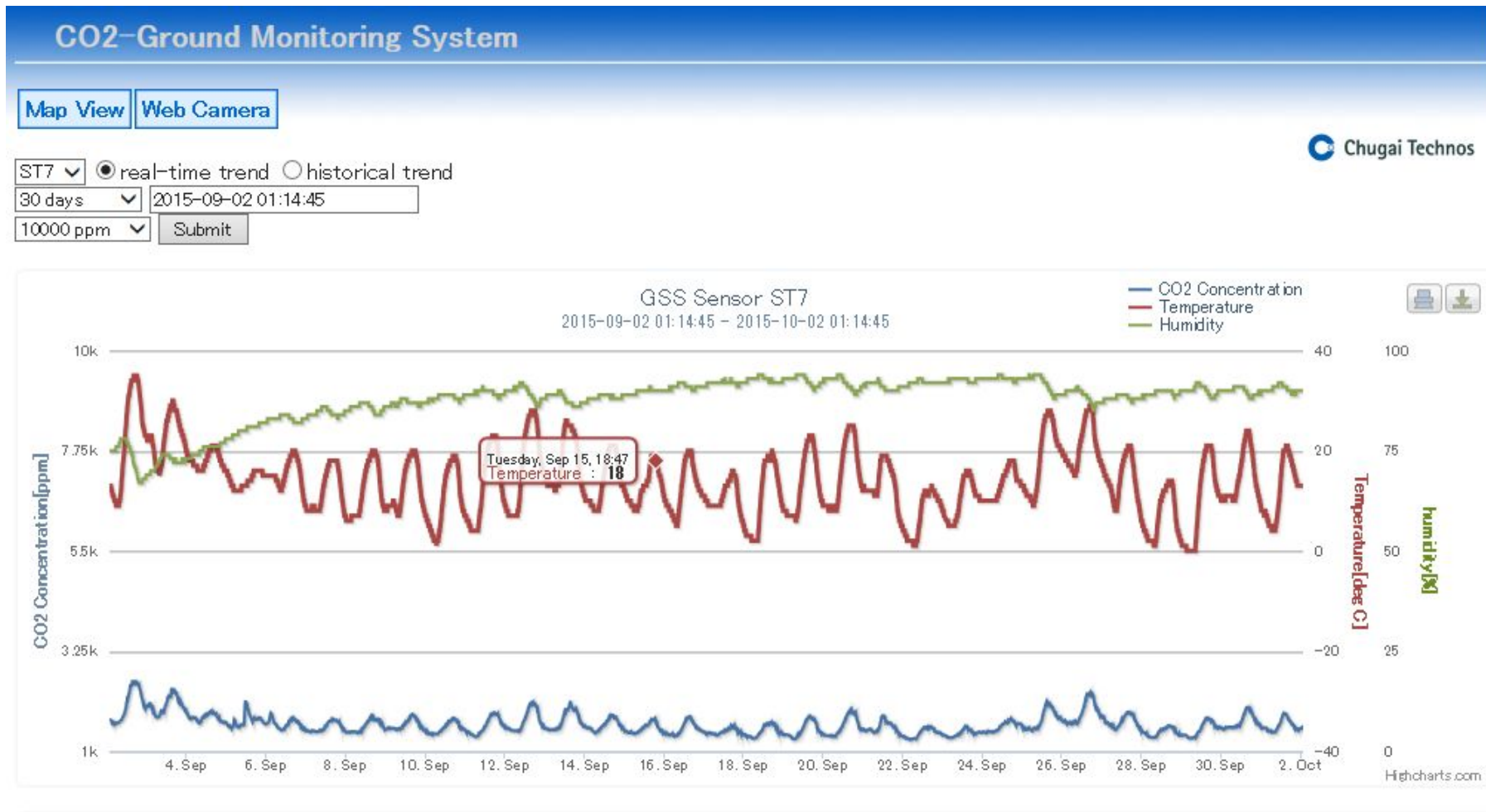
K-Coal

CO2 Ground Monitoring System Verification test in Aquistore



K-Coal

CO2 Ground Monitoring System Verification test in Aquistore



K-Coal



CARBON CAPTURE
TEST FACILITY



PARTNERSHIP



OPPORTUNITIES FOR FUTURE PROJECTS

Unit	Initial Investment	Final Investment	In Service
BD 4/5	2016	2019*	2025*
BD 6	2022	2024	2028*
PR 1	2024	2026	2030*
PR 2	2026	2026	2030*
Shand 1	2037	2039	2043*
New Build	New costs	more than rebuild today	

