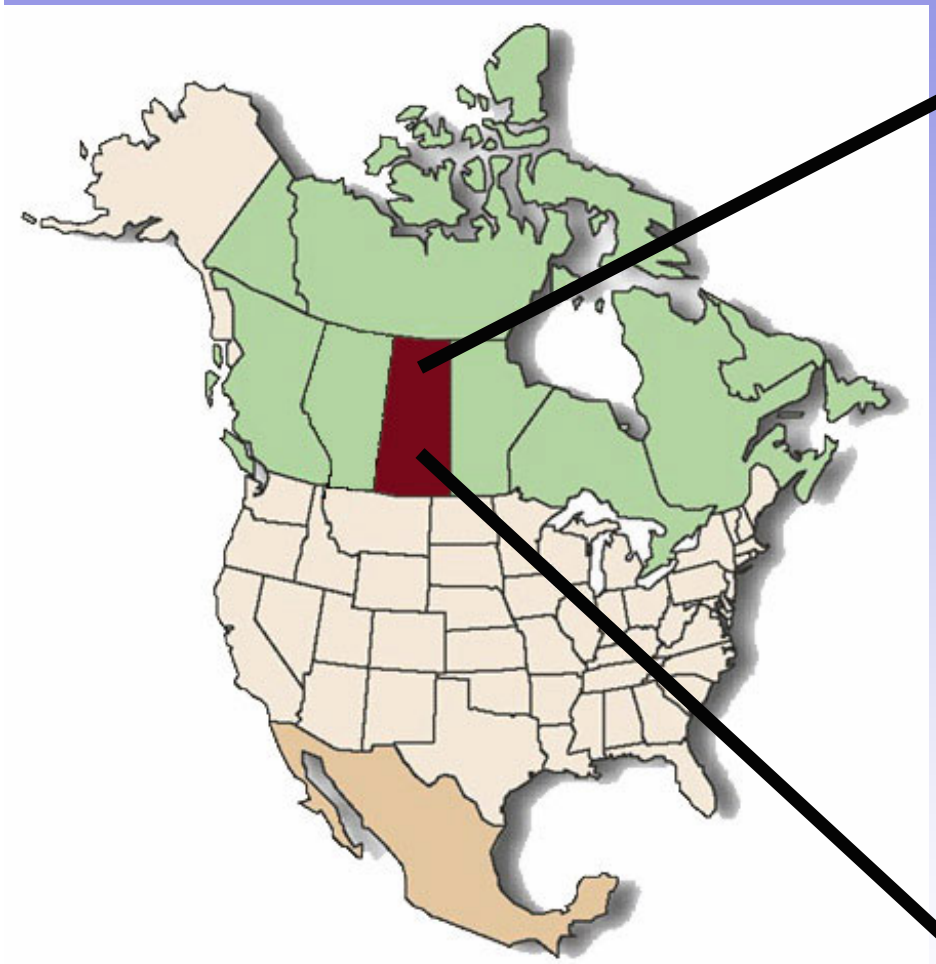
Sixth Annual Conference on Carbon Capture & Sequestration

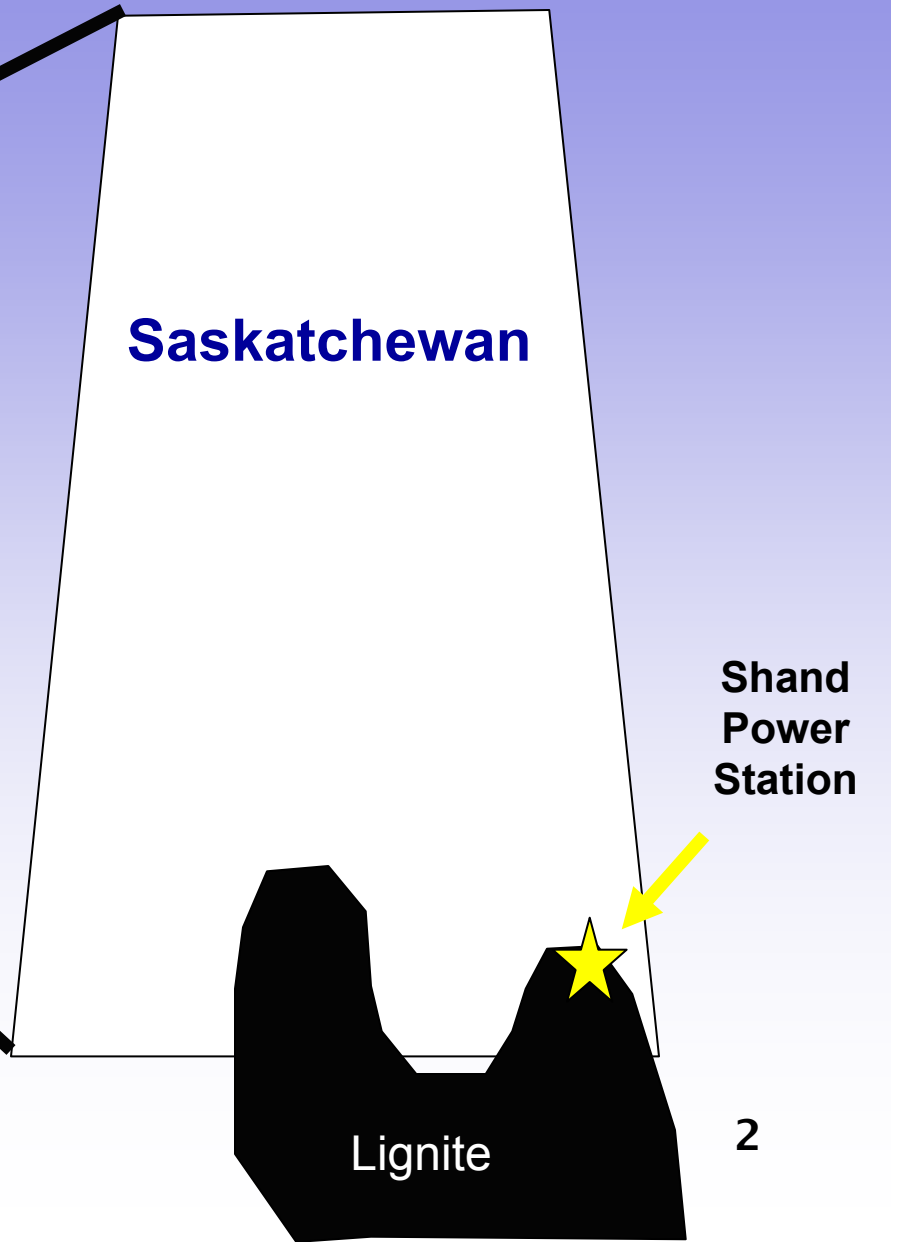
clean CO_2al Project | SaskPower

OVERVIEW

Max Ball, Manager

May 7-10, 2007 • Sheraton Station Square • Pittsburgh, Pennsylvania




Saskatchewan
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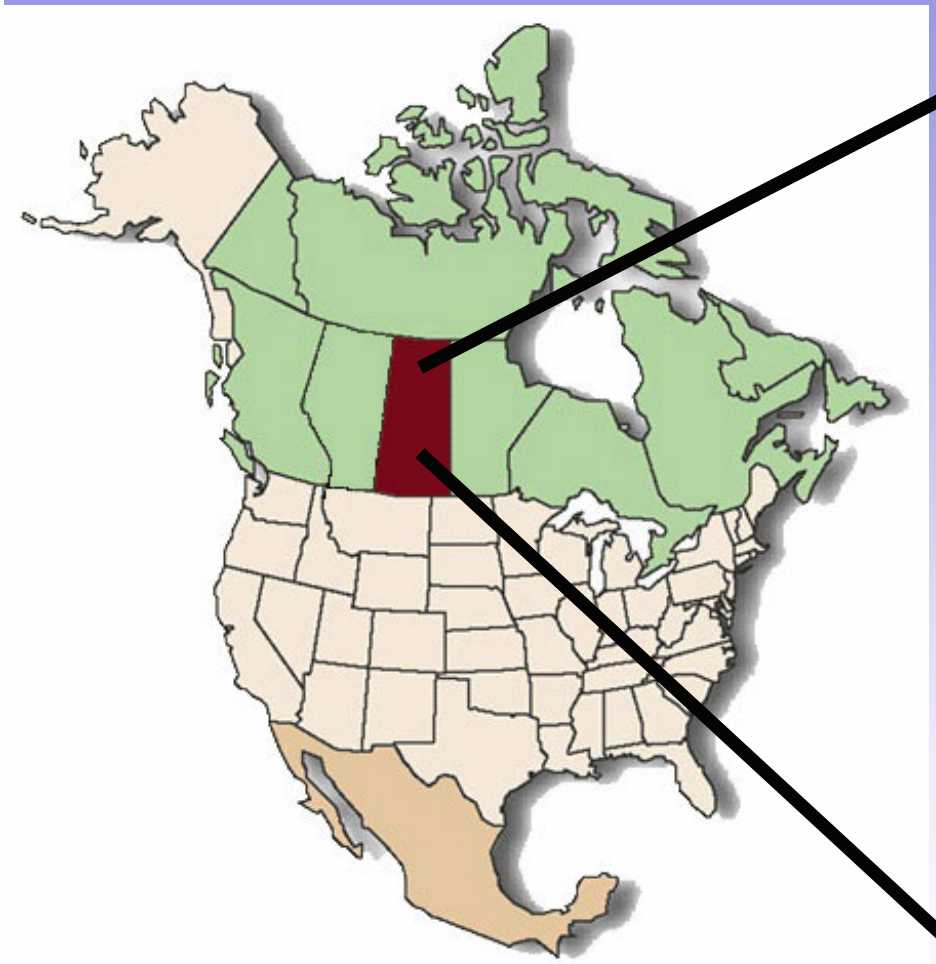
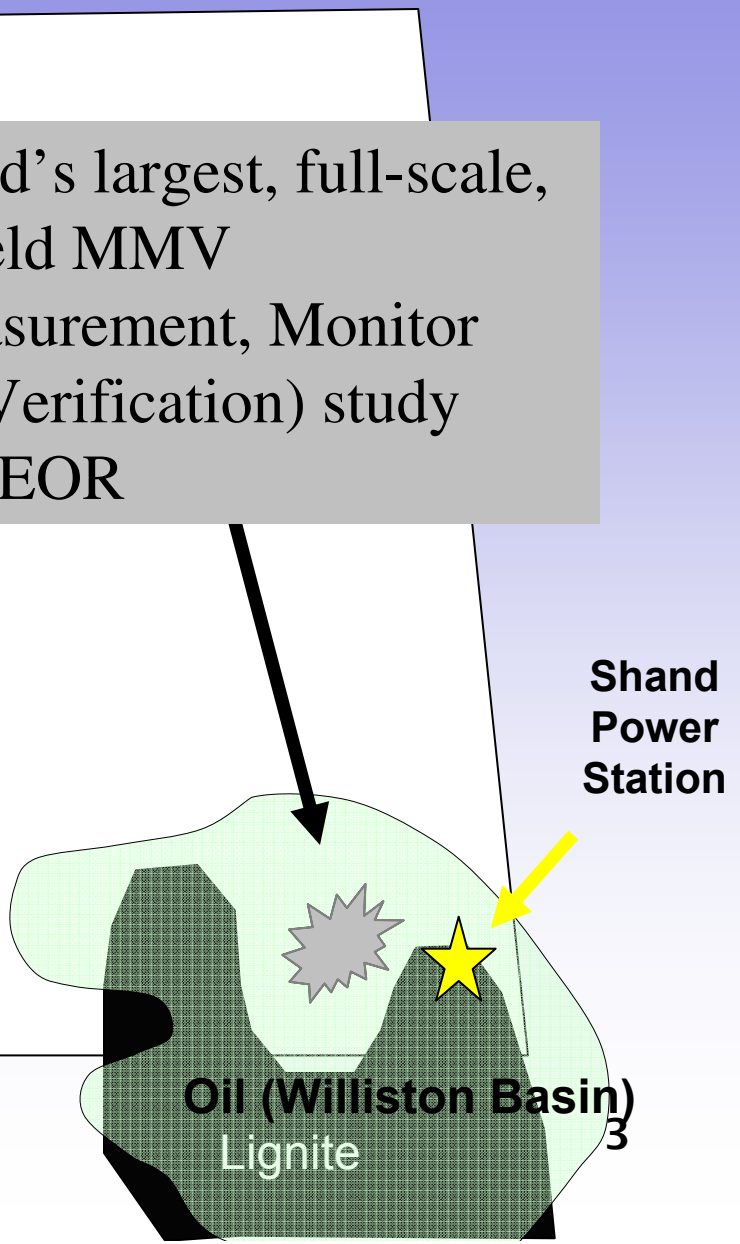
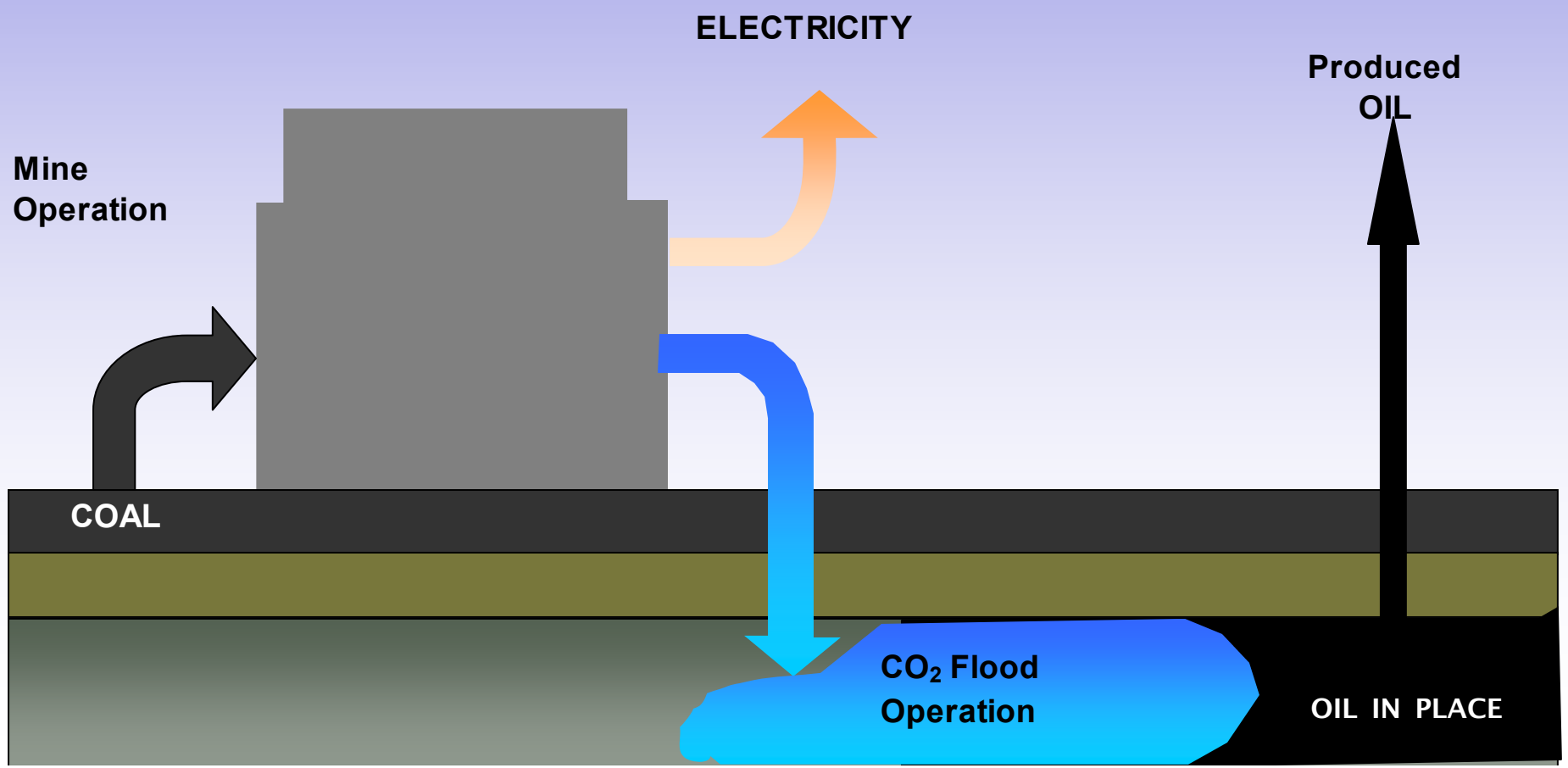
Lignite

