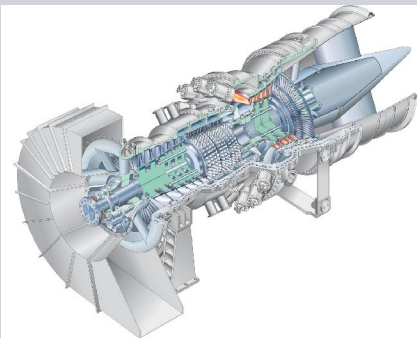


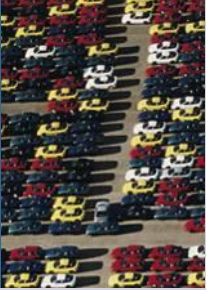


Siemens Coal Gasification Update

Harry Morehead, Manager, IGCC Business Development

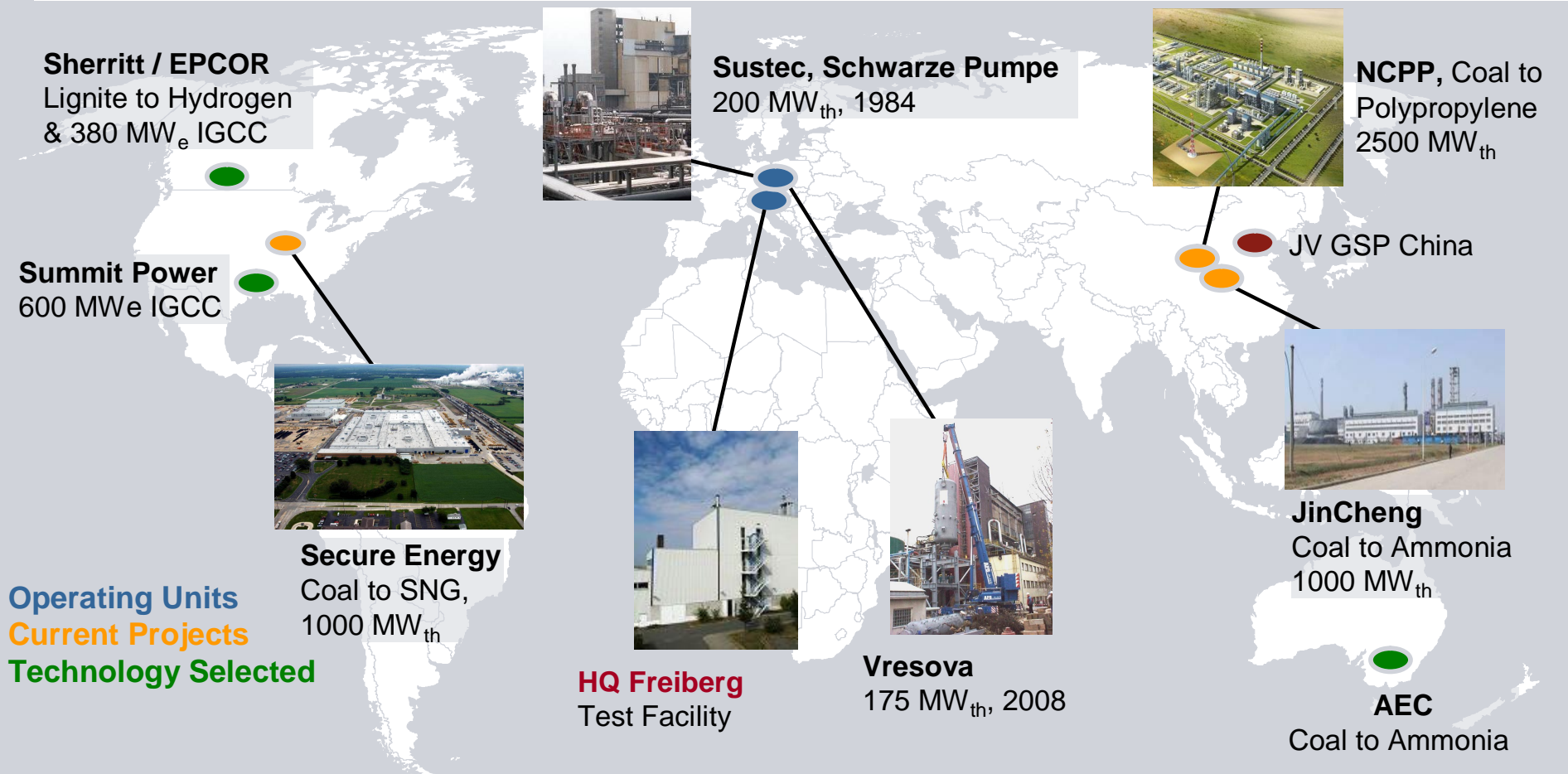
Presented at
McIlvaine Hot Topic Hour
June 5, 2008



