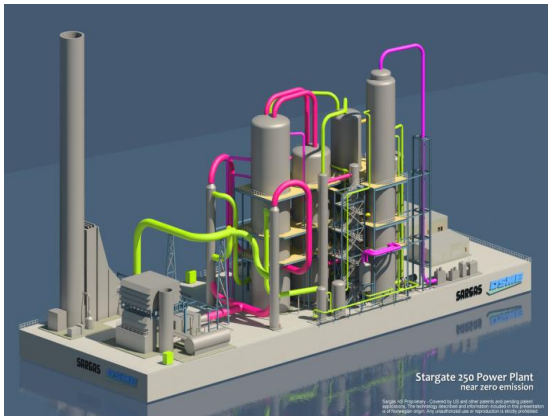
SARGAS



CCS driven by EOR

The CCS Infrastructure must be built on commercial grounds

SARGAS

- The CCS Infrastructure must be built on commercial grounds, i.e EOR
- The oilcos are in the drivers seat and their reservoir situation is the key to success for making EOR happen.
- Existing demand will present the lowest hanging fruit
- Success stories and logistics will set the scene for expansion beyond existing demand
- The Developer will arrange compensation for the Power companies for their additional cost and risk.

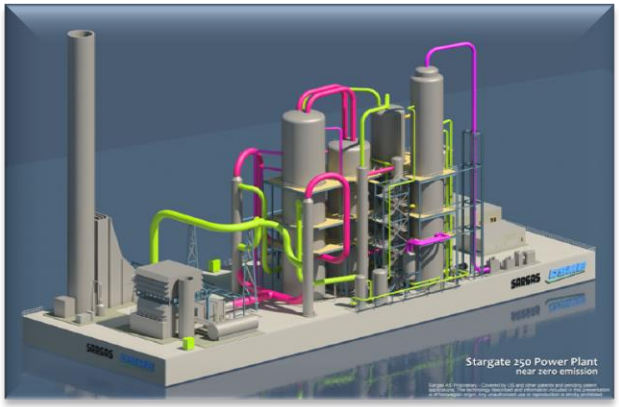
The Sargas Offering: A CO_2 Co-generation Model

Sargas Technology converts fuel into electricity and pure CO_2

Pressurized Combustion 2 Plant concepts

Natural Gas ⇨

Coal (Biomass) ⇨



Pressurized CO_2 Capture

⇨ **Pure CO_2**

⇨ **Electricity**

Natural Gas or Coal as Fuel

- Optional fuel feedstock, coal or gas subject to availability and price;
- Liquidity in fuel commodities' markets enables hedging of fuel as input;

Pressurized Conversion
Key differentiator

Pure CO_2

- Valued proportional to oil price;

Power at Competitive Rates

- Sargas efficient near zero emission offers lower-cost electricity solutions;

More than one value and off take to handle

Comparison between std CCGT with single income and Sargas plants with double income

Unit 250 Mwe	Cost of Electricty, $/MWh.	Compare Δ CCGT, $/MWh	Captured CO2, ton/day	CO2 Value @80$/bbl, $/MWh	CO2 Value @100$/bbl, $/MWh	EOR yield, bbl/d
CCGT	43,9	-	-	-	-	-
Stargate250 gas	52,1	8,2	2 208	48	67	5 520
Sargas 3x275 B coal	63,6	19,7	6 168	134	187	15 420

Assumptions
Natural Gas Price $ 4/mmBTU
Coal Price $ 2,5/mmBTU
Electricty sales price $ 55/MWh, gross
ROI Power Plant 10%
EOR Costs $ 30/Bbl
EOR Yield 2,5 bbl/ton CO2
CO2 Value ($/MWh) = ($/bbl Oil Price – EOR Costs) x EOR Yield x ton/h)/MW

A Sargas plants generates a multiple of CCGT revenues; from electricity and CO2

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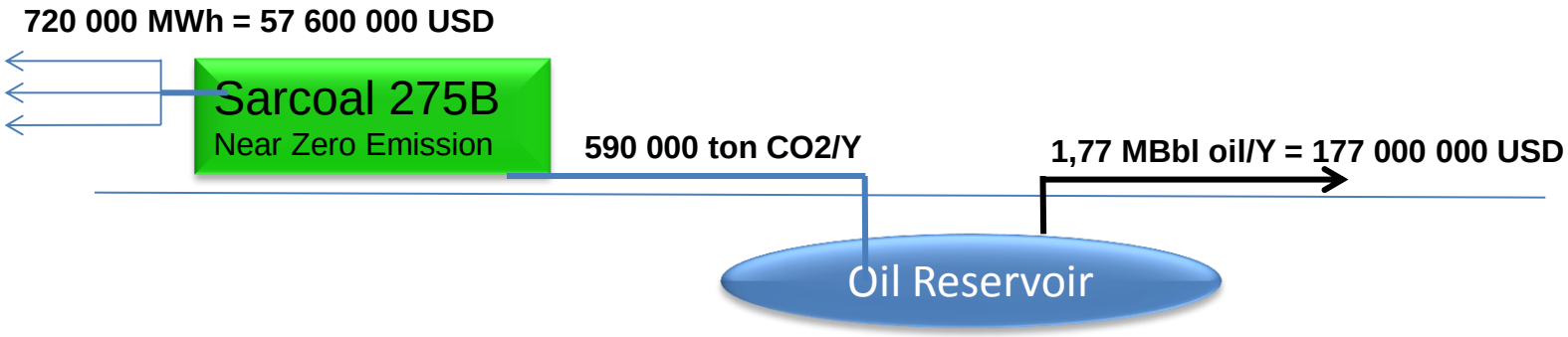
The oil companies are in the drivers seat and their reservoir situation is the key to success

- Double off take/income makes the business model complex.
- Power companies are operators with an interest to produce power with low risk and earn a margin to return on their investments. They have no real interest in Carbon Capture.
- Oil companies MAY be interested in CO2 but only if their reservoirs are at the right time of aging and they believe there is an EOR opportunity and they have resources available for exploring EOR.

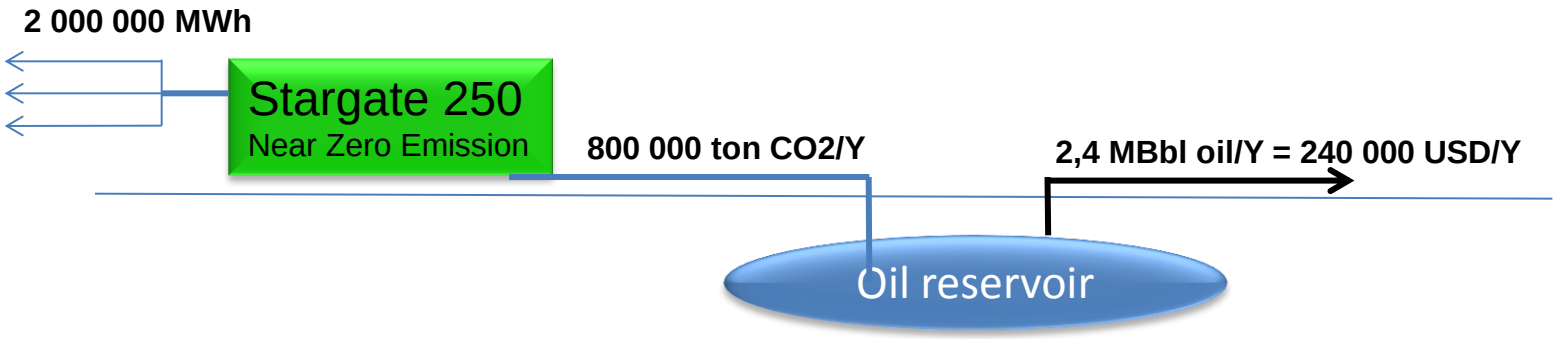
Simplified overview of the consolidated Revenue stream



