هيئة تنظيم الكهرباء - عمان
AUTHORITY FOR ELECTRICITY REGULATION, OMAN

ANNUAL REPORT 2018

هيئة تنظيم الكهرباء - عمان
AUTHORITY FOR ELECTRICITY REGULATION, OMAN

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Cover Photo: The highland haven of Jabal Al Akhdar is a horticultural delight. From March to May, roses are harvested and distilled to make delectable rose water.
Photographer: Abdullrahman Al Hinai

His Majesty
Sultan Qaboos bin Said

GLOSSARY OF TERMS

Bulk Supply Tariff (BST)	Tariffs charged by PWP and RAEC for bulk supplies of electricity and water, where such tariffs are calculated each year and approved by the Authority;
DPC	The Dhofar Power Company SAOC
DPS	Dhofar Power System connecting the systems of DPC and OETC in Dhofar region
EHC	The Electricity Holding Company SAOC
EPC	Engineering, Procurement and Construction
ERWS	Electricity and Related Water Sector
GCCIA	Gulf Cooperation Council Interconnection Authority
I(W)PP and IPP	Independent Power and Water Project
Main Interconnected System or MIS	The interconnected systems of OETC, and the Muscat, Majan and Mazoon Discos
Majan or MJEC	The Majan Electricity Company SAOC
Mazoon or MZEC	The Mazoon Electricity Company SAOC
MAR	Maximum Allowed Revenue
MHEW	The Ministry of Housing, Electricity and Water
OETC	The Oman Electricity Transmission Company SAOC
Omanisation	The policy for the employment of Omani nationals as issued from time to time by the Government of Oman
Permitted Tariff	Tariffs Customers are obliged to pay in consideration for Supply of electricity or for Connection to a Distribution System or a Transmission System, which tariff shall be determined in the manner stipulated in Article (9) of the Sector Law
PAEW	The Public Authority for Electricity and Water
PWP	The Oman Power and Water Procurement Company SAOC
RAEC	The Rural Areas Electricity Company SAOC
OMR	Omani Rial
ROP	Royal Oman Police
SCRC	Schedule Charge Restriction Condition
Sector Law	The law for the regulation and privatization of the electricity and related water sector promulgated by Royal Decree 78/2004 as amended by Royal Decree 59/2009
Related Water	Desalinated water in the Sultanate of Oman which is combined or co-located with the electricity sector and which is subject to regulation
The Authority	The Authority for Electricity Regulation, Oman, being the authority established pursuant to Article (19) of the Sector Law as amended

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CHAIRMAN'S FOREWORD

On behalf of the Authority, it is with great pleasure that I present our Annual Report for 2018. The electricity and water sector sustained its growth and development since the restructuring. The main highlights of 2018 were as follows:

- The number of electricity customer accounts in the Sultanate increased by 71755 or 6.3% from 1147401 in 2017 to 1219156. Residential customers accounted for 69.1% of the increase in accounts. Since the 2005 market restructuring the number of electricity accounts has increased 688905 or 130%;
- Electricity Supply in 2018 reached 32.5 TWh, 3.7% higher than in 2017 and 253% higher than in 2005;
- The Authority's measure of electricity Intensity (MWh per account) reached 27.5 in 2018, lower than 2017 by 2.4% and 72% higher than in 2005. Increasing intensity is an important driver of electricity demand that has implications for costs and subsidy. If the 1219156 registered accounts in 2018 had the same average intensity as in 2005, electricity supply in 2018 would have been 35%, or 11.76 TWh lower with corresponding reductions in costs and subsidy.
- Sector gas use increased by 1.4% in 2018 while gross electricity and water production increased by 4.5% and 4.7%, respectively due to efficient use of gas. RAEC consumed about 209819000 litres of diesel in 2018 to support increases in electricity and water production of 8.8% and 3.2%, respectively;
- Technical and non-technical losses accounted for 8.4% of total units entering electricity systems in the Sultanate in 2018, a decrease on reported losses of 9.2% in 2017. MIS losses decreased from 8.8% in 2017 to 8.4% in 2018, RAEC losses decreased from 16.3% in 2017 to 11.7% in 2018, and Dhofar Power System losses decreased from 11.5% in 2017 to 9.3% in 2018;
- In 2018 the Direct employment was 3.7% lower than in 2017. Indirect employment in 2018 (6,867) was 17.9% higher than the previous year. Since 2005, total (Direct and Indirect) employment has almost doubled from 4,796 to 9,562 in 2018, with direct employment accounting for 33.9% of this increase.

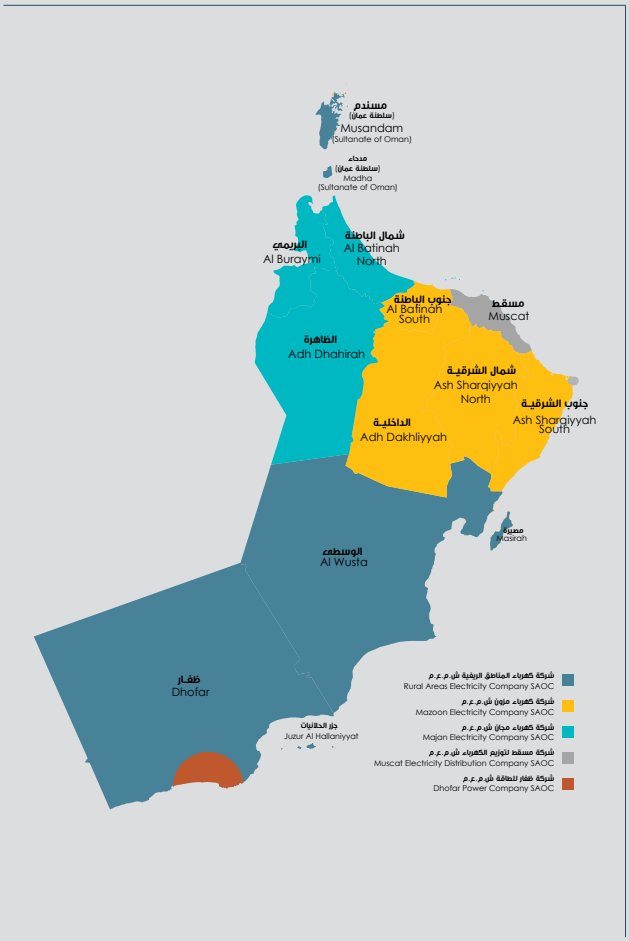
- The Authority received 87 new customer complaints and resolved 77 outstanding customer complaints.
- In 2018, Salma Al Ismaili completed an MSc in Economics with Distinction at City University, London. The Authority extends to Salma the warmest congratulations for this achievement.
- The electricity sector benefited from 565.4 million Rial Omani of support from the Ministry of Finance in 2018: 418.0 million Rial Omani of MIS subsidy, 104.4 million Rial Omani of Dhofar Power System subsidy and 43.0 million Rial Omani of RAEC subsidy.
- Electricity licensees approved 357 electricity related projects in 2018 with a total value of OMR 184.4 million, these projects will support the provision of electricity services in all of the Sultanate's regions; and
- The cost of regulating the electricity and water sector in 2018 was around 4 OMR per customer account and around one tenth of a baiza per kWh supplied. We believe compare favourably to international benchmarks of regulatory costs.

