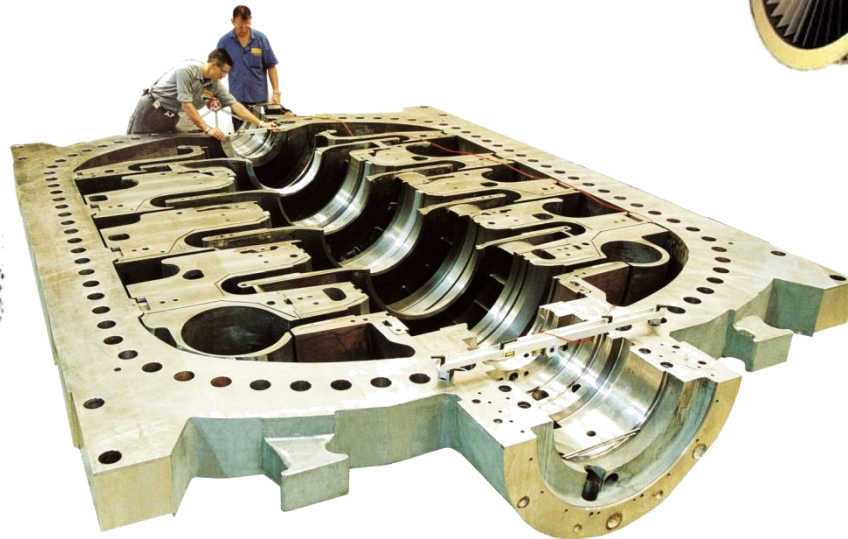
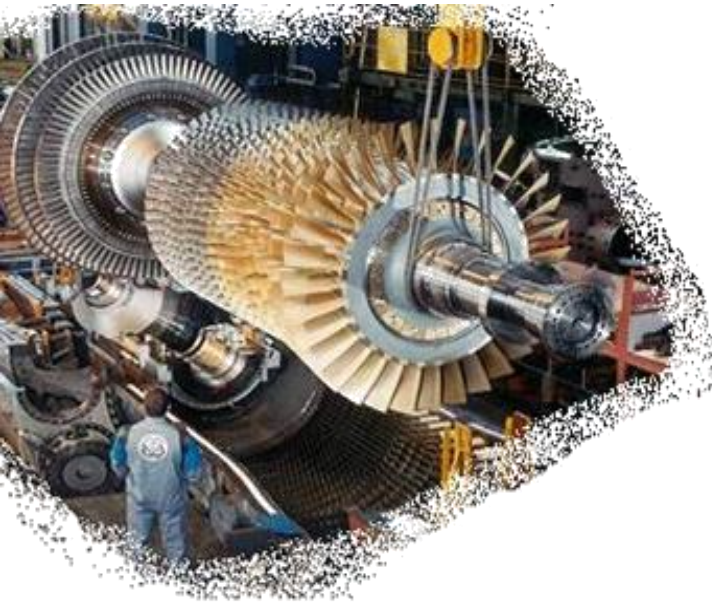


