

Solar Turbines Introduction

Jan 2025



Powering the Future

Solar Turbines

A Caterpillar Company

World's Largest Manufacturer of Industrial Gas Turbines

(1 to 39 MW)



Subsidiary of Caterpillar Inc.

Since 1981

Installations in

100+

Countries



Direct
End-to-End
Sales and Service

65

Sales and Service
Locations



16,000+
Gas Turbines Sold

6,800+
Gas Compressors Sold

Global Workforce



8,000+
Employees

CATERPILLAR®



CONSTRUCTION
INDUSTRIES



ENERGY &
TRANSPORTATION



RESOURCE
INDUSTRIES

Solar Turbines

A Caterpillar Company



POWER GENERATION

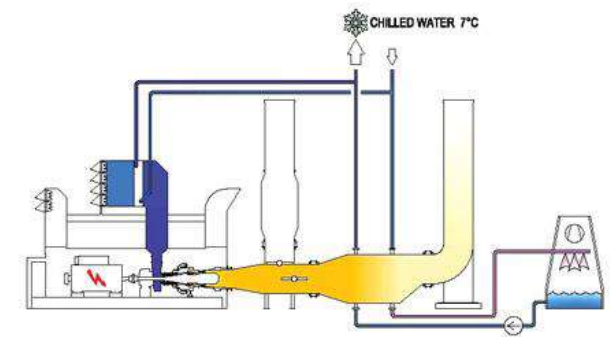
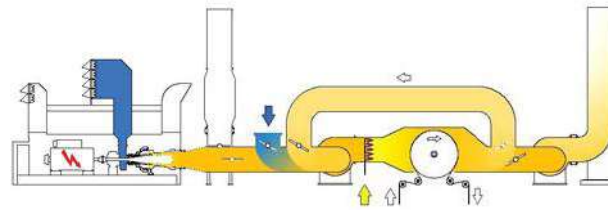
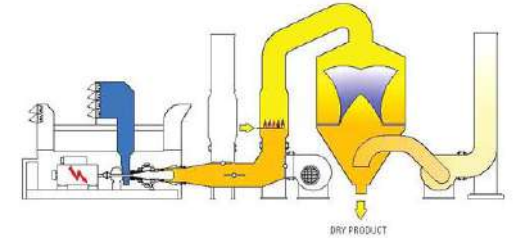
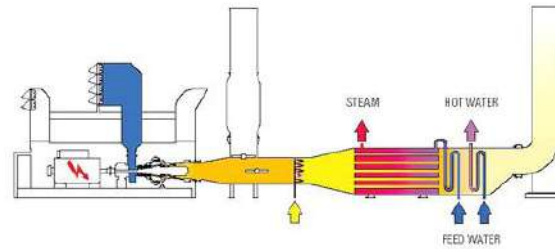
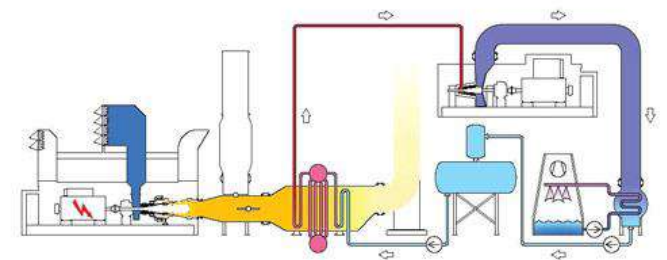
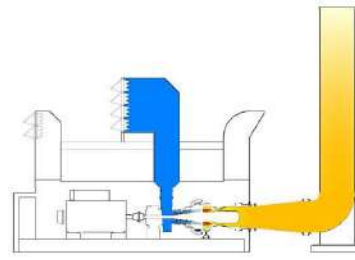


