

KBR's Transport Gasifier - Technology Advancements & Recent Successes

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KBR Paper# 2219 - TRIG™ Gasification Technology

KBR at a Glance

- > A leading global engineering, construction and services company supporting the following markets:
 - Hydrocarbons
 - Civil Infrastructure
 - Government & Defense
 - Industrial
 - Power
 - Ventures
- > 2009 Revenue: \$12.1 Billion
- > 50,000 employees in 49 countries

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KBR Advantage



 **Global Reach**
Ability to work in different world cultures


 **TIC Focus**


 **EPC Contractor
PLUS Licensor**

 **Technical Integration
Knowledge**

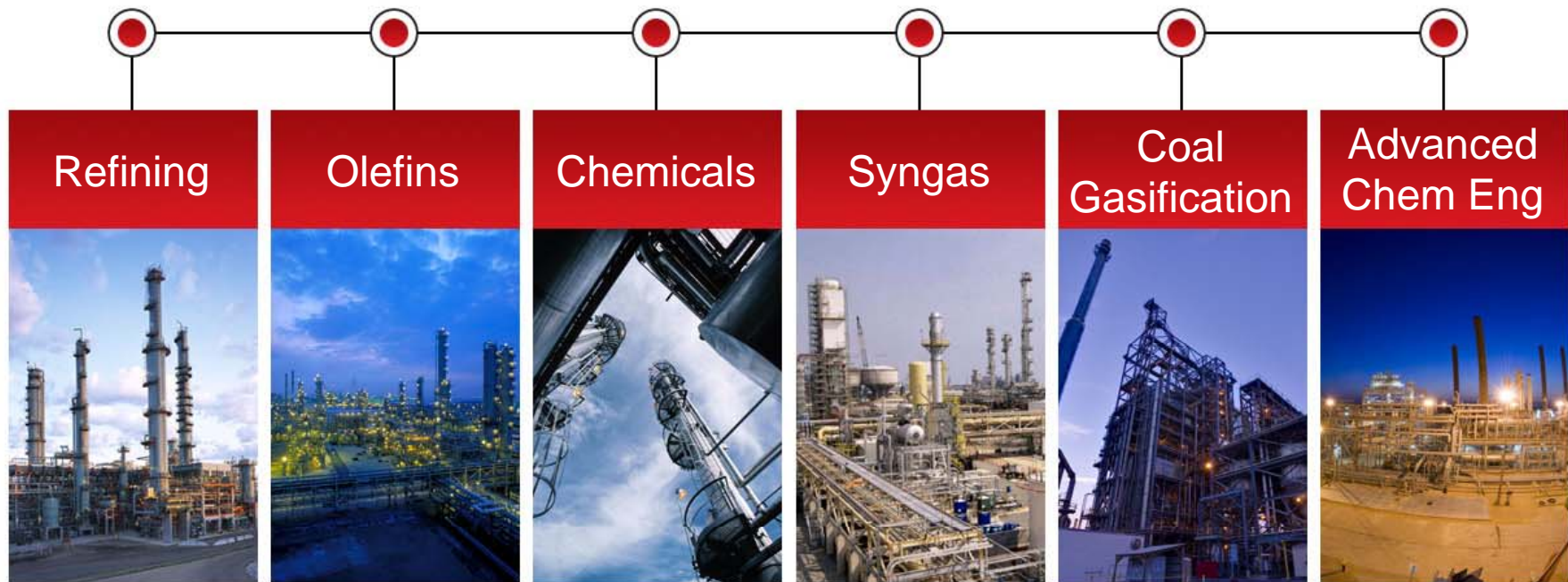
 **Large & Mega EPC
Contractor**

 **Corporate Hands-on
Commitment & Focus**

 **Mega Project
PMC Experience**

 **Confident Teams**

Technology Business



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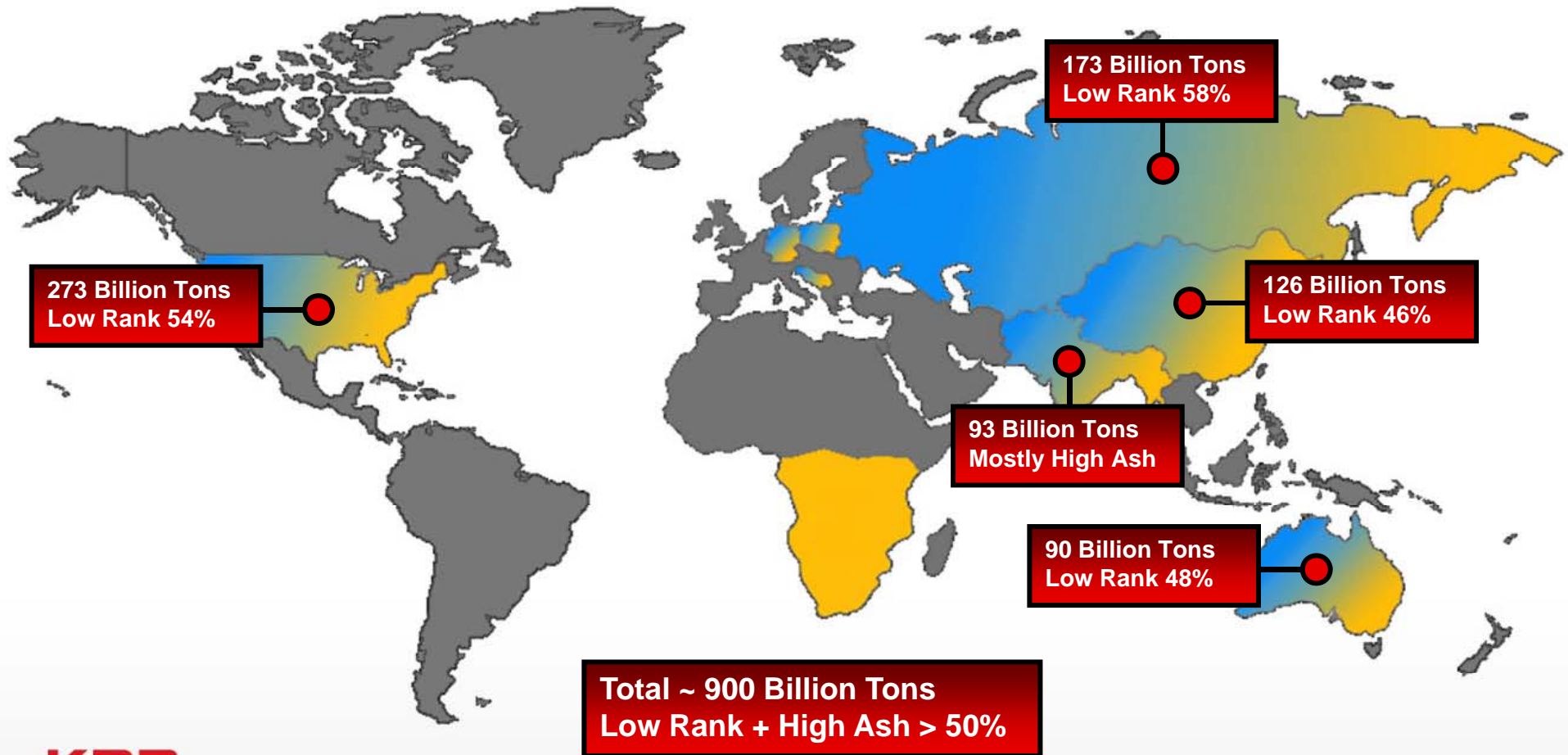
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Worldwide Coal Distribution