GE Oil&Gas

GE LNG Experience & Configuration Options

IAGT Vancouver

May 15, 2014



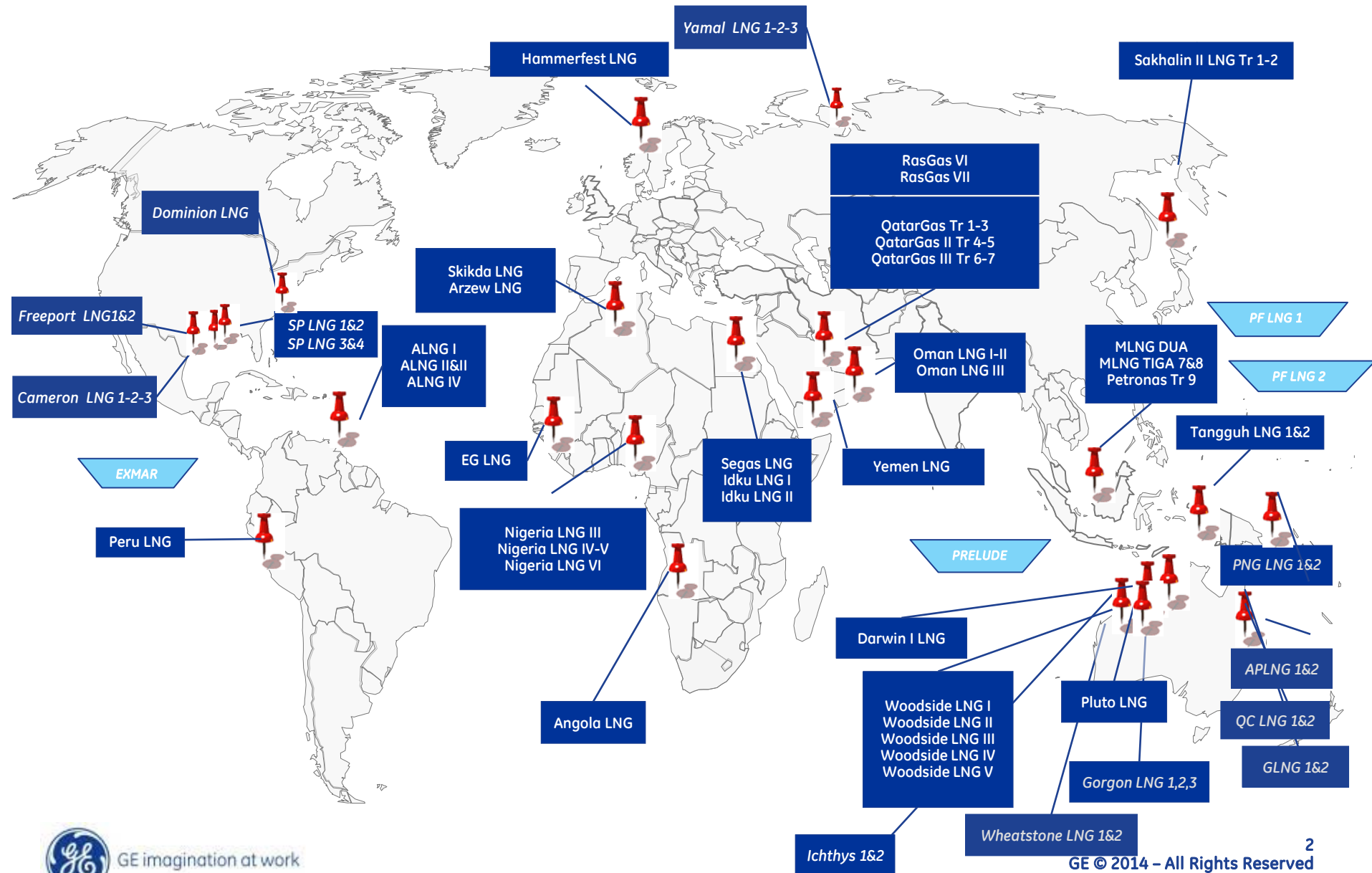
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GE imagination at work

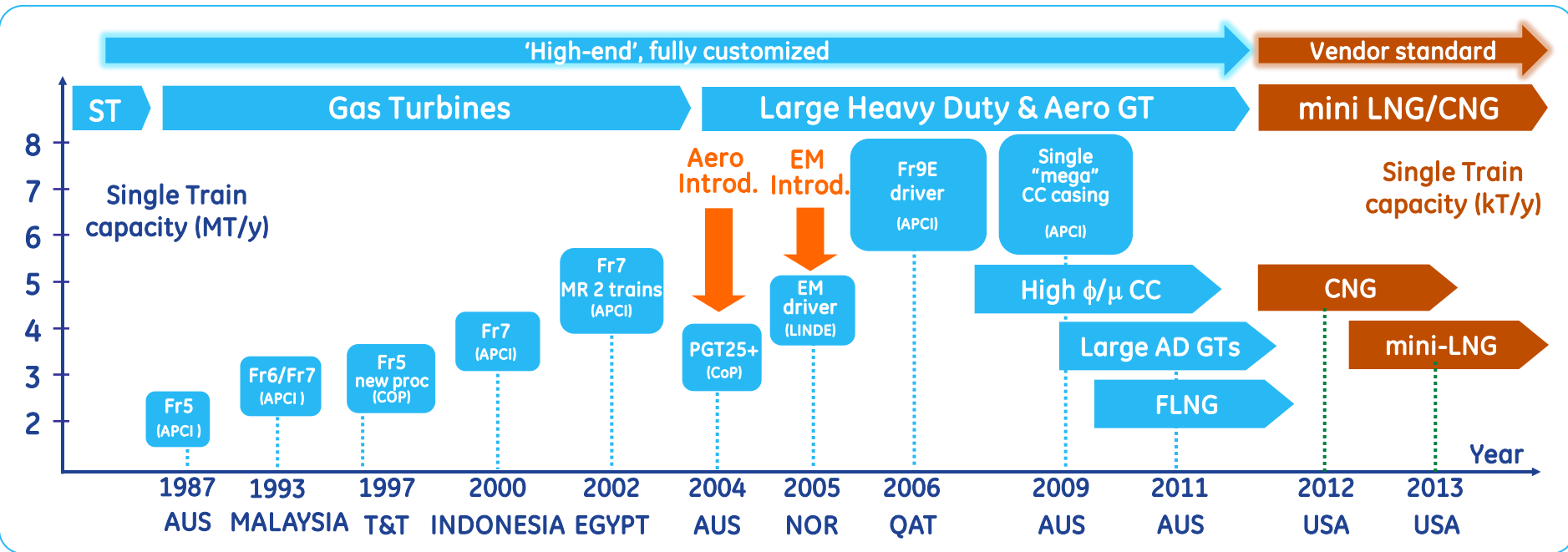
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GEO&G ... global LNG presence