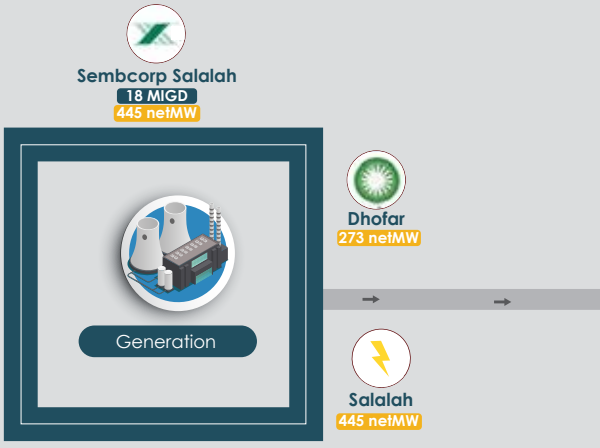
Members would particularly like to acknowledge with thanks the hard work of Authority staff who contributed to and are responsible for the activities and work described in this report. Members and staff of the Authority express their sincere gratitude to His Majesty Sultan Qaboos bin Said for his vision, guidance and leadership and to His Majesty's government for their continuing support.

Saleh bin Hamood Al Rashdi
Chairman of Authority for Electricity Regulation, Oman

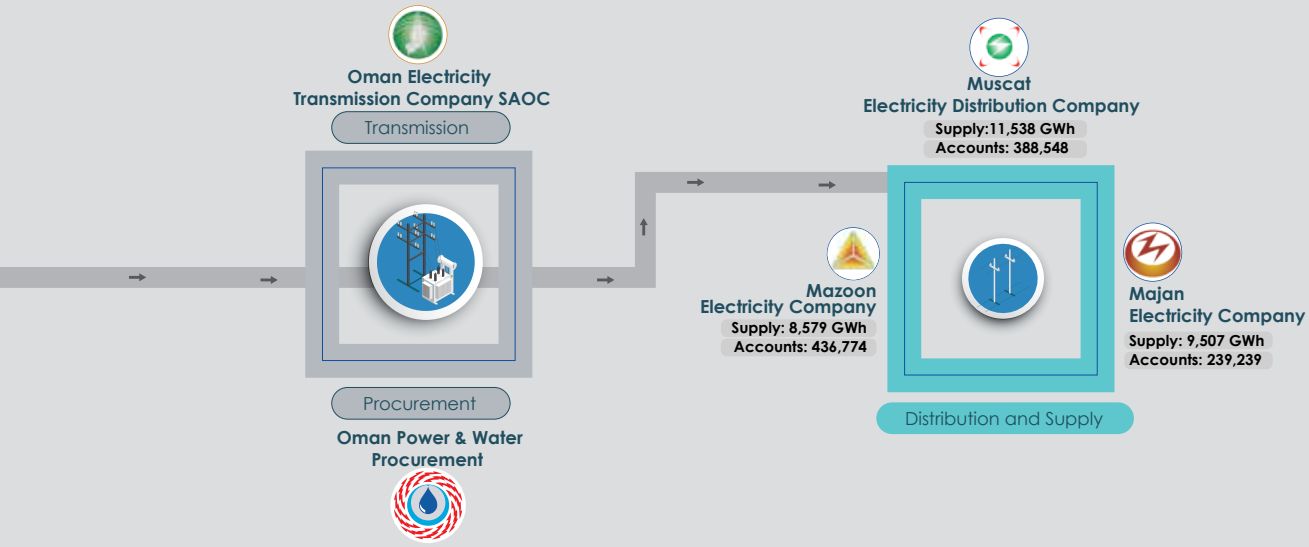
ELECTRICITY AND WATER SECTOR MARKET STRUCTURE