KBR's TRIG™ Gasifier is an Excellent fit for Low Rank & High Ash Coal



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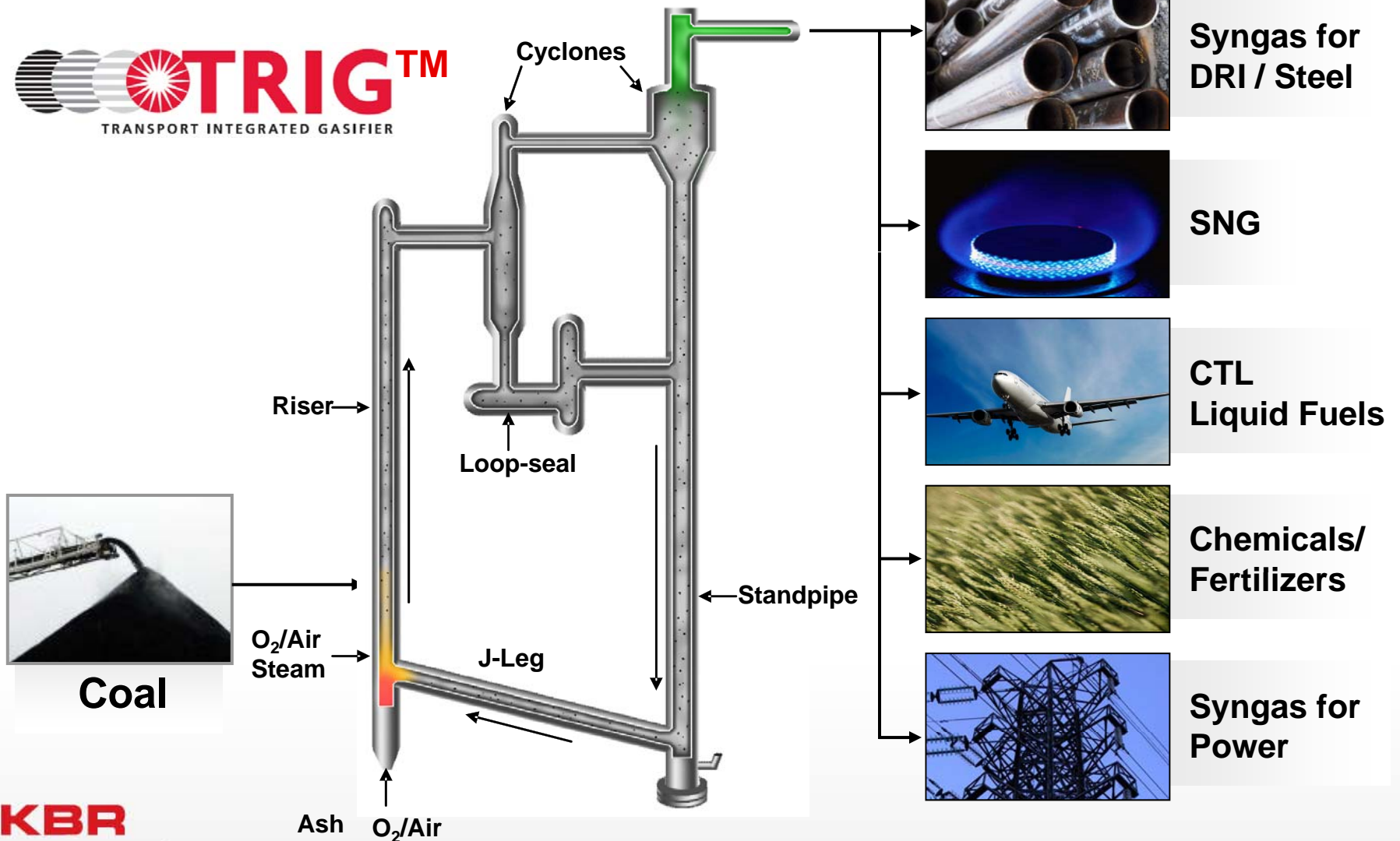
Leading the Way to the Next Generation of Coal Based Energy

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**SOUTHERN
COMPANY**