*** Fixed by regulation**

OPPORTUNITIES FOR FUTURE PROJECTS

- Federal government requirements set the schedule for unit retirement or CCS retrofit
- Over capture not necessary – hit 420 mark
- Must be competitive with natural gas and wind
- Still depends upon enhanced oil recovery (EOR) market – diversified customer base likely needed

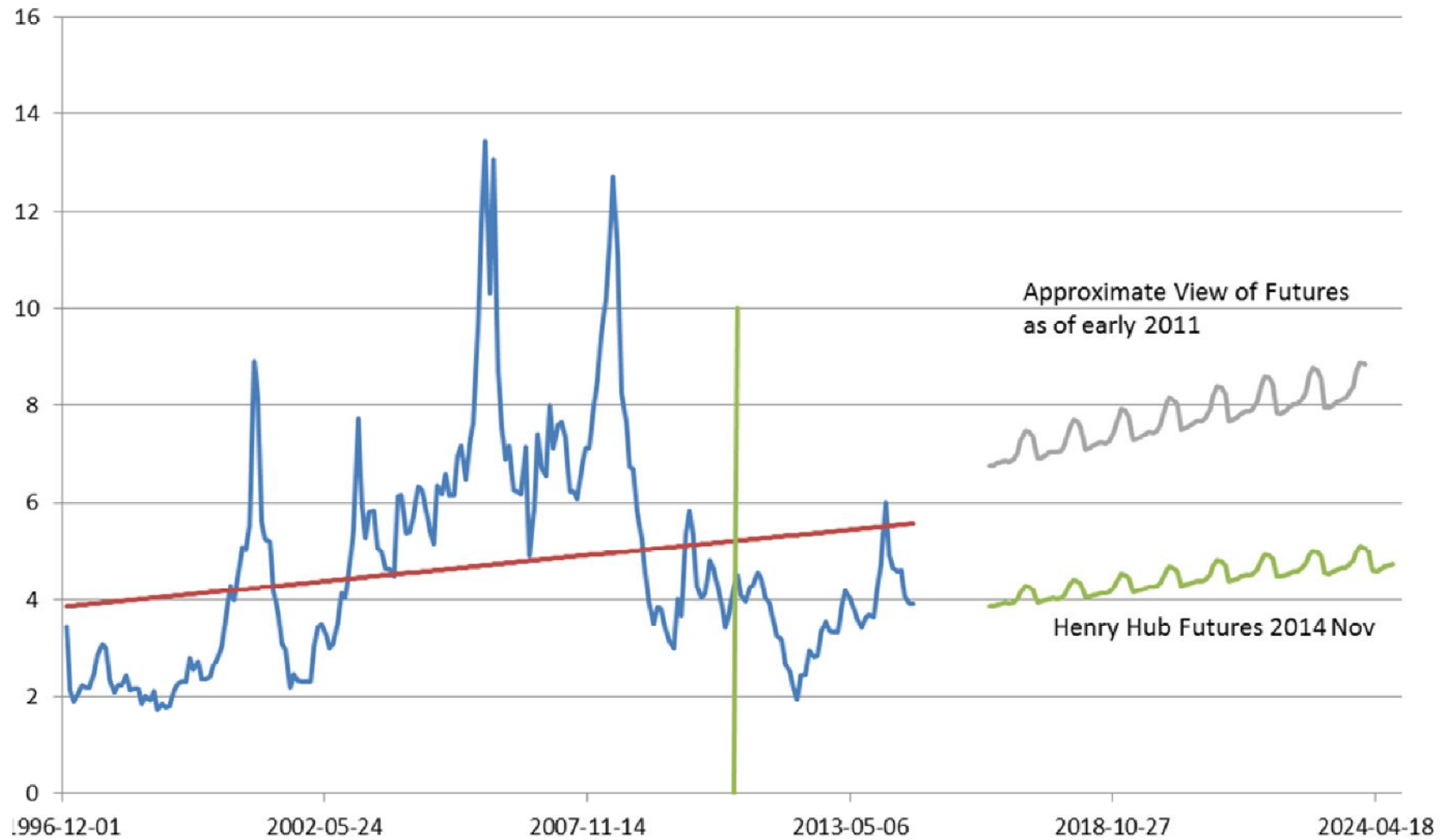
OPPORTUNITIES FOR FUTURE PROJECTS

- **Configurations under consideration, reflect upon savings from....**
 - Two generating units or one for capture
 - Equivalence needed by larger units
- **Capital cost reduction Initiatives**
 - Capture at 420; not 140 kg/MWh
 - Economies of scale
 - Lower integration costs – risks known
 - Numerous BD3 technical learnings
 - Increased modularization
- **Avoid natural gas price volatility**