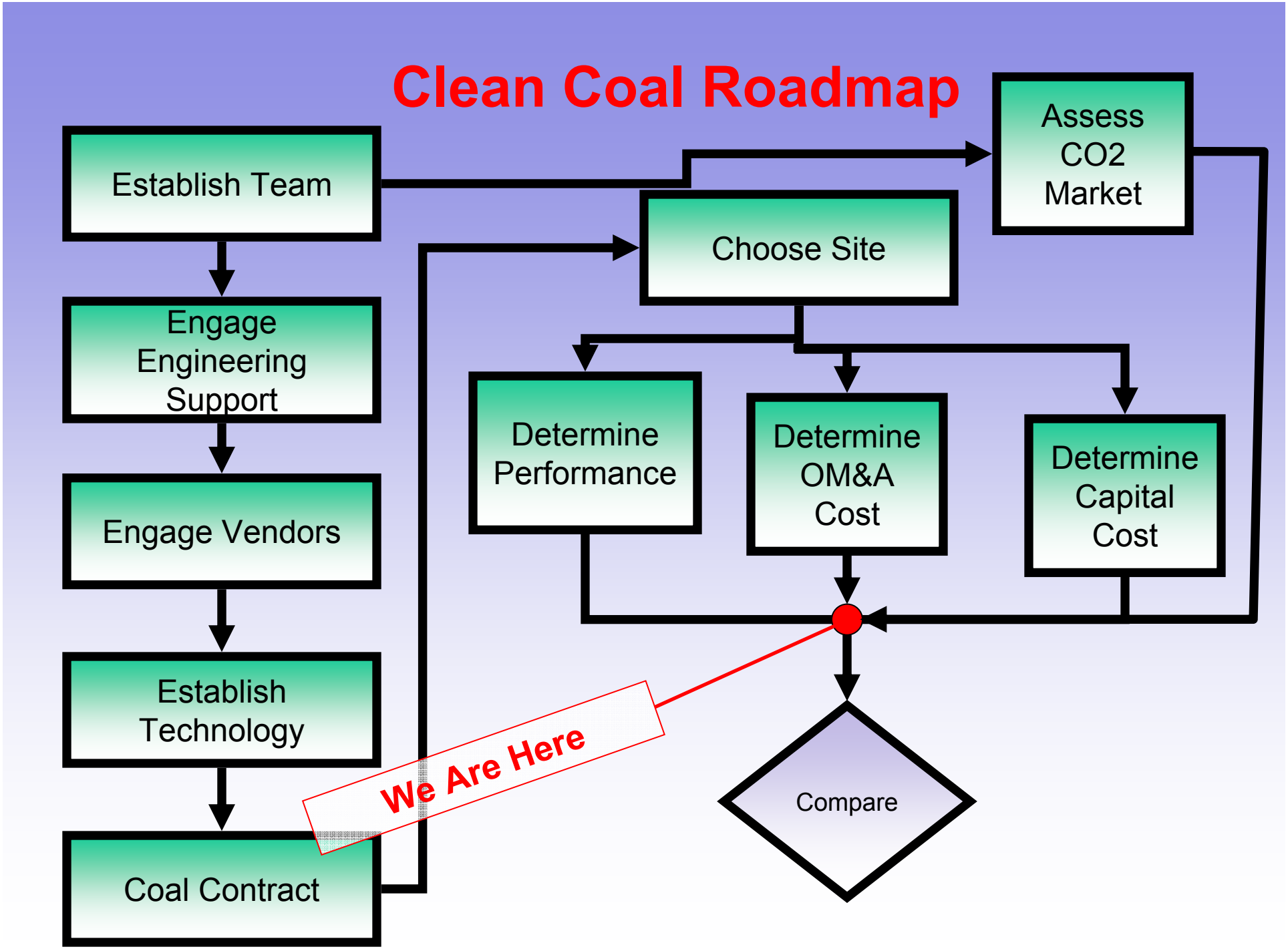


World's largest, full-scale, in-field MMV (Measurement, Monitor and Verification) study with EOR

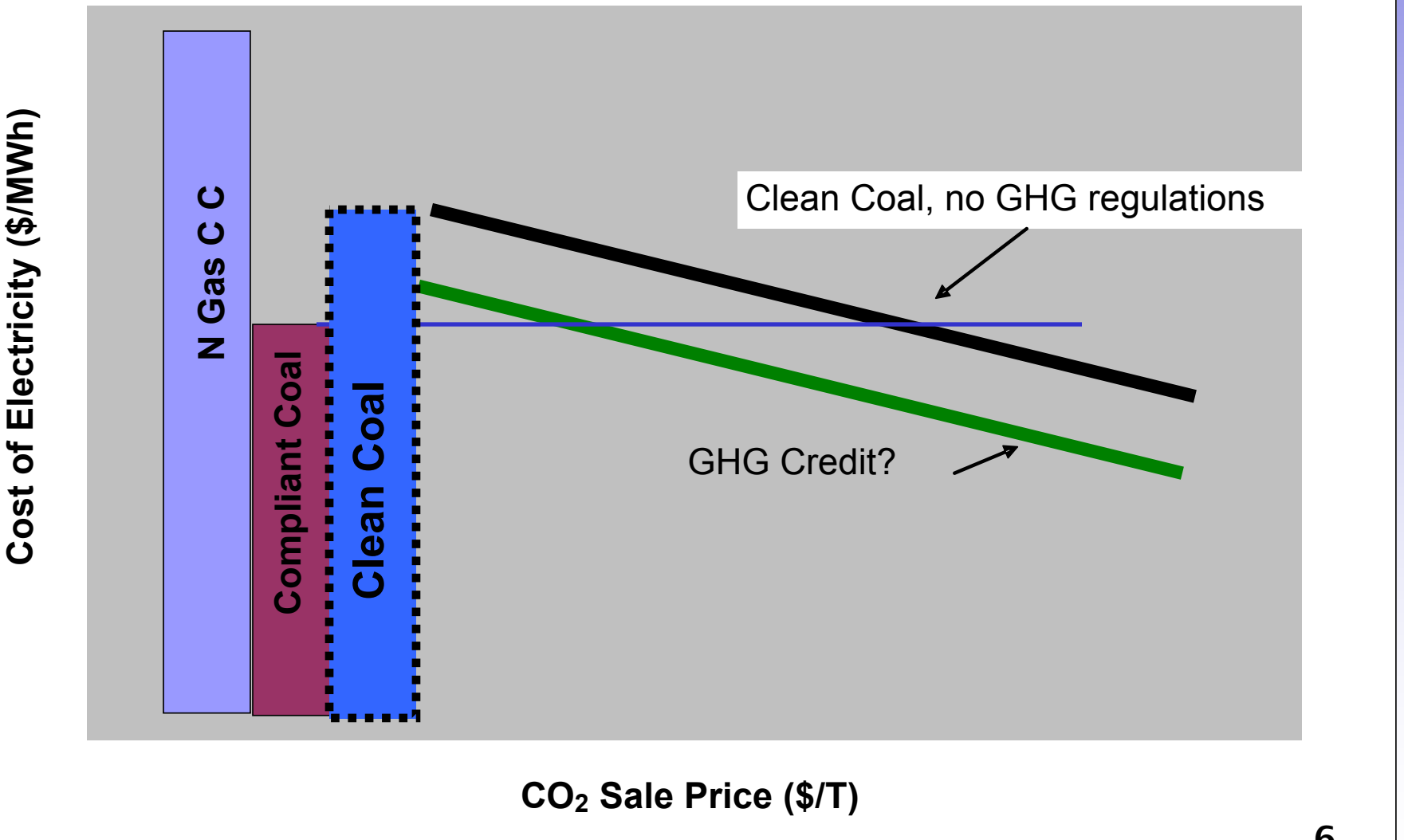


Overall COAL to OIL Process

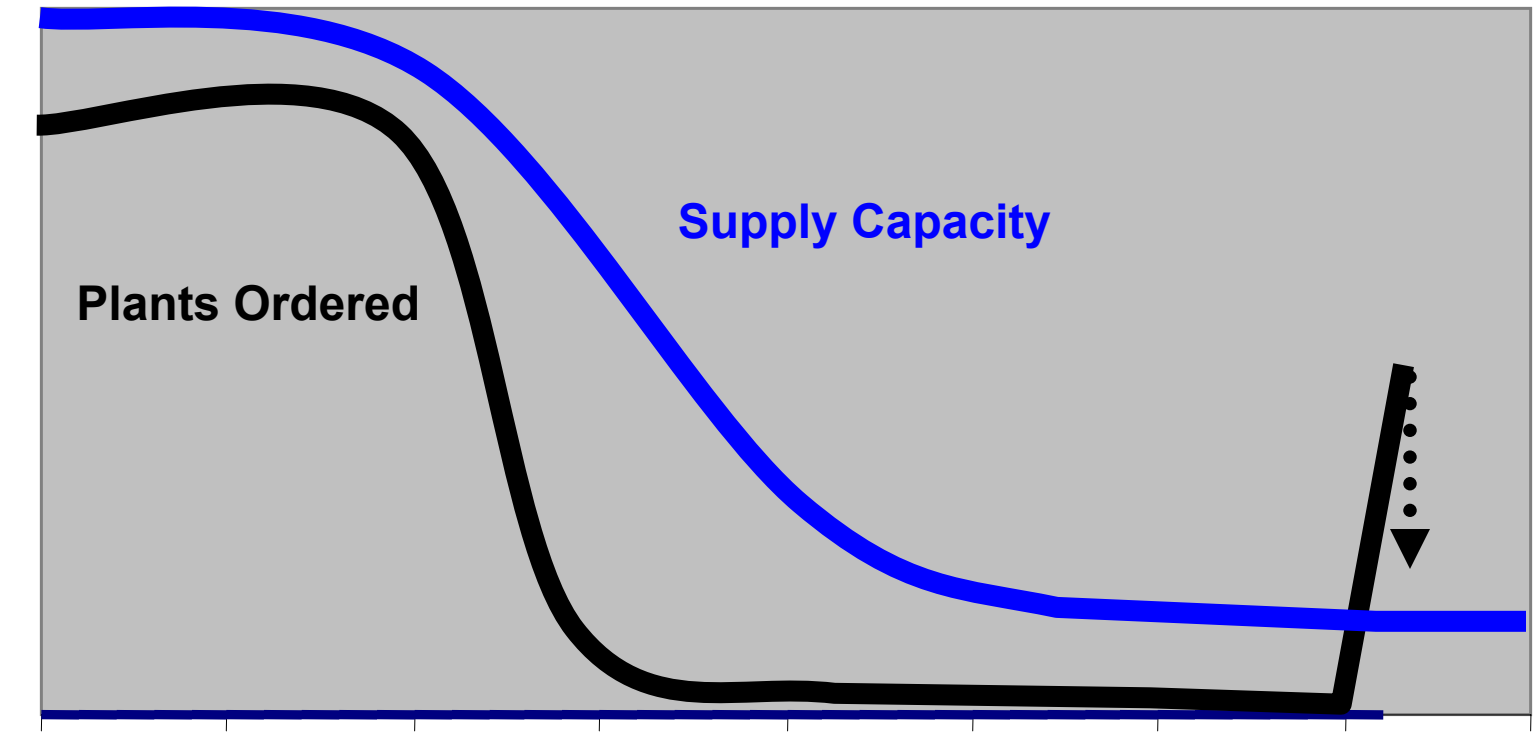



Clean Coal Roadmap
Establish Team
Assess CO2 Market
Choose Site
Engage Engineering Support
Determine Performance
Determine OM&A Cost
Determine Capital Cost
Engage Vendors
Establish Technology
We Are Here
Compare
Coal Contract