Sarcoal 90 MWe Output				Revenues		
90 MW for 8000 h	720 000	MWh	80 USD/MWh	57 600 000	USD	/year
3 Bbl oil/ton @ 100USD bbl	590 000	Ton/y	1 770 000 bbl oil	177 000 000	USD	/year
	Total revenue Oil & Power			234 600 000	USD	/year

A Sargas plants generates mutiple revenues; electricity and CO2

Simplified overview of the consolidated Revenue stream



Sargas Stargate250 Output				Per Year	
Power	250 MW for 8000 h / year	2 000 000 MWh	80 USD/MWh	**160 000 000**	**USD**
Oil	3 Bbl oil/tonCO2 @ 100USD bbl	800 000 Ton CO2	2 400 000 bbl oil	**240 000 000**	**USD**
	Total revenue	**From**	**Oil & Power**	**400 000 000**	**USD**

A Sargas plants generates mutiple revenues; electricity and CO2

SARGAS

The oil companies are in the drivers seat and their reservoir situation is the key to success

Oil companies are the drivers in EOR

They must believe in it.
(A Champion and at least one decision maker buy-in)

The must need it.
(The business case for the reservoir)

→ Then they will go for it

And the real work starts for the developer

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The CCS Infrastructure must be built on commercial grounds.
i.e EOR will be the kick-starter for CCS

- The potential returns are substantial; An additional 2-4 BBL/ton CO2 will cover the cost of infrastructure, subject to the size of the oil field.
- Oil fields are not very controversial as storage places.
- The commercial risk with EOR is manageable
  - The process is well known.(Texas,Weyburn,Turkey..)
  - The oil reservoirs exists, including all production data.
  - The oil and miscibility can be tested off line.
  - The geological data of the matrix exists
  - Pilot runs can be done with limited investments

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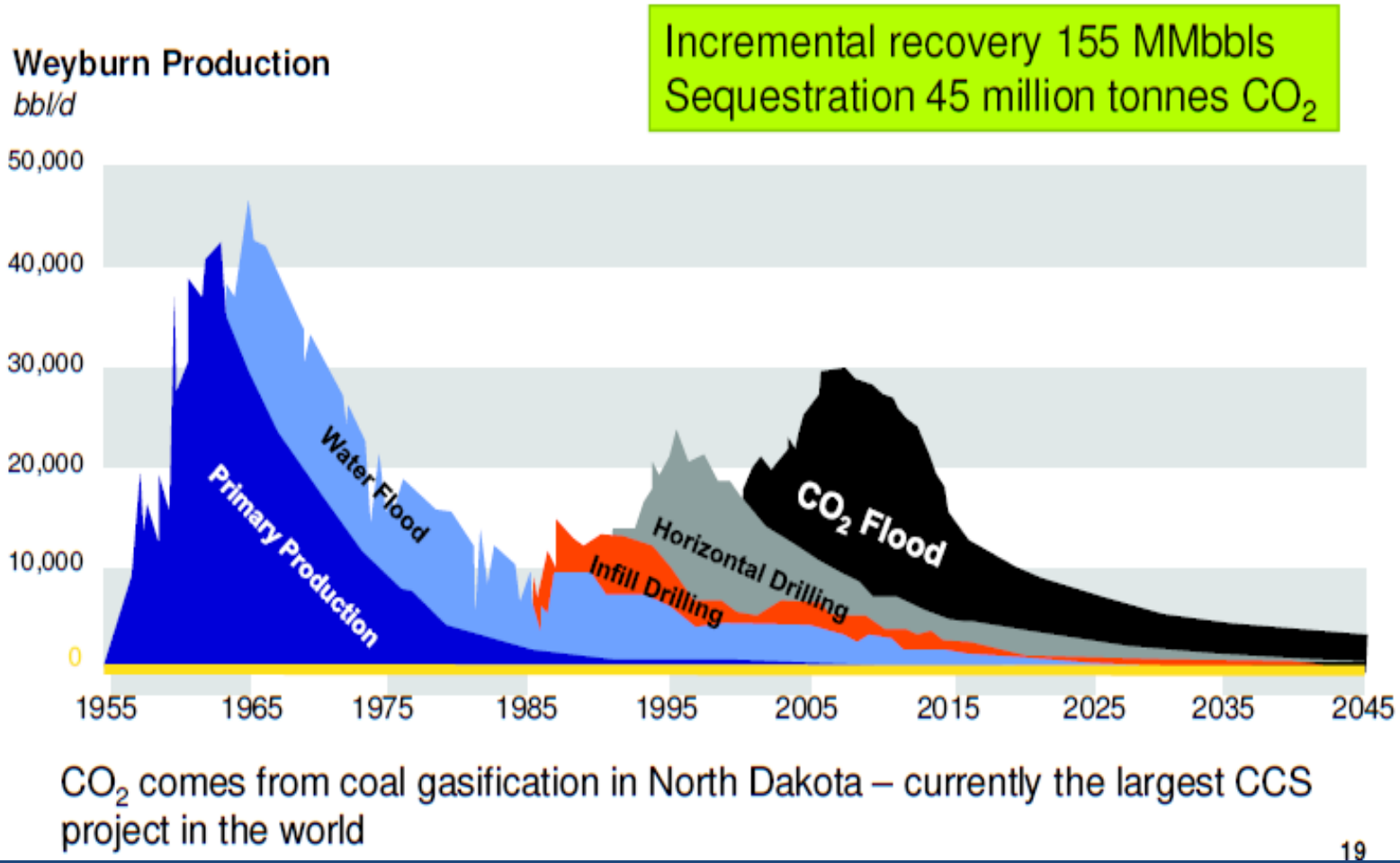
Enhanced Oil Recovery delivered more oil since decades



Example of the yield from EOR

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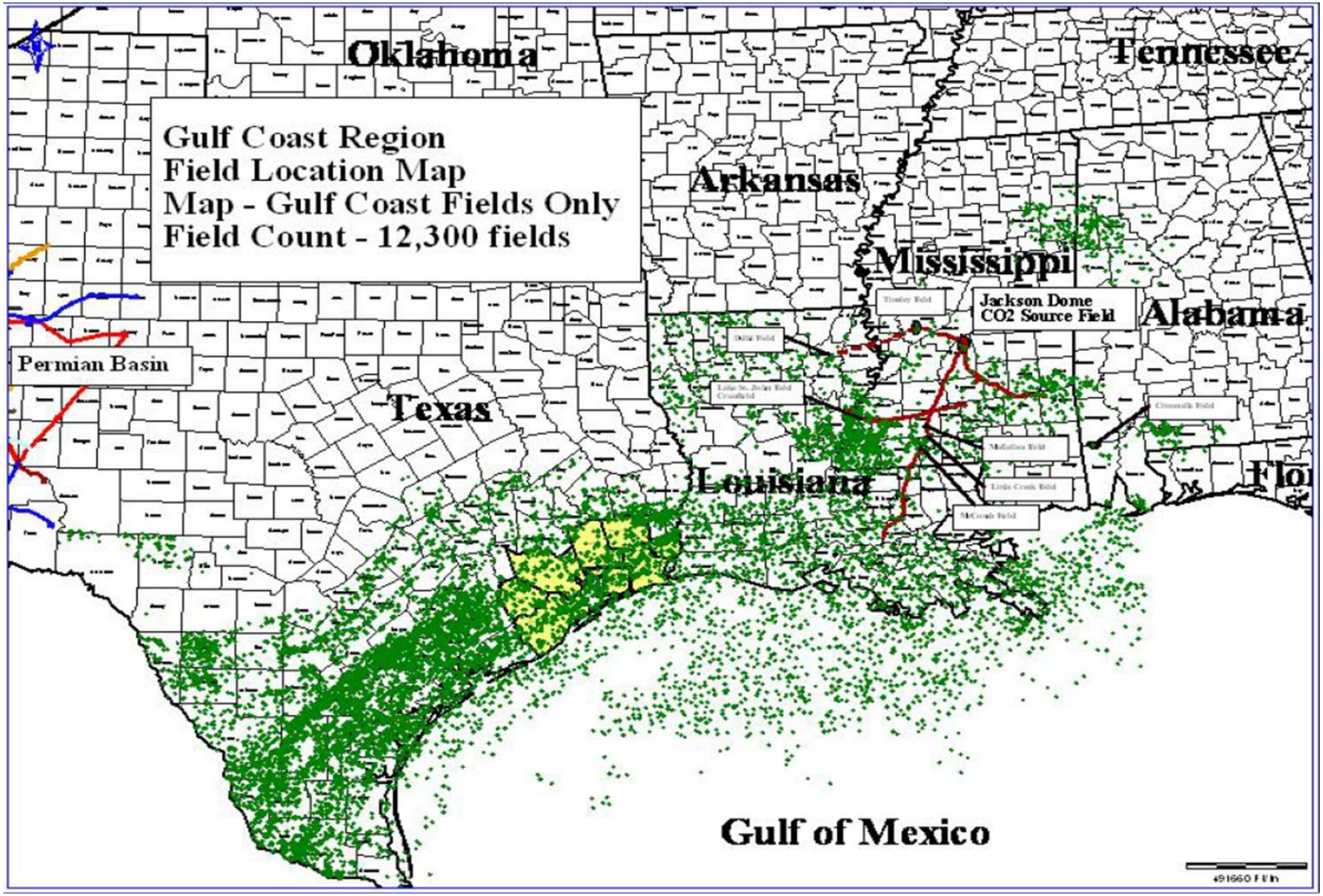
Why Texas?