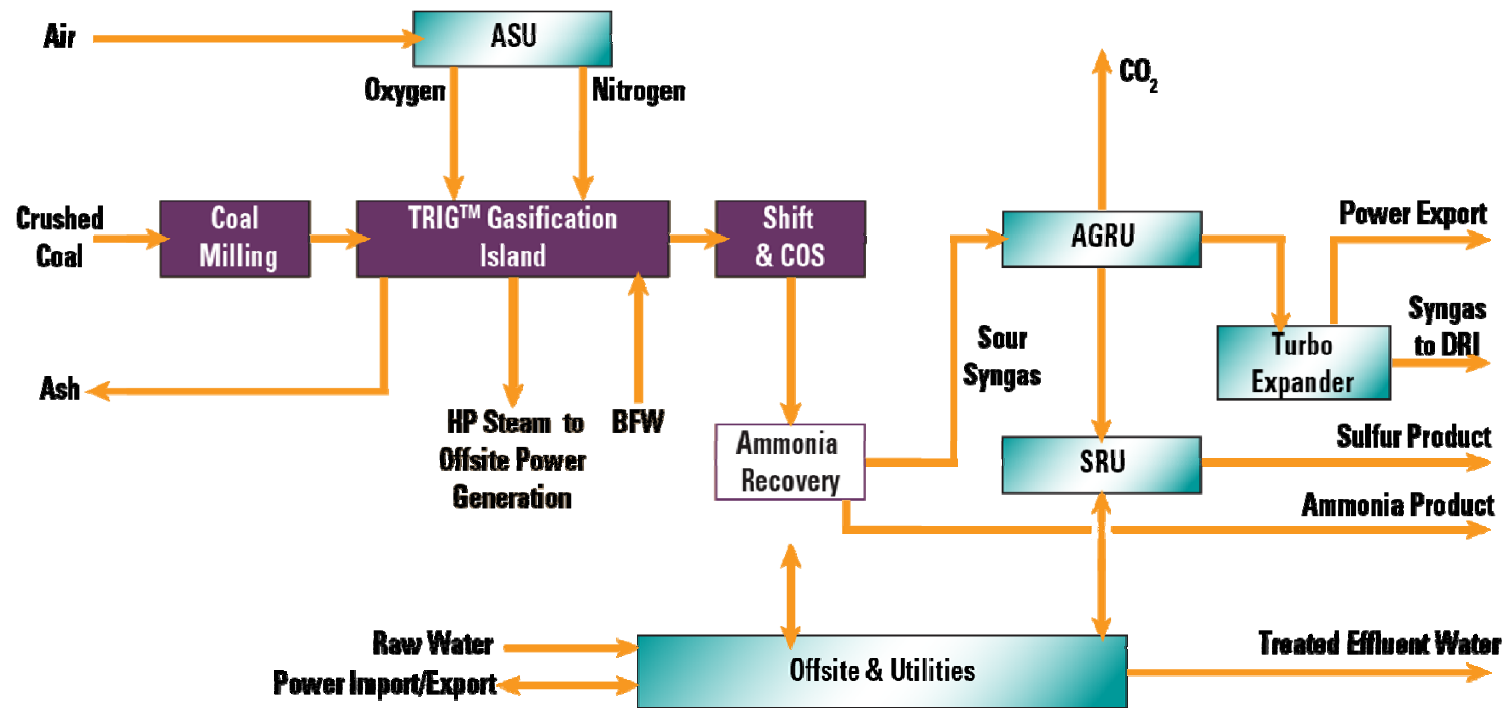
- > TRIG™ is based on KBR's FCC technology and jointly developed by KBR and Southern Company with support from U.S. DOE
- > KBR is focused on licensing TRIG™ for Industrial applications worldwide
- > Southern Company is focused on licensing TRIG™ for IGCC/Power applications