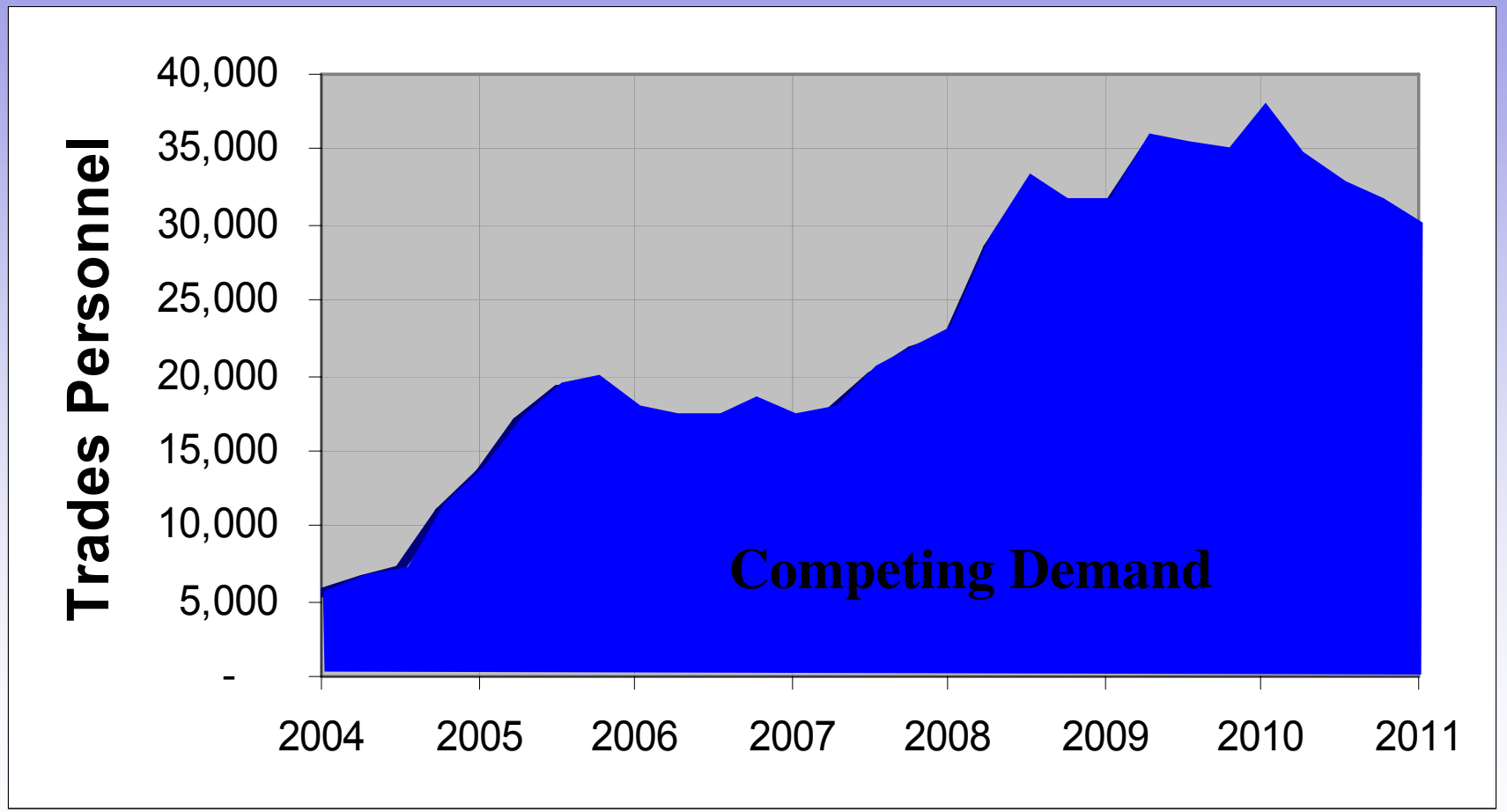
Comparison 300 MW Base Load (2005 estimate)



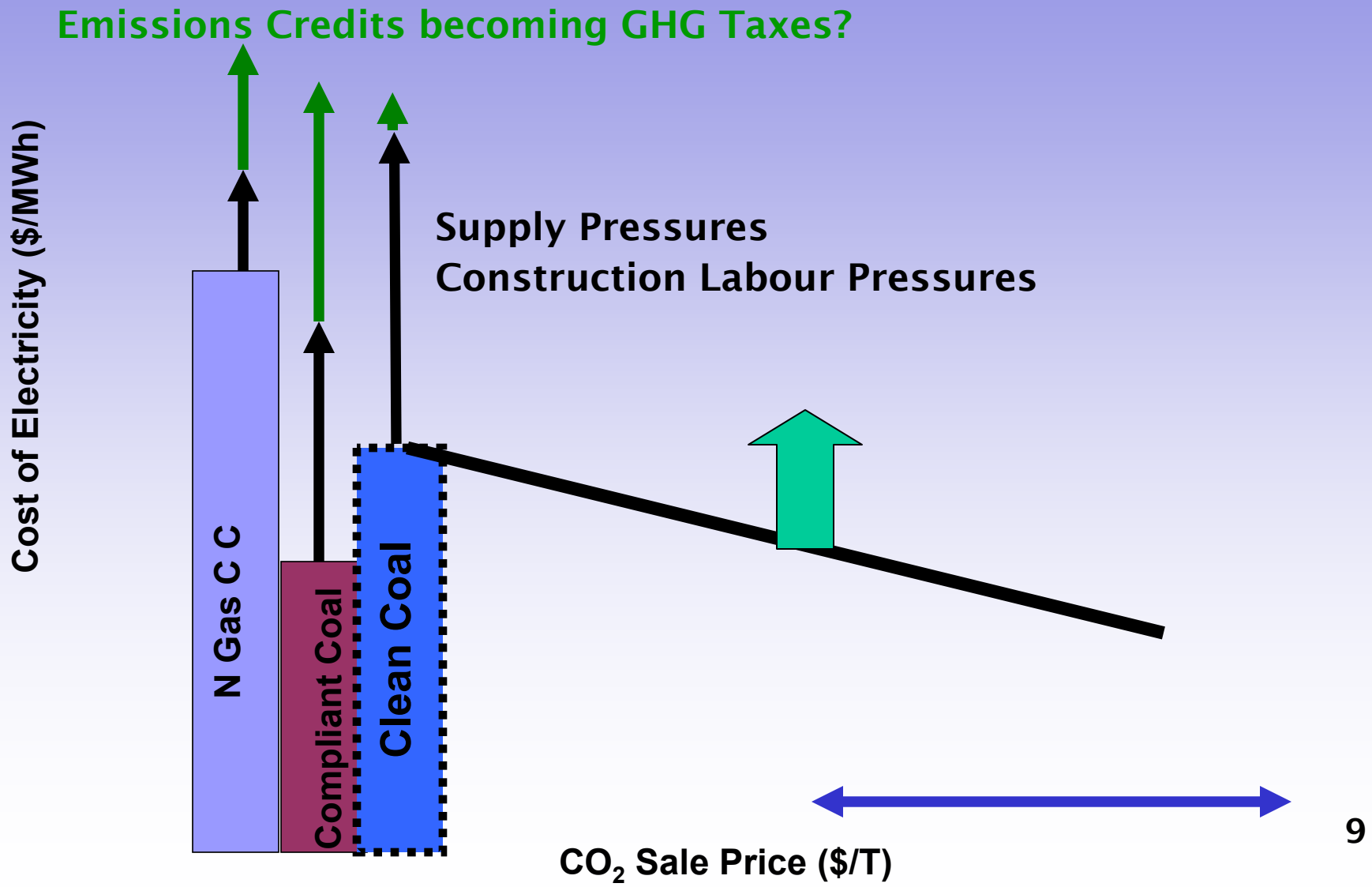
North American Supply/Demand for Coal Fired Boilers



Construction Owners Assoc of Alberta
Construction Trades Forecast



What are the trends?



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(Discussion Thursday May 10, 8:00 a.m.)

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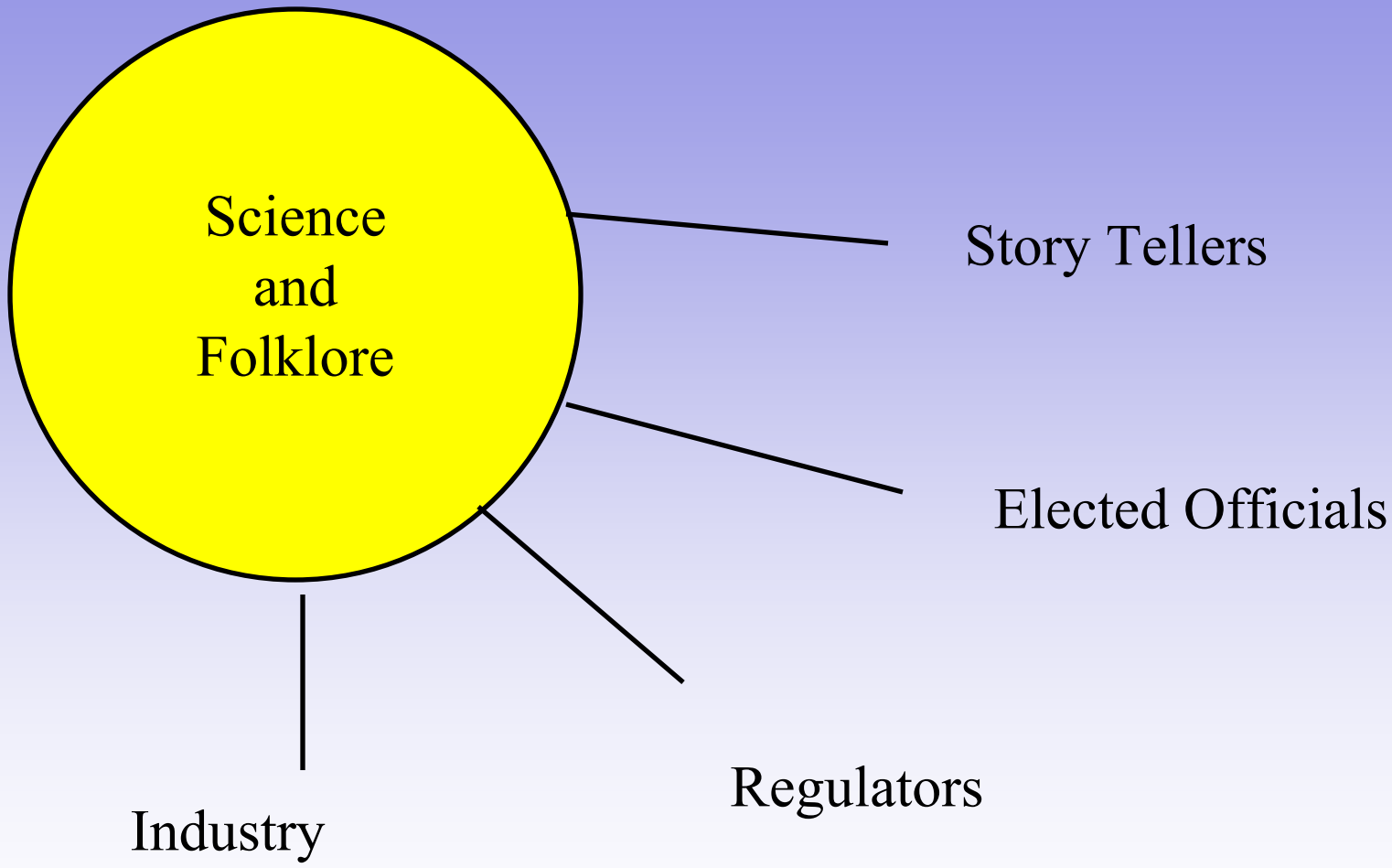
Implications of First Commercial CCS Offering!