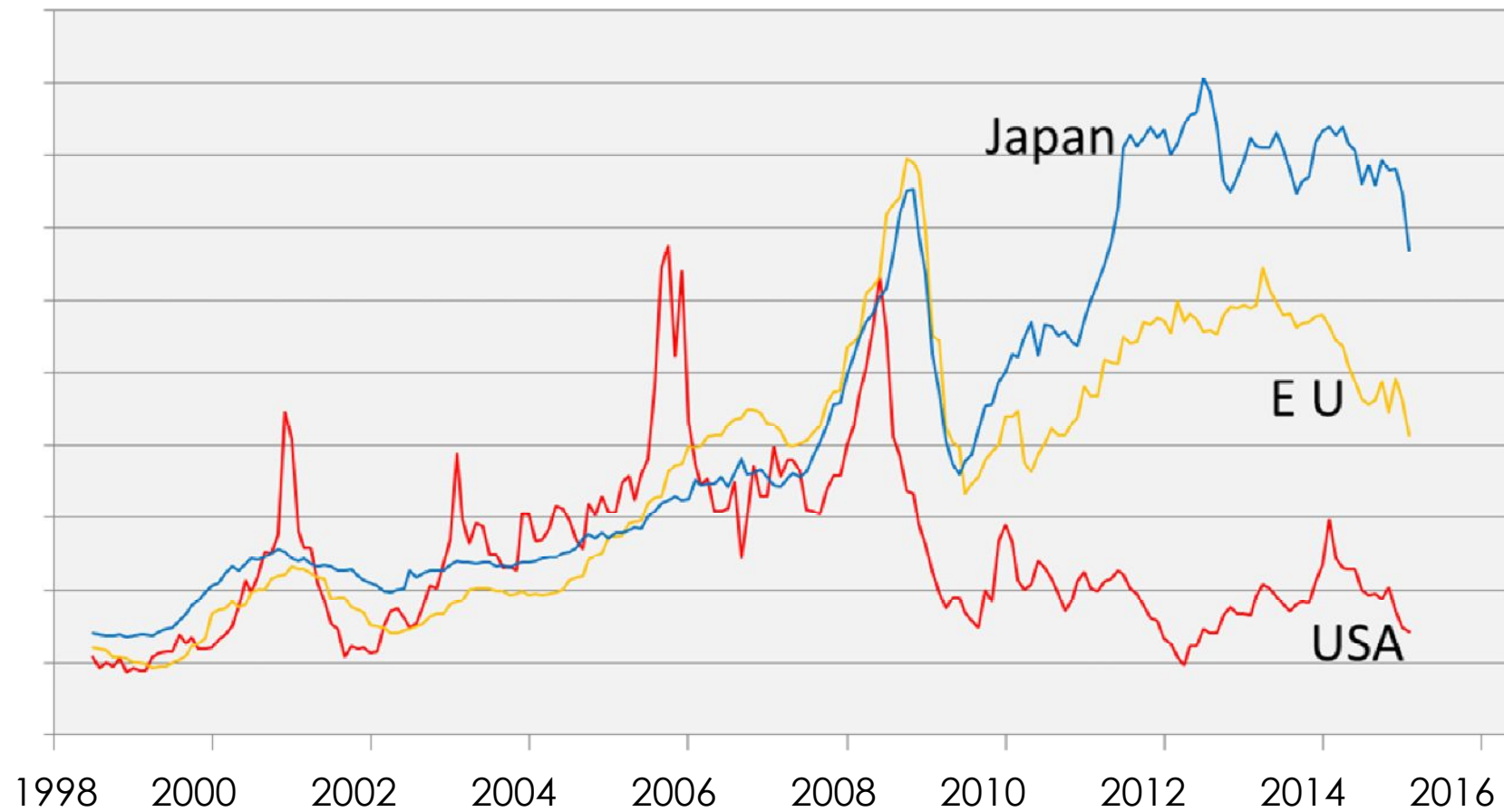
MUST BE COST COMPETITIVE WITH ACCEPTABLE ALTERNATIVES



NATURAL GAS PRICES



SAMPLE GLOBAL NATURAL GAS PRICES

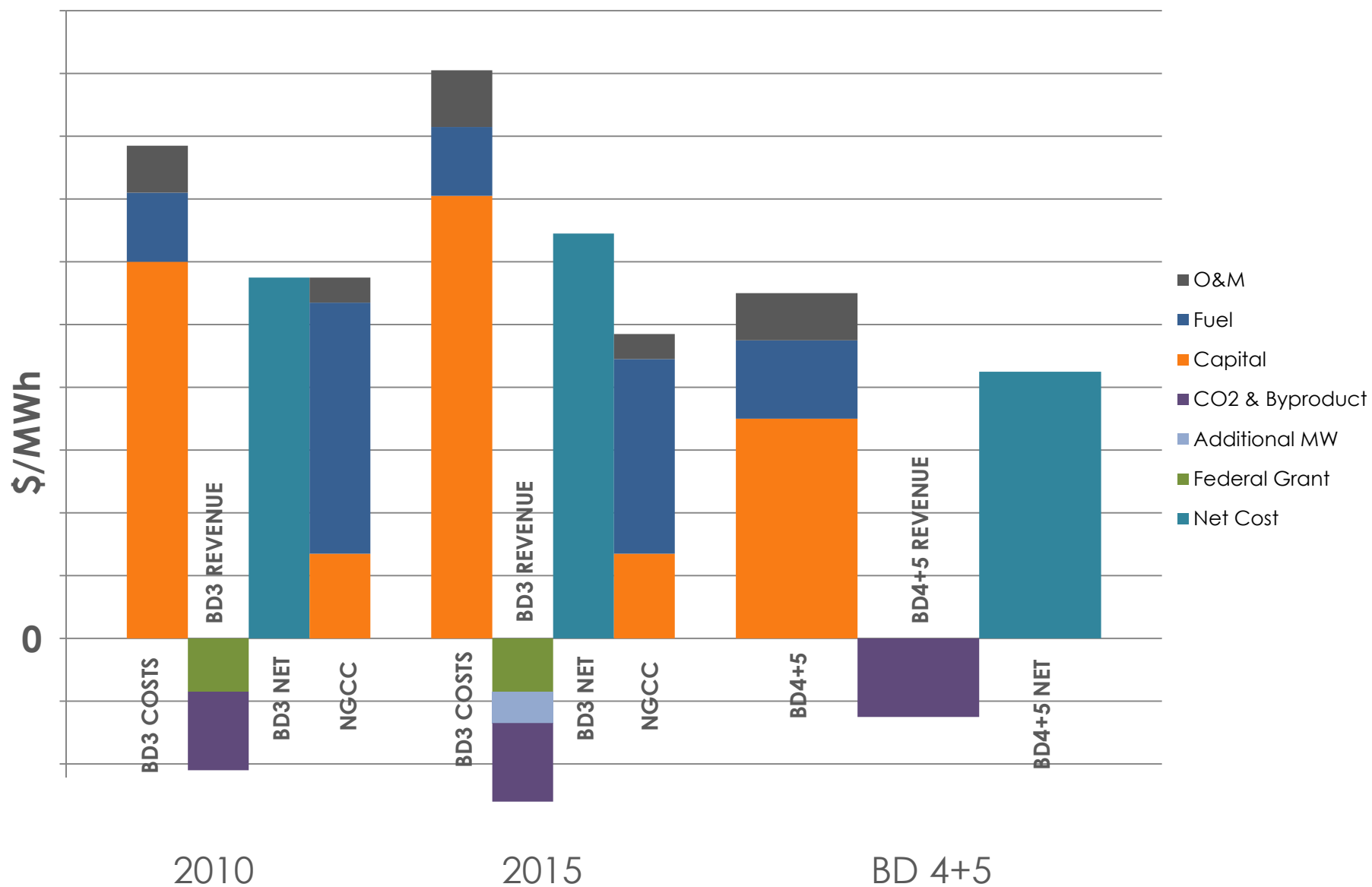


OPPORTUNITIES FOR FUTURE PROJECTS

REGULATORY EQUIVALENCY

- Federal-Provincial discussions on coal fired CO2 equivalency
- Requirement to eliminate coal fired CO2 emissions would be unchanged, however could allow for capture from alternative units if meets same overall requirement
- Could allow SaskPower to capture from one 300 MW unit rather than BD4/5
- Significant savings in power plant refurbishment costs

BD3 CCS ECONOMICS





30 COUNTRIES AND COUNTING



United States



UK



Ireland



Denmark



Netherlands



Belgium



Italy



South Korea



France



Mexico



China



Japan



Norway



Egypt



Finland



Austria



Guyana



Nepal