OIL & GAS

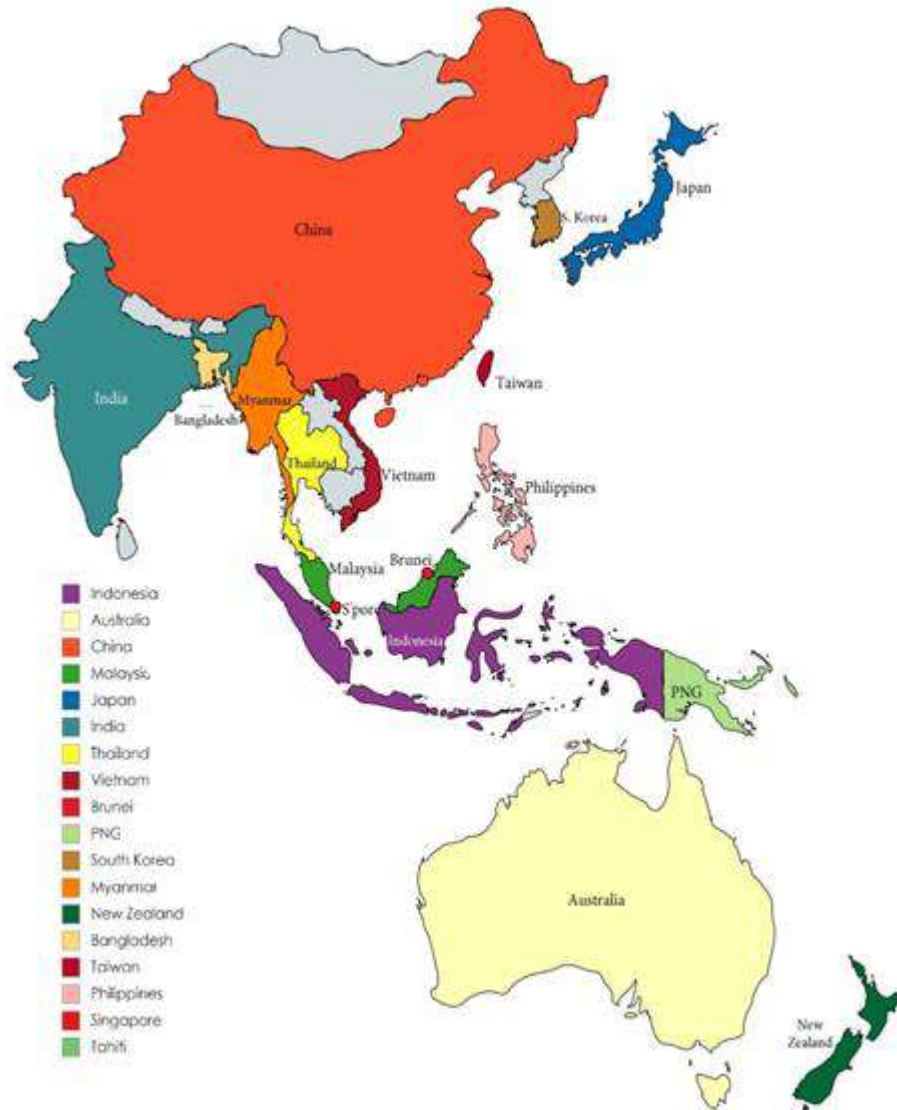
SOLAR IS A SUBSIDIARY OF **CATERPILLAR INC. SINCE 1981**

Industry Solutions

- Simple Cycle, Combined Cycle
- Steam, hot water
- Ceramic Industry
- Paper Tissue
- District Cooling, Air conditioning