Main Interconnected System

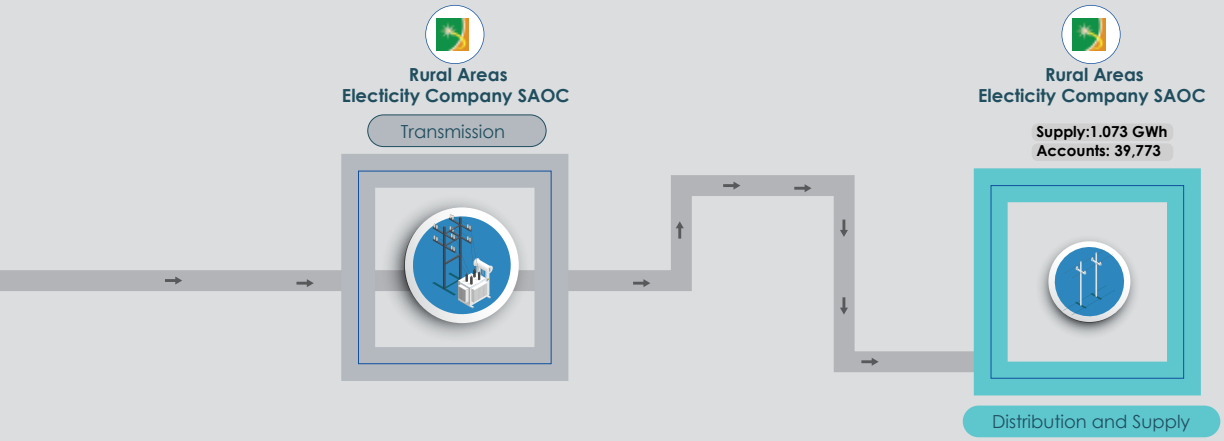




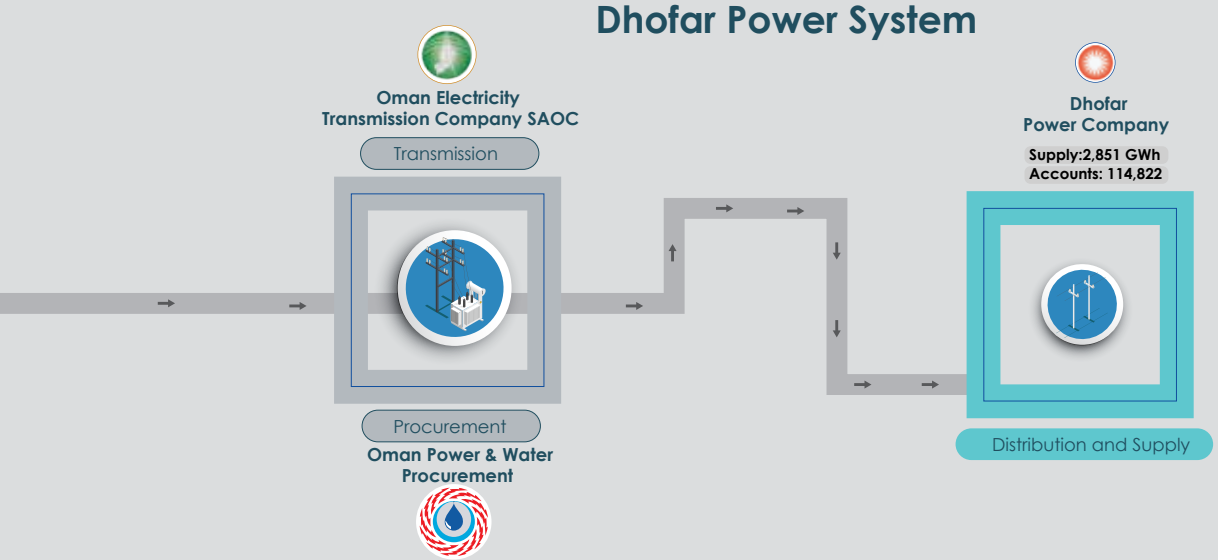
Source: MIS & Dhofar 2018 Capacities from PWP -7Year Statement (Issue 9), other data AER



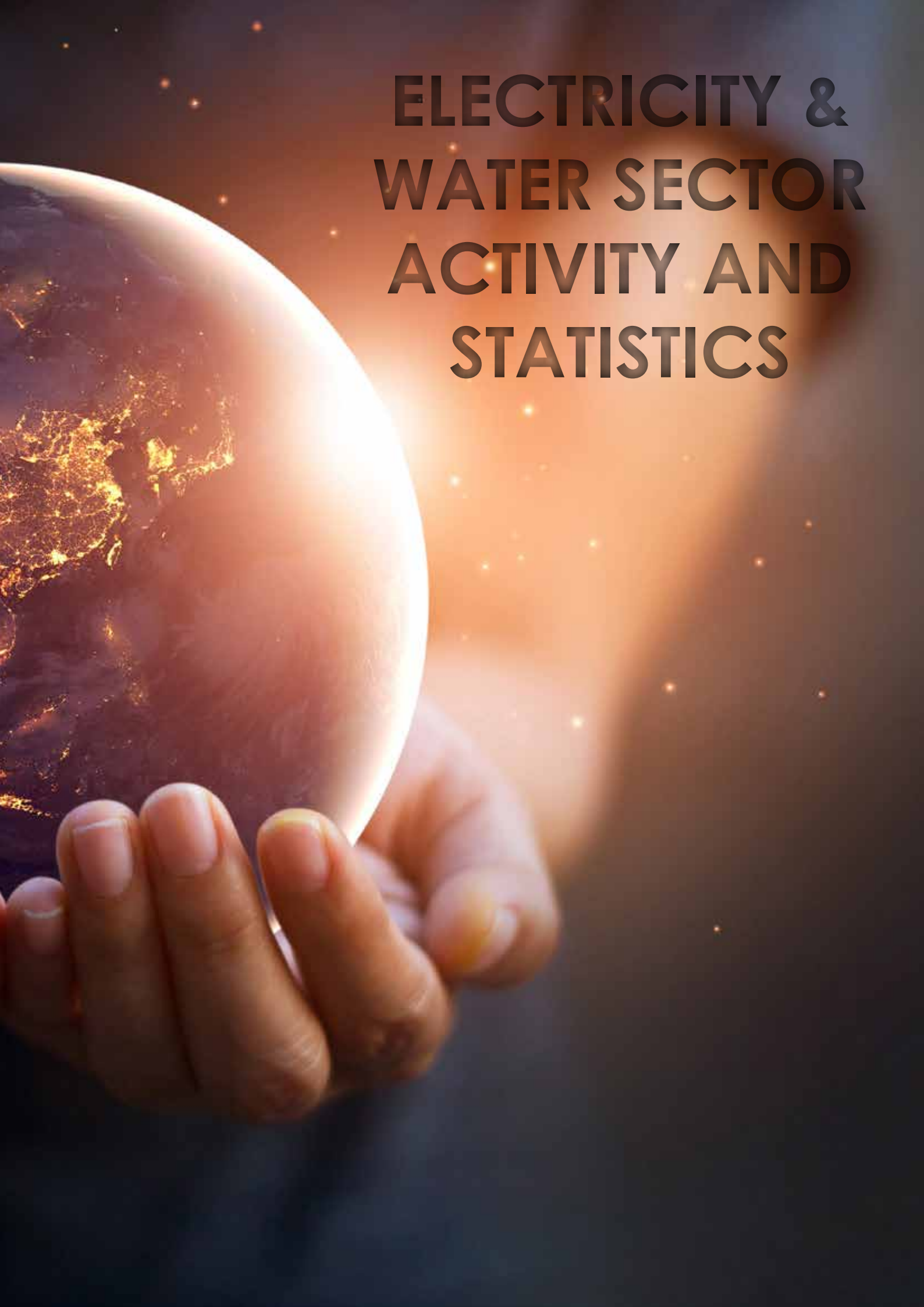
Rural Systems



Dhofar Power System



The Sector Law designates certain activities as regulated activities and requires persons seeking to undertake such activities to be authorised by the Authority to do so. Further details of the new market structure and its regulation are available at www.aer-oman.org.