Broad Social Support (Social License) in place

Carbon Capture & Sequestration is seen as a commercial opportunity

Can quantify the knowns and unknowns adequately to consider real projects

Growing of Social License

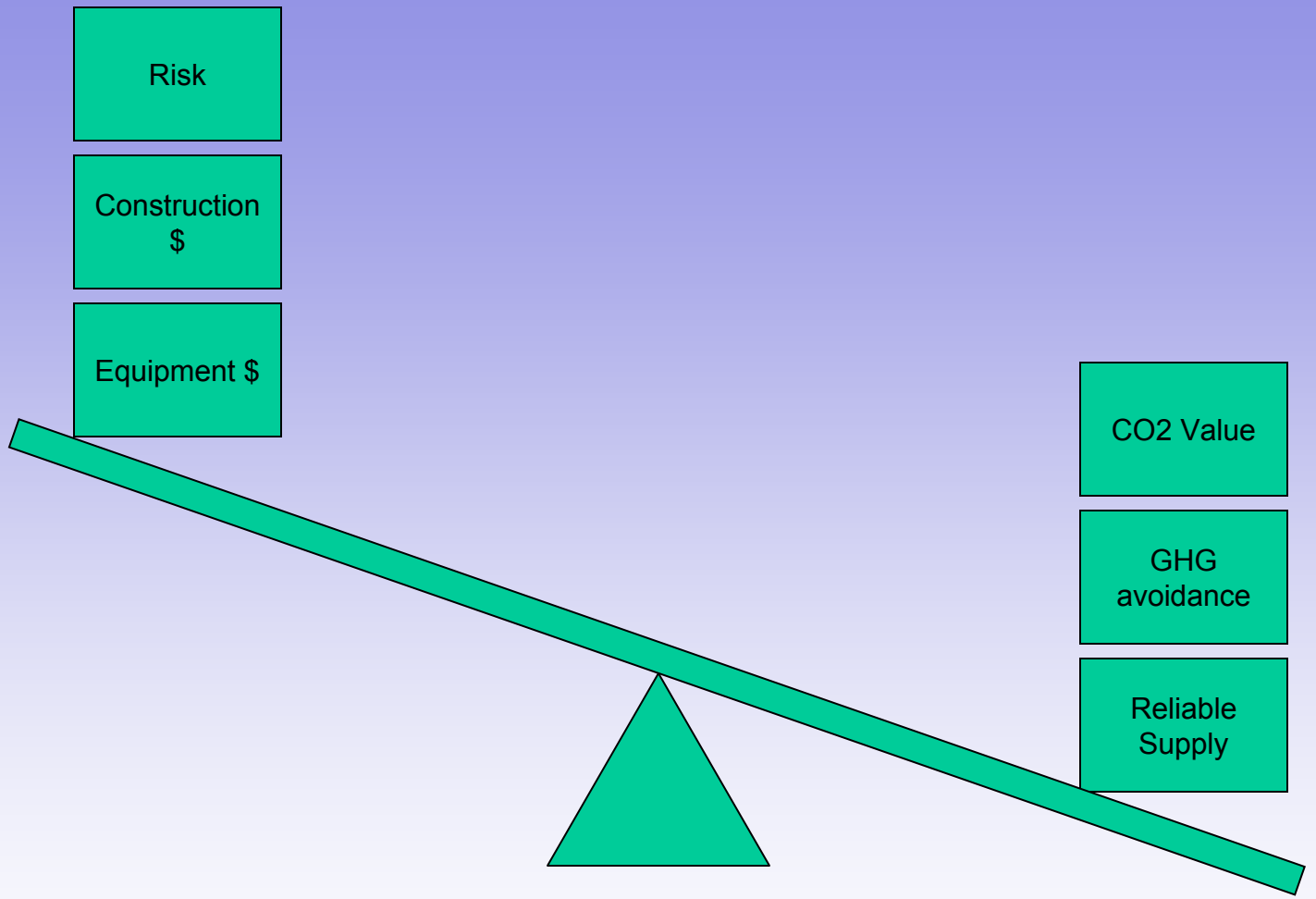


Industry Response

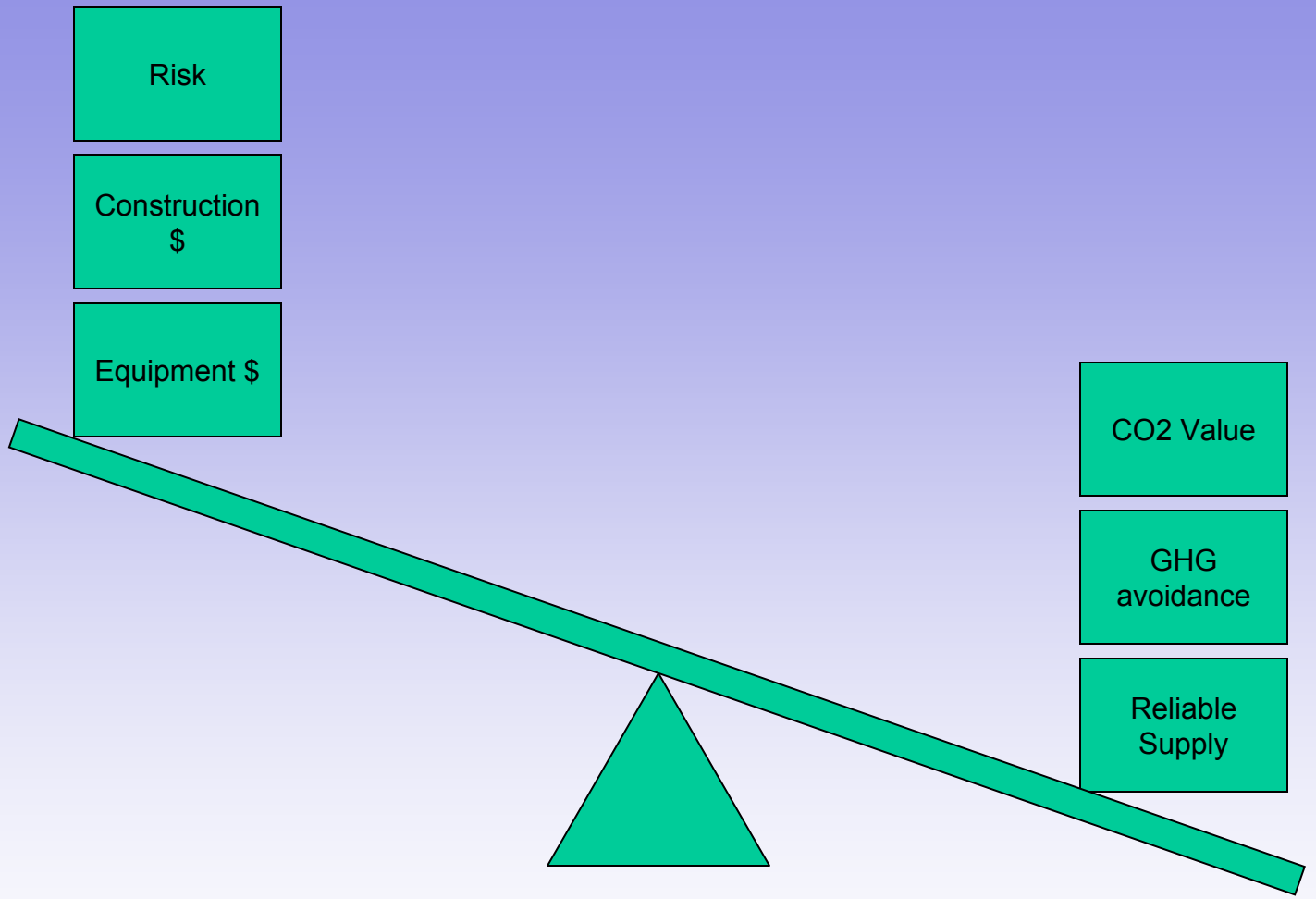
Oxyfuel – last year: Vattenfall 2008
- now: B&W 2007
SaskPower 2012

Chilled Ammonia – last year: negotiations for pilot
- now: 200 MW demo 2011

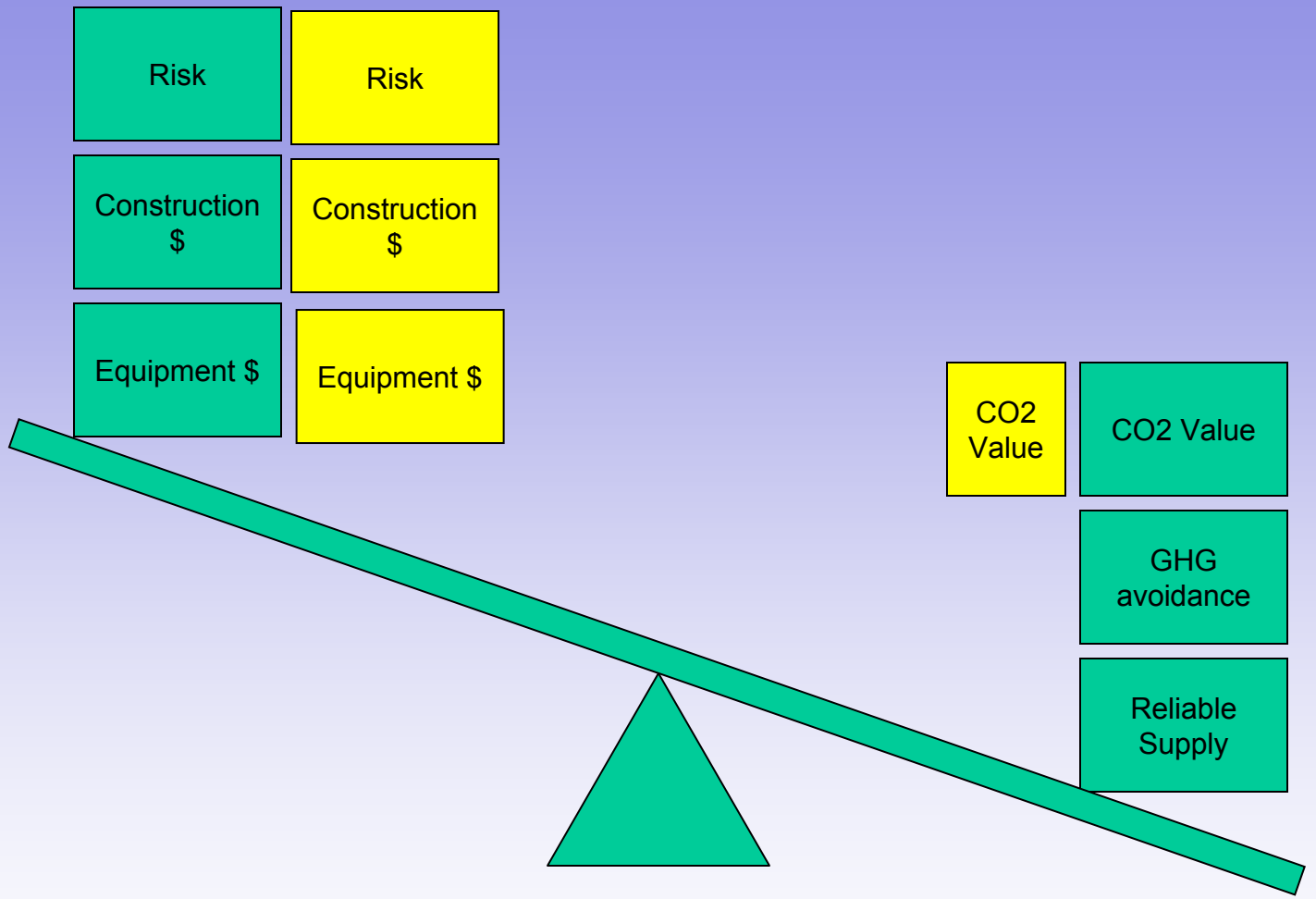
Amine Designs – 20% energy reduction in < 12 months (again)