TRIG™ and the Value Chain

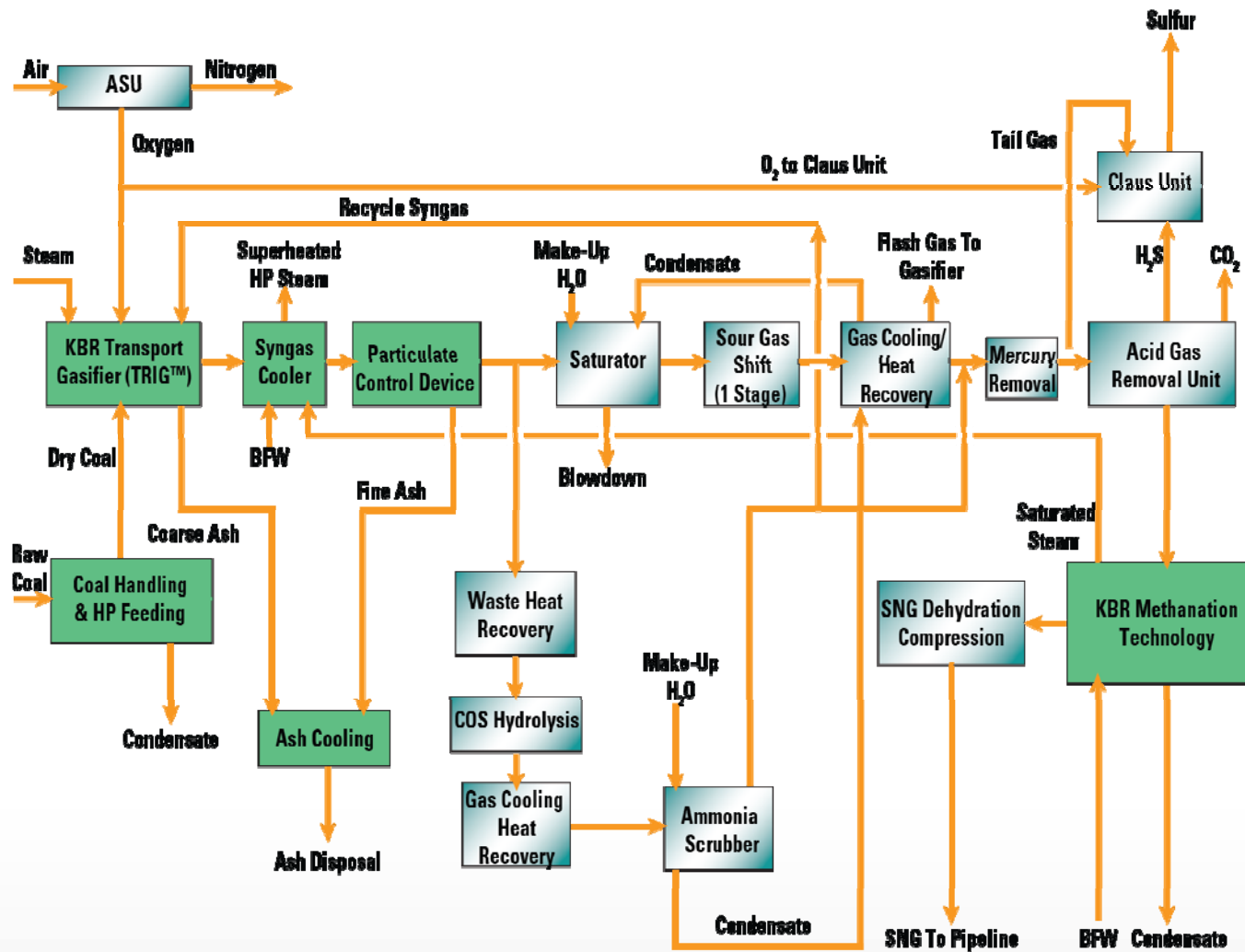


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Optimized Flow Sheet for DRI