Texas has great number of fields and a ongoing EOR operationC

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Existing demand will drive the lowest hanging fruit:

Texas is still the most important zone for EOR.

- Long history, Existing trade of CO2 as commodity.
- Pipelines are a natural part of the flora
- Oxy alone has 29 EOR operations.
- - Naturally occurring CO2 is getting harder to get.

→ A demand for CO2 is being built up as oil fields still can produce a lot more oil subject to the availability of the oilfields.
→ Texas need more power capacity for safety.
→ The issues is that the power price is very low.

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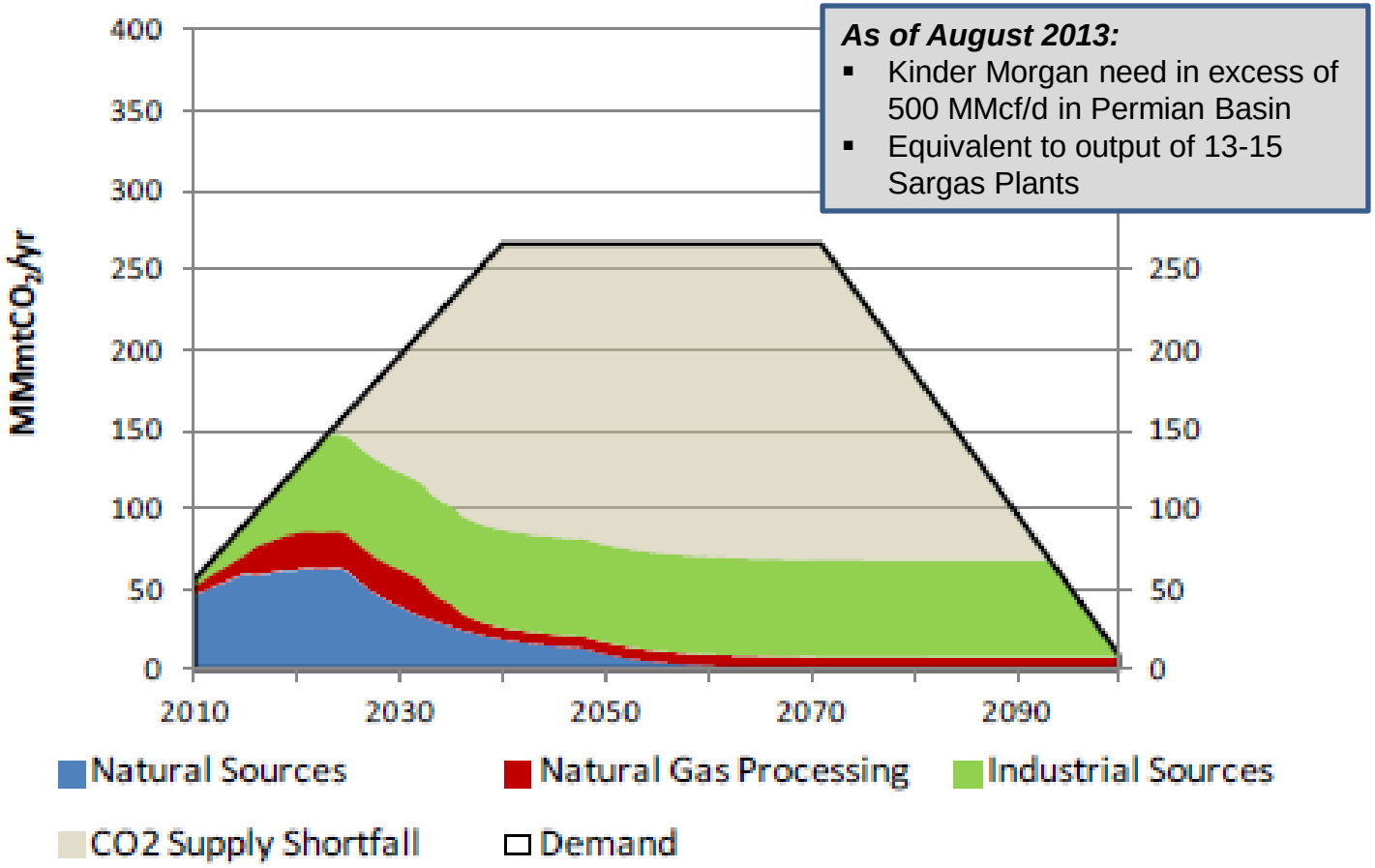
Current U.S. CO_2 Supply is Insufficient

U.S. CO_2 Supply / Demand



Source: DiPietro and Nichols. 2012. "Scenarios for CO2 EOR in the United States through 2100" draft NETL report

Industrial CO_2 will be only significant supply to meet U.S. demand post-2020

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Logistics will set the scene for expansion beyond existing demand

- Where are the oilfields,
- How does the aging profile look like.
- Where are the power plants
- Where are the power needs
- What is the capacity need
- What is todays and future power price
- Where is the cooling water
- Where is the grid
- What is the Cost of pipeline/grid per km
- What is the cost of shipping CO2 by ship

