

SaskPower Clean Coal Project

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Drivers for SaskPower

- Canada has ratified Kyoto Protocol
- Federal government developing GHG regulations for Large Final Emitters
 - Plants up to 2000 – 12 to 13% reduction in GHG intensity
 - Plants from 2000 to 2012 – CO₂ intensity of approximately 900 kg/MWh
 - Plants after 2012 – CO₂ intensity of approximately 100 kg/MWh

Saskatchewan/Canada MOU

- Canada and Saskatchewan to cooperate in development by 2011 of:
 - Net 300 MW SaskPower Clean Coal Unit
 - Net 300 MW Industry sponsored near zero emissions polygeneration facility
 - Advanced retirement BD 1&2
- Resulting in 4 MT/yr GHG reduction; production of 8 MT/yr CO₂ for EOR; and advancing Clean Coal Technology for widespread use

Polygen Project

- Industry sponsored group
- Gasification of petcoke to create hydrogen, CO₂, steam and 300 MW net electricity – can capture up to 4.7 MT/y CO₂ for EOR or sequestration, 2.3 MT/y avoided emission
- Jacobs Consultancy doing prefeasibility study – expect results February
- Beginning development of a project structure which could lead negotiations for sales agreements including PPA

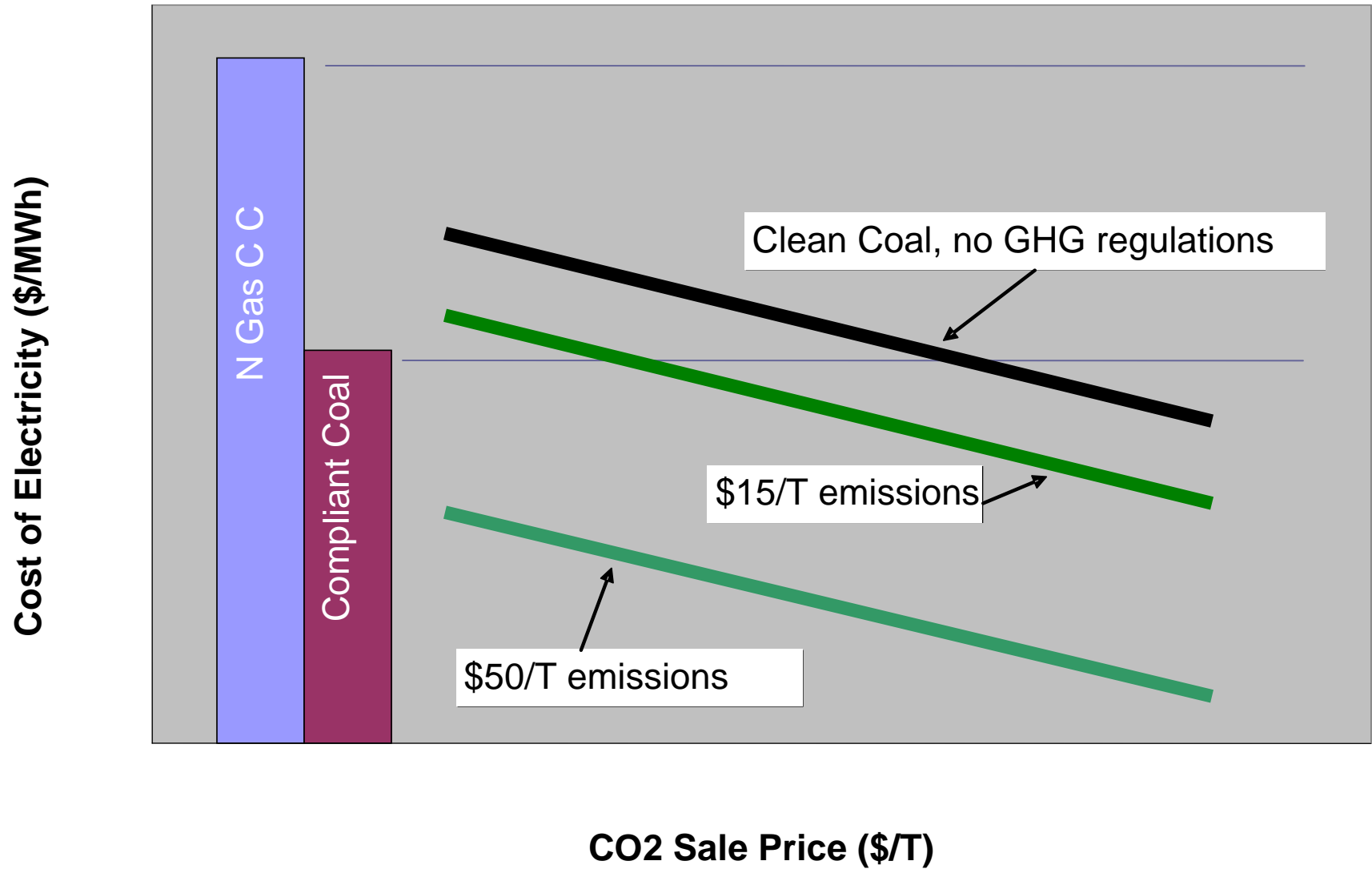
SaskPower Clean Coal Project

- World's first "Near Zero Emissions" pulverized coal plant
- 450 MW gross, 300 MW net
- Capturing 90%+ of CO₂
- 3 MT/y CO₂ for sequestration or EOR Sale
- 1.6 MT/y emission reduction