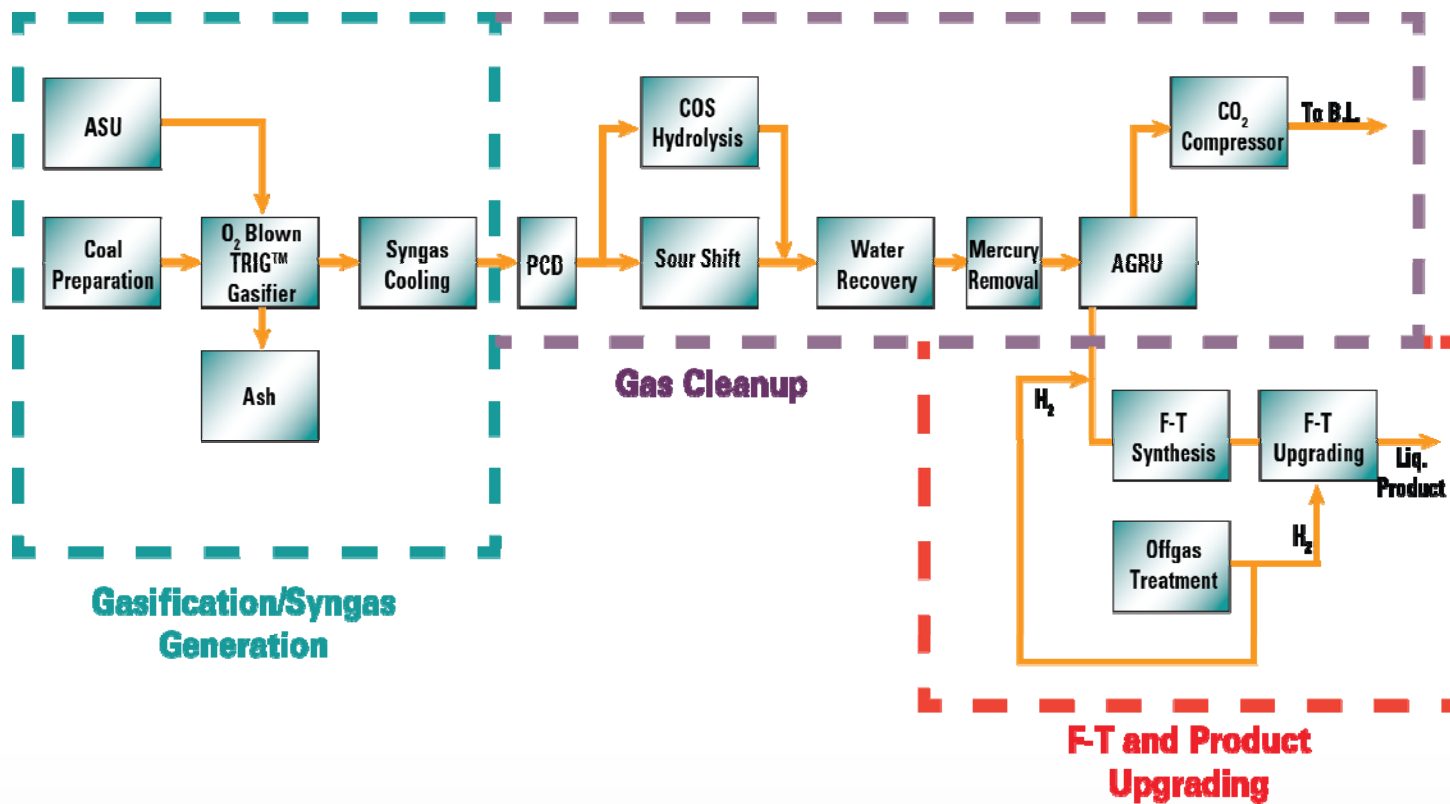
KBR Coal to SNG Process



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