



CO₂ CAPTURE
MANAGEMENT SOLUTIONS



COMPANY OVERVIEW



- Founded in 1997 and now commercializing opportunities in Carbon Capture, Carbon Management and Carbon Mitigation.
- Successful CO₂ Management: technology licensor, OEM supplier, and project developer of world leading carbon technologies.
- HTC's Technology Centre is commercially aligned with University of Regina's, International Test Centre for CO₂ Capture, Green House Gas Technology Centre and International Risk Assessment Centre.
- CO₂ Enhanced Oil Recovery technical expertise and close proximity to Weyburn EOR field.
- Commercial Offices in Calgary and Regina Canada, Vermont USA, Sydney Australia.

POSITIONED TO PROVIDE GLOBAL CCS SOLUTIONS

INTERNATIONAL TEST CENTRE FOR CO₂ CAPTURE



- World Leader in CO₂ Capture and Enhanced Oil Recovery Research
- Home of HTC's technical centre
- Natural Gas fired demonstration CO₂ capture plant

LEVERAGE RESEARCH ROOTS & PARTNERSHIPS



- Intellectual property
 - Patents
 - Significant know-how
 - On-the-ground experience
- Several trademarks that cover a broad range of HTC products & services
- Technical team includes a Nobel Prize Winner with > 20 years of affiliated research in CCS