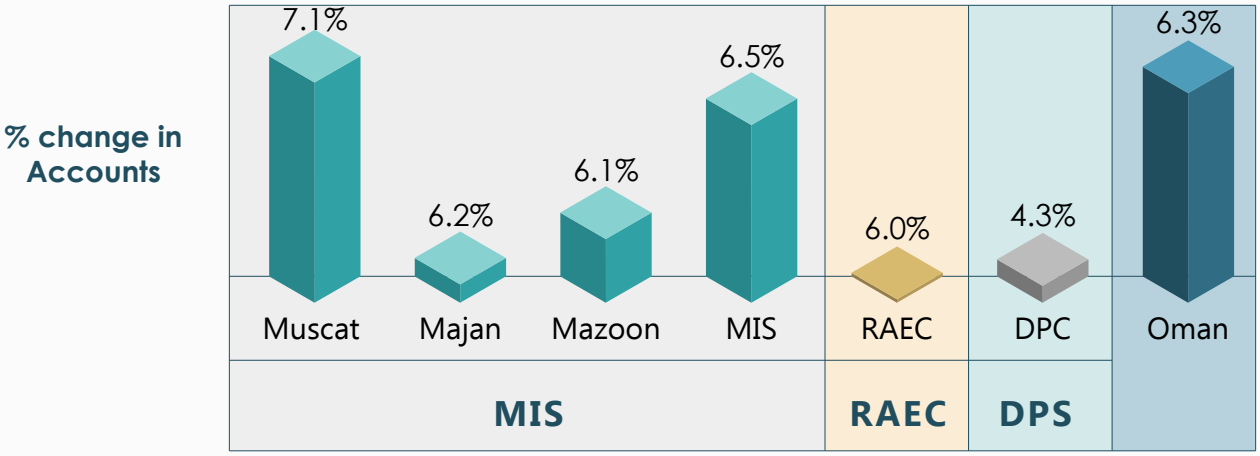
ELECTRICITY & WATER SECTOR ACTIVITY AND STATISTICS

ELECTRICITY & WATER SECTOR ACTIVITY AND STATISTICS

Customer Accounts: 2017 and 2018

The number of registered electricity customer accounts in the Sultanate increased by 6.3% in 2018 from 1,147,401 in 2017 to 1,219,156. The MIS accounted for 90.2% of the increase in accounts, higher than what was reported in 2017 (84.8%), while RAEC accounted for 3.1% of the increase (2.8% in 2017), and DPC for 6.6% of the increase (12.4% in 2017). Please refer to the figure below and Table 1 of Annex C for further details.

Figure 1: Registered Customer Accounts by Company 2017 & 2018



	Muscat	Majan	Mazoon	MIS	RAEC	DPC	Oman
Accounts 2017	362,891	225,195	411,739	999,825	37,513	110,063	1,147,401
Accounts 2018	388,548	239,239	436,774	1,064,561	39,773	114,822	1,219,156
% change in Accounts	7.1%	6.2%	6.1%	6.5%	6.0%	4.3%	6.3%

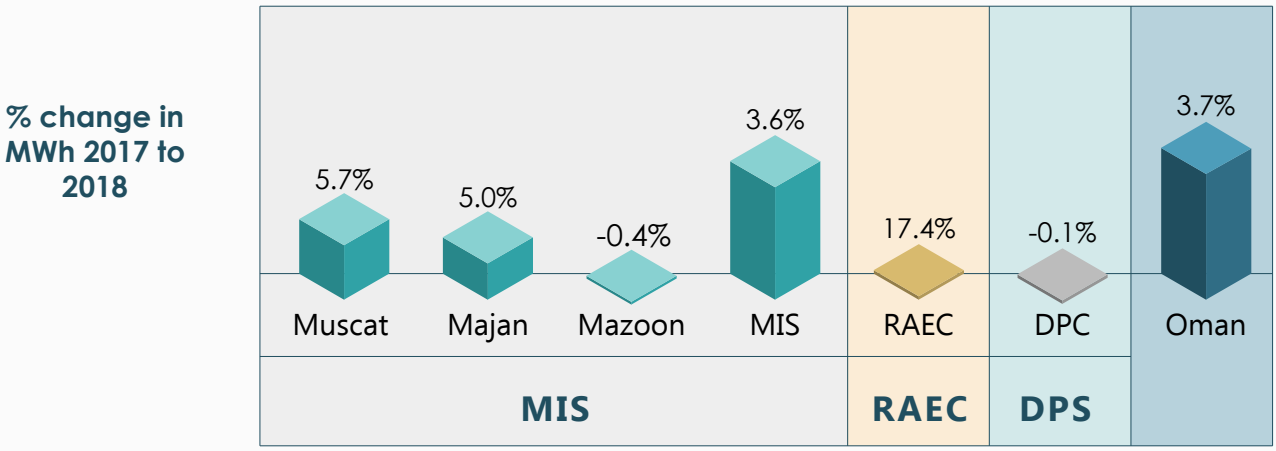
Source: Company Returns

Mazoon had the highest number of customer accounts (436,774) in 2018 accounting for approximately 35.8% of total registerd accounts in Oman followed by MEDC (388,548) with around 31.8% of the share of total accounts. RAEC had less than 40,000 accounts by end of 2018; a 3.3% share of the total electricity accounts in Oman.

Electricity Supply: 2017 and 2018

Total electricity supply in the Sultanate increased by 1.2 TWh in 2018 from 32.3 TWh in 2017 to 33.5 TWh, an increase of 3.7% following a 6.6% increase in 2017. MIS supply increased by 3.6% (or 1.0 TWh) in 2018, accounting for 87.0 % of the total (1.2 TWh) growth in supply. RAEC supply increased by 17.4% while supply from DPC decreasd by 0.1%. See the figure below and Table 2 of Annex C for further details.