GE imagination at work

Technology & market milestones in LNG



Continuous new challenges ask for OEM contribution

- Expanded compression capability... greater capacity & efficiency
- Enlarged GT's portfolio... availability, reliability, fuel flexibility, NO_x emissions
- Reliable solution for FLNG... reduced footprint, high flexibility, safe design

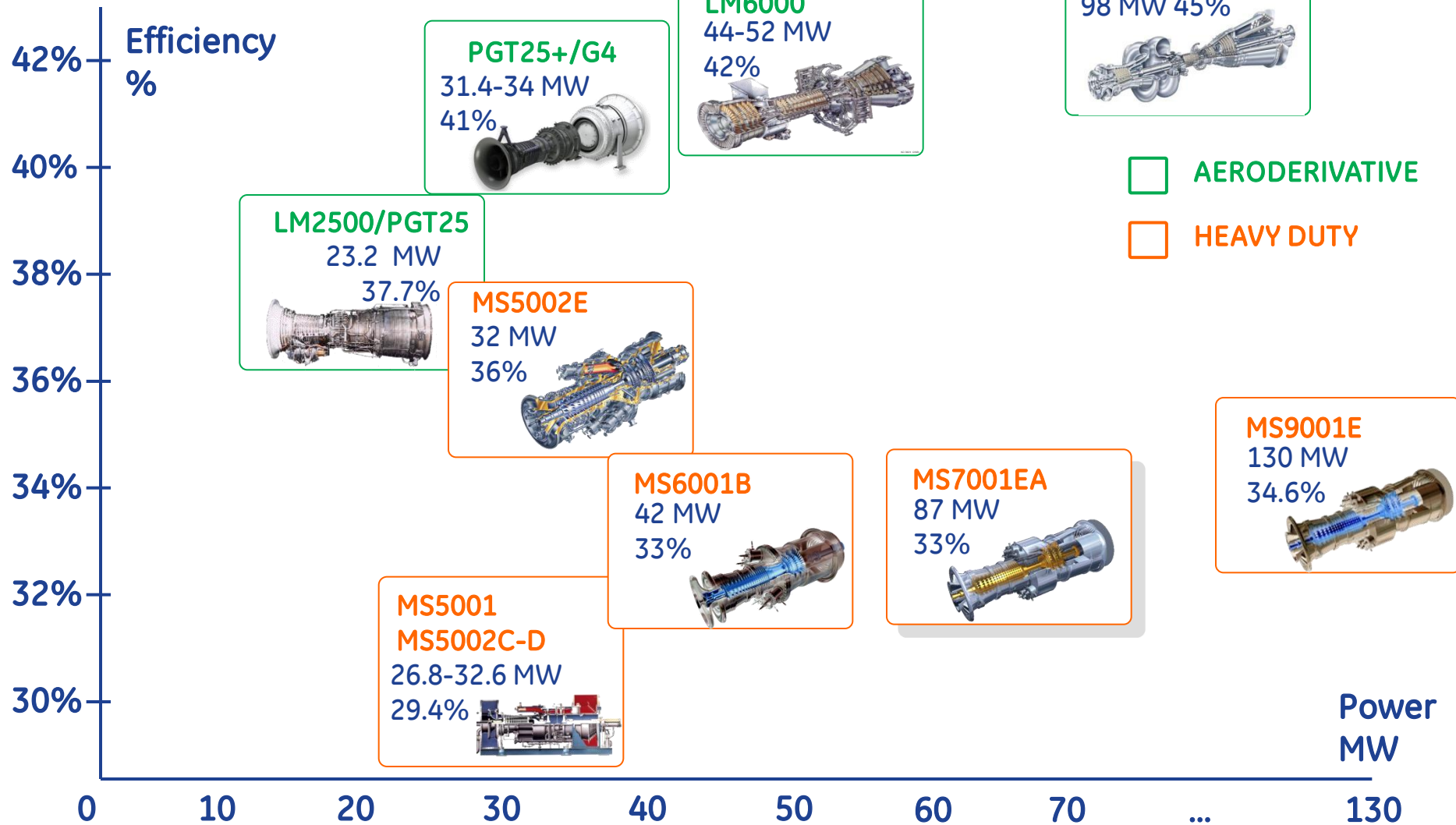
Proven technologies at the heart of new markets

