



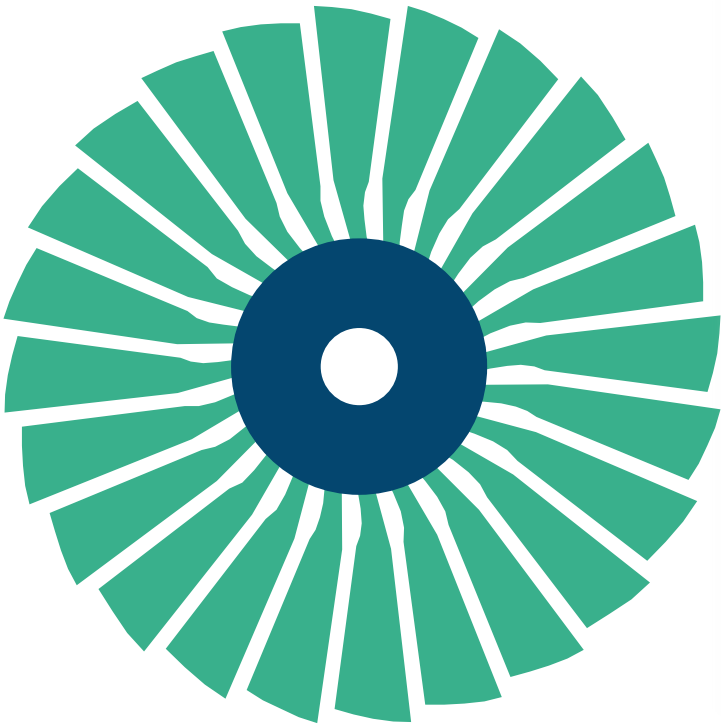
Introduction to Investment opportunities - Maintenance, Repairs & Overhauls

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Maintenance, Repair and Overhaul (MRO) cluster includes all services related to maintenance of equipment across the energy sector

ILLUSTRATIVE



Static equipment

MRO services on static equipment (e.g. calibration of flow meters)



Turbo-machinery

MRO services on machines that transfer energy from the motor that is used (e.g. compressor motor refurbishment)