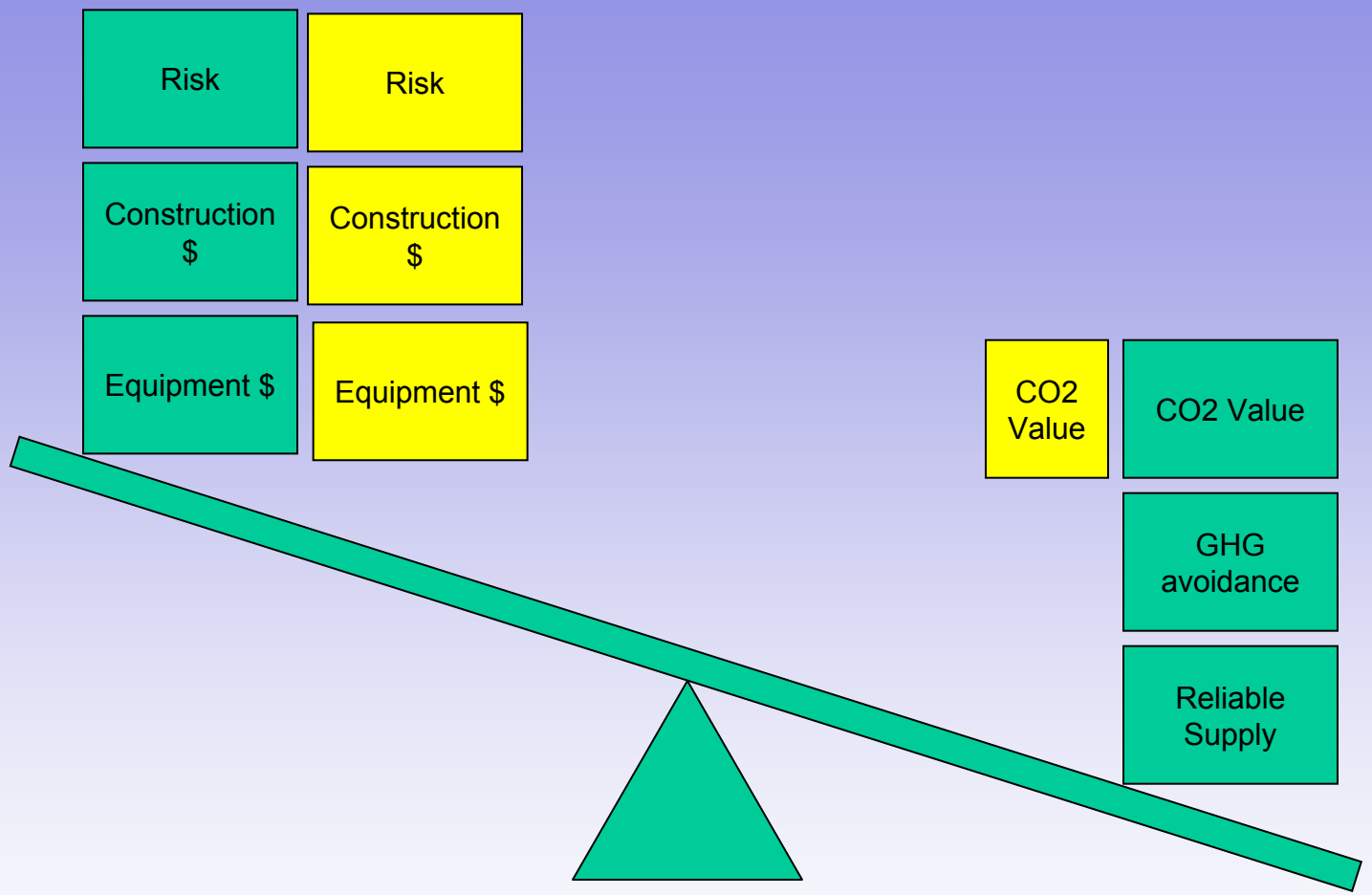
SaskPower Clean Coal Project – 2005 Market Assessment