→ Developer will optimise logistics to maximise profits

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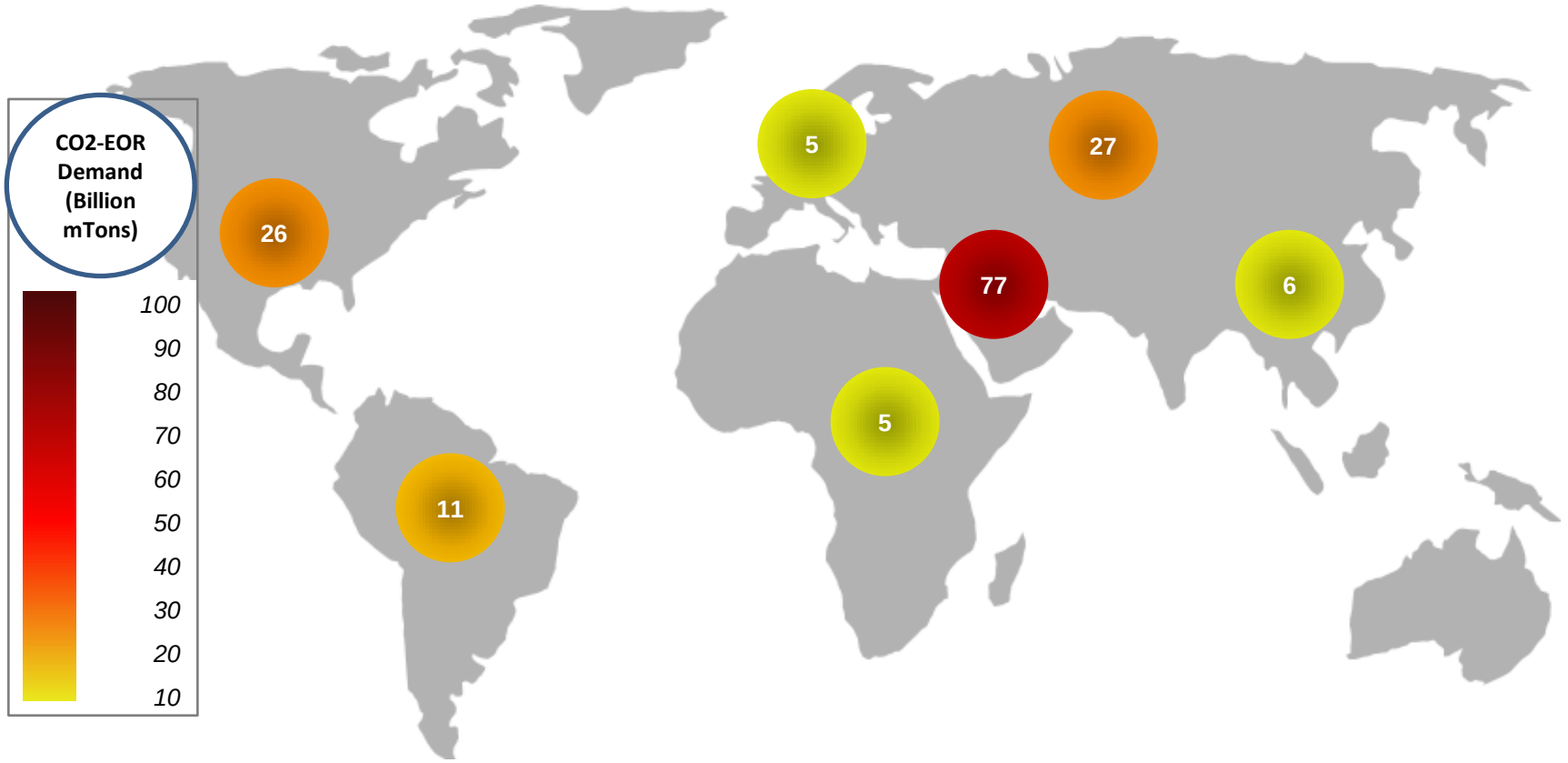
The EOR Market Potential is Significant

Global CO_2-EOR potential demand exceeds 156 billion metric tons

Potential Power plant Deployment to Meet Global Demand (risk-adjusted)



Sources: - Society of Petroleum Engineers;
IEA Greenhouse Gas R&D Programme, CO2 Storage in Depleted Oilfields: Global Application Criteria for Carbon Dioxide Enhanced Oil Recovery, Report IEA/CON/08/155, Prepared by Advanced Resources International, Inc. and Melzer Consulting, August 31, 2009;
CO2 Storage in Depleted Oil Fields: The Worldwide Potential for Carbon Dioxide, Enhanced Oil Recovery, Advanced Resources International through 2008 for DOE and Others

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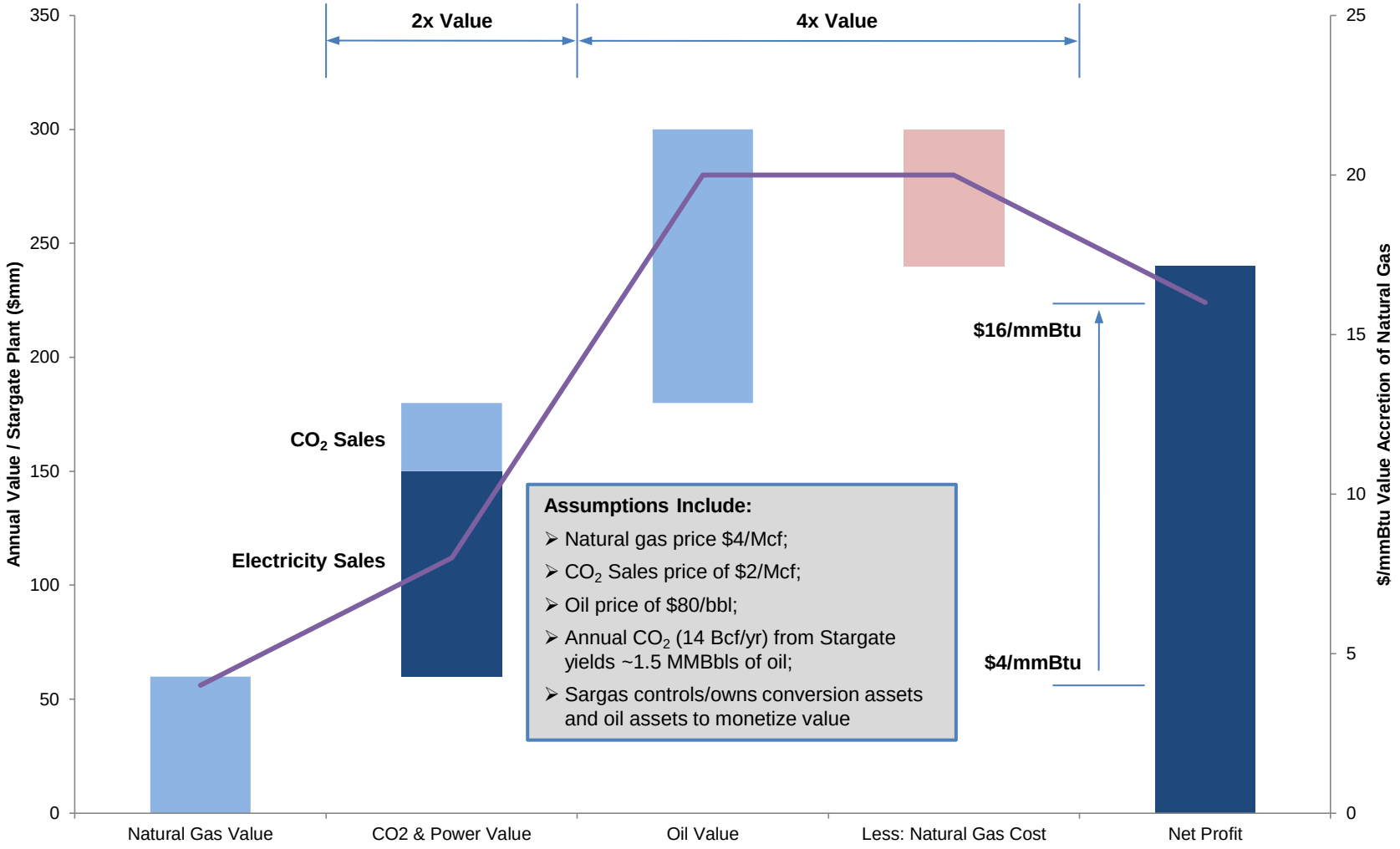
Stargate: Value Beyond Natural Gas

