



الشركة العمانية لشراء الطاقة والمياه (ش.م.ع.م.)
OMAN POWER AND WATER PROCUREMENT CO. (SAOC)

إحدى شركات مجموعة نماء
Member of Nama Group

Renewable Energy Development Plan

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Classification: *for Stakeholder Engagement Meeting*



Outline

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- National Fuel Diversification Policy
- Renewable Energy Potential in Oman
 - Solar Energy
 - Wind Energy
 - Waste-to-Energy
- OPWP RE Development Plan
- RE Projects Procurement Schedules
- Planned RE Capacity & Outputs

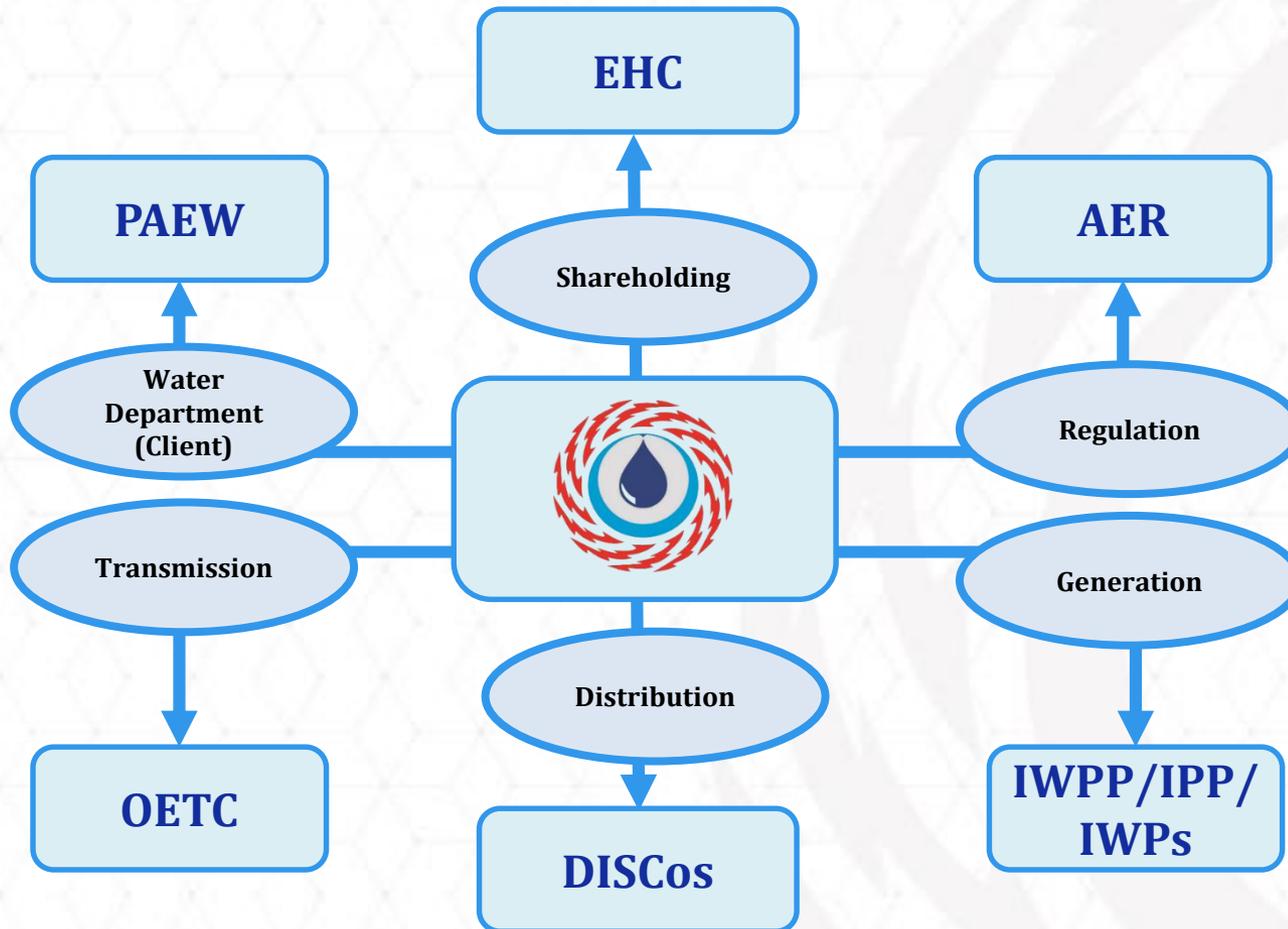


Oman Power & Water Procurement Company SAOC – an introduction

- Created by statute in 2005 when Oman “unbundled” the previous Government ministerial ownership and operation structure in the electricity sector.
- Unbundling was to facilitate private sector participation in the generation, transmission and distribution of electricity.
- OPWP is the sole authorised procurer of electricity for the Oman grid. It is corporatised but remains in 100% Government ownership.
- OPWP is a credit rated entity and is regulated and supervised by an independent Regulator – the Authority for Electricity Regulation
- In excess of USD 10Bn of FDI brought into Oman under the BOO generation model.
- Introducing an electricity Spot Market – to go live in 2020.