Siemens AG

Sectors	Divisions	Former Groups
Industry 	<ul style="list-style-type: none"> ▪ Industry Automation ▪ Drive Technologies ▪ Building Technologies ▪ Osram ▪ Industry Solutions ▪ Mobility 	<ul style="list-style-type: none"> ▪ Automation and Drives (A&D) ▪ Industrial Solutions and Services (I&S) ▪ Siemens Building Technologies (SBT) ▪ Osram ▪ Transportation Systems (TS)
Energy 	<ul style="list-style-type: none"> ▪ Oil & Gas ▪ Fossil Power Generation ▪ Renewable Energy ▪ Energy Service ▪ Power Transmission ▪ Power Distribution 	<ul style="list-style-type: none"> ▪ Power Generation (PG) ▪ Power Transmission and Distribution (PTD) ▪ Industrial Solutions and Services (I&S OGM)
Healthcare 	<ul style="list-style-type: none"> ▪ Imaging & IT ▪ Workflow & Solutions ▪ Diagnostics 	<ul style="list-style-type: none"> ▪ Medical Solutions (Med)

Gasification Technology - Worldwide Activities



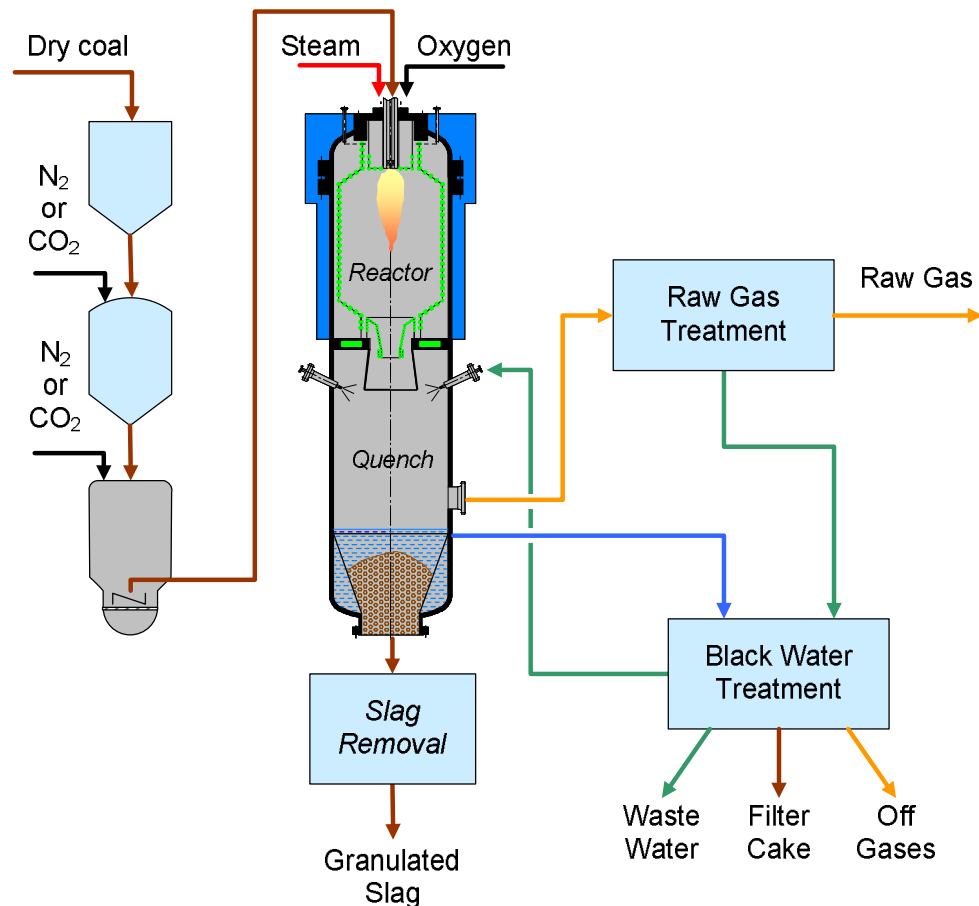
Two SFG-500 Gasifiers have shipped, 7 being manufactured, Technology selected and in pre-selection in further projects