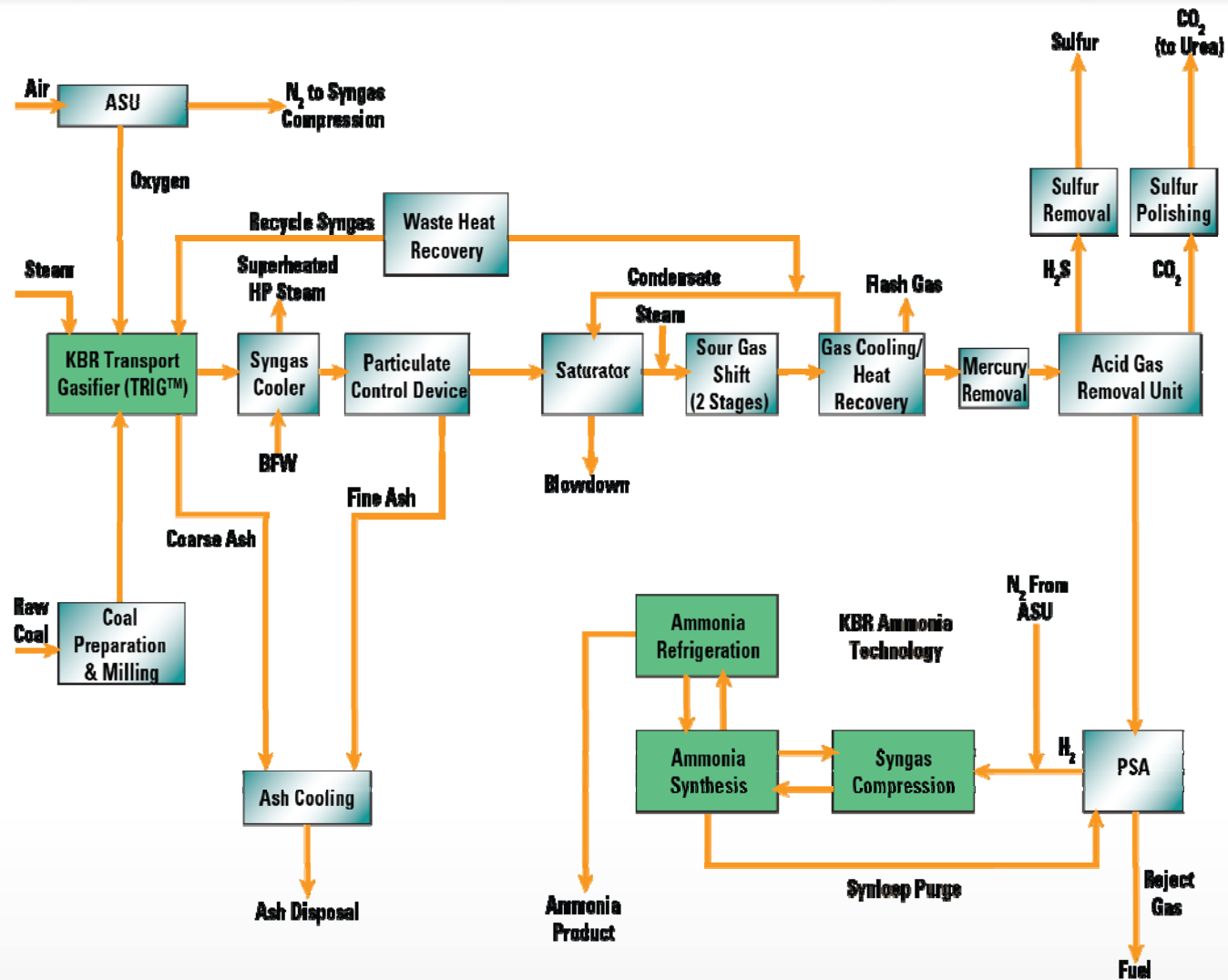
Integrated CTL scheme for Maximum Liquids Production