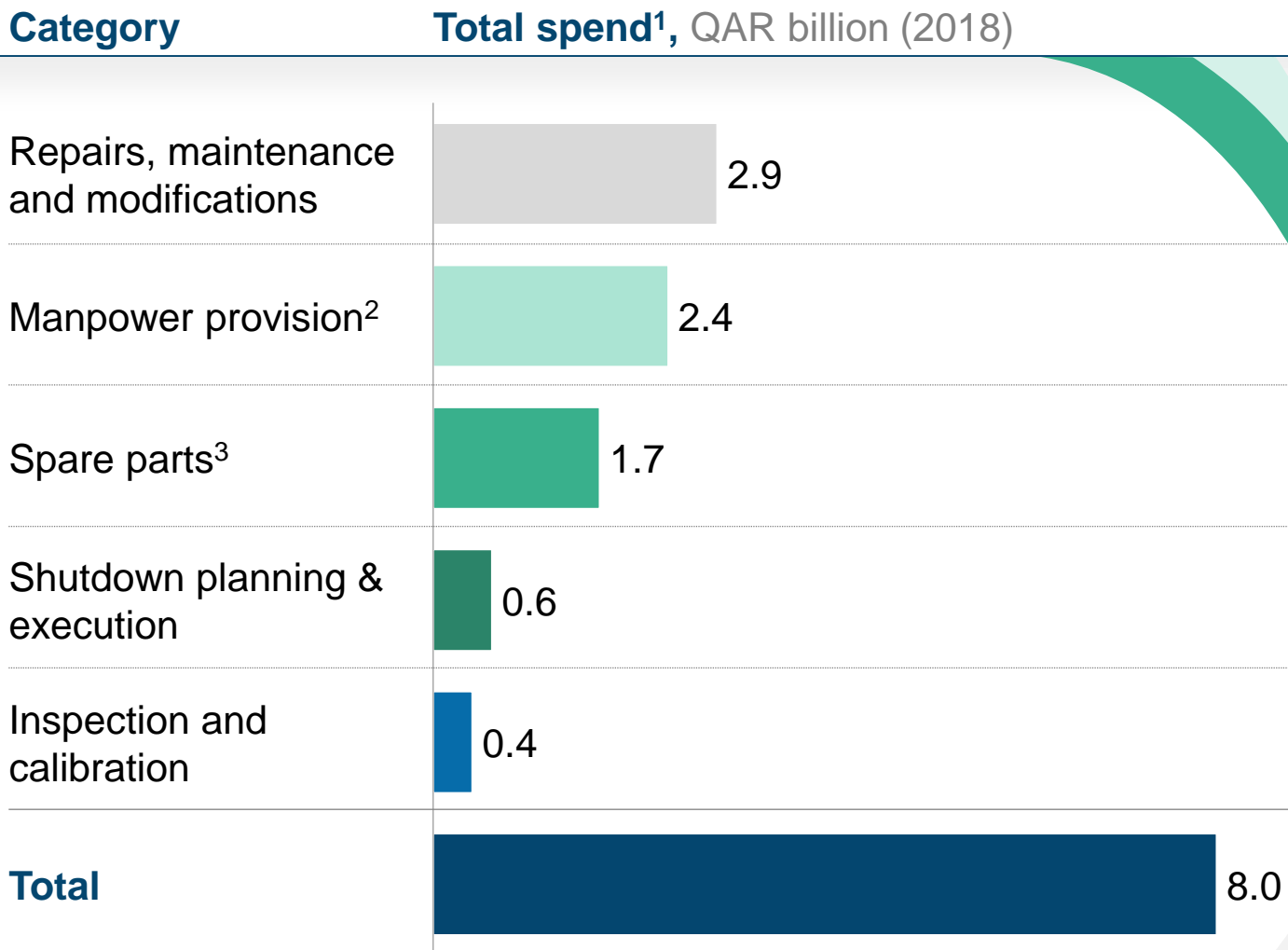


Specialized services

MRO related services that do not directly relate to equipment (e.g. hands-on technical maintenance trainings)



Today, the energy sector in Qatar is spending QAR 8.0 billion on maintenance related efforts