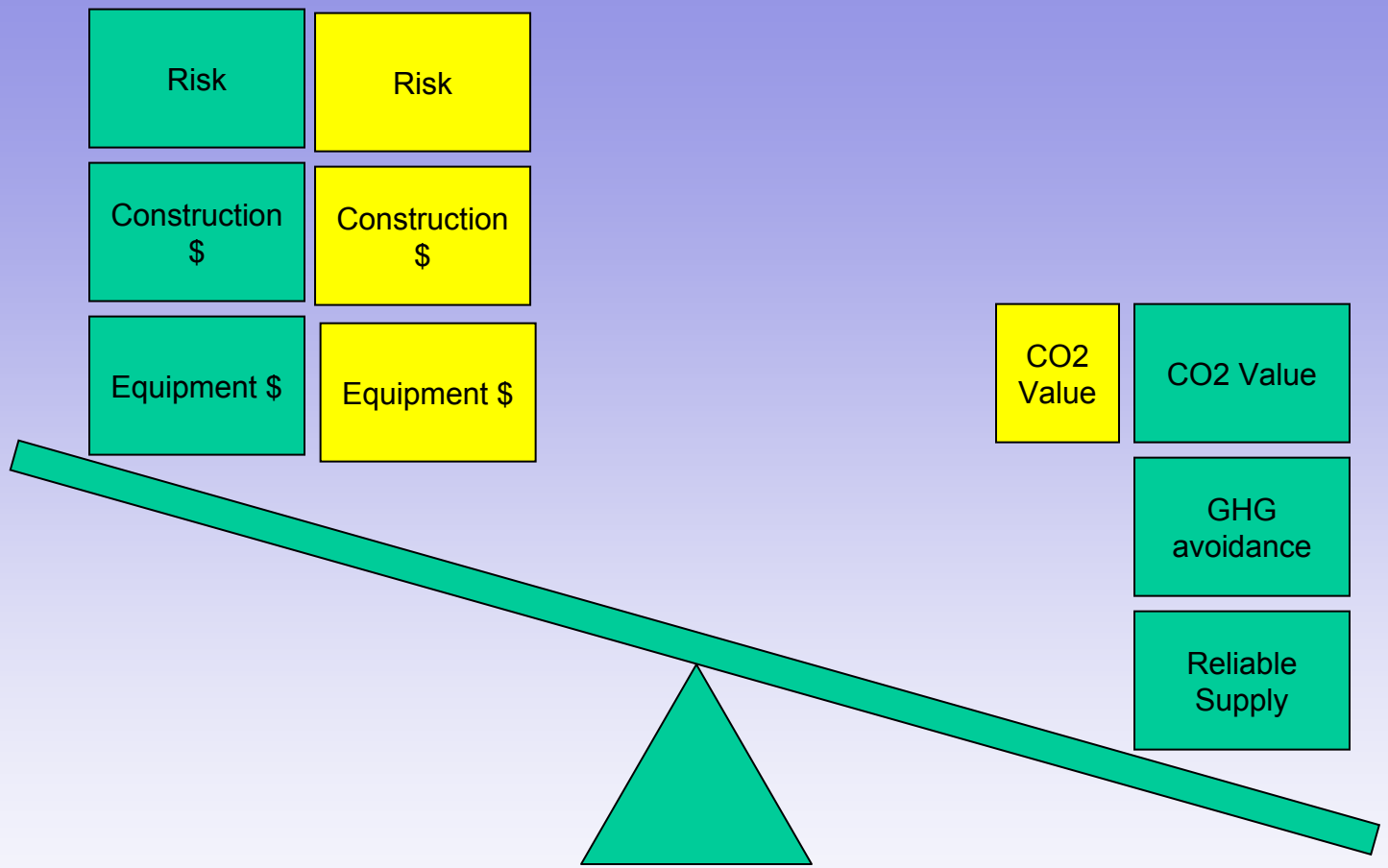
SaskPower Clean Coal Project – 2007



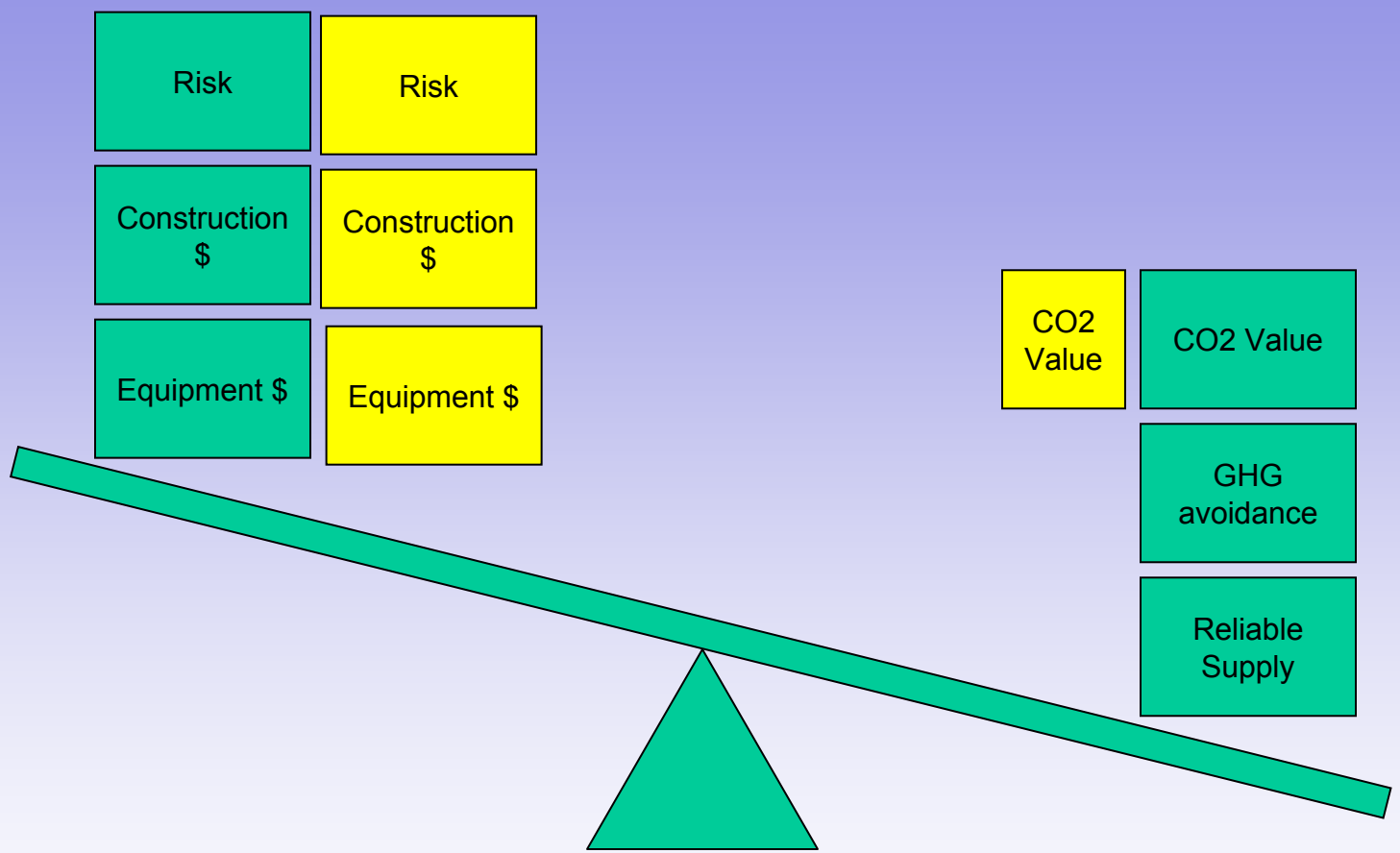
SaskPower Clean Coal Project – 2007



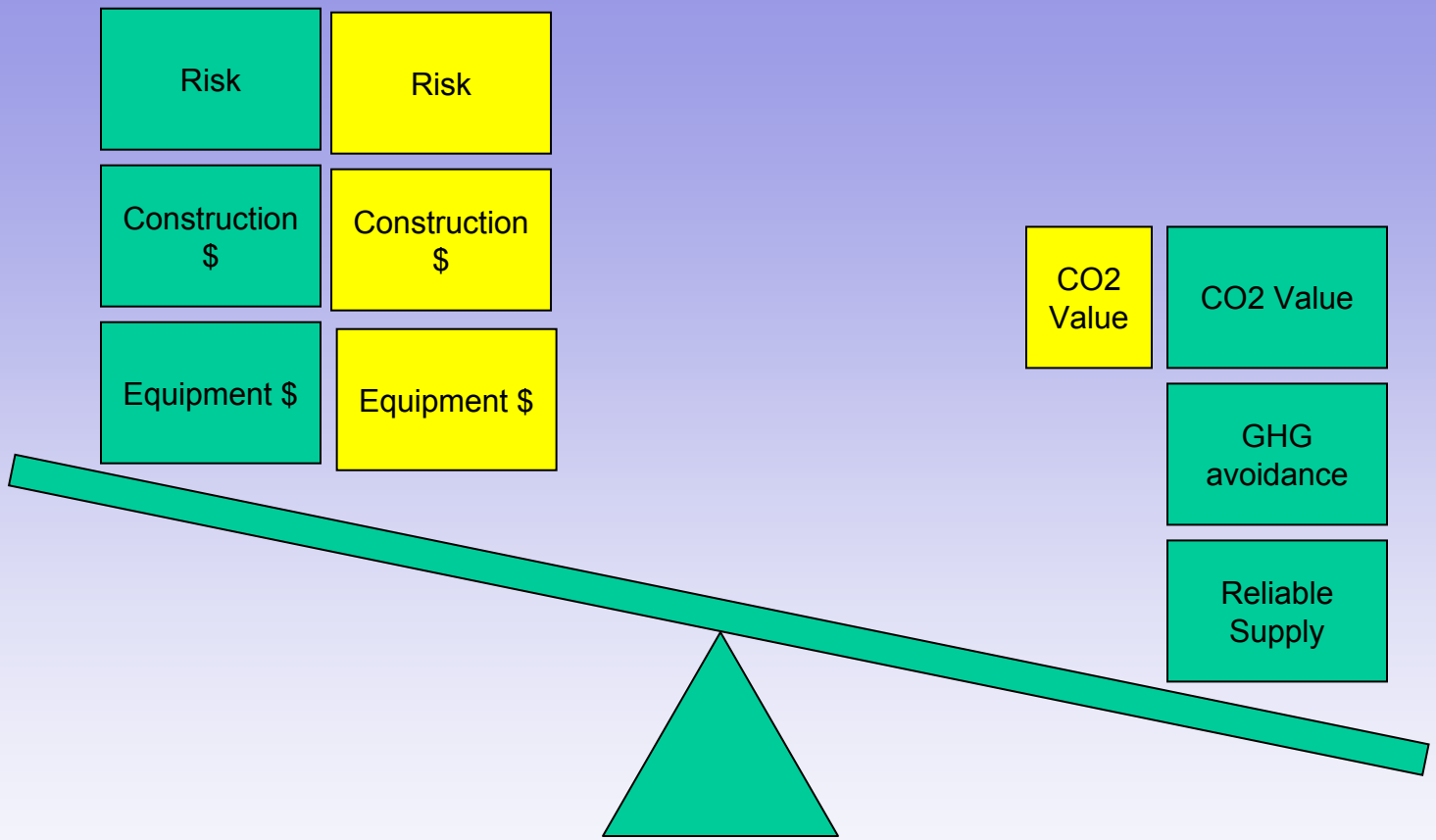
SaskPower Clean Coal Project – 2007



SaskPower Clean Coal Project – 2007



SaskPower Clean Coal Project – 2007



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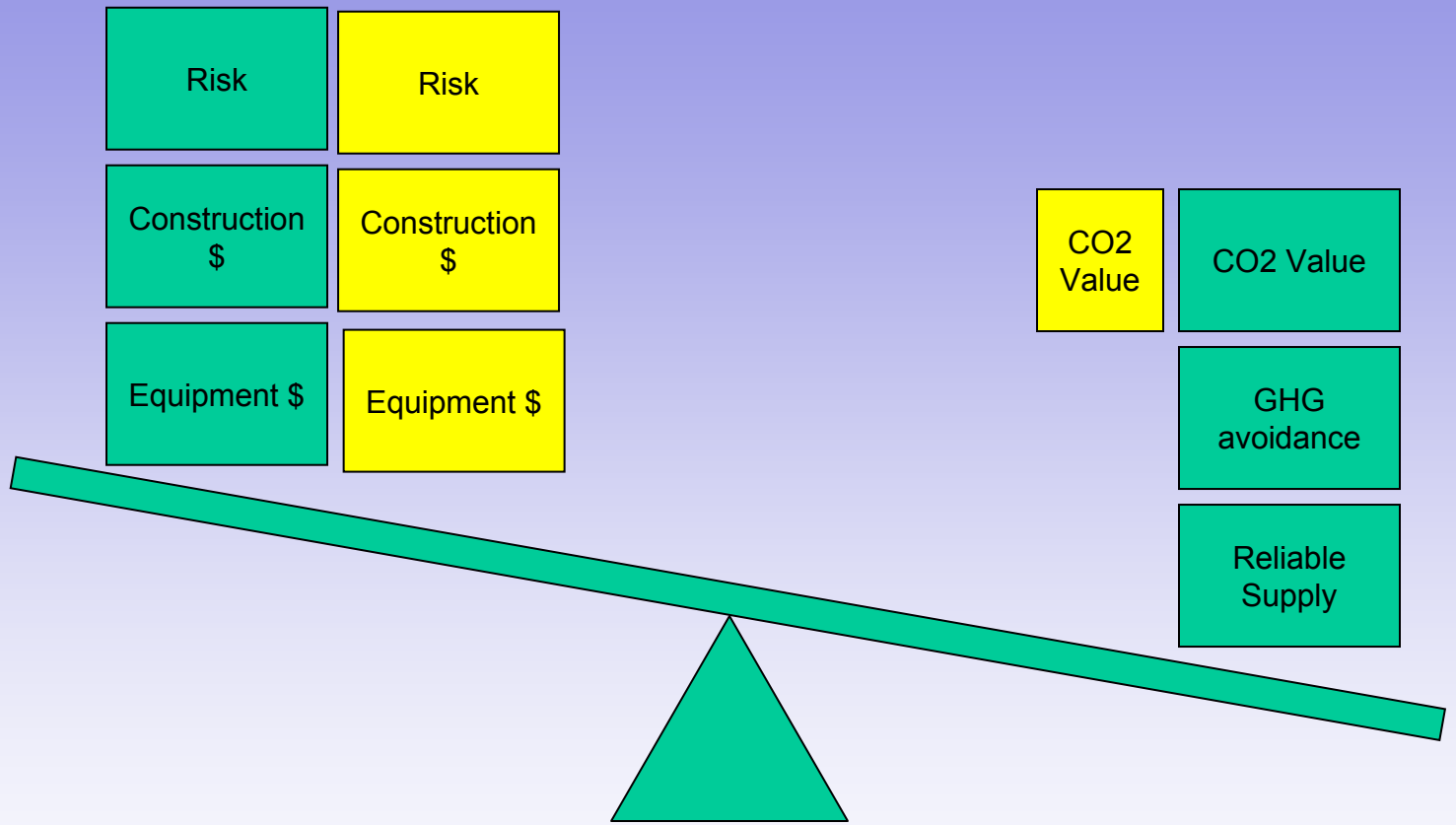

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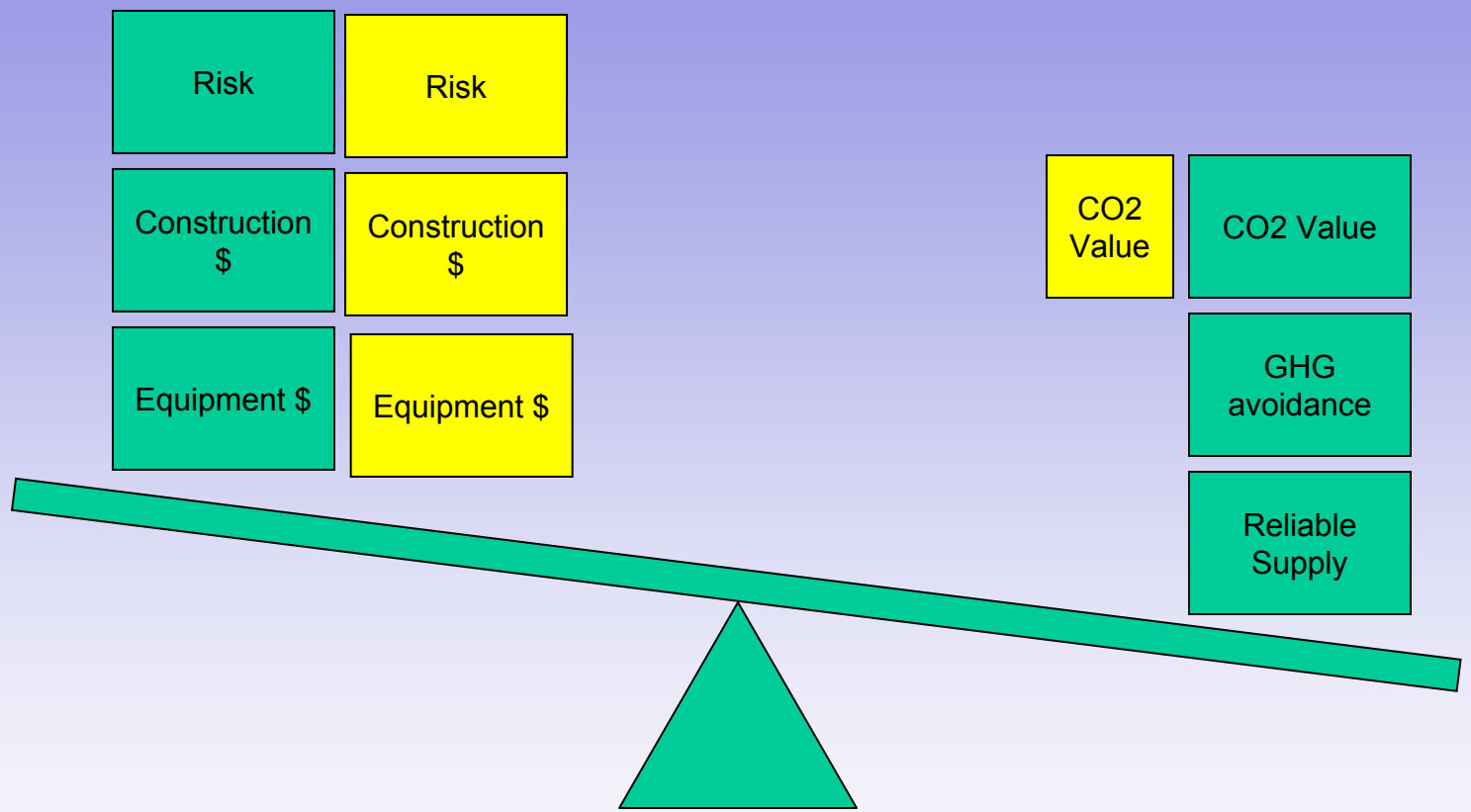

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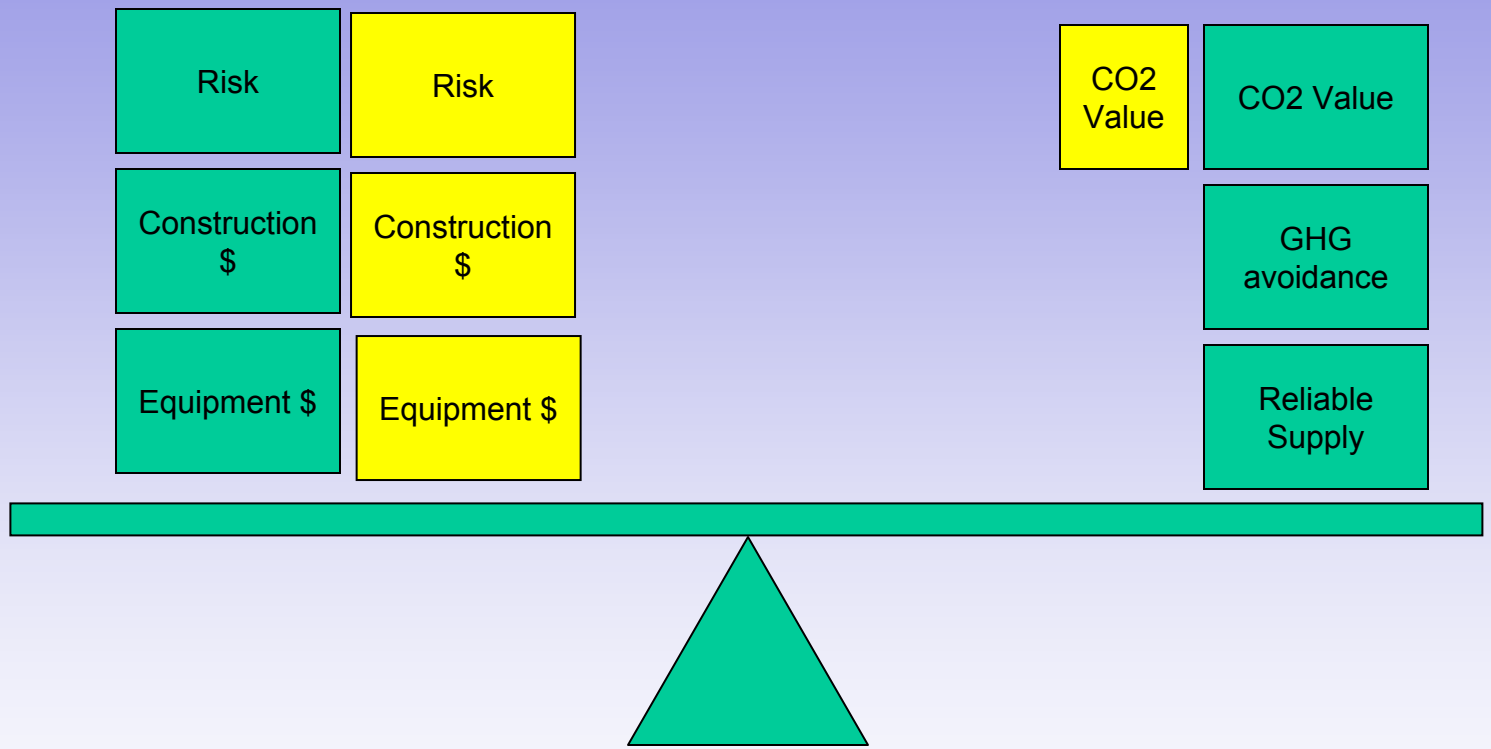
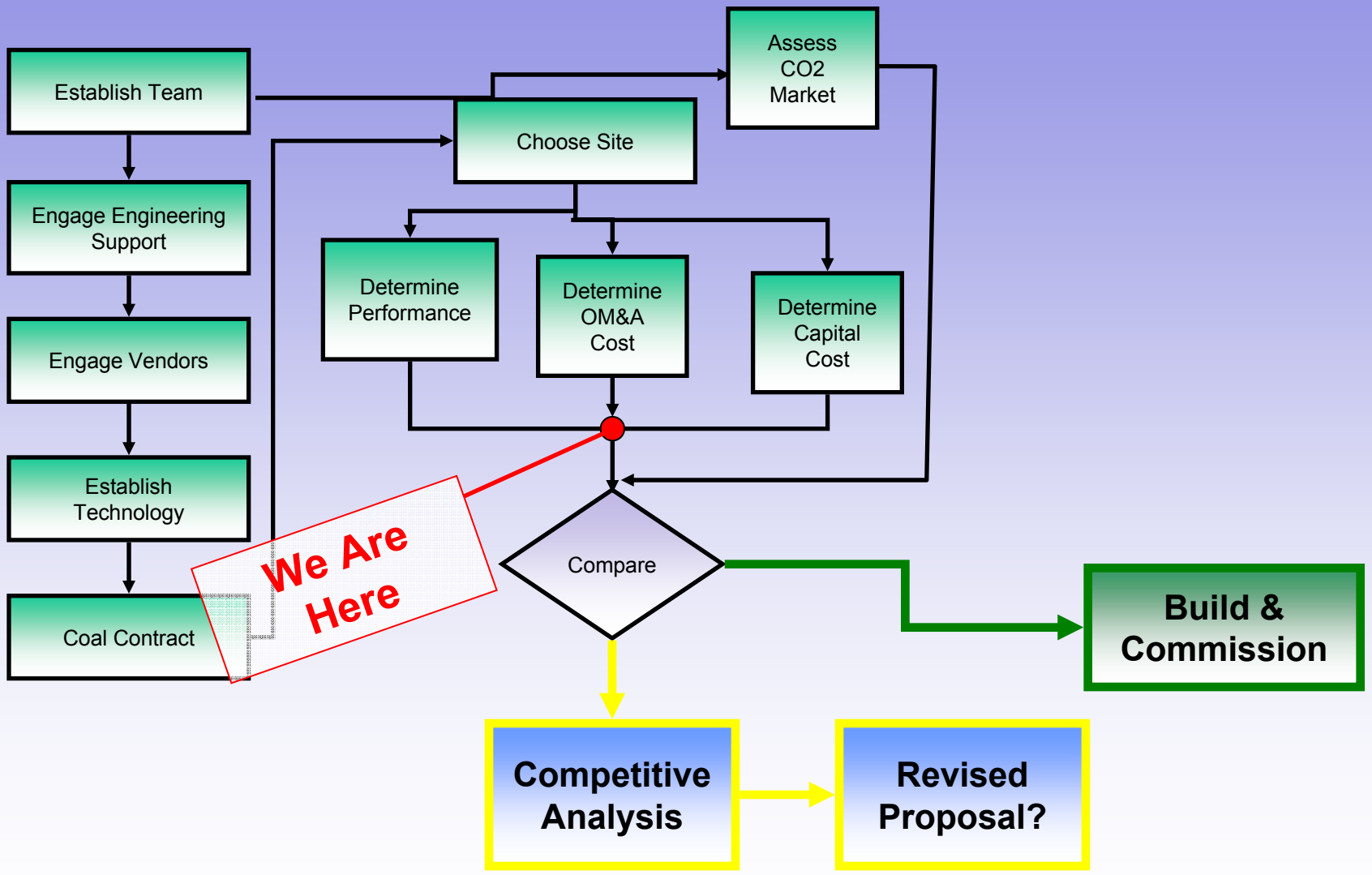
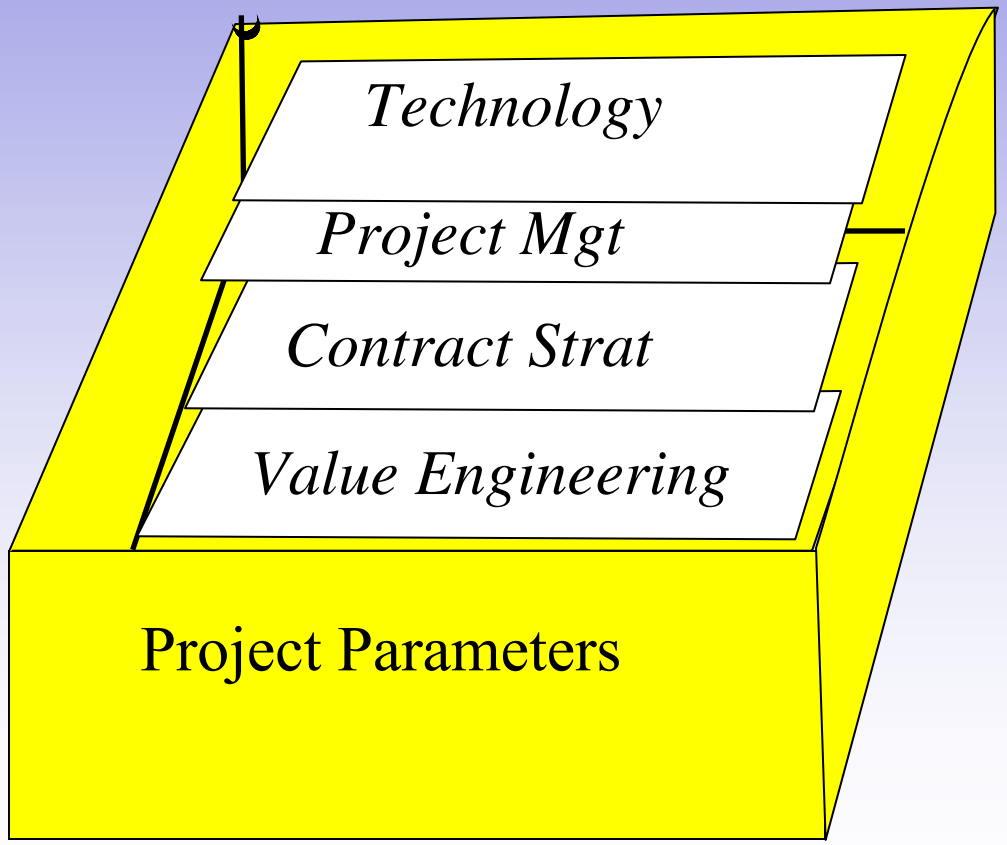