Figure 2: Electricity Supply (MWh) 2017 & 2018



	Muscat	Majan	Mazoon	MIS	RAEC	DPC	Oman
MWh 2017	10,918,517	9,052,027	8,611,639	28,582,183	913,969	2,853,332	32,349,484
MWh 2018	11,538,036	9,507,184	8,578,761	29,623,982	1,072,950	2,850,557	33,547,489
% change in MWh	5.7%	5.0%	-0.4%	3.6%	17.4%	-0.1%	3.7%

Source: Company returns

The 11.5 TWh of supply from MEDC was the highest amongst the licensed suppliers, accounting for 34.4% of the total supply in Sultanate, followed by Majan (9.5 TWh) and Mazoon (8.6 TWh). Collectively, MIS accounted for 88.3% of the total supply followed by DPC (8.5%) and RAEC (3.2%)

The figure compares the 2018 increase in accounts and supply by customer category.
For the Sultanate as a whole, residential customers accounted for 69.1% of the 71,755 increase in accounts and commercial customers for 30.2% of the increase (collectivly 99.3% of the total increase in accounts). These two categories were also the primary drivers of the 1.198 TWh growth in supply; accounting for around 36.2% and 25.5%, respectively. While total Tourism accounts increased by only 0.2%, supply to Tourism customers grew by around 10.1% over the year. Supply to Industrial customers increased by 12.4% and to Government by 5.7%. Large customers of both these categories were subject to an increased (Cost-Reflective) Tariff from 2017.

Figure 3: 2018 Increases in Accounts & Supply by Customer Category

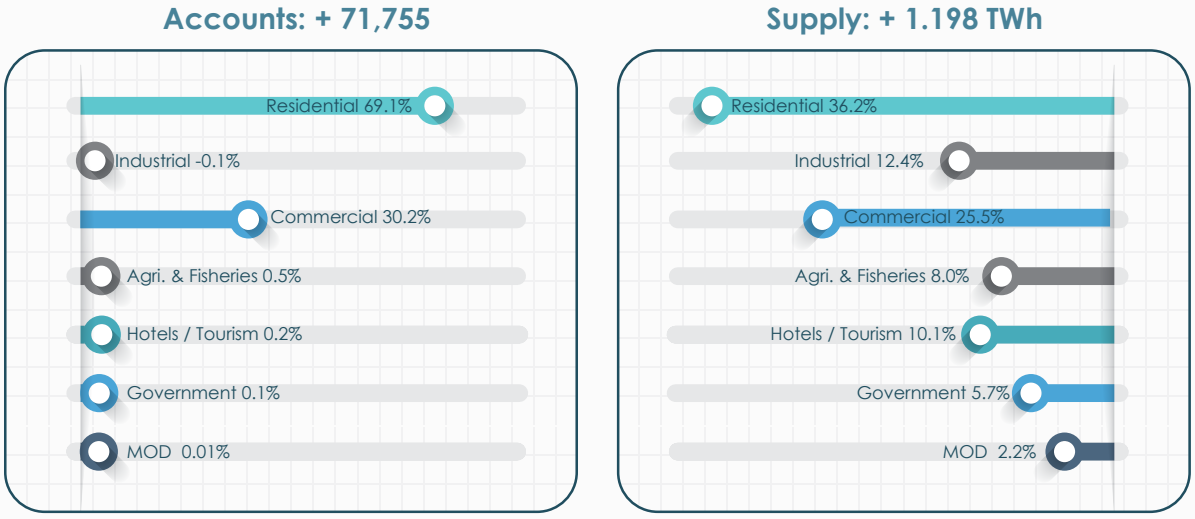
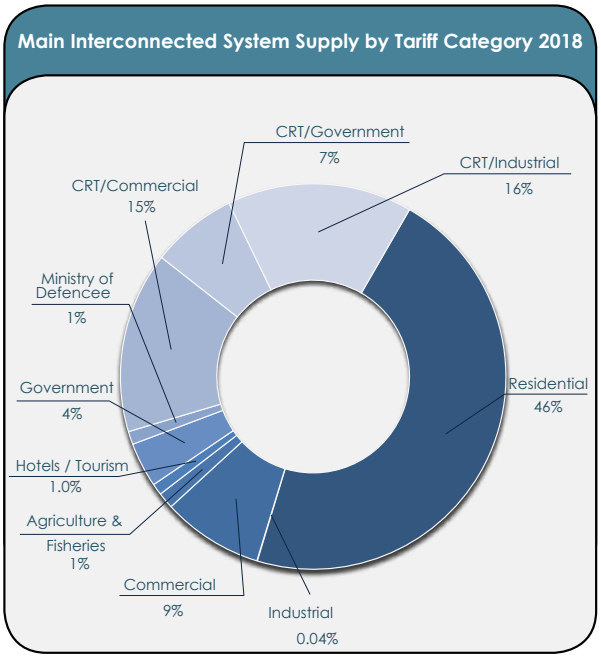
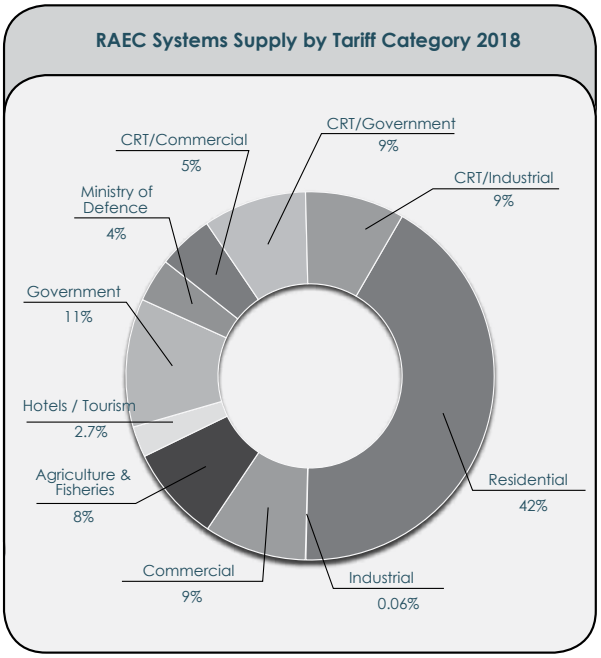
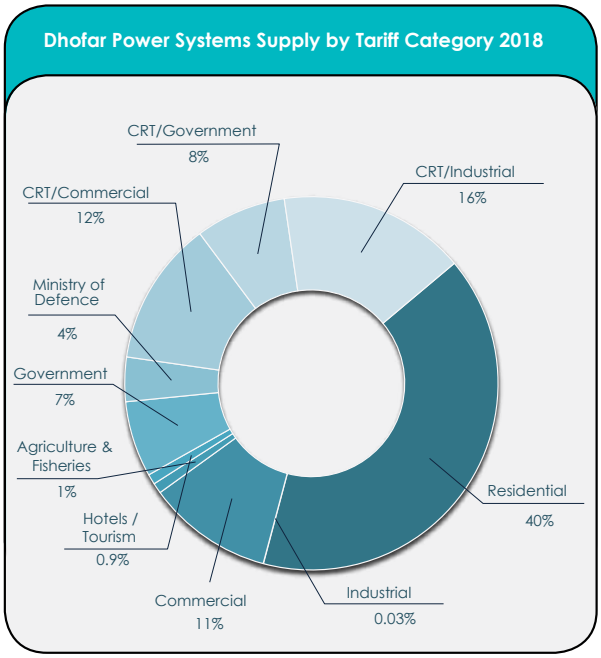
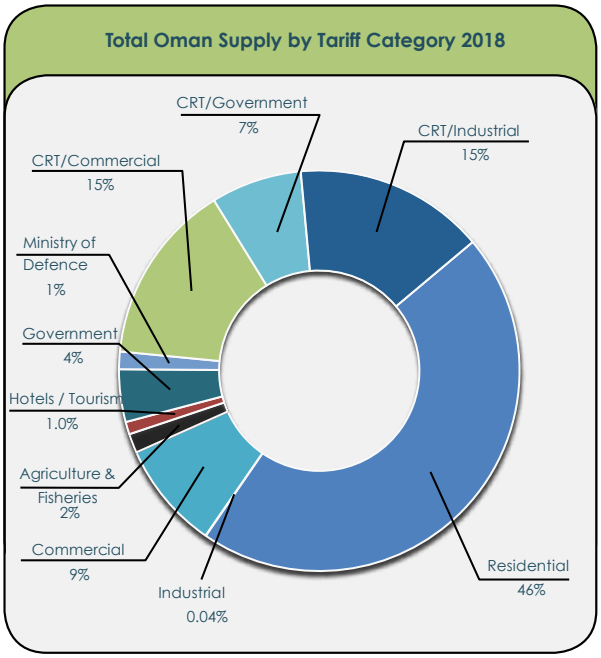