Algeria



Bangladesh



India



Australia



South Africa



Croatia



Germany



Indonesia



Scotland



Sweden



Turkey



UAE



Poland



Slovakia

VISITORS HAVE TRAVELLED FROM MORE THAN 30 COUNTRIES TO SEE WHAT WE'VE DONE. AS THE WORLD COMES WITH QUESTIONS, WE'LL HAVE THE ANSWERS.

WHAT THE WORLD IS SAYING

“Boundary Dam is one of 10 Energy Breakthroughs in 2014 That Could Change Your Life.”

WENDY KOCH, NATIONAL GEOGRAPHIC

“CCS on coal-fired power plants provide us the largest opportunity for application, and Boundary Dam shows how it can be done. Unless we do CCS, we’re never going to meet long-term climate change goals. This project provides us an opportunity to learn how we can directly apply CCS in China.”

ASHOK BHARGAVA, ASIAN DEVELOPMENT BANK (ADB)

“The level of fossil fuel consumption in the world is going to stay with us all the way through 2050. If we want to take the emissions out, we must have CCS in our armory in order to achieve that objective.”

**DR. GRAEME SWEENEY,
ZERO EMISSION FOSSIL FUELS
POWER PLANTS (ZEP)**

“As long as fossil fuels and carbon-intensive industries play dominant roles in our economies, carbon capture and storage (CCS) will remain a critical greenhouse gas reduction solution.”

**MARIA VAN DER HOEVEN,
INTERNATIONAL ENERGY AGENCY
(IEA)**

COMING SOON

Peterhead

Kemper

Petra Nova

White Rose



TOURS

The background is a solid blue color with a pattern of thin, white, curved lines that sweep across the frame, creating a sense of motion and depth.

TAKE THE VIRTUAL TOUR

www.SaskPowerCCS.com/Tour



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ICEF2015 CCS Session

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