SaskPower Clean Coal Project – 2007

Clean Coal Roadmap



Reducing Unknowns reduces Contingency



Emissions Regulations

Patent Laws

Market Forces

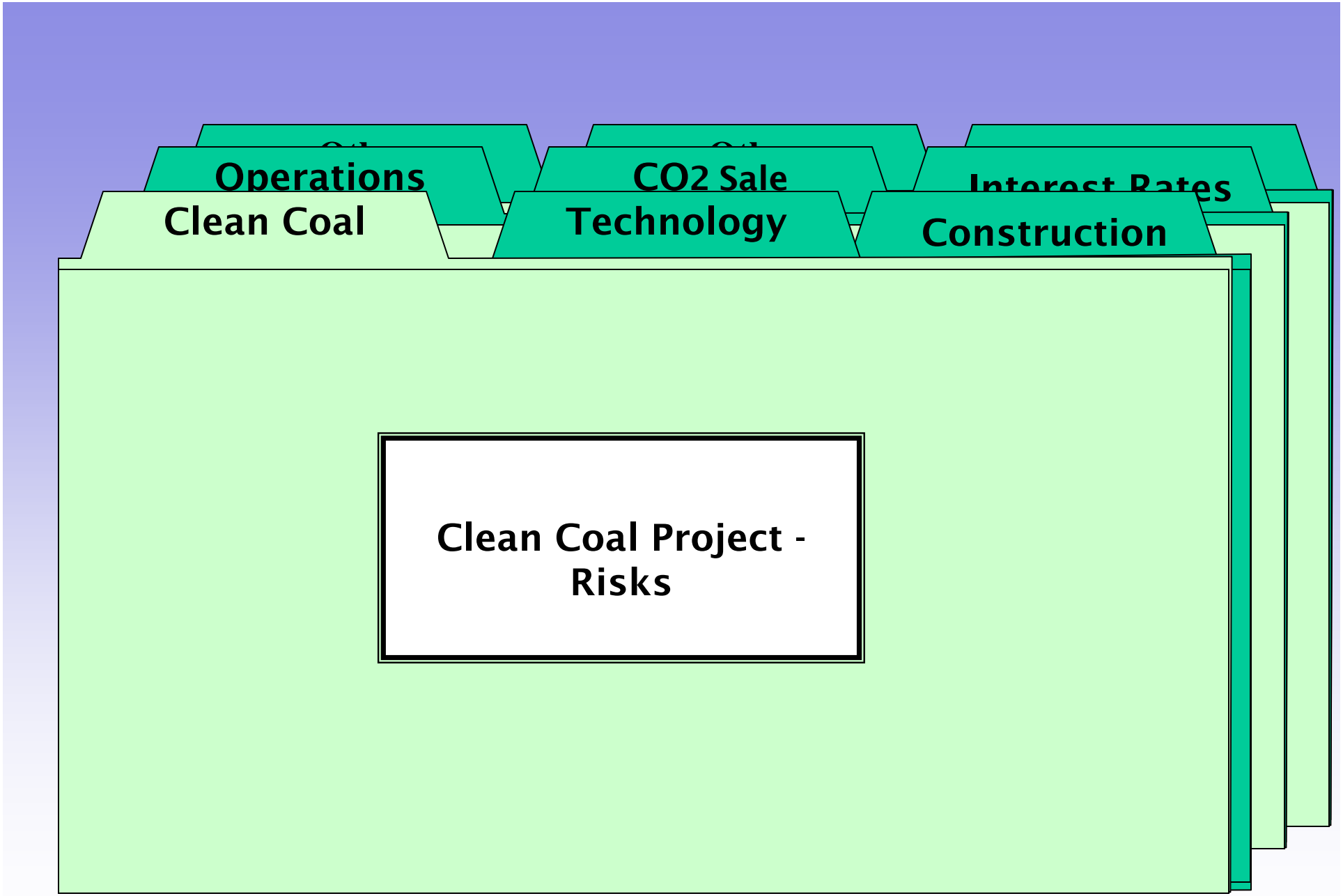
Reducing Unknowns reduces Contingency

- Emissions Regulations ; Credits, Taxes, Caps, Trades, Wealth Transfer
- Sequestration Regulations – EOR regulations are in place in Saskatchewan, but widespread concern could threaten a calm transition
- Patent Laws - Canada and USA allow patent claims on anything, defense is expensive, complicated and risky


You bet your steel-toed boots!

Ideal decision-making tool


Corporate Risk
Risk Management


Operations
CO2 Sale
Interest Rates
Clean Coal
Technology
Construction
Clean Coal Project - Risks

Technology

Issues

- (Safety – managed through HAZOP)
- Oxyfuel Process
  - Flue Gas Cooling
  - Furnace Heat Transfer
  - Burner Performance
- CO_2 Compression & Clean Up
- Air Separation Unit
- Process Integration
- Waste Water Management
- ..more….