Gas Turbines for LNG applications



GE imagination at work

GT Drivers for LNG applications

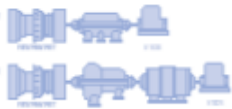


Continuously investing in new technology



GE imagination at work

Best Fit for Any LNG Process

LNG process	Train configuration	Driver type	Trains #	Total Capacity (mtpa)	
APCI APCI Split™		Fr5 Fr6, Fr7EA PGT25+	53	198	 Bonny LNG
AP-X™		Fr9E	6	46.8	 QatarGas II Tr5
CoP		PGT25+ Fr5, Fr 6, Fr7 LM 6000	21	83	 Darwin LNG
Shell DMR		Fr7EA ST	3	13	
MFC ^R		VSDS	1	4.3	 Hammerfest LNG
B&V/HQCEC		PGT25+, EM	3	1.0	

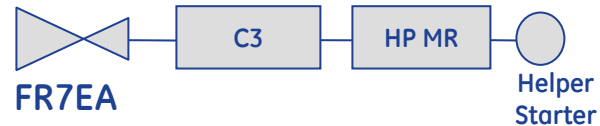
30 years experience in LNG plants

LNG Typical Configurations

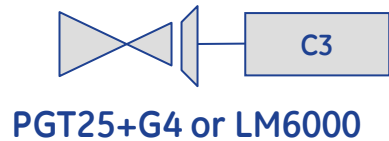
Process

Single Line Configuration

APCI - Split MR™



APCI – C3/MR or Split MR



APCI - 2 x 50%



LNG Typical Configurations

Process

Single Line Configuration

CoP 2x 50%



FR5, LM/PGT25+/G4 or LM6000

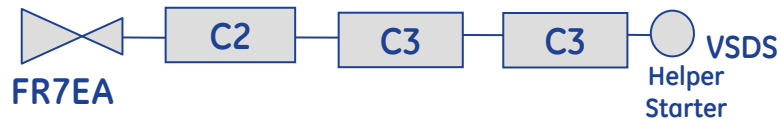


FR5, LM/PGT25+/G4 or LM6000

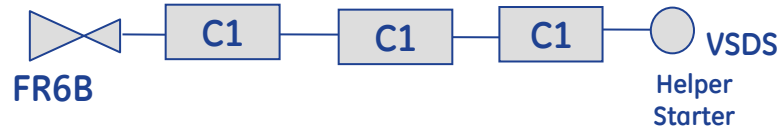


FR5, LM/PGT25+/G4 or LM6000

CoP 2x 50%



FR7EA



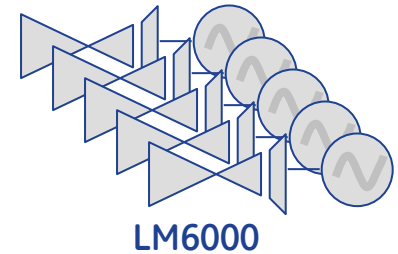
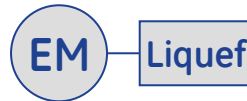
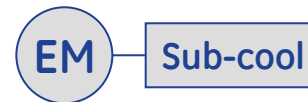
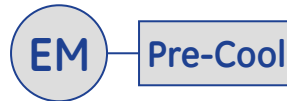
FR6B