- Fast tracked for in service 2011
- Site depends on coal quantity & price, water, relative capital cost, line losses, CO₂ pipeline costs

Implications for SaskPower

- Installing capture on this unit provides credits to offset remaining coal fleet which falls into first category
- Both potential plant sites located near oil fields using CO₂ for EOR
- All of southern Sask. has access to deep saline aquifers for additional CO₂ storage opportunities
- May be able to sell excess CO₂ credits

Preliminary Cost Comparison 300 MW Base Load



Commitments in Annex “A” of MOU

■ Sask/Canada Cooperation includes:

- Feasibility Work to Q2 2007
- Evaluation of benefits, risks and values
- Identification and mitigation of project obstacles
- Mitigate risks around GHG regulations
- Consider allocation of GHG credits
- Define conditions which will allow projects to proceed
- Define financial/other commitments to expedite if projects are feasible
- General cooperation

■ Cost Sharing

- Canada to fund 50% of feasibility work up to \$10 million per project
- Potentially share cost of carbon collection equipment if the project is feasible

Deliverables required by Annex

- For Clean Coal Project and for Polygen Project:
 - Complete major equipment design
 - Cost estimates +/- 10%
 - Conditional contracts in place for major equipment, coal (feedstock), CO₂ sales
 - Environmental Impact Study
 - Detailed Economic Model
 - {Project Execution Plan & Organization}