Sector Overview



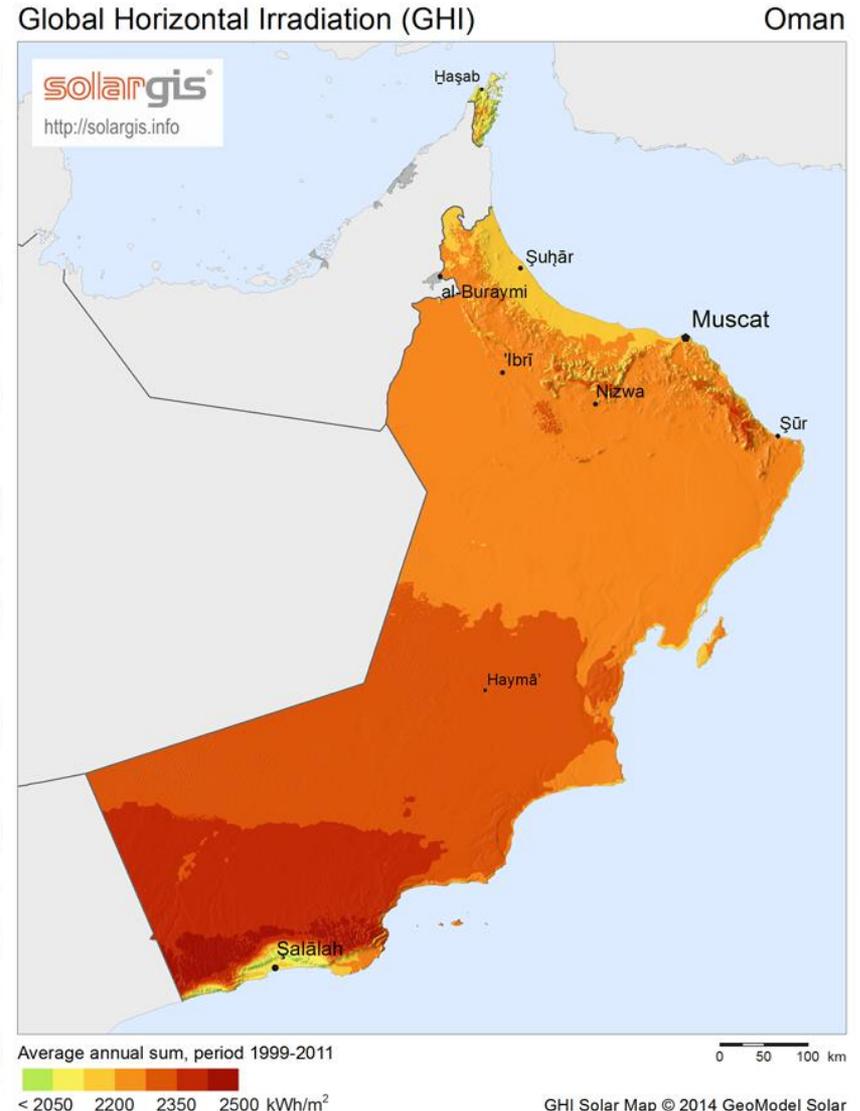
Fuel Diversification Policy

- Fuel Diversification Policy established in Q4 2017 by the Financial Affairs and Energy Resources Council
 - RE target of at least 10% of electricity by production by 2025 (2.5/3 GW)
 - Up to 3,000 MW of coal-fired capacity by 2030
- AER advised OPWP in January 2018 to implement the new policy