Figure 4: Electricity Supply by Tariff Category & System 2018



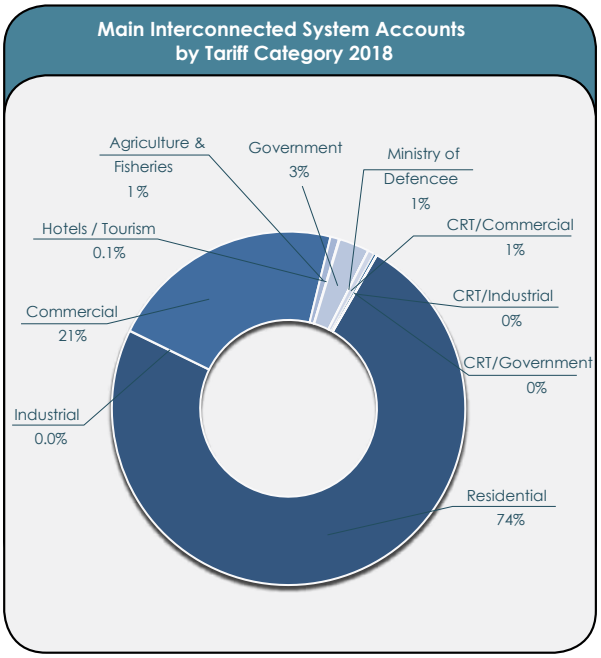


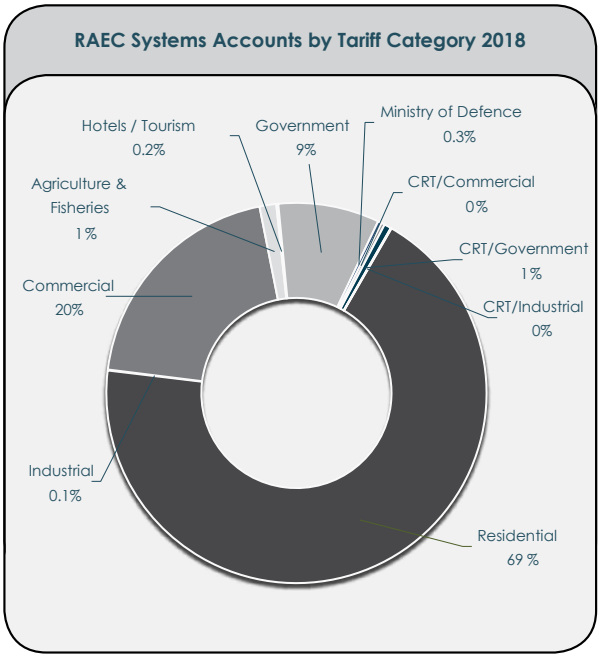


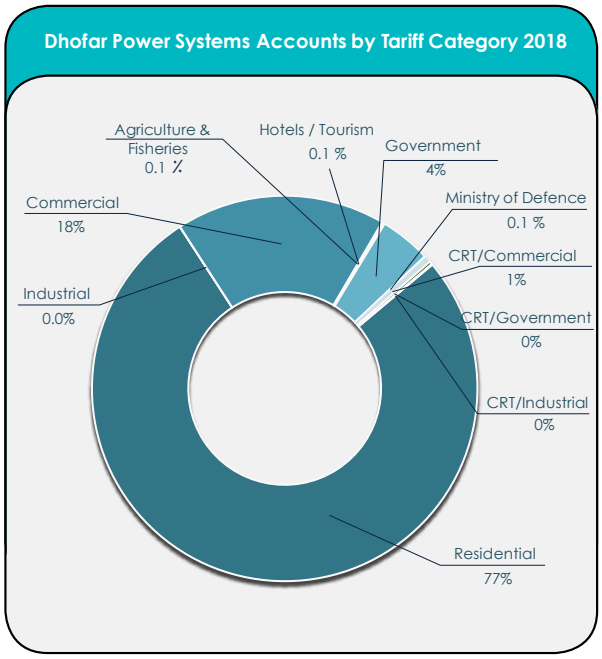


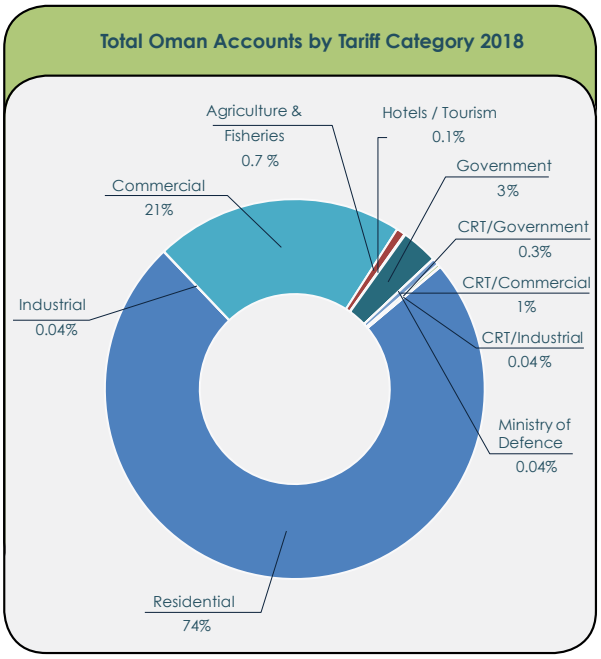
*** For more details, please refer to Annex C, Table 2.**