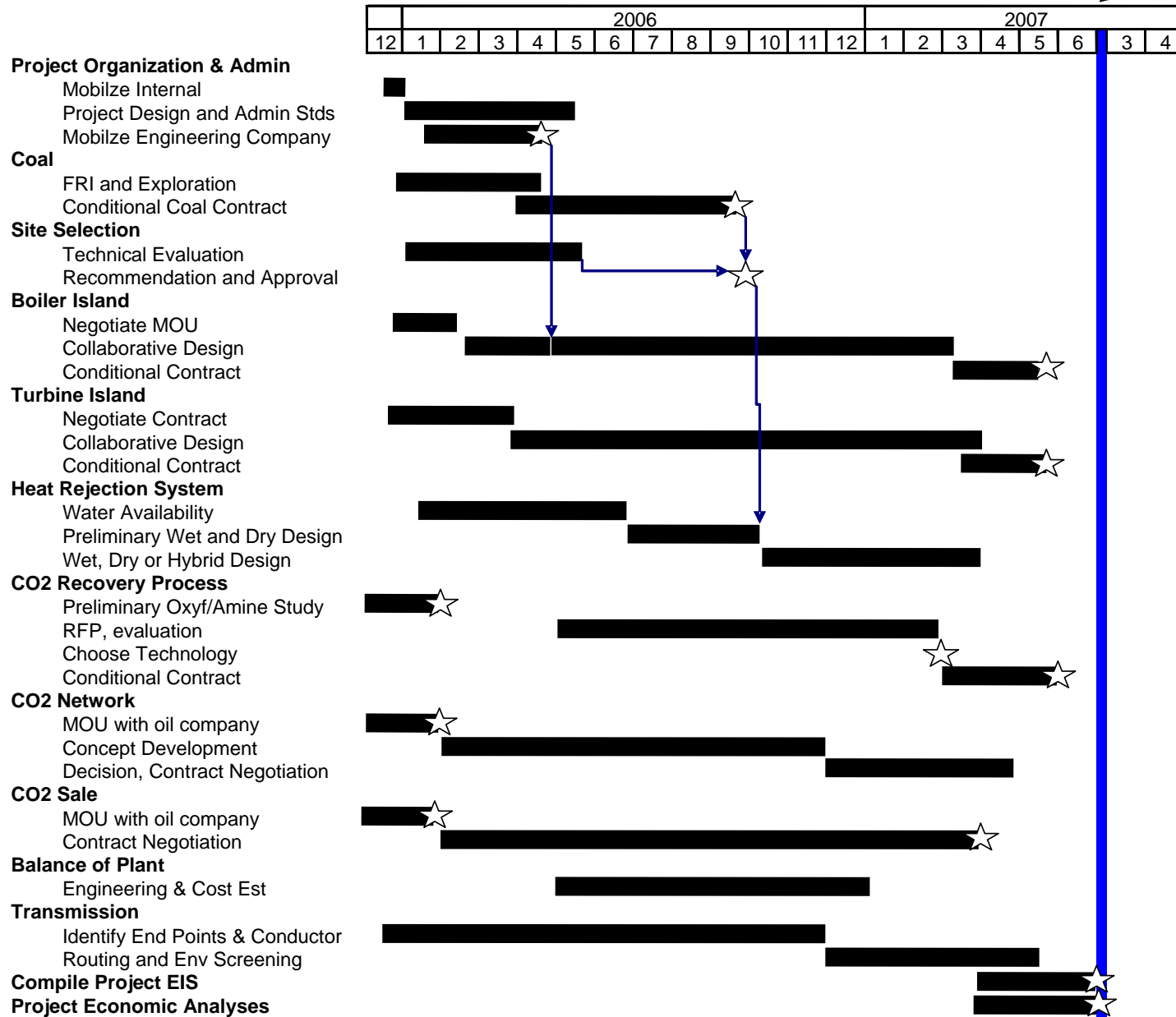
Large Work Packages

- **Boiler** — need to partner to incorporate SaskPower's 50 years of experience with lignite coal, deal with technology risk
- **Turbine** — need to partner to develop technology to integrate with CO₂ recovery, deal with technical risk
- **CO₂ Recovery** — will have competitive components
- **CO₂ Sales** — partnership contemplated with oil company
- **Balance of Plant** — EPC?
- **Engineering Contract** — critical path item, no engineering firm has created such design before — careful selection
- **Transmission**

Significant Issues

- **Site Selection**— decide as soon as possible, driven by coal availability & price, water, transmission connection, CO₂ pipeline, capital cost
- **CO₂ Recovery Technology** — may be evident early 2006, otherwise, two engineering paths until resolved by competitive process
- **Transmission** — Major transmission upgrades required for Clean Coal & Polygen
- **EIS** — deep aquifer CO₂ sequestration has never been licensed, working with regulators now

Precommitment Work Flow



SaskPower Clean Coal Project - Master Schedule

	2006	2007	2008	2009	2010	2011	2012
<u>EIA Process</u>							
Consolodated EIS Approval Process		X					
		X X	X X				
<u>Project Engineering:</u>							
Major Packages Designed	X X X X	X X					
Design Coordination, QA		X X	X X X X	X X X X	X X X X	X X X X	
<u>Boiler Island Contract</u>		X					
Manufacture		X X	X X X X	X X X X	X X X		
Erect			X X	X X X X	X X X X	X X X X	
<u>Turbine Island</u>		X					
Manufacture		X X	X X X X	X X X X	X X X		
Erect			X X	X X X X	X X X X	X X X X	
<u>CO2 Recovery and Distribution</u>		X					
Manufacture		X X	X X X X	X X X X	X X X		
Erect			X X	X X X X	X X X X	X X X X	
<u>General EPC Contract</u>		X					
Procure and Construct		X X	X X X X	X X X X	X X X X	X X X X	
<u>Transmission System Upgrade</u>		X					
Award Contracts and Construct			X X	X X X X	X X X X		
<u>Mine Expansion</u>		X					
Award Dragline Contract, Construct			X X	X X X X	X X X X	X X X X	
<u>Operations Optimization</u>							X X X X

Project Commitment



Opportunities going forward

- SaskPower is in the process of building alliances needed to develop the project
- SaskPower is willing to consider opportunities that may build on the project value

Questions?