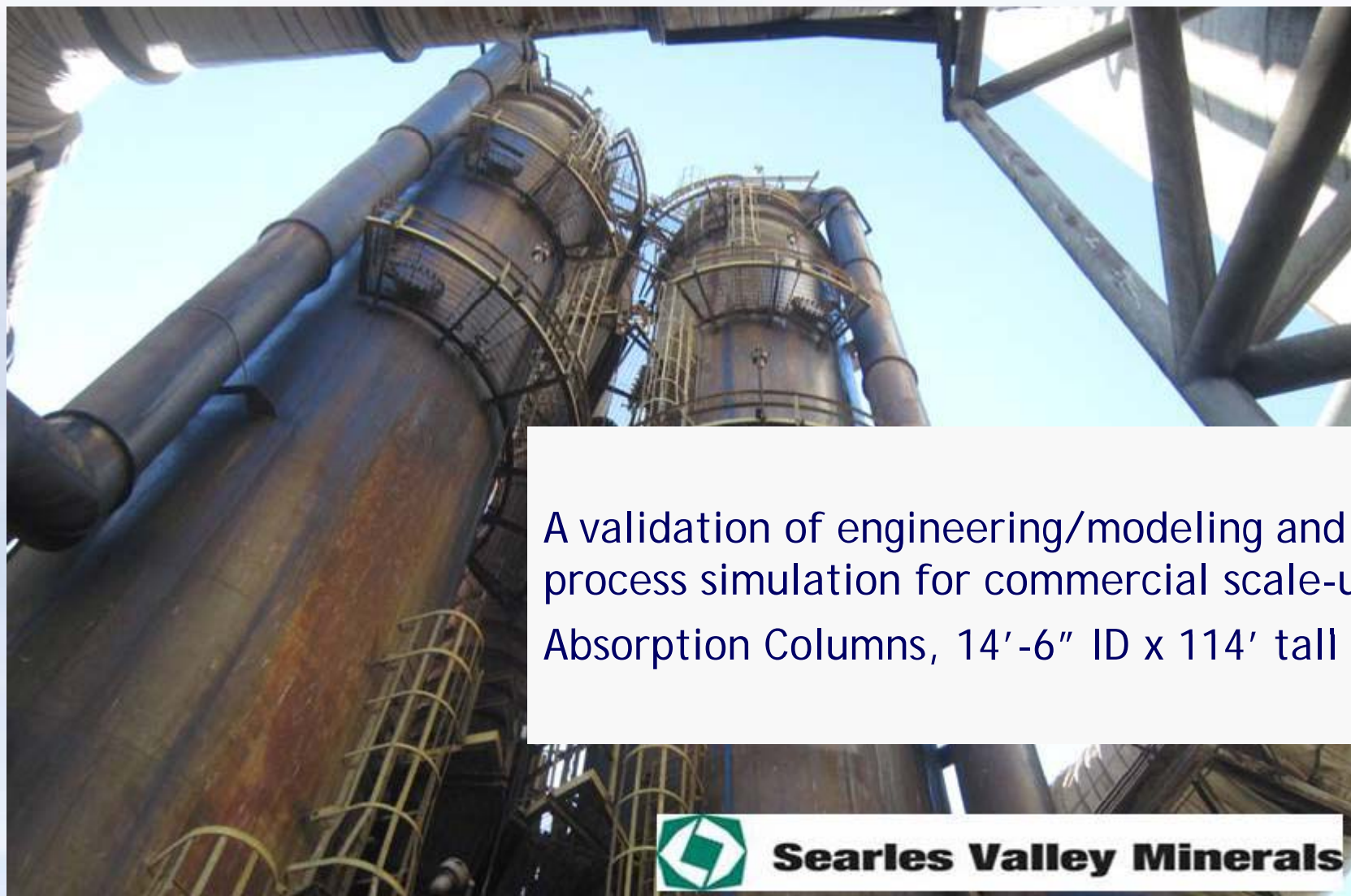


COAL FIRED FLUE GAS DEMONSTRATION REFERENCE PLANT



Boundary Dam - Estevan, Saskatchewan

HTC 800-1000 TPD COAL FIRED REFERENCE PLANT



A validation of engineering/modeling and
process simulation for commercial scale-up
Absorption Columns, 14'-6" ID x 114' tall



Searles Valley Minerals

CORE BUSINESS ACTIVITIES



CO₂ CAPTURE

1. Technology Licensor
2. OEM Supplier
3. Engineering Services

CO₂ EOR

1. Oil Field Analysis/
Simulation
2. Oil Field Economics/
project validation
3. CO₂ Compression
& Injection

CO₂ STORAGE

1. Geological Profiling
2. Risk Assessment
3. CO₂ Audit & Monitor
4. Carbon Credit Validation



Industrial Emitters CARBON MGMT. OPTIONS

HTC Product Offerings
Technology Utilisation Carbon Credits

Technology Licensing & OEM Supply (Permanent Solution)

- HTC offers it's customers world leading CO₂ Capture Technology to provide permanent CO₂ abatement solutions
- Technology offered through licensing agreements and OEM supply.
- Major CAPEX commitment from customer

CO₂ EOR-STORAGE

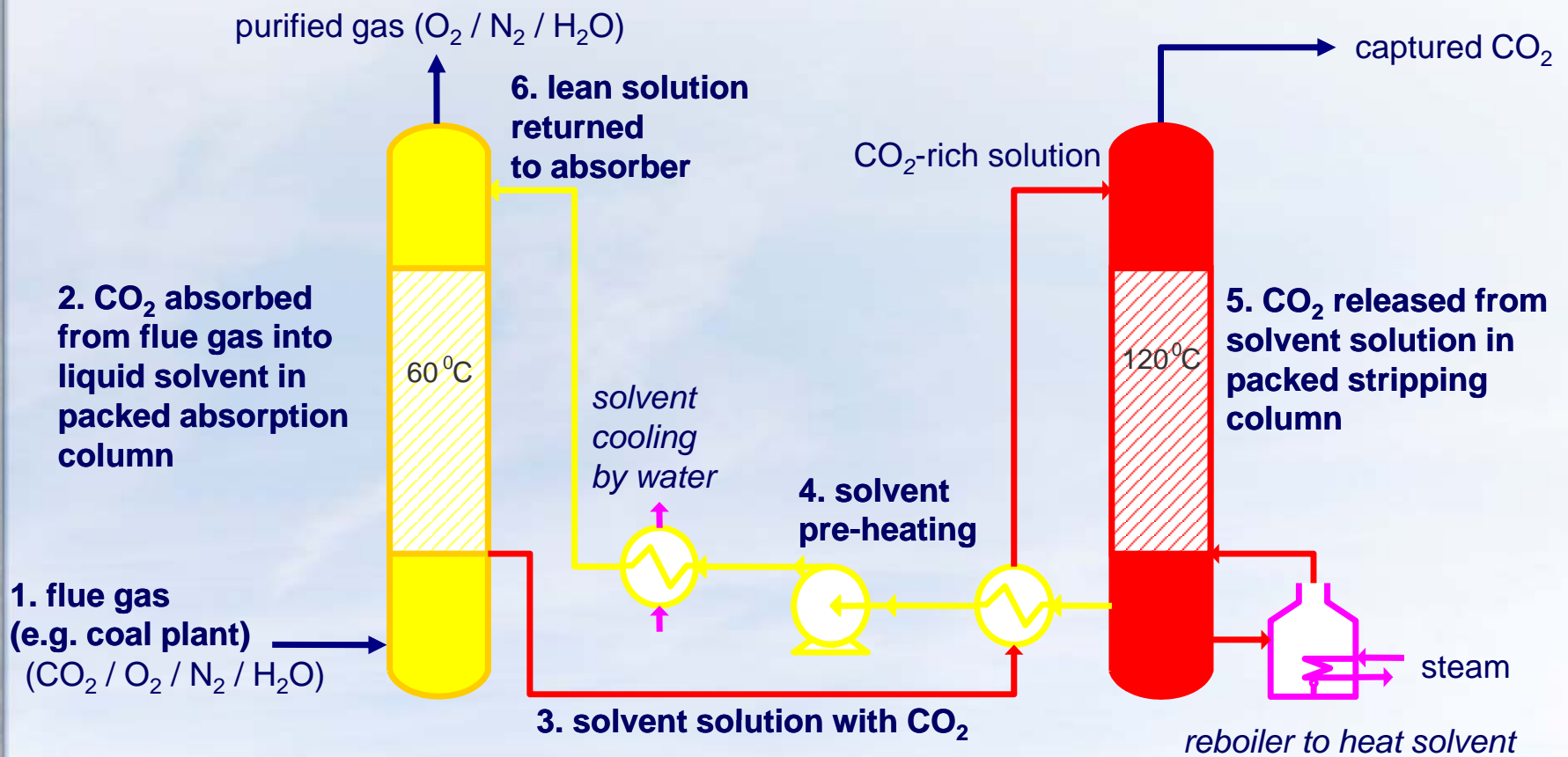
- EOR technology development (Bakken EOR)
- Underground Storage Protocols
- Risk Assessment/ Management of storage
- Project origination