Category background


Local spend is mainly on non-specialized services

Dominated by local companies that depend on **low skilled foreign labor**

Spare parts warehousing is **largely fragmented**

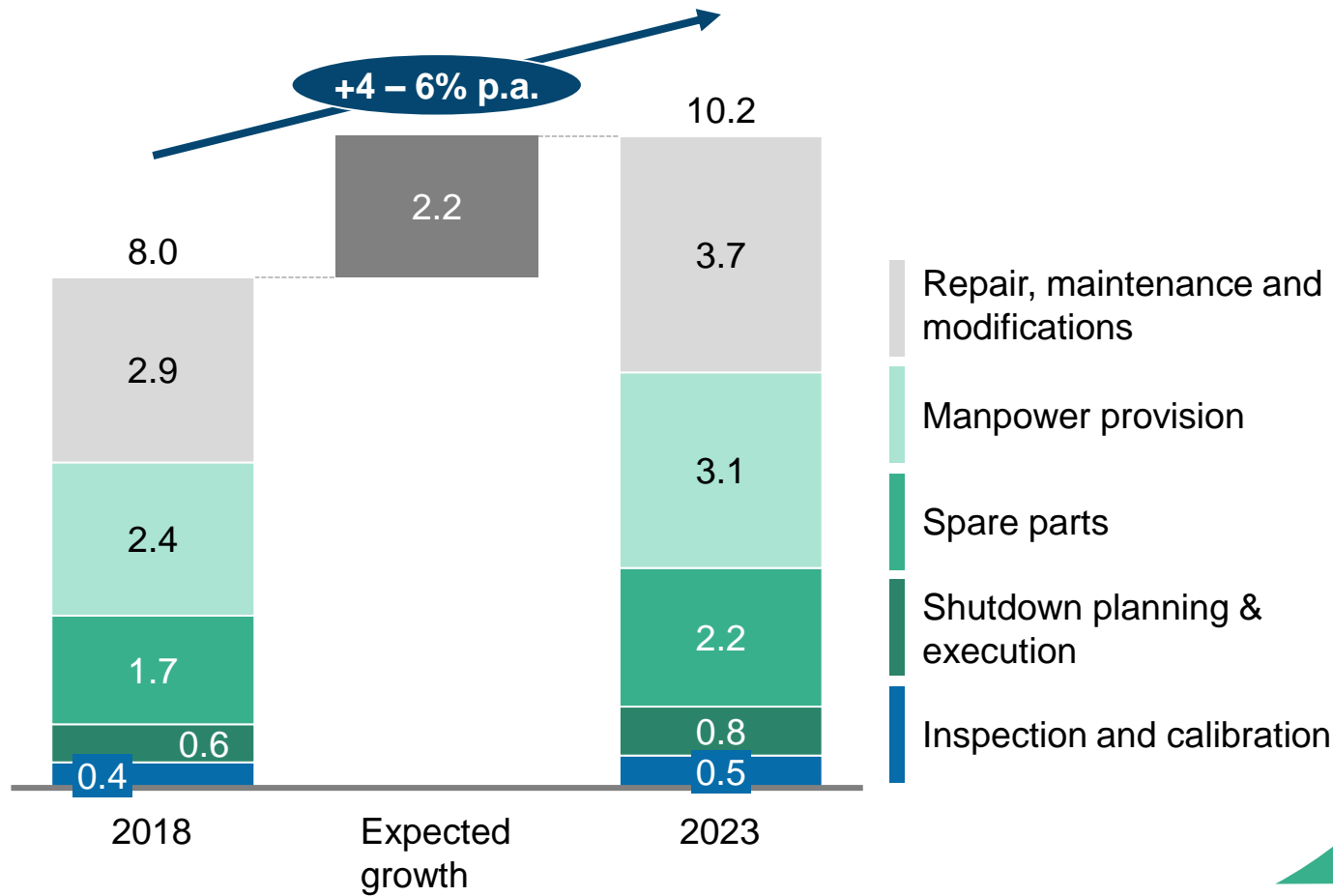
Specialist planning and execution **largely localized**

Major spend is on specialized services which require certified specialists


 1 Total spend by energy sector in 2018 based on 2016 & 2017 sector spend data; assuming a ~4 – 6% growth per year
 2 Maintenance specific manpower categories, excluding inspectors (assigned to inspection) 3 Excluding local spare part manufacturing (out of scope)
 SOURCE: Energy sector spend analysis



The MRO market in Qatar is expected to grow from QAR ~8 billion in 2018 to QAR ~10 billion in 2023



Rationale for growth

The **growing installed base** of the Qatari energy sector is expanding with 4 – 6%¹ per annum



Qatar Petroleum is moving forward with its plans to increase Qatar's LNG output by 30% - from 77 million to 110 million tons per year.