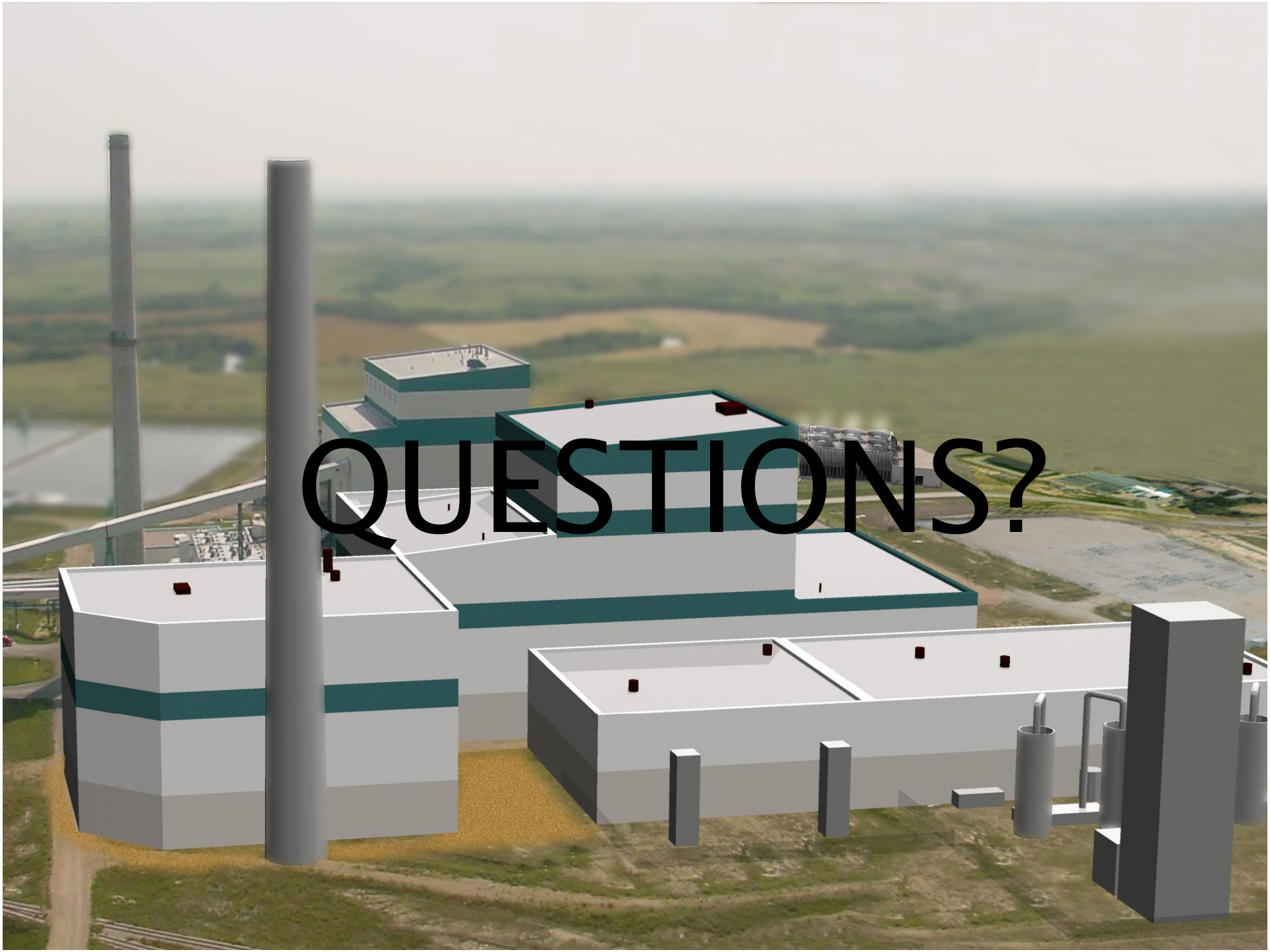
Conceptual Risk Assessment

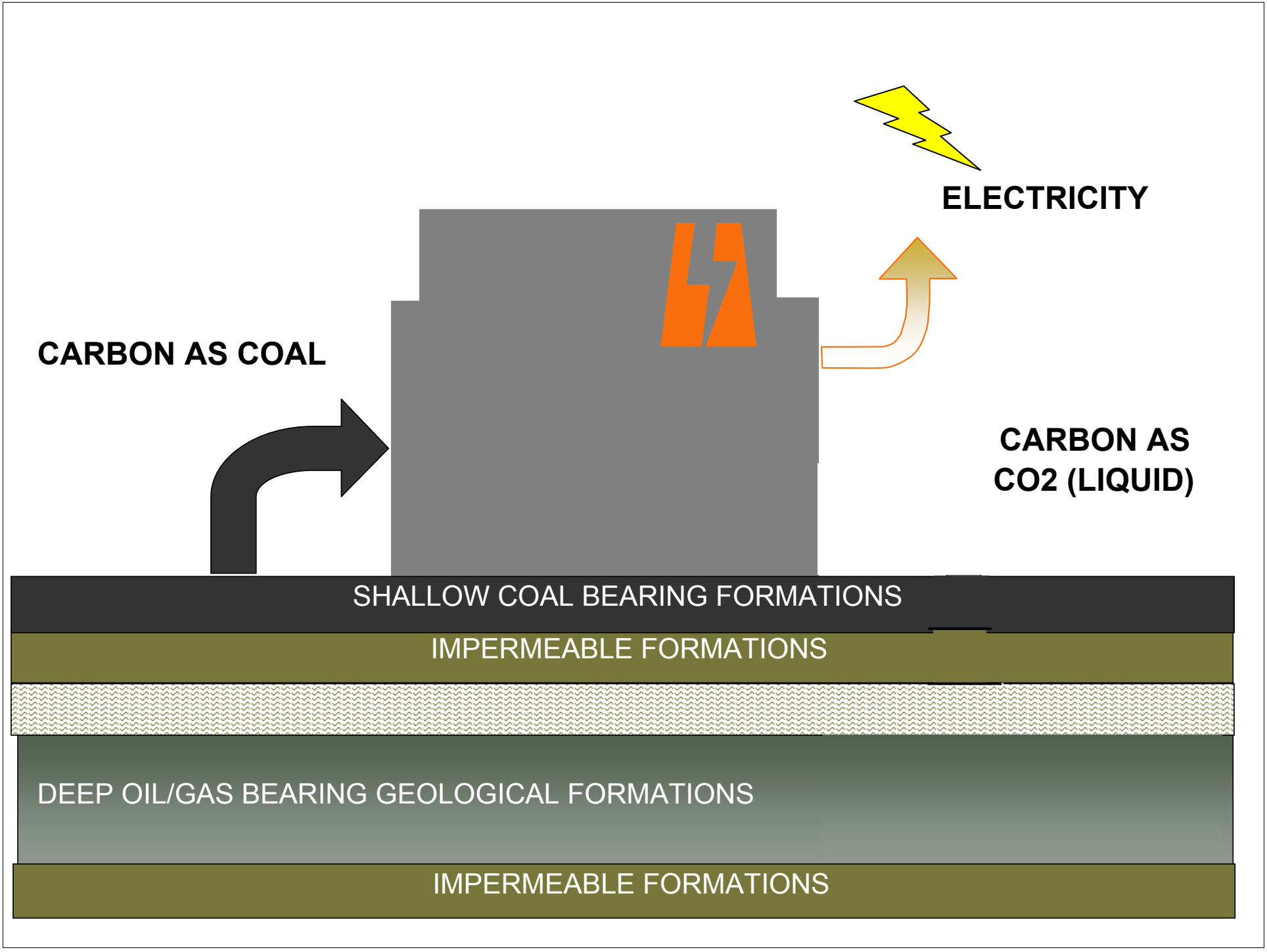
(Values are for demonstration only)

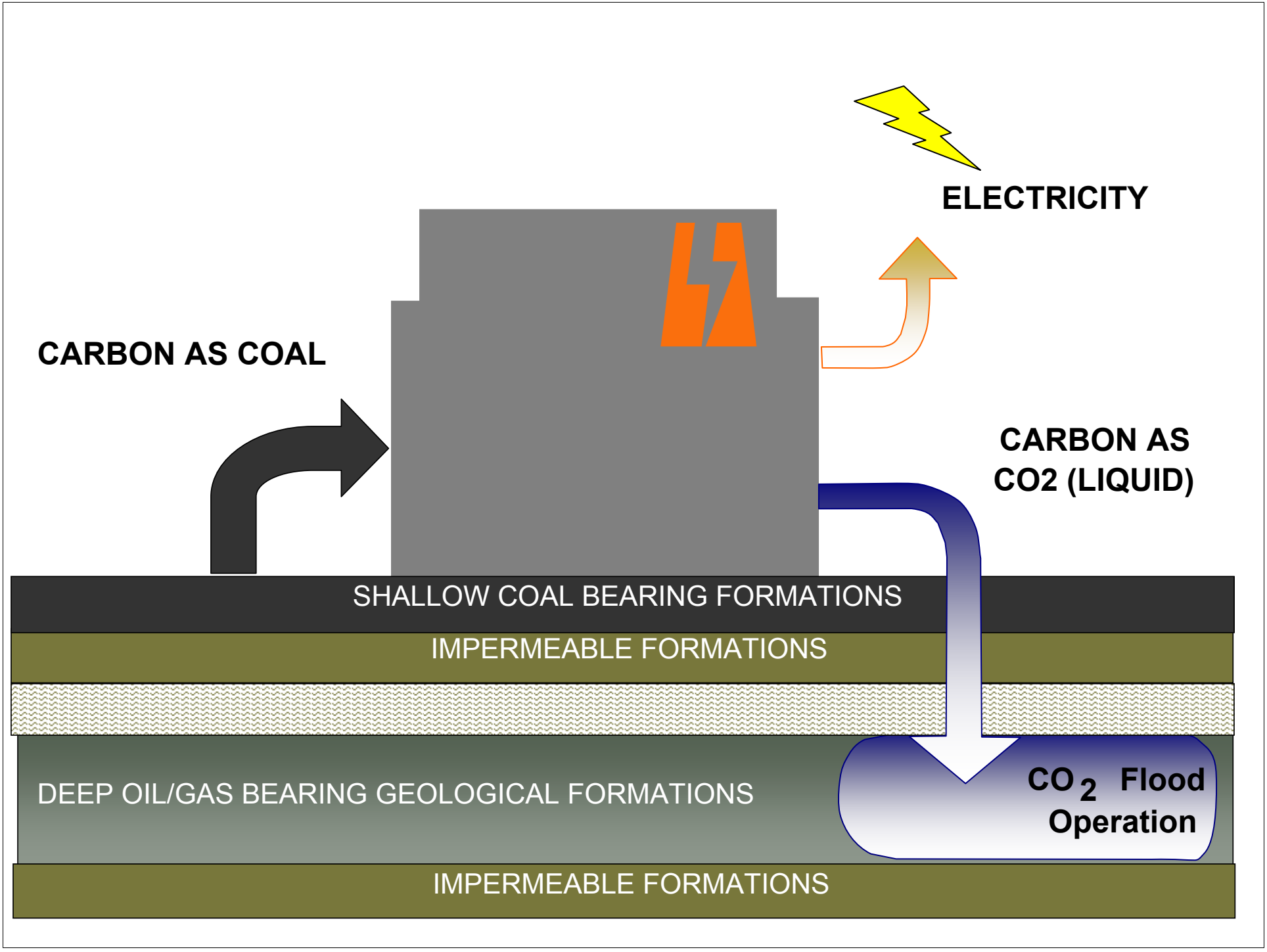
	Clean Coal		Compliant Coal	
Issue	**Expected Loss**	**Maximum Exposure**	**Expected Loss**	**Maximum Exposure**
Construction Labour	$ 55,000,000	$ 550,000,000	$ 38,465,250	$ 384,652,505
CO2 Sale Price	$ 96,000,000	$ 480,000,000	$ -	
Electricity Sale Price	$ 48,000,000	$ 240,000,000	$ 48,000,000	$ 240,000,000
Change in Interest Rates	$ 20,000,000	$ 200,000,000	$ 13,987,364	$ 139,873,638
Long Term OM&A Costs	$ 32,000,000	$ 160,000,000	$ 16,000,000	$ 80,000,000
Technical Risks - Oxyfuel	$ 34,375,000	$ 137,500,000	$ -	$ -
Material Price Risk	$ 25,000,000	$ [illegible]	$ 17,484,205	$ 69,936,819
GHG Regulations			$ 240,000,000	$ 960,000,000
	$ 310,375,000	$ [illegible]	$ 373,936,819	$ [illegible]

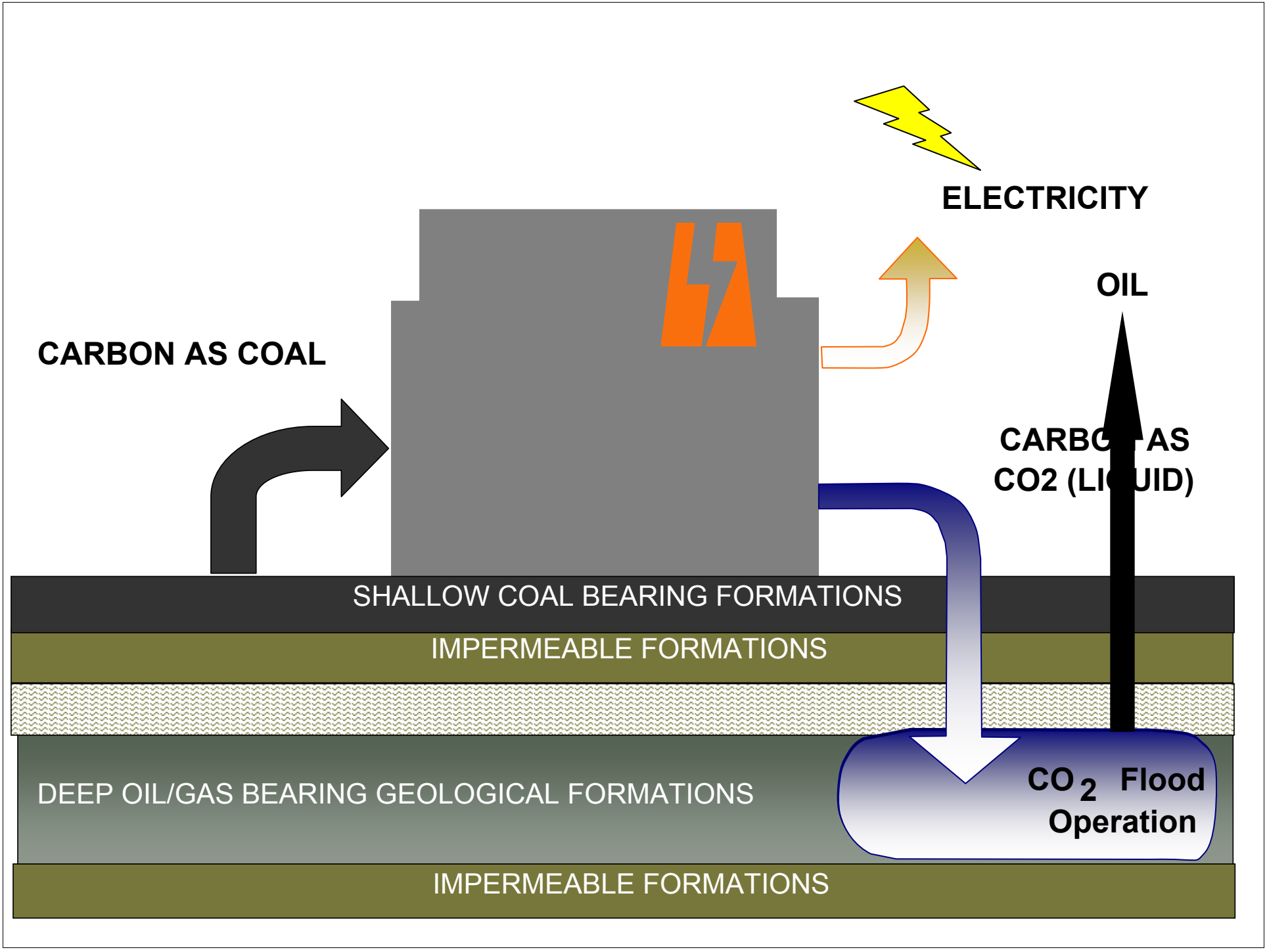
?

GHG Exposure for Compliant Coal may offset the project execution risks around "First Of" Clean Coal


QUESTIONS?


ELECTRICITY
CARBON AS COAL
CARBON AS
CO2 (LIQUID)
SHALLOW COAL BEARING FORMATIONS
IMPERMEABLE FORMATIONS
DEEP OIL/GAS BEARING GEOLOGICAL FORMATIONS
IMPERMEABLE FORMATIONS


ELECTRICITY
CARBON AS COAL
CARBON AS
CO2 (LIQUID)
SHALLOW COAL BEARING FORMATIONS
IMPERMEABLE FORMATIONS
DEEP OIL/GAS BEARING GEOLOGICAL FORMATIONS
CO 2 Flood
Operation
IMPERMEABLE FORMATIONS


ELECTRICITY
OIL
CARBON AS COAL
SHALLOW COAL BEARING FORMATIONS
IMPERMEABLE FORMATIONS
DEEP OIL/GAS BEARING GEOLOGICAL FORMATIONS
CO 2 Flood
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IMPERMEABLE FORMATIONS