Carbon Credits (Interim Solutions)

- HTC to offer Carbon offset Credits to its customers as an interim solution to satisfy the customer's emission reduction requirements
- HTC Carbon Capital Management (CCM) division, will have an inventory of credits to market to its clients as an interim solution

MIXED AMINE CAPTURE PROCESS

Process captures flue gas CO₂ from Carbon Emissions



HOW HAS HTC OPTIMIZED THE MIXED AMINE CO₂ CAPTURE PROCESS?



- Designer High-Performance Solvents (RS™)
- Column Packing & Internals
- Process Flow / Design Optimization (TKO™)
 - Heat Integration
 - Reduction in Steam
 - Reduced Emissions
- Optimized Front End Engineering & Design (HTC FEED ENGINE™)
- Optimization of Modular Design and Construction (CCS PUREENERGY™ SYSTEM)

THERMAL KINETICS OPTIMIZATION TKO™



- Description: Heat Recovery, Thermal Balancing Flow Process
- Up to 30% reduction in steam consumption
- Performance: Steam consumption: Less than 1.0 tonne steam/1 tonne CO₂ captured
- Typical competitor steam consumption reported 1.3-1.5 tonne steam/tonne CO₂ captured
- Patent No. WO-2008/144918

WORLD'S MOST EFFICIENT SYSTEM FOR CAPTURING CO₂



More Economically Viable Today

Majority of CCS cost stems from steam use to strip CO₂ from solvent

	STANDARD	HTC
Steam to Capture 1 kg CO ₂	1.3-1.5 kg	1.0 kg
Capture Cost per tonne CO ₂	\$XX	\$20-\$25