LNG Typical Configurations

Process

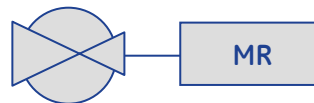
Single Line Configuration

MFC® 1x 100%



LM6000

PRICO 1x 100%



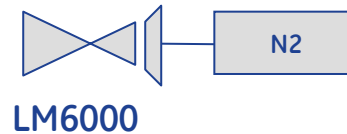
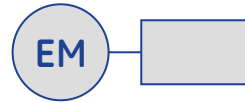
Gas Turbine or EM

Floating LNG Typical Configurations

Process

Single Line Configuration

APCI - FLNG



PRICO - FLNG



GE Oil & Gas

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M: +1.832.728.3560

Modular Replacement



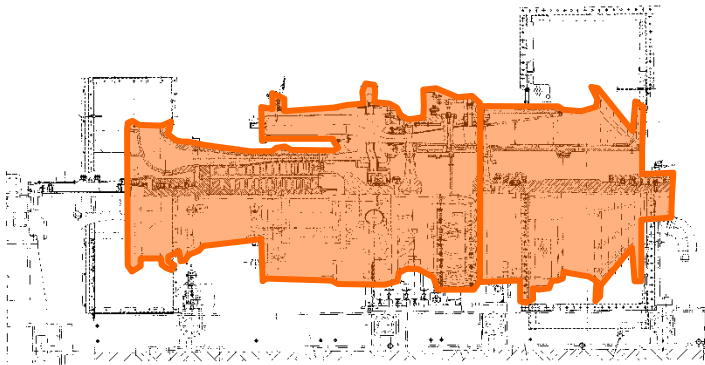
QatarGas Modular Exchange.wmv



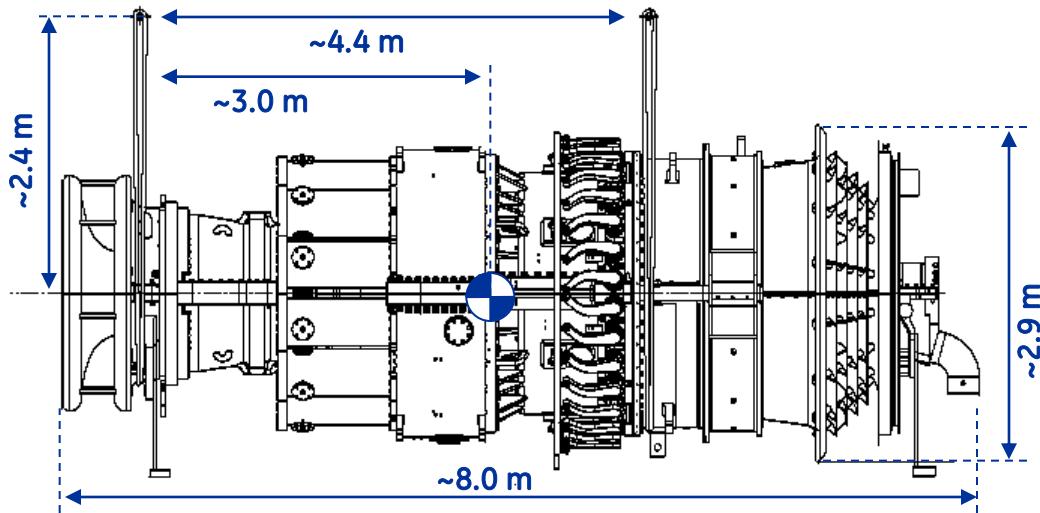
Modular Exchange for Heavy Duty GTs

NEW CONCEPT FOR MAJOR OVERHAUL ...
Exchange Gas Turbine Engine instead of opening GT at site