Figure 5: Registered Customer Accounts by Tariff Category & System 2018







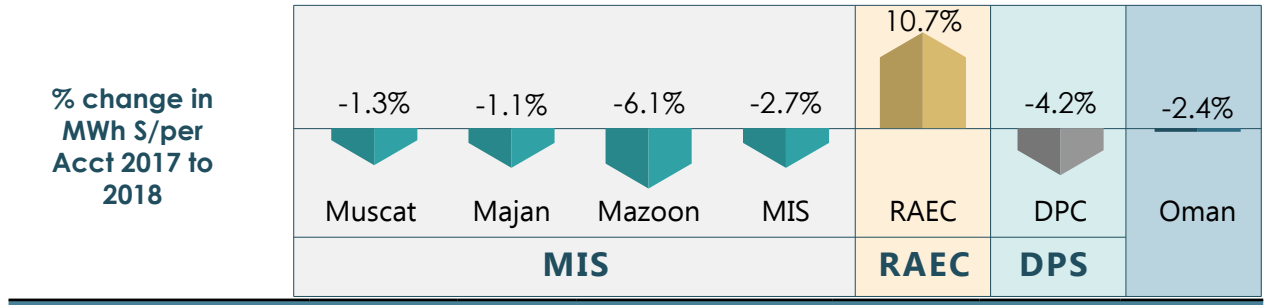


*** For more details, please refer to Annex C, Table 1.**

ELECTRICITY SUPPLY PER ACCOUNT: 2017 & 2018

Electricity intensity (MWh per account) decreased by 2.4% in 2018, from 28.2 in 2017 to 27.5 MWh per account, reflecting a 6.3% increase in total registered accounts compared to a 3.7% increase in supply during the year. Please refer to following figure and Table 5 of Annex C for further details.

Figure 6: MWh Supplied per Registered Account: 2017& 2018



	Muscat	Majan	Mazoon	MIS	RAEC	DPC	Oman
2017 MWh Supply/per Acct	30.1	40.2	20.9	28.6	24.4	25.9	28.2
2018 MWh Supply/per Acct	29.7	39.7	19.6	27.8	27.0	24.8	27.5
% change in MWh S/per Acct	-1.3%	-1.1%	-6.1%	-2.7%	10.7%	-4.2%	-2.4%

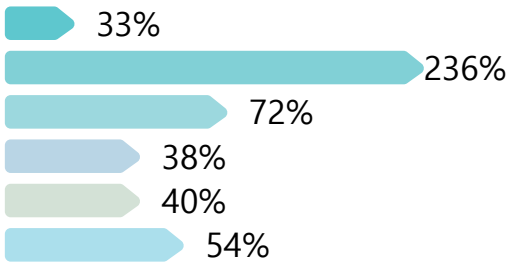
Source: Company returns

The reduction in electricity intensity for a third successive year reflects the continued overall slowdown in supply growth during 2018.

The following figure shows that despite the recent decline in electricity intensity, between 2005 and 2018 the average electricity intensity across all customers increased by 54%, with a significant variation in intensity changes across customer categories.

Figure 7: Changes in Electricity Intensity between 2005 & 2018

MWh/Account	2005	2018	% change
Residential	12.8	17.0	33%
Industrial*	1,561.5	5,252.7	236%
Commercial*	17.2	29.6	72%
Agriculture & Fisheries	41.4	57.3	38%
Government & MOD	75.5	105.7	40%
All Categories	17.9	27.5	54%



* Include CRT's customers

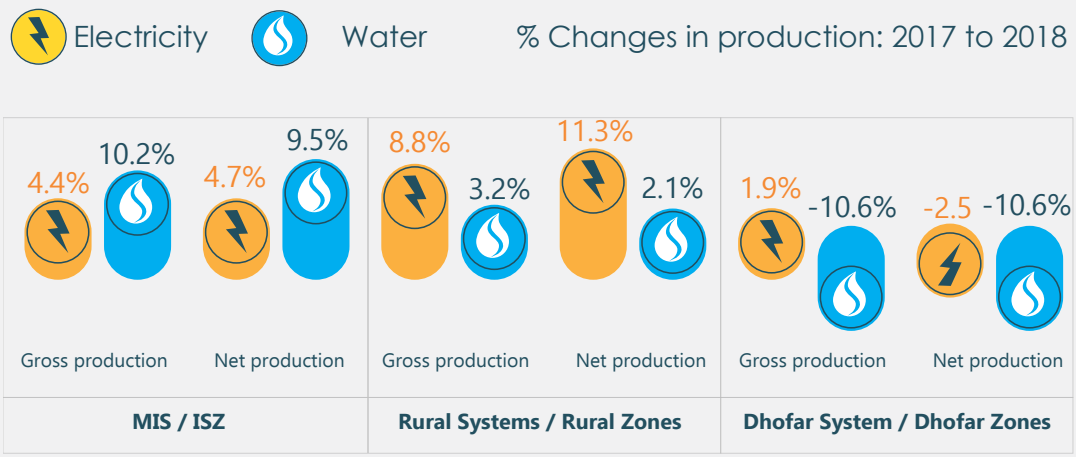
The 236% increase in Industrial customer intensity reflects increased supply to a relatively small number of new Industrial customers who are large consumers of electricity. Industrial customers actually account for a smaller proportion of the overall increase in intensity shown in Figure (7) than Residential and Commercial customers, whose intensity in 2018 was 33% and 72% higher, respectively, than in 2005 and who together accounted for 69% of total 2018 Supply, compared to the 15.4% share of Industrial customers.

Increasing intensity is an important driver of electricity demand which has implications for costs and subsidy. If the 1,219,156 registered accounts in 2018 had the same average intensity as in 2005, electricity supply in 2018 would have been 35% or 11.67 TWh lower with corresponding reductions in costs and subsidy.