EXPECT TO **REDUCE** OUR CAPTURE COSTS
OVER NEXT **2 YEARS**

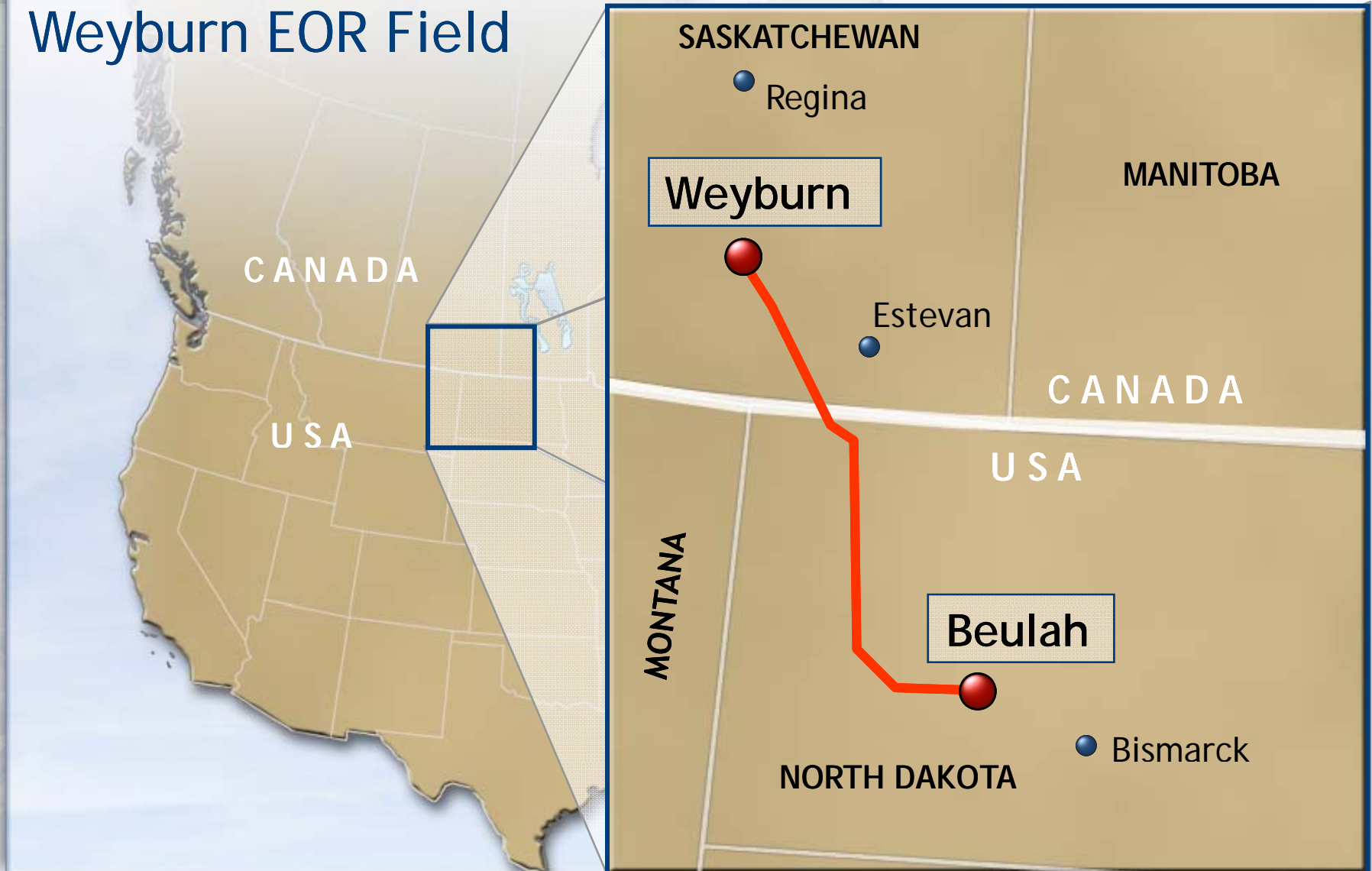
ENHANCED OIL RECOVERY



- Matching emitters and EOR opportunities
- Injecting CO₂ into a producing oil field
- Increases amount of crude oil produced
- Significant opportunity in Alberta and certain regions of U.S.
- Provides support to the government's need to regulate emissions