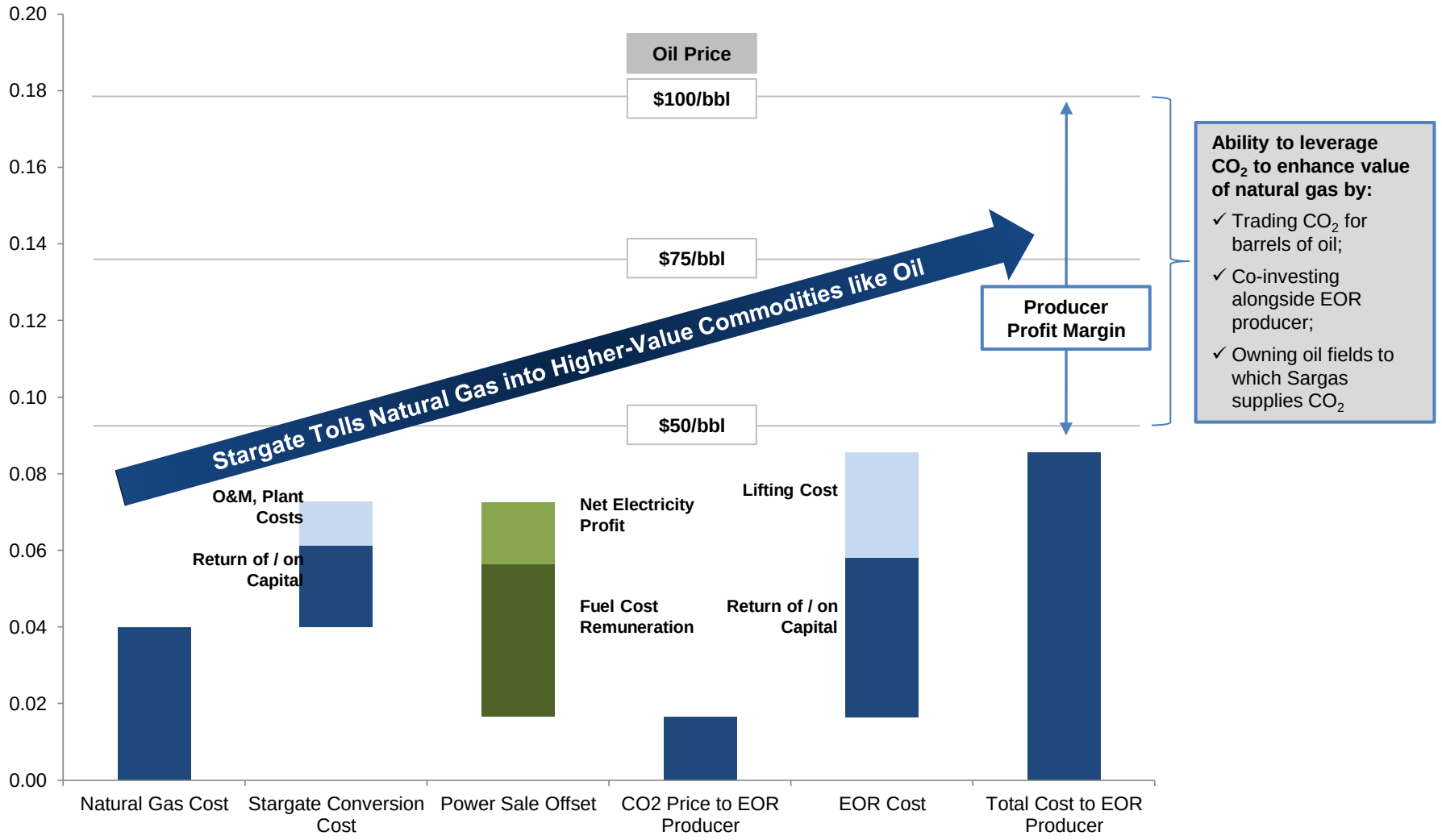
Sargas technology allows leveraging of natural gas into electricity, CO_2 and oil, creating a net 4x multiple to value



The Stargate process creates an opportunity to toll natural gas into higher value products

Sargas CO_2 is Cost-Competitive for EOR Producers

$/mmBtu-Equivalent Value Analysis: EOR Producer Profit Margin



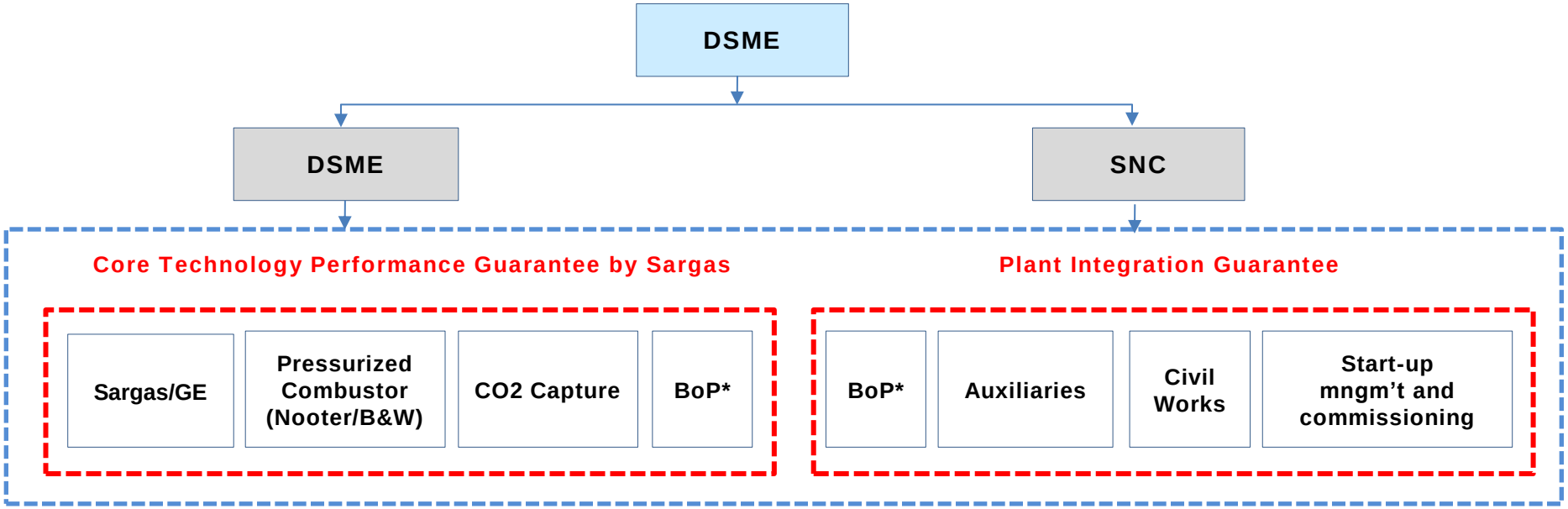
Ability to leverage CO_2 to enhance value of natural gas by:

- ✓ Trading CO_2 for barrels of oil;
- ✓ Co-investing alongside EOR producer;
- ✓ Owning oil fields to which Sargas supplies CO_2

Considerable upside for EOR producers

Guaranteed Performance: Established EPC Consortium

The Developers EPC consortium will provide balance sheet support for performance & technology risk



- Project Wrap (Technology)
- Detailed Engineering
- Plant manufacture/fabrication
- Technologyguarantees
- Soft start/soft comissioning
- Transportation

- Project wrap (BoP)
- Construction guarantee
- Project management/control
- Detailed engineering

Note: EPC structure as planned for Point Comfort project

DSME will wrap and guarantee the entire Stargate and 275B plant ww

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Key Requirements for Financing

Long-term Revenue Contracts

- **Electricity & CO_2 off-take contracts support long-term repayment of Power plant investment:**
  - Agreements with investment-grade counterparties or counterparties with ability to post credit;
  - Current market for electricity hedges in Texas ranges from 5-7 years, which is a financeable term;
  - CO_2 contract will enhance Power plant contracted cash flow through fixed payment streams

Plant Output & Performance Guarantees

- **Lenders and investors will require plant output & performance assurance for first-in-kind plant:**
  - Lenders and investors will want EPC to assume all new technology risk;
  - Off-take counterparties will impose financial damages for power plant non-performance;
  - Use of large balance sheet to guarantee Power plant output will be required for lenders and investors

Turn-Key EPC & Wrap

- **Certainty of plant price and industry-standard wraps and warranties:**
  - Fixed-price EPC contract with liquidated damages provides price and schedule certainty;
  - EPC with balance sheet is critical;
  - Investors' Independent Engineer will audit technology and EPC risk on behalf of lenders and investors

Power plant revenue, technology and EPC risks must be mitigated in order to close financing

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Thank you !!

