SASKPOWER’S ENERGY MIX

511,000 CUSTOMERS
151,000KM OF TRANSMISSION LINE
4,181 MW AVAILABLE GENERATING CAPACITY
Diversified Power Generation

- Coal: 44%
- Gas: 29%
- Hydro: 20%
- Wind: 3%
- Other: 4%
BE2570 BUCKET
REGULATIONS
## Comparing Regulations

### Modified / Refurbished Coal Units

<table>
<thead>
<tr>
<th>Country</th>
<th>Kg CO₂ / MWh net (less than 2,000 MMBtu/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>420*</td>
</tr>
<tr>
<td>USA</td>
<td>861.8</td>
</tr>
</tbody>
</table>

### New Coal / Natural Gas Units

<table>
<thead>
<tr>
<th>Country</th>
<th>Kg CO₂ / MWh net</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>420*</td>
</tr>
<tr>
<td>USA</td>
<td>644.5</td>
</tr>
</tbody>
</table>

*Conversion based on SaskPower’s BD3 unit at 124.6 MW net (after station services, SO₂ capture, CO₂ capture but before CO₂ compression).
COMPARING COSTS

Baseload Natural Gas
Cost of Electricity

BD3 Carbon Capture
Cost of Electricity

- Capital Investment
- Fuel Expense
- O & M

Figures from 2009 - 2010
## BOUNDARY DAM UNIT 3

<table>
<thead>
<tr>
<th>Performance</th>
<th>Pre-CCS</th>
<th>Post-CCS</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWs</td>
<td>139</td>
<td>120</td>
<td>13.6%</td>
</tr>
<tr>
<td>CO₂</td>
<td>1,139K</td>
<td>112K</td>
<td>90%</td>
</tr>
<tr>
<td>SO₂</td>
<td>7K</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>NO</td>
<td>2.4K</td>
<td>1.05K</td>
<td>56%</td>
</tr>
<tr>
<td>PM10</td>
<td>190</td>
<td>15</td>
<td>92%</td>
</tr>
<tr>
<td>PM2.5</td>
<td>65</td>
<td>7</td>
<td>70%</td>
</tr>
</tbody>
</table>
150,000 tonnes of CO₂ captured since start-up - Oct 1st, 2014

Min 80% of CO₂ captured
(90% captured at full efficiency)

120 MWh net to grid
Estimated 110 MWh

99.9% CO₂ purity we’re experiencing
THE EQUIVALENT TO:

- Taking all the cars off the road in Regina, SK (pop. 220K)
- Capturing all CO₂ from heating/cooling of every home
- Keeping the lights on in half of the city.
GENERATION COSTS

Data Source: 2010 Electrical Power Research Institute, Program on Technology Innovation: Integrated Generation Technology Options

Figures from 2009 - 2010
CCS FACILITY
BOUNDARY DAM
CCS PROJECT
CO\textsubscript{2} AND SO\textsubscript{2} ABSORBERS
CO\textsubscript{2} PIPELINE
SECURING OFF-TAKERS

- Sale of flyash for concrete production 100%.
- Sale of sulphuric acid, used primarily for industrial purposes including fertilizer.
- Sale of CO₂ to oil company for EOR.
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.
TAKE THE VIRTUAL TOUR

www.SaskPowerCCS.com/Tour