Siemens SFG-500 Gasification Island Design with Full Water Quench

SIEMENS

Features

- Feedstock flexibility
 - Wide range of coals
 - Coal / Petcoke blends
- Entrained flow gasifier
 - No tars or oils produced
 - Vitreous slag
 - No refractory to maintain
- Full Water Quench
 - High water content in rawgas
- Mechanical syngas cleaning system

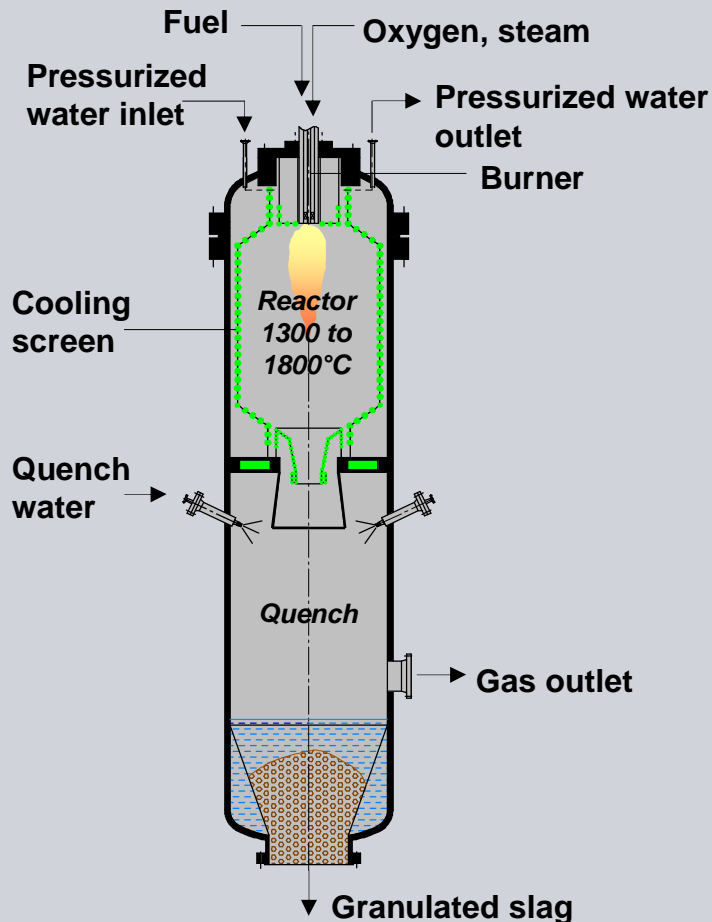


Optimized for chemical syntheses and IGCC with CO₂ capture

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Siemens Fuel Gasification Technology Highlights Standard Design

SIEMENS



Dry feeding

- high efficiency
- high carbon conversion rate (> 98 %)