Martin Roden,
Sargas AS

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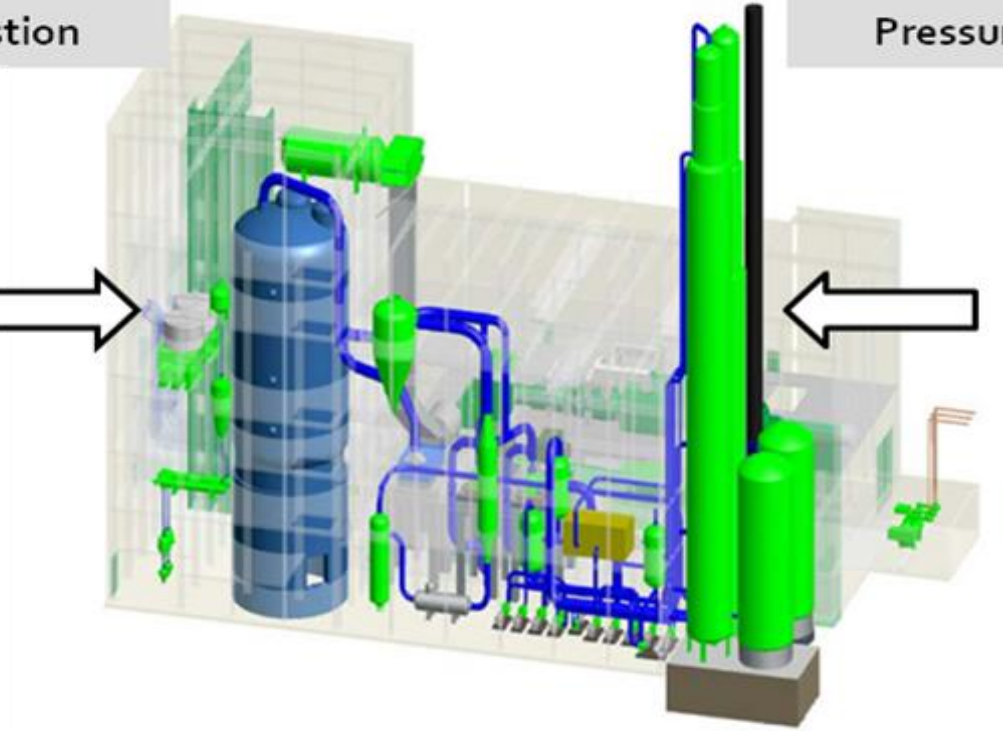
Sargas Patent is based on two existing technologies

Pressurized Combustion and Pressurized CO_2 Capture

Pressurized Combustion

Plants in Operation in Europe and Japan



Pressurized CO_2 capture

> 900+plants in operation around the world

World wide patents in this field

Pressurized Carbon Capture; over 1000 Full Scale plants

Honeywell/UOP (license) **> 700 plants**

Town Gas Plants		164
Ammonia	204	
Hydrogen		110
SNG		29
Natural Gas Processing		55
LNG Pre-Treatment		9
Partial Oxidation Purification		9
Coal Gasification		6
Ethylene Oxide & Vinyl Acetate		77
Other		58

Catacarb (license) **>200 plants**

Giammarco Vetrocoke (license) **>200 plants**

HPC or Benfield(Benson & Field) process in operation since 1955

ABB & IHI & Hitachi full scale References

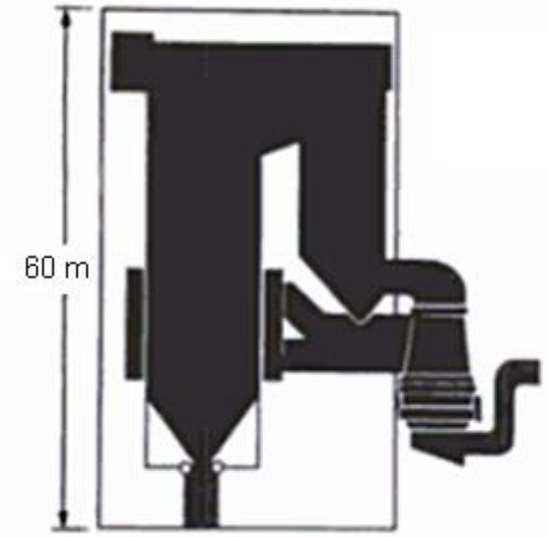
Commercial and Demo Plants in Operation
AEP , Tidd Demo USA 75,6 MWe
Endesa Power, Escatron Demo Spain, Lignite, 80 MWe
Wakamatsu, Demo Japan 60 MWe ,
Fortum Värtan CHP Stockholm City Sweden incl 10-30% bio, 135 MWe 224 MW heat
Cottbus City Germany, Lignite 75,6 MWe
Kyushu Electric Power, Karita Japan, 350 MWe
Osaki Power, Japan 250 MWe Hitachi

Sargas perform maintenance in Sweden and Germany

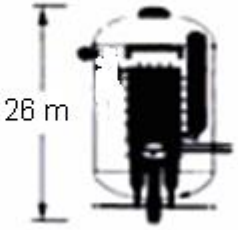
Pressurized Coal combustion is more compact