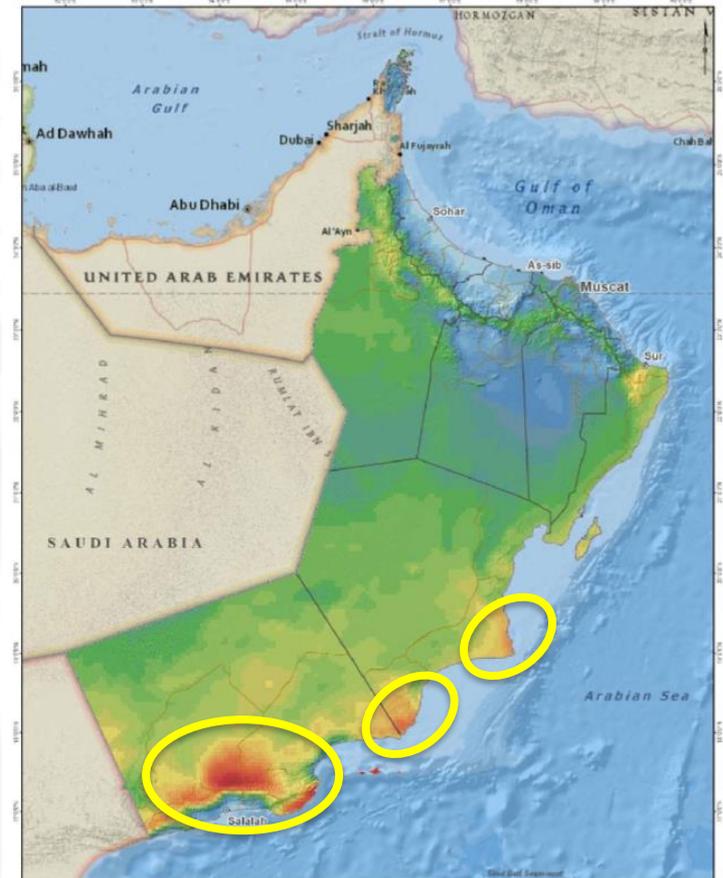
Solar Potential in Oman

- Solar irradiation levels are high throughout the country, increasing toward the south
 - Ranging from 2000 to 2500 kWh/m²
 - Sky clearness, at about 342 days in a year.
 - Higher irradiation implies lower cost solar energy
- Electricity demand is concentrated in northern Oman
- Transmission access currently constrains solar development toward the south
 - Transmission capacity is currently 60 MW to MIS and 150 MW to DPS.
 - Local electricity demand is marginal except in the PDO oil concession areas. PDO is developing some large self-supply projects.
 - Isolated grids have high electricity costs.
- The North-South Interconnect project aims to open access to RE development in the south
 - 400 kV Line with capacity exceeding 1000 MW
 - Planned to be available from MIS to Duqm in central Oman by 2023



Wind Potential in Oman

- Oman has excellent potential for wind energy development
 - Numerous onshore sites have average wind speeds of 8-10 m/s
 - Higher winds during Summer months match peak demand
 - OPWP is launching a wind monitoring project in 2019
 - Offshore development may also have large potential
- Hourly wind data from Thumrait suggest a profile that complements solar (i.e. mainly at night), but is more intermittent
- Wind generation potential is concentrated in southern Oman
 - Best in coastal Dhofar and Thumrait
 - 2nd Best in Duqm, inland Al Wusta
 - Some potential in Sharqiyah
- The first wind farm is under construction
 - 50 MW, located at Harweel in Dhofar
 - COD expected in 2020
- **Large-scale development depends on transmission access to demand centers in the northern MIS (70% of national demand)**



Waste to Energy

- Potential for a Waste to Energy Plant in Oman.
 - Municipal solid waste (MSW) or agricultural waste are burned and generate electricity via a steam turbine
 - Typical plant in the range of 50-100 MW
- Waste authorities had earlier carried out concept and feasibility studies for a waste to energy (WtE) project.
- AER requested OPWP to carry out a feasibility study for a WtE IPP.
- The project would be the first WtE project in Oman. Future potential WtE projects exist and could be developed depending on the future policy.
- OPWP appointed Technical Advisor to carry out a techno-economic feasibility study to assess the viability of the first WtE IPP.
- **Feasibility Report has been prepared and is approved by AER. OPWP is currently proceeding with the procurement process.**
- RFQ release by Q2, 2019 and Project award Q2, 2020. COD expected in Q2, 2023.
- Likely size in excess of 120MW – large for this type of plant.