Cooling screen

- short start-up / shut-down
- low maintenance
- high availability

Full quench

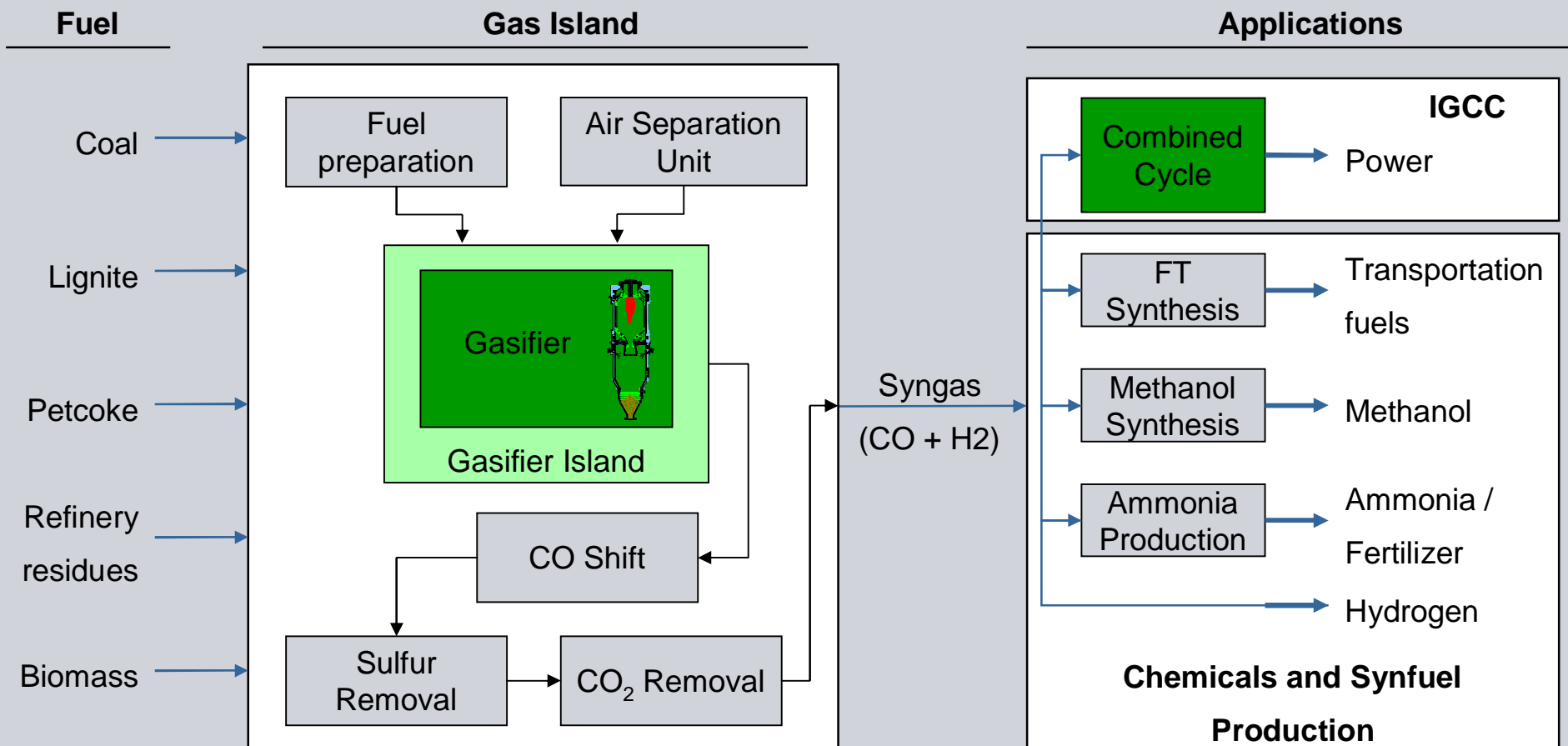
- simple and reliable
- ideal for CO sour shift

Multi-fuel gasifier

- accepts a wide variety of fuels (e.g., bituminous & sub-bituminous coal, lignite, biomass, liquid wastes)
- Tar free raw gas