Solar Turbines in Asia

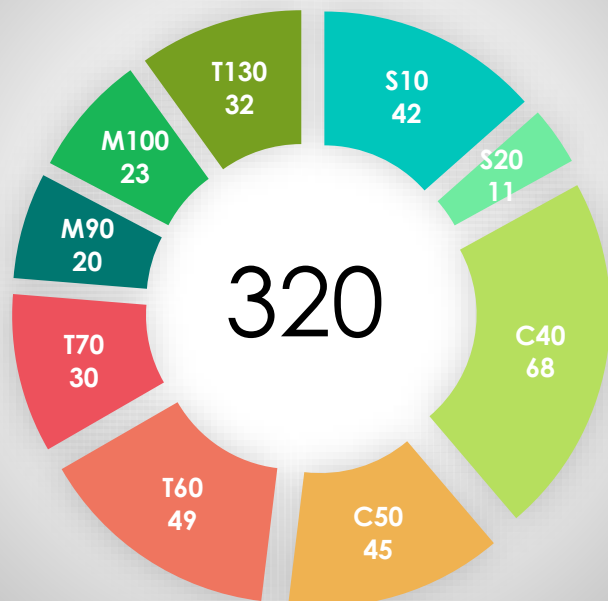


Solar Fleet in Asia Pacific is about 2600 units

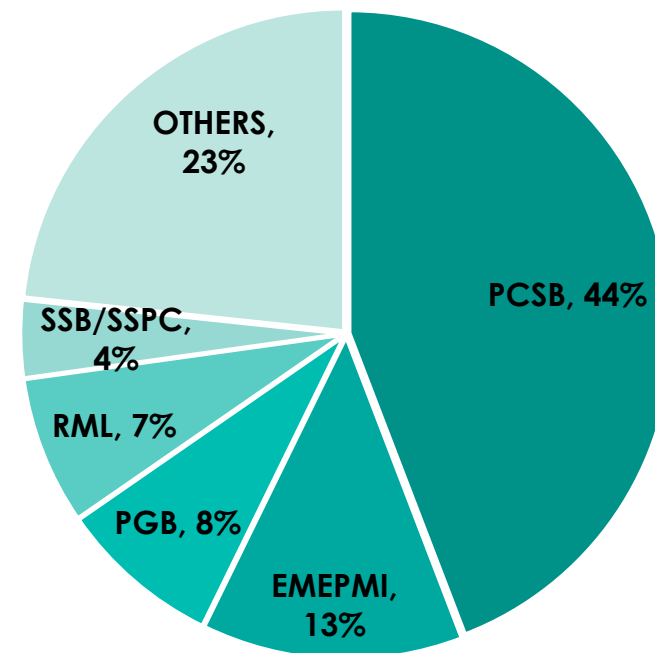
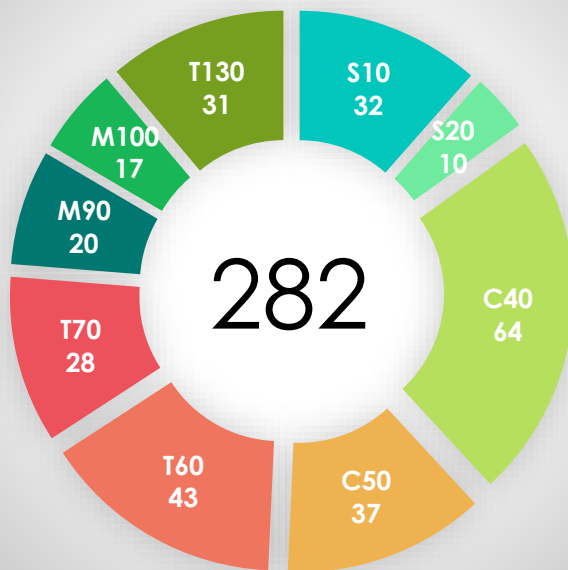
- 580 Indonesia
- 452 Australia
- 340 China
- 320 Malaysia
- 236 Japan
- 148 India
- 100 Thailand
- 72 Vietnam
- 54 Brunei
- 43 PNG
- 30 South Korea
- 23 Myanmar
- 17 New Zealand
- 12 Bangladesh
- 11 Taiwan
- 5 Philippines
- 5 Singapore
- 1 Tahiti

ENGINES POPULATION

Unit Sold in Malaysia



Active Fleet



Grand Total	320
Decommissioned	30
Pending Delivery	8*
Active	282

Customers	% of Population	Units in Operation
PCSB	44%	124
EMEPMI	13%	37
PGB	8%	23
RML	7%	21
SSB / SSPC	4%	11
OTHERS	23%	66

Senawang Facility



- ❑ Facility build-up of 30,000 square foot
- ❑ Build & Testing (Saturn 10, Centaur 40 & Centaur 50)
- ❑ Disassembly (Saturn 10, Centaur 40 & Centaur 50)
- ❑ Conducts trainings