Repowering 90 MW Pulverized Coal boiler with 90 MW Pressurized Boiler

Athmospheric combustion



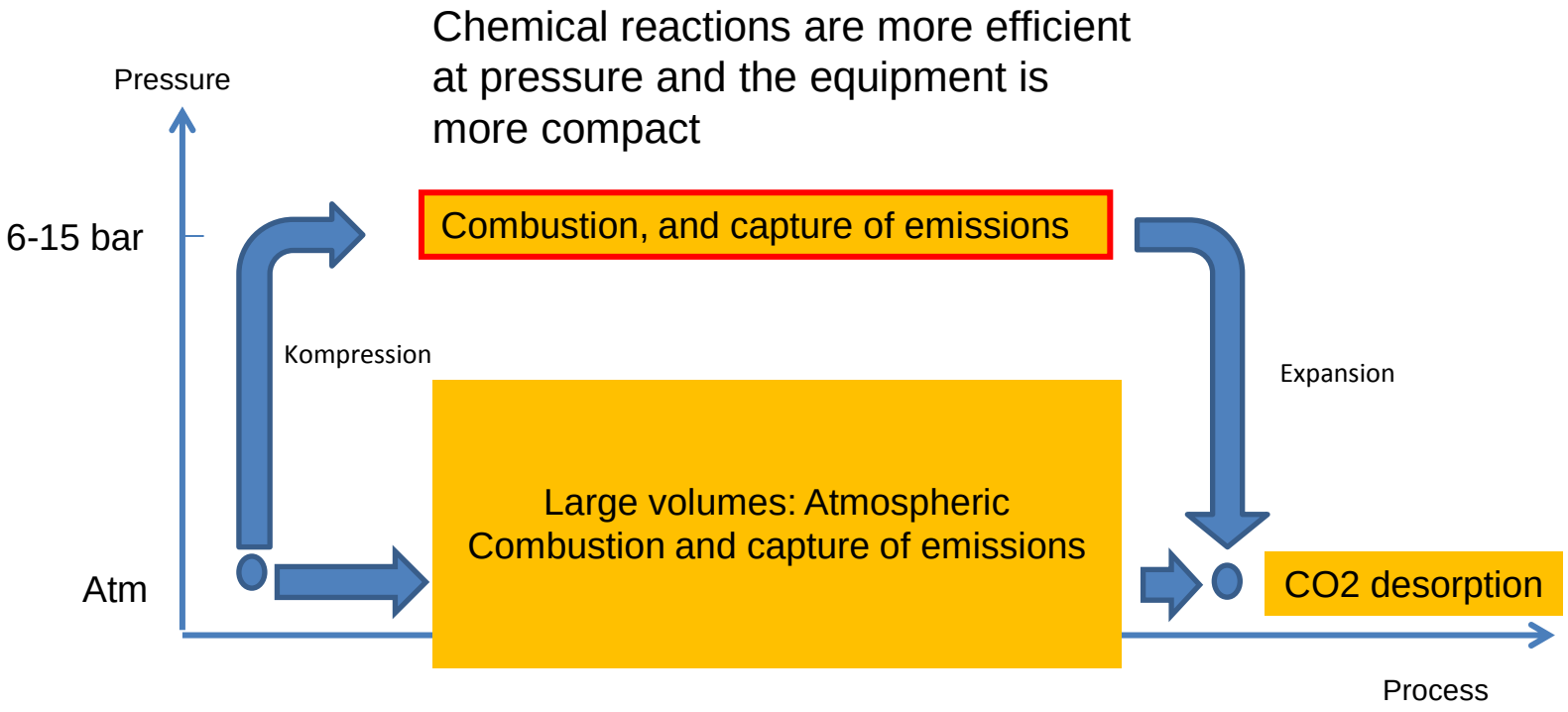
Pressurized combustion



In a Repowering scenario there is now room for CO2 capture

Pressurized Technology Increases the efficiency

Pressure improves the chemical reaction



When the pressure is expanded the compression energy is recuperated

Demonstration of CO2 capture from Pressurized Combustion 2008

Assumption that proven pressurized Combustion would marry pressurized capture

Results 2007-2008

- CO_2 - 98% captured (99,1%)
- NO_X - below 5 PPM
- SO_2 - near non existent

Contributors

- Fortum Energy (Publ. SF)
- Stockholm City
- ALSTOM
- Reaction Systems Engineering, Boston
- Royal Institute of Technology, Stockholm
- Siemens Power AG
- **Verification by I.F.E.**

Very Successful demonstation proved assumptions

Advantages of Sargas Coal & Gas fired Plants

Coal

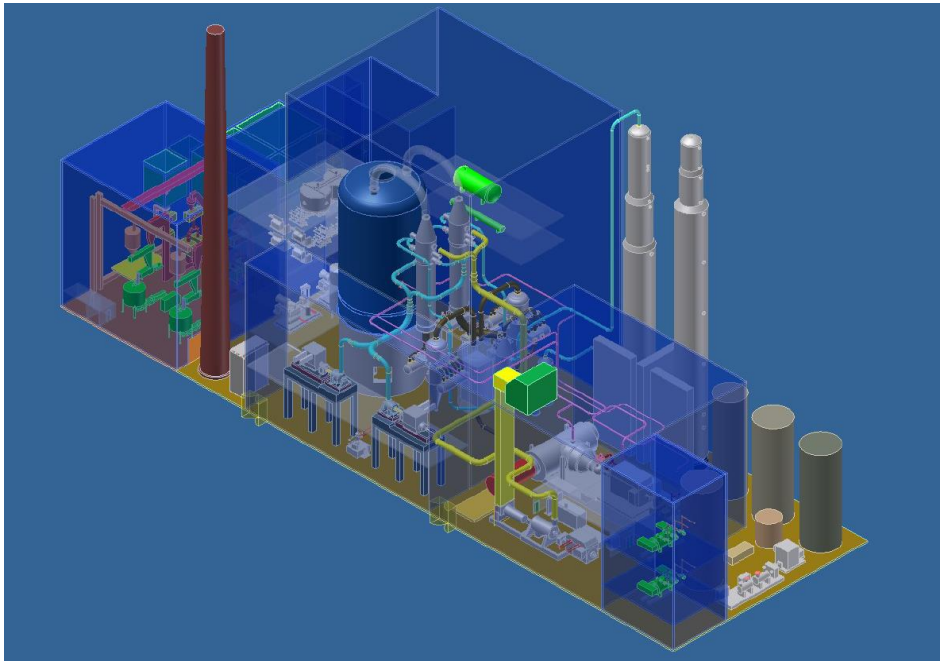
- Fluidized Bed, temp 850°C optimised chemical reaction with Dolomite →99,5% capture of SO_2
- Long residence time, a variety of fuels: coal, waste coal, lignite, and biomass
- Low temperature → Low NOx
- Low oxygen content in combustion gases → Better CO_2 capture and Purity of CO_2
- Lowest cost of CO_2

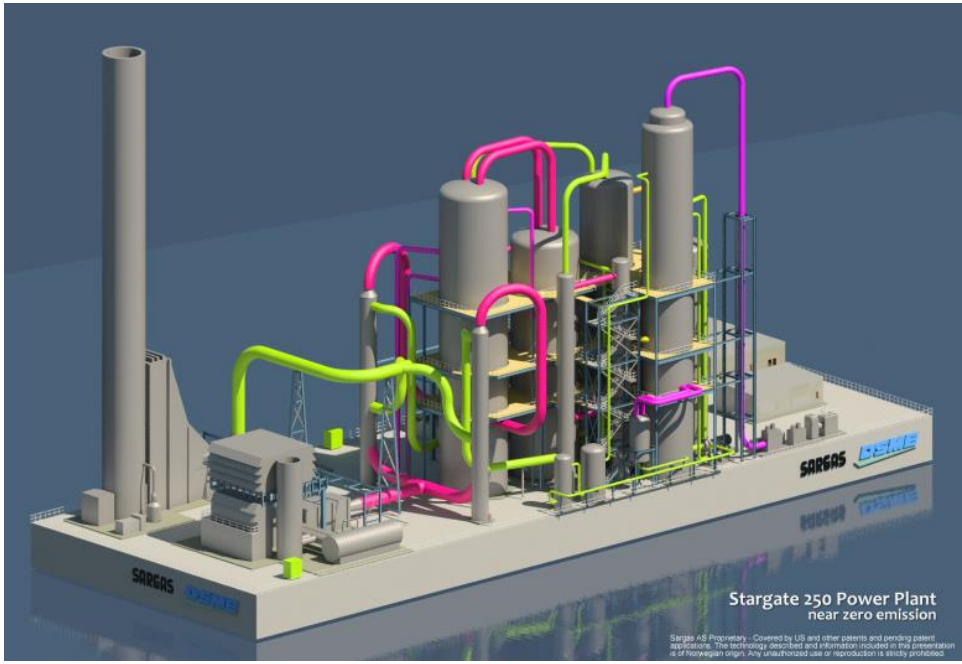
Gas

- Gas driven compressor, high efficiency
- Fully firing flue gas from gas turbine
- Re-use of heat & pressure from turbine
- Low oxygen content in combustion gases → Better CO_2 capture and Purity of CO_2
- Low capex per MW
- Lowest cost of CO_2

HPC or Benfield(Benson & Field) process in operation since 1955

Sargas 275 B Coal fired plant 90 MWe	Stargate 250 Gas Fired plant 250 MWe





Sargas 275 B 45 x 112 m	Stargate 250 45 x 130 m

SARGAS

Sargas Stargate250

Natural gas power plant with carbon capture for EOR.