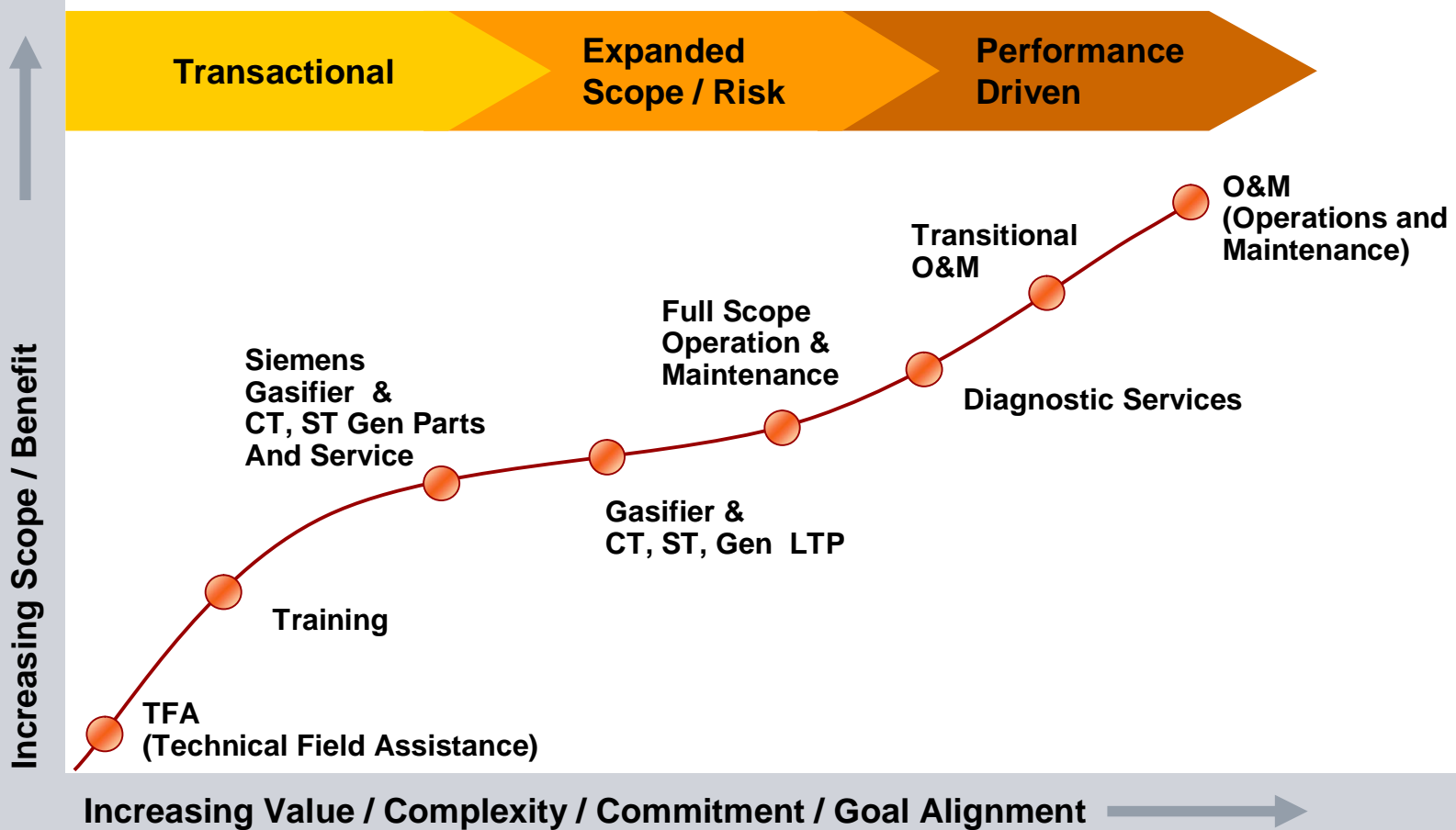
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Siemens Gasification Partnering Approach



Siemens is working with others to offer complete plant

Siemens OEM Services for IGCC and Gasification Islands



Active Involvement by OEM after the Commercial Operation Date can Help Improve Plant Availability and Reliability in the Early Years of Operation

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Conclusions

- **Gasification and IGCC Plant Developers Around the World are Facing more Challenges**
 - Global materials and labor cost increases
 - Carbon capture and storage
- **Global Demand for Gasification is Increasing**
 - Chemicals / SNG
 - Transportation liquids
 - IGCC