Solar Gas Turbine Family

		SATURN® 20	CENTAUR® 40	CENTAUR® 50	MERCURY™ 50	TAURUS™ 60	TAURUS™ 65	TAURUS™ 70	MARS® 100	TITAN™ 130	TITAN™ 250
ISO ¹⁾ Output Power	MW	1.2	3.5	4.6	4.6	5.7	6.5	8.2	11.4	16.5	23.1
ISO ¹⁾ Heat Rate	kJ/kWe-hr	14 810	12 910	12 270	9350	11 430	10 860	10 470	10 935	10 130	9260
	Btu/kWe-hr	10,405	12,240	11,630	8865	10,830	10,295	9920	10,365	9,605	8775
Fuel Input	MJ/s	5.0	12.6	15.7	12.0	18.0	19.6	23.2	34.5	46.3	58.6
	MMBtu/hr	17.1	43.0	53.6	40.9	61.4	66.9	79.2	117.7	158.0	200.0
Electrical Efficiency	%	24.3	27.9	29.3	38.5	31.5	33.1	34.3	32.9	35.5	39.3
Exhaust Gas Flow	kg/s	6.5	18.9	18.9	17.7	21.6	21.2	26.7	42.2	55.8	70.1
	lb/s	14.3	41.6	41.8	39.0	47.6	46.7	58.8	93.1	123.1	154.4
Exhaust Gas Temp	°C	505	445	510	365	510	540	515	485	490	465
	°F	945	830	950	690	950	1,000	960	905	915	865

ISO Performance: 15°C; Sea Level; No Inlet and Exhaust Losses.

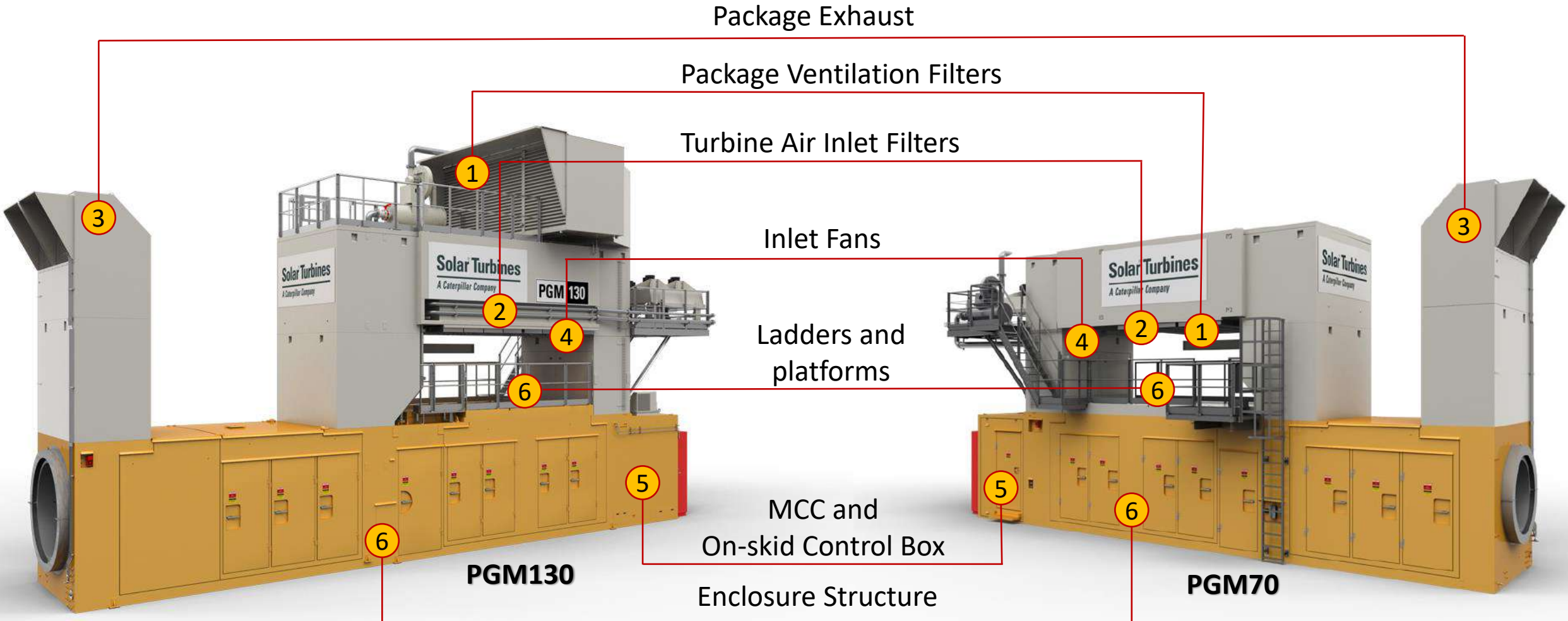
TITIAN™ 350
(34 MWe)

TITAN™ 350
(38 MWe)