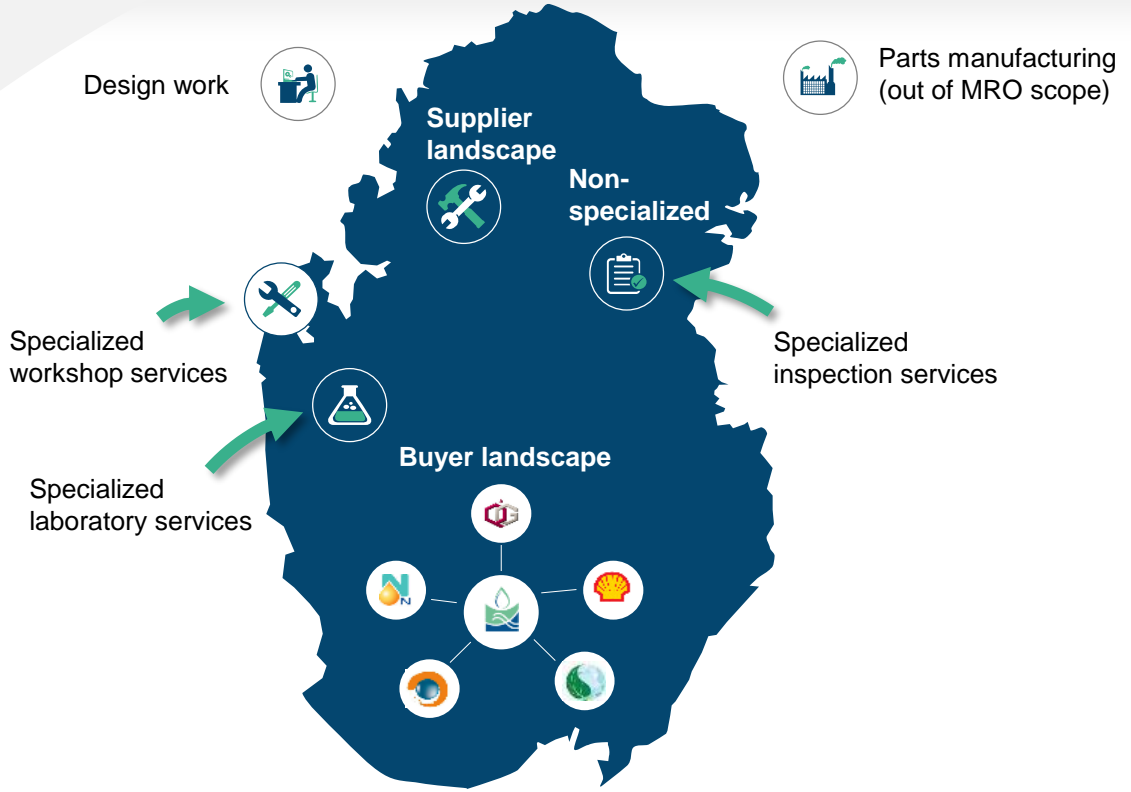
Saad Al-Kaabi, His Excellency, the Minister of State for Energy Affairs, President and CEO of Qatar Petroleum

¹ Expected growth of 4-6% p.a.; provided by expert opinion; ~2-4% Oil, Gas and LNG production growth in Qatar (Rystad, Wood MacKenzie, QP CEO aspiration), ~2% MRO cost increase due to installed assets and (long term) contract terms

Building local supplier landscape with specialists & maintenance hubs - increase local MRO spend to ~80% by 2023

Vision

~80% local spend by 2023
localizing QAR 0.5-1.0B per year



1 Opportunity-specific procurement strategy to ensure demand visibility and coordinated procurement

2 Local maintenance hubs in Qatar to serve the region




3 Reduced lead time due to localized specialized services

Potential to serve the region from Qatar – Making localization in Qatar even more attractive

Today, TAWTEEN is announcing 11 opportunities to help achieve ~80% local spend by 2023



■ High ■ Medium ■ Low

Category	Opportunities	Expected annual estimated spend ² , QAR M (2023)	Required capital intensity, QAR M
 Static equipment	1 Pre-installation control system workshop	75	10-50
	2 Composite-wrapping services	15	0-10
	3 Laboratory to calibrate and certify flow meters	10	10-50
	4 Full range of tank inspection services	5	0-10
 Turbo-machinery	5 Gas turbine service center to perform overhaul services and refurbishment work	115	50+
	6 Dry gas seal repair and testing facility	55	10-50
	7 Overhaul and refurbishment service center for compressors and turboexpanders	95	50+
	8 Facility for high-speed balancing of rotors	15	50+
	9 Off-site testing facility for large electrical motors	10	10-50
 Specialized services	10 Specialized oil analyses laboratory	20	10-50
	11 Training facility for hands-on technical training	10	0-10
Total		~425	

1 Total localization opportunity expected in 2023 – rounded to nearest QAR 5M
 2 Annual spend rounded to nearest 5 million - for exact forecast see detailed opportunity brochures