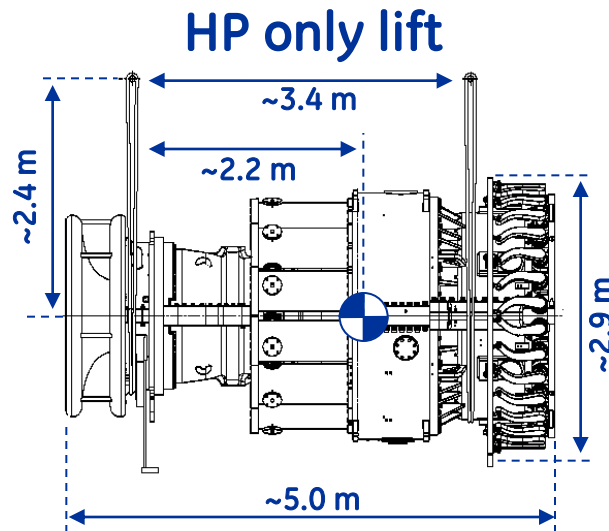
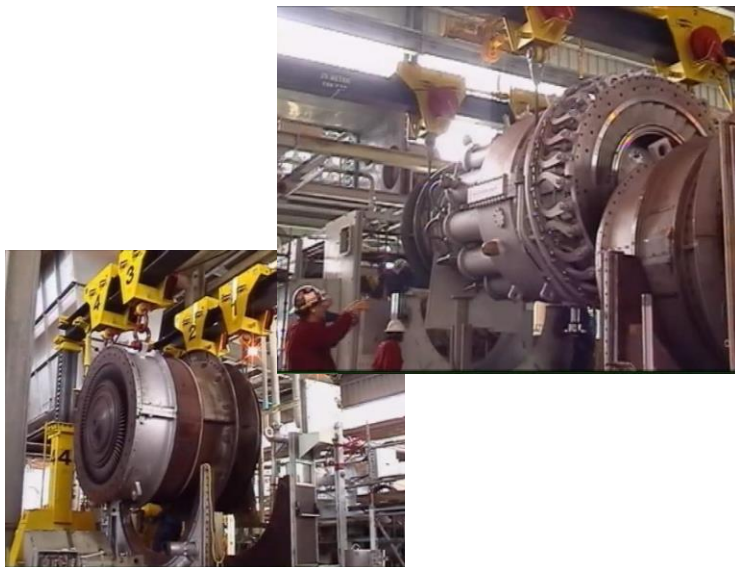
- Speeds-up major overhaul activities
... **down to 11 days** for Major Overhaul
- Removed modules may be **overhauled in service shop**
... highest quality standards & best tools available
- **Quick recovery** from catastrophic failure / emergency shutdown
... maximize uptime
- Best benefits with sites with **high costs from loss of production**
- Spare MS5002 engine to be purchased



MS5002C lifting sketch

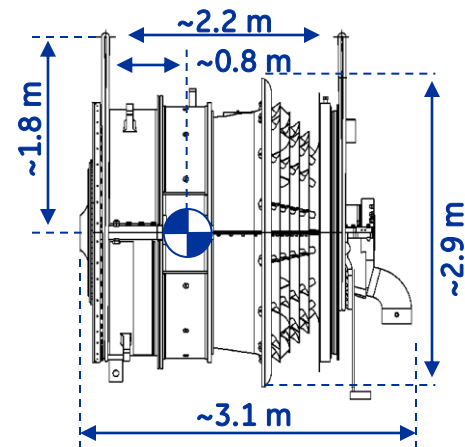


Single lift ... ~ 73 ton



~ 49.5 ton

LP only lift



~ 23.5 ton

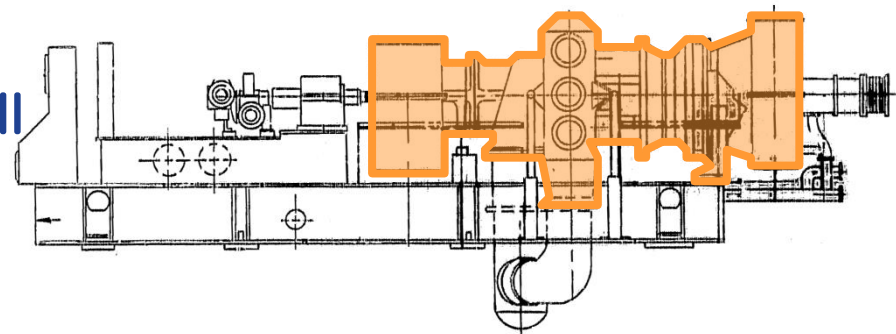
Modular Replacement

Replacing GT Tube ... restore efficiency and reliability

- Replacing existing GT tube with **same** model
 - Rejuvenate **avoiding** re-permitting
 - Restore original **efficiency** and **reliability**
 - GT tube Rejuvenation to **new life** (30+ years)
 - **Zero** plant impact ... Short **downtime**
 - Introduce latest design change / CM&U



- MS3002A thru G
 - Re-industrialize MS3002F to fit all
 - Regen or Simple cycle
 - **DLN** Could be investigated



- New life to aged equipment... parts commonality and availability
- Available for MS3002H & J, MS5001 and MS5002 all models
- Can be developed for MS3002A thru G

Thanks

www.geoilandgas.com



GE imagination at work