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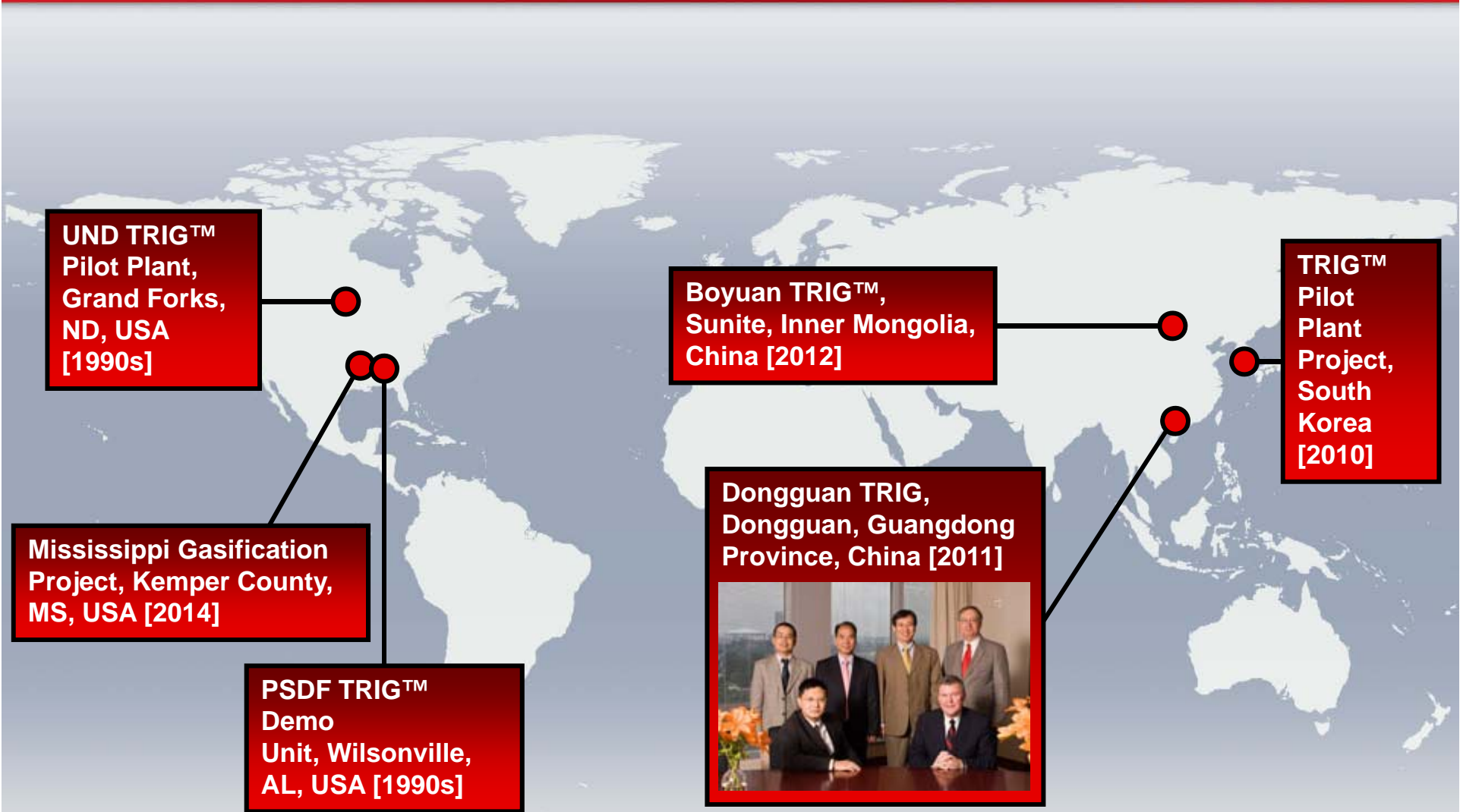
Coal to Ammonia –TRIG™ and KBR Ammonia Technology



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TRIG™ Projects Worldwide



Project Updates



Dongguan, China TRIG™ Project – 2011 Start-up

- > Plant owned and operated by Dongguan Tian Ming Electric Power Co., Ltd (TMEP)
- > 1 TRIG™ gasifier to produce clean syngas for 120 MW IGCC
- > KBR and Southern providing Basic Engineering, Proprietary Equipment, and Startup Services
- > Gasifier Design Completed and Long Lead Equipment on Order



Recent TRIG™ award – Inner Mongolia, China

- > Client: Xilinguole Sunite Alkali Industry Co., Ltd, a subsidiary of Boyuan (Berun) Holdings Group, Ltd.
- > High Ash Lignite Feedstock from nearby mine
- > 1 oxygen-blown TRIG™ gasifier to produce syngas for Ethylene Glycol Plant
- > Start-up expected in 2012

