Carbon Capture and Storage Commercialization & Deployment

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The International CCS Knowledge Centre is a non-profit organization founded by BHP and SaskPower.

**Mission:**
To accelerate the understanding and use of carbon capture and storage as a means of managing GHG emissions

- Staff are available to provide experience-based considerations for CCS projects.
- Guidance for planning, design, construction and operation.
- Active engagement with financiers, decision makers, and business case partners.
THE LEARNING STARTS HERE
WORLD’S 1ST LARGE SCALE POST-COMBUSTION CCS FACILITY

Over 3 million tonnes of CO₂ captured & stored since 2014
Saskatchewan Lessons Learned

Full Chain Experience for carbon capture and storage

- Retrofitted existing coal unit
- Capture CO₂ and other particulates
- Transport via pipeline
- Sale & use of CO₂ for enhanced oil recovery
- Sale of other by-products
- Storage site for CO₂ at Aquistore
- Regulation, policy and royalty structures
Performance: Exceeding Standards

- **1100 t/GWh** = Lignite Coal Plant
- **550-500** = Current Natural Gas Plant
- **420** = Canadian Regulations on Coal Plant
- **375-400** = New Natural Gas Plant
- **275-325** = Wind (with peakers)
- **120-140** = CCS on Boundary Dam 3*

**Tonne of CO₂ per gigawatt hour (t/GWh)**
Key findings of feasibility study evaluates the economics of CCS on a 300MW coal-fired power plant in Saskatchewan

- Projected capture capacity of 2Mt/yr
- Capital cost to be **67% less** per tonne of CO$_2$ captured
- Cost of capture at **$45US/t CO$_2$**
- Capture rate can reach **up to 97%** with reduced load (i.e. renewables on grid)
- Fly ash sales can further reduce CO$_2$ (potential 125,000t CO$_2$/yr reduced)
Sectors and CCS emission reductions

CCS technology has been proven and understood, so de-risked deployment can now occur

- CCS is the only technology able to significantly reduce emissions from coal- and gas-fired power plants. (IEA)
- CCS can address emissions from industrial processes, including the production of steel, cement, and chemicals.
- CCS with bioenergy will be needed to deliver future “negative emissions”.

**CO₂ emissions by sector, 2017**

- **Power** (39%)
- **Transport** (23%)
- **Industry** (23%)
- **Buildings** (10%)
- **Other** (5%)

*By 2060 we need:
- iron & steel to capture 10Gt;
- cement to capture 5Gt;
- chemicals to capture 14Gt*

Power generation CCS is at 2.4Mt/year capacity.
We need 1.5Gt per year by 2040 under IEA’s Sustainable Development Scenario.
Thank You

For more information please visit our website at:
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