34.0	38.0
9178	8978
8700	8511
86.2	96.4
294.3	328.9
39.2	40.1
107.2	107.4
236.4	236.8
448	488
839	910

PGM – THE PLUG AND PLAY CONCEPT

Value Co Generation



15.0 – 16.5 MW
T130

7.5 – 8.2 MW
M50 - T70

3.5 – 6.5 MW
C40 - C50 - T60 - T65

Power Generation Module (PGM)

Standardized Specifications

- Standardization for Power Generation
- Non-hazardous
- Modular
- Compact Footprint
- Standard Interfaces & Connections

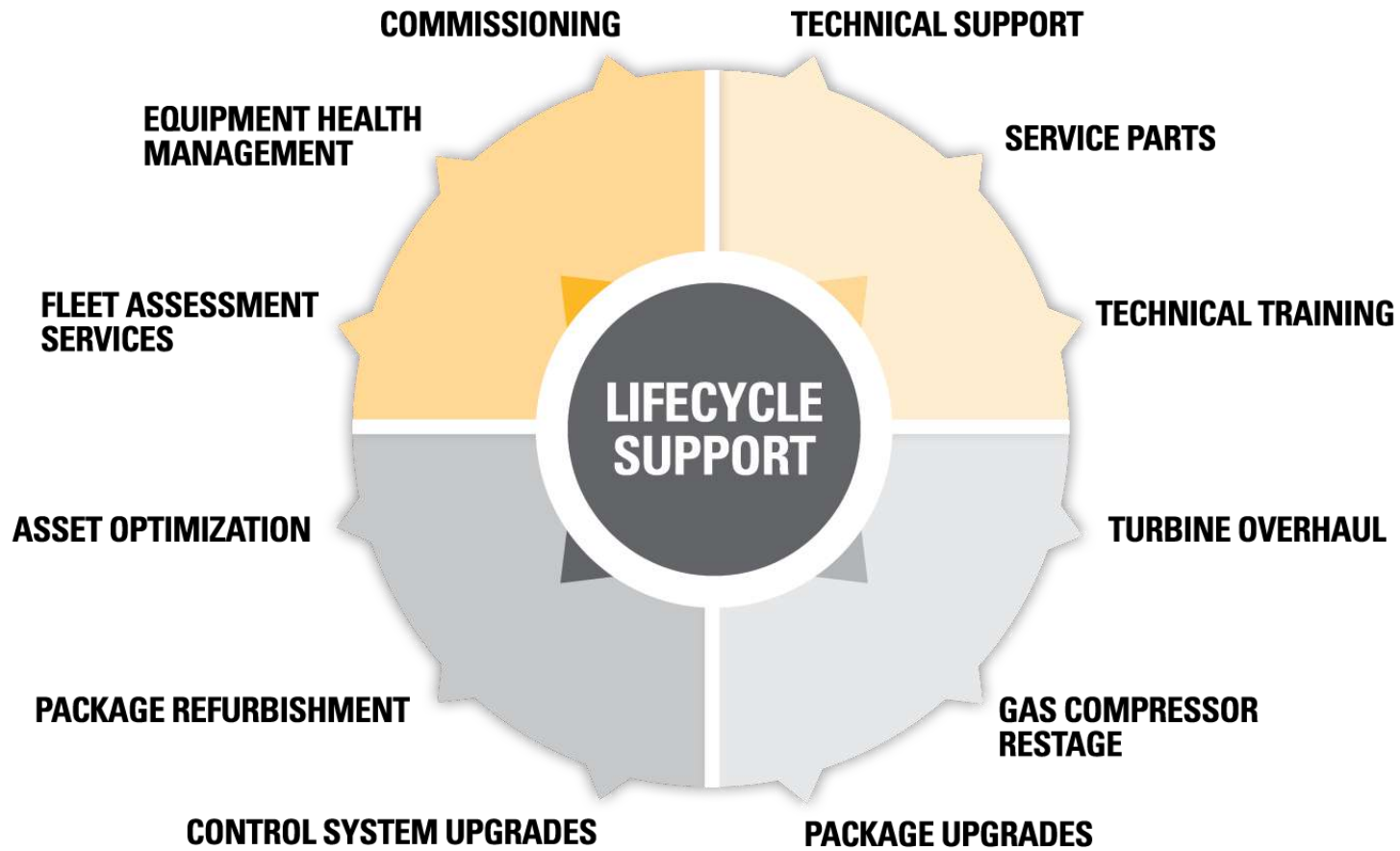


Power Generation Module (PGM)