ENHANCED OIL RECOVERY

Weyburn EOR Field



PARTNERSHIPS

Doosan Babcock & Bechtel



DOOSAN BABCOCK
New and refurbished
power plants

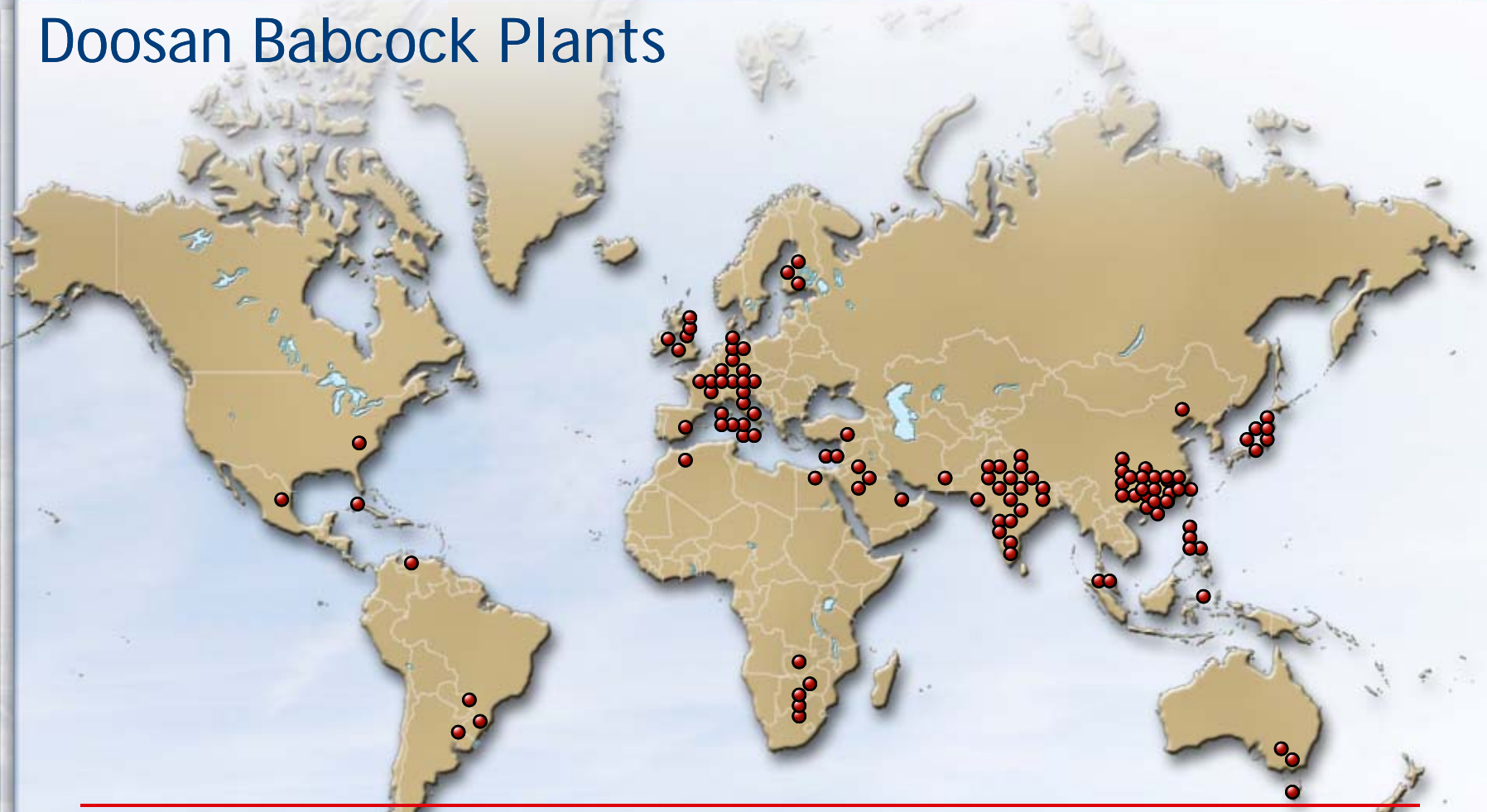


BECHTEL
Fuel-processing, heavy-oil
upgrading and refineries

LEVERAGE WORLDWIDE SALES FORCE



Doosan Babcock Plants



STRONG BIDDER FOR DESIGN & CONSTRUCTION

DOOSAN CHANGWON PLANT



Total Area : 4,425,570 m²

Floor Space : 554,988 m²



Largest energy infrastructure manufacturing facility in the world.

Similar Plant under construction in Vietnam (double the size)

Manufacturing of Integrated boilers and CCS systems.

MODULAR CAPTURE SYSTEMS

- Pureenergy CCS Capture TM systems
 - Stand-alone carbon capture system
 - Up to 3,000 tons per day of CO₂
- OEM Modular design
- Lower cost than units custom built on site
- Main focus is Canada and U.S.A.
- Targeting power, fuel processing and industrial facilities

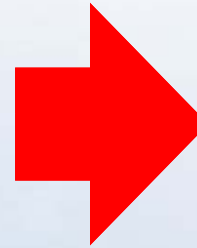


COMMERCIAL READINESS

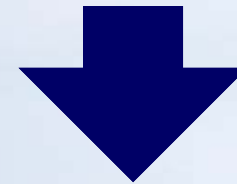


Capital Cost Certainty Process Performance

- Solvent Emissions
- Steam Requirement
- Solvent Degradation
- Reclamation By-Products
- Power Consumption
- Waste Water Consumption
- CO₂ Purity (EOR Spec)
- Plant Reliability
- CO₂ Capture Rate



PERFORMANCE
GUARANTEES
WITH UNDERWRITTEN
LIQUIDATED DAMAGES



REQUIRED FOR
COMMERCIAL PROJECT
FINANCING

CORPORATE HIGHLIGHTS



1

Strong Position in a Large
& Growing Global Market

2

World Leading CCS Solutions
& “Commercially Ready” Technology

3

Strategic Partners with
Global Industry Leaders

4

Experienced: Management, Technical
Teams & Global Sales Force



www.htcenergy.com

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