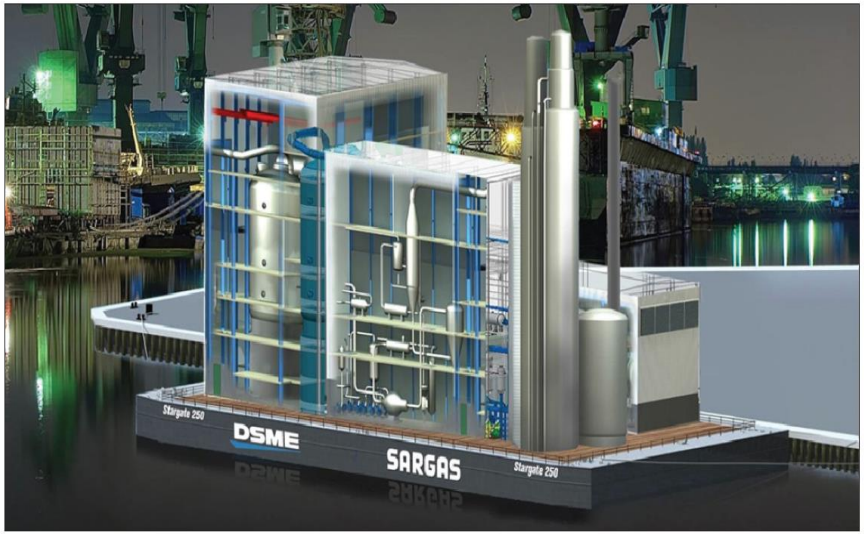
Based on GE LMS 100

Stargate™ 250

Natural gas power plant with carbon capture for enhanced oil recovery

Innovation

The Stargate™ 250 is one of the world's first natural gas-fired power plants with integrated carbon capture for enhanced oil recovery (EOR). Utilizing Sargas' patented pressurized combustion and carbon-capture technology, the Stargate 250 delivers a baseload power of 250 MW, capturing CO_2 from flue gas while reducing plant footprint and investment cost. Commercially available today, the Stargate 250 can be assembled quickly from existing or slightly modified subsystems and equipment, generating lower cost electricity and industrial volumes of competitively priced CO_2 for EOR applications worldwide.

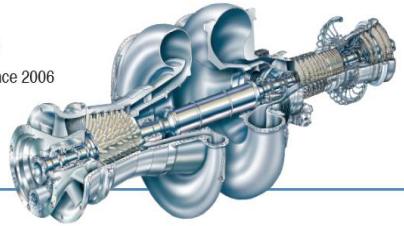


GE Aeroderivative Gas Turbine

Providing flue gas for the system's pressurized heat recovery steam generator and downstream applications, the General Electric LMS100® aeroderivative gas turbine engine represents one of the most comprehensive collaborations of design and manufacturing in GE's history.

LMS100 highlights include:

- Most efficient simple cycle gas turbine available
- Over 130,000 hours of commercial operation since 2006
- Derivative of the CF6 family of aircraft engines with 170 million+ hours of operation



SARGAS

Stargate™ 250

Natural gas fired power plant with carbon capture for enhanced oil recovery

Key Benefits

- 250 MW power output (ISO)
- 85% CO_2 capture (90 tons CO_2 per hour)
- Up to 48% net plant efficiency (ISO)
- Compact plant footprint
- Natural gas feedstock
- Current availability (2016 plant COD)

Standard Features

- Proven pressurized carbon-capture technology utilizing hot potassium carbonate CO_2 absorption
- Adapted GE LMS100 aeroderivative gas turbine providing pressurized flue gas
- Proven pressurized combustion technology
- Pre-commissioned before delivery

Options

- District heating or fresh water production plant configuration
- Dry docking platform (coastal) or modular construction for inland transportation

Customers

- Utility and power companies
- Municipalities
- Independent power producers
- Oil companies and developers

Engineering Procurement and Construction (EPC) Partnership

Sargas has teamed up with Daewoo Shipbuilding & Marine Engineering (DSME) and SNC-Lavalin Inc. to construct and support the Stargate 250 on a turnkey EPC basis.

DSME

DSME provides:

- Detailed engineering, procurement, and plant construction

SNC·LAVALIN Thermal Power

SNC-Lavalin Inc. provides:

- Program management
- Engineering execution and local site construction

Additional Supplementary Information

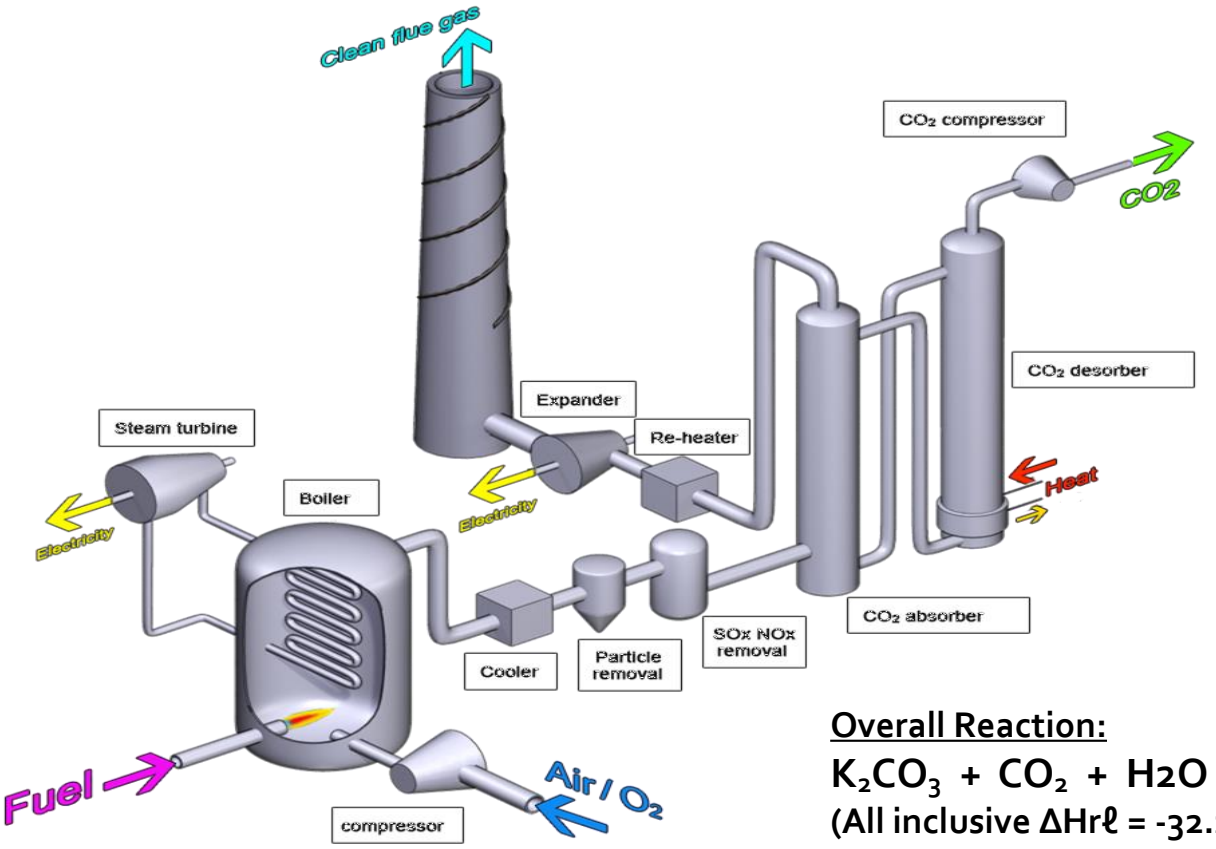
- ISO plant performance data
- EOR-quality CO_2 specification
- Independent pre-feasibility and feasibility studies to match local conditions and requirements

Contact

For more information, please contact your GE or Sargas representative.

Pressurized Technology is more efficient

Sargas Technology - Pressurized Combustion & Capture



Overall Reaction:

$K_2CO_3 + CO_2 + H2O \leftrightarrow 2\,KHCO_3 - \Delta Hr\ell$

(All inclusive $\Delta Hr\ell$ = -32.29 kJ/mol CO_2)

Simplified Schematic