OPWP RE Development Plan

OPWP's 7-Year Statement (2018-2024)

Project	Location	2018	2019	2020	2021	2022	2023	2024
MW								
Dhofar I Wind IPP	Dhofar	-	-	50	50	50	50	50
Ibri II Solar IPP	MIS	-	-	-	500	500	500	500
Solar IPP 2022	MIS	-	-	-	-	500	500	500
Solar IPP 2023	MIS	-	-	-	-	-	500	500
Solar IPP 2024	MIS	-	-	-	-	-	-	500
Dhofar II Wind IPP	Dhofar	-	-	-	-	-	150	150
Wind IPP 2023	Duqm	-	-	-	-	-	200	200
Wind IPP 2024	Duqm	-	-	-	-	-	-	200
Waste to Energy 1	MIS	-	-	-	-	-	50	50
Total Capacity		-	-	50	550	1,050	1,950	2,650
Capacity Contribution		-	-	-	150	300	500	650

- *OPWP's First Solar IPP is expected to be awarded in Q1, 2019.*
- *First batch of Solar Projects to be with PV technology.*
- *CSP and PV with Storage to be explored for Projects in 2023 & 2024.*



RE Projects Procurement Schedule

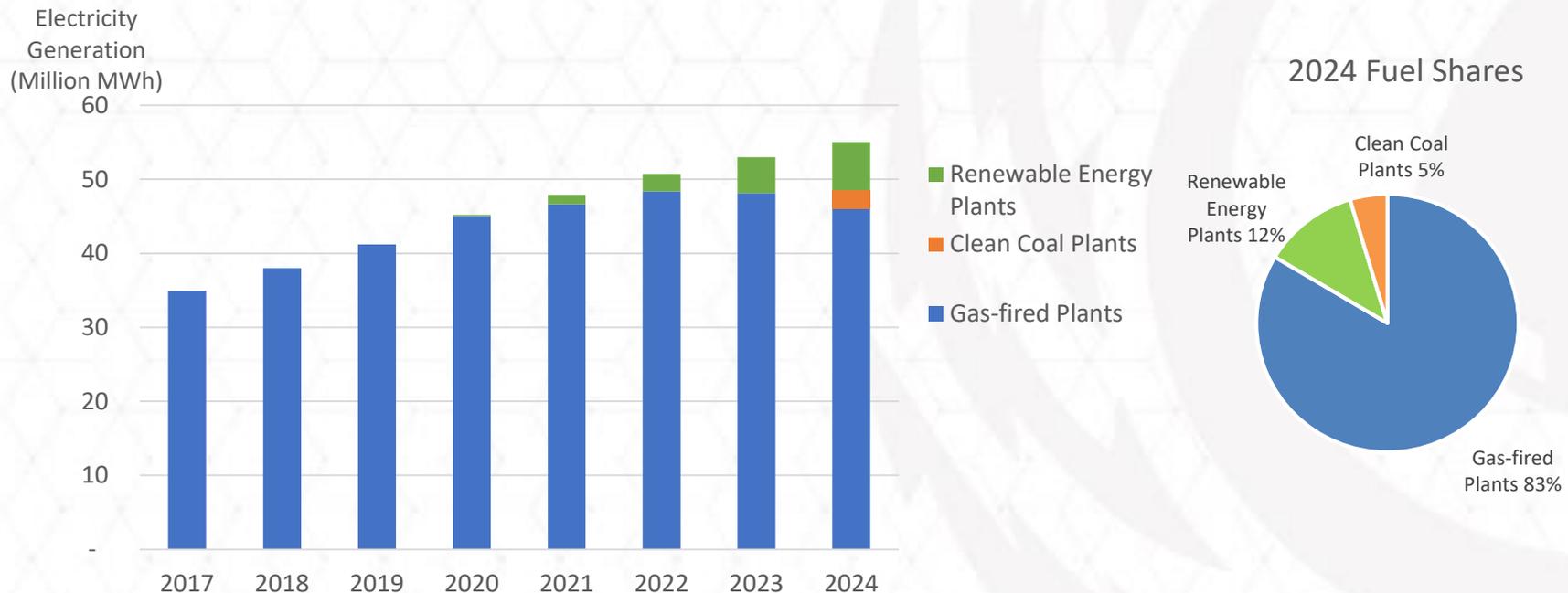


RE Projects	Proposed Timeline ->						
	2018	2019	2020	2021	2022	2023	2024
Solar IPP1 (Ibri 500MW)	Procurement	Construction					
Solar IPP 2022 (> 500 MW)		Procurement	Construction				
Solar IPP 2023 (> 500 MW)			Procurement	Construction			
Solar IPP 2024 (> 500 MW)				Procurement	Construction		
Wind IPPs 2023 (Dhofar ~150 MW) (Duqm ~200 MW)			Wind Data Collection	Procurement	Construction		
Waste to Energy		Procurement	Construction				



OPWP Sees a Bright Future for Renewables

- By 2024, RE projects from OPWP alone will provide for 12% of electricity output
- Another 2%-5% may come via other development channels
- By 2030, RE projects may provide 20% of generation or more



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THANK YOU

Further information available at: www.omanpwp.com



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