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Carbon Capture & Storage

- > Pre-Combustion
 - Gasification
 - Syngas for Ammonia
 - Gas Processing
 - LNG
 - Refining
- > Post-Combustion
 - Power
 - Flue Gas Clean-Up
 - Cement
- > KBR CCS Projects
 - In Salah Gas (1 MTPA CO₂)
 - Gorgon (3 MTPA CO₂)
 - Pre-FEED → EPC scope

**In Salah Gas, Algeria
Completed in 2004**



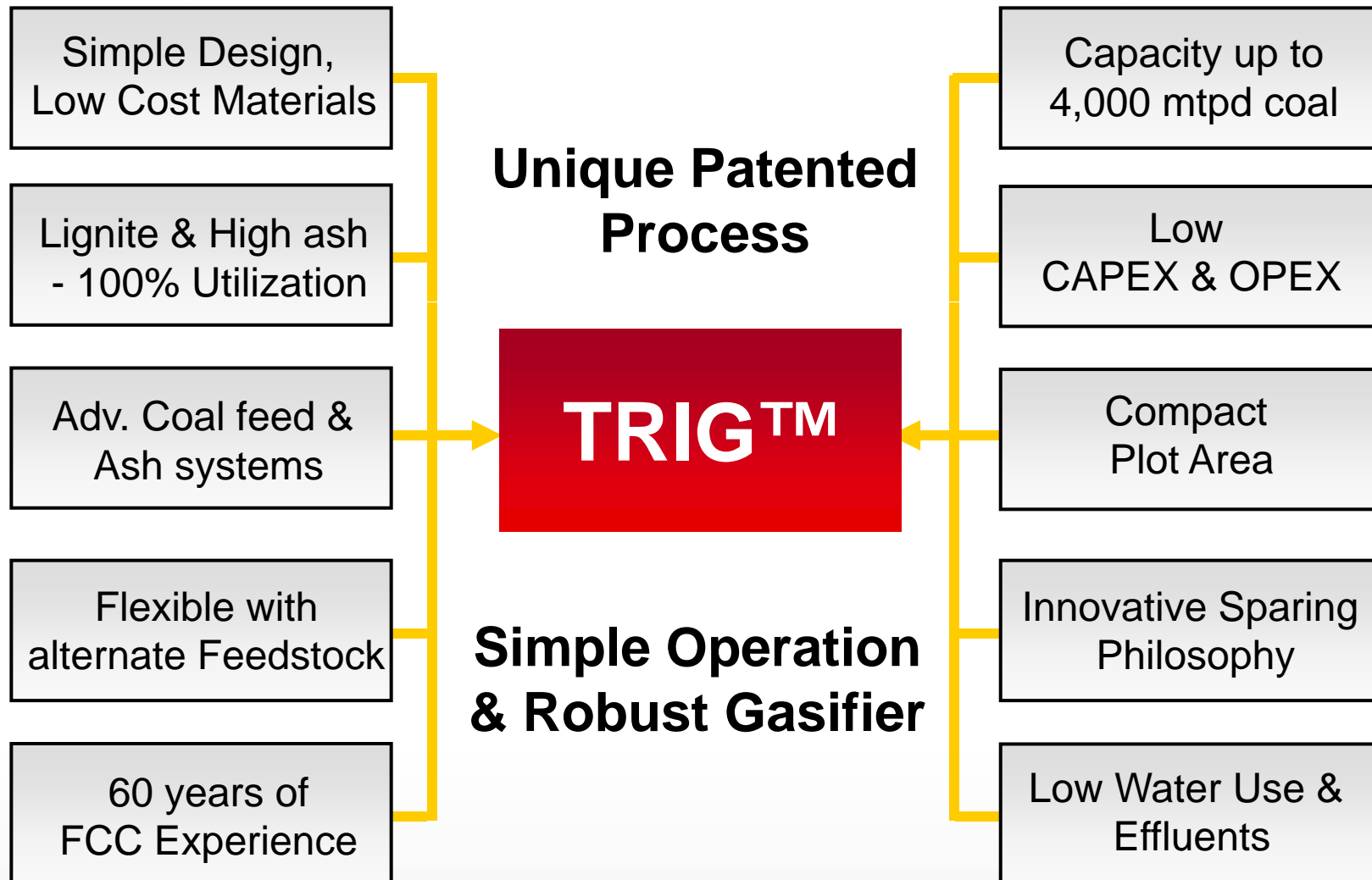
**Gorgon, Australia (under Construction)
World's largest CO₂ Storage project**



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TRIG™ an Efficient & Reliable Clean Coal Technology



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