Comprehensive Scope of Supply

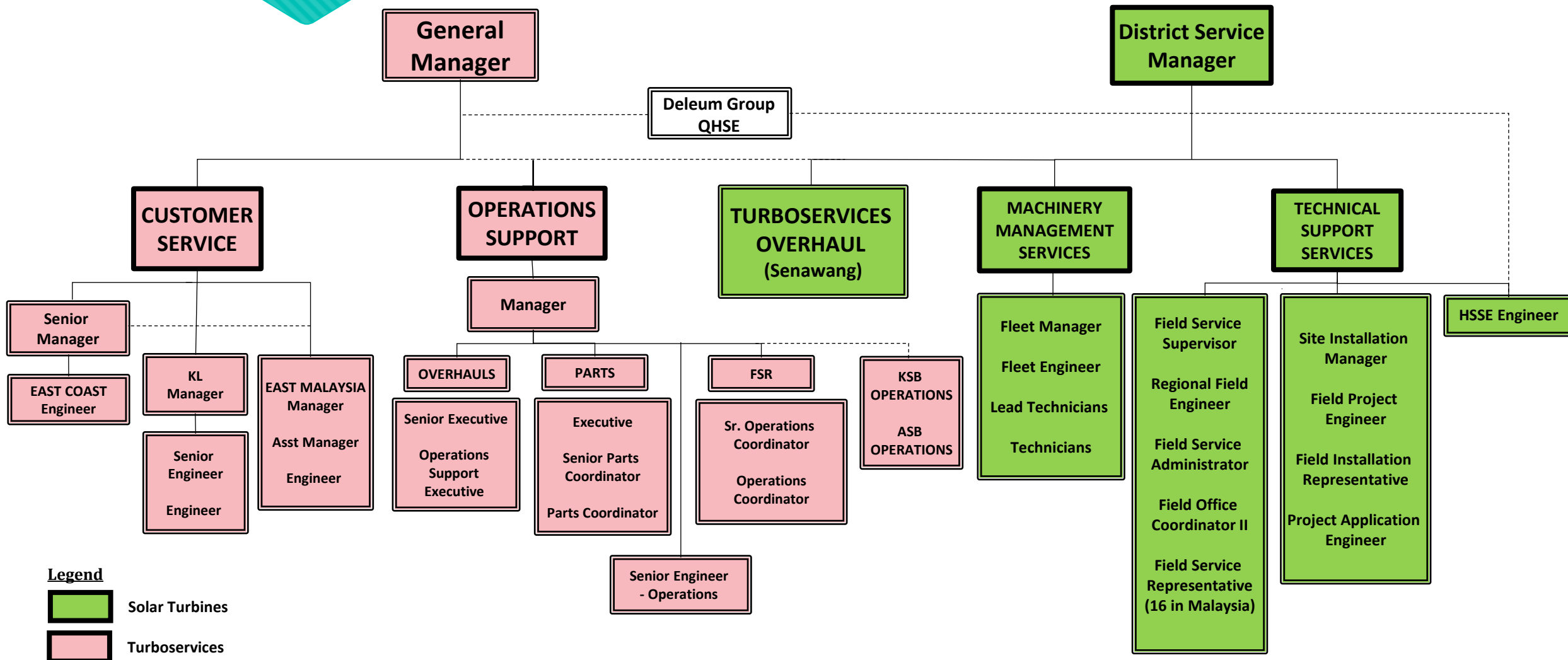
- Pre-engineered modules
- Drop-over enclosure
- Integrated Electrical Equipment Cubicle (EEC)
- Maintenance platform + ladder
- Self-supporting air filtration system
- Roof mounted lube oil cooler and demister
- Available BOP modules for MPP





Worldwide Aftermarket Support

CUSTOMER SERVICES ORGANISATION - Malaysia



InSight Platform Equipment Health Management

Maximize Uptime

Lower Life Cycle Cost

Proactive Support



Fleet Manager

Your Team

Solar Team



Measurable Performance



Risk Sharing



Predictive Analytics



Real Time Troubleshooting



Condition Based Maintenance & Overhaul



Operational Support



INSIGHT  CONNECT



THANK YOU

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A Caterpillar Company