Electricity and Water Production: 2017 & 2018

In 2018 gross electricity production of 37.7 TWh was 4.3% higher than in 2017. The 37.2 TWh of net electricity generation (including PWP and RAEC purchases from other sources) was 4.3% higher than in 2017. Both, gross and net water production increased by 8.5% and 7.8% (to 334.2 million m³ and 328.7 million m³ respectively). Please refer to the figure below and Table 6 of Annex C for further details.

Figure 8: Electricity and Water Production 2017 & 2018



System	Item	Electricity GWh 2017	Electricity GWh 2018	Electricity GWh % change	Water 000 m3 2017	Water 000 m3 2018	Water 000 m3 % change
MIS / ISZ	Gross production	31,784	33,169	4.4%	280,270	308,913	10.2%
	Net production	31,351	32,833	4.7%	277,323	303,588	9.5%
Rural Systems / Rural Zones	Gross production	1,038	1,130	8.8%	3,549	3,663	3.2%
	Net production	1,092	1,216	11.3%	3,381	3,453	2.1%
Dhofar System / Dhofar Zones	Gross production	3,304	3,368	1.9%	24,212	21,654	-10.6%
	Net production	3,224	3,143	-2.5%	24,212	21,654	-10.6%
Total Oman	Gross production	36,126	37,667	4.3%	308,031	334,230	8.5%
	Net production	35,667	37,192	4.3%	304,916	328,695	7.8%

Source: Company Returns

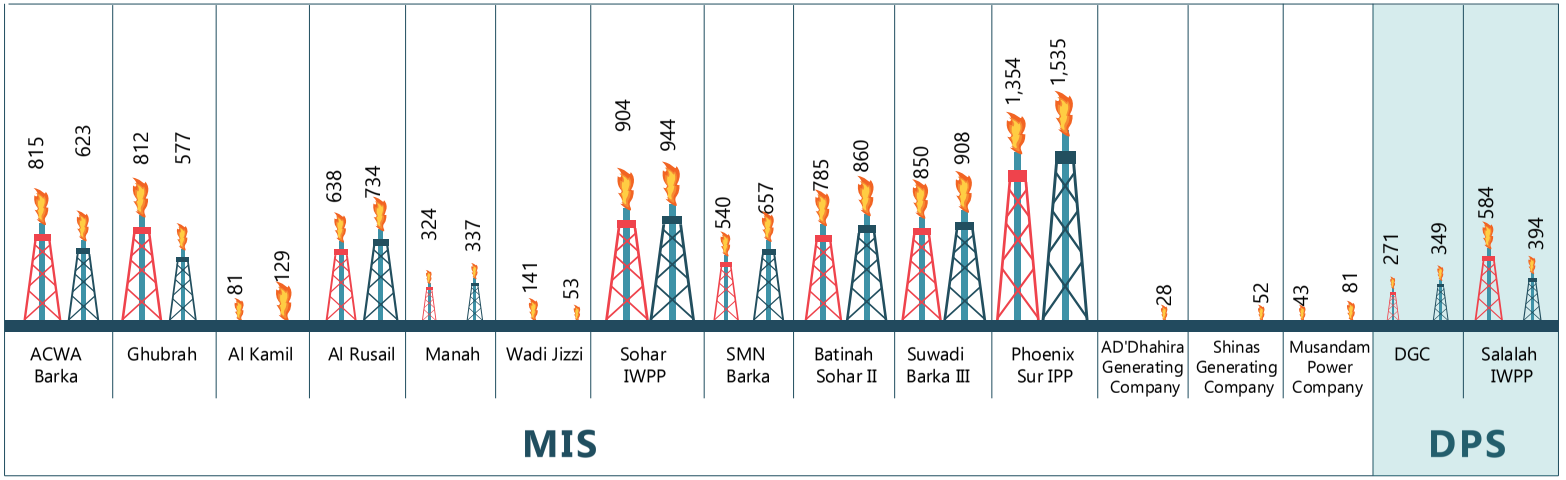
MIS net generation was 4.7% higher in 2018 than 2017, Rural Systems was 11.3% higher and generation for the Dhofar Power System was 2.5% lower. The net desalinated water production in the Interconnected and Sharqiyah Zones (ISZ) increased by 9.5% in 2018 which accounted for 92% of the increase in total desalinated water production in 2018. Net water production in Rural Zones increased by 2.1% in 2018 while Dhofar Zone decreased by 10.6%.

ERWS FUEL USE IN 2018

Natural Gas

The electricity and water sector consumed 1.4% more gas in 2018 than 2017, compared to an increase of 4.5% and 4.7% in electricity and water production, respectively, please refer to Figure 1. The specific gas consumption of MIS connected facilities fell to 224 Sm3/MWh in 2018 from 228 Sm3/MWh in 2018 (a 1.7% reduction), and is 37% lower than in 2005.

Figure 9: Gas Consumption at Major Production Facilities: 2017 & 2018



Production Facility:	ACWA Barka	Ghubrah	Al Kamil	Al Rusail	Manah	Wadi Jizzi*	Sohar IWPP	SMN Barka	Batinah Sohar II	Suwadi Barka III	Phoenix Sur IPP	AD'Dhahira Generating Company	Shinas Generating Company	Musandam Power Company	DGC	Salalah IWPP	MuscatCity IWP**'	Sharqyiyah Sur IWP**	Qurayyat Desalination SAOC**	Barka Desalination Company**	Total
gas use: Sm3 2017 10^6	815	812	81	638	324	141	904	540	785	850	1,354			43	271	584	-	-	-	-	8,143
gas use: Sm3 2018 10^6	623	577	129	734	337	53	944	657	860	908	1,535	28	52	81	349	394	-	-	-	-	8,260
% of total 2017 gas use	8%	7%	2%	9%	4%	1%	11%	8%	10%	11%	19%				4%	5%	-	-	-	-	100%
% change in gas use	-23.5%	-29.0%	59.4%	15.1%	3.9%	-62.8%	4.4%	21.6%	9.5%	6.8%	13.3%				28.7%	-32.5%	-	-	-	-	1.4%
% change in Gross Electricity and Gross Water Output: 2017 to 2018																					
Electricity	24.2%	46.3%	-44.0%	-12.1%	-5.0%	167.2%	-5.8%	-16.6%	-9.2%	-7.5%	-7.6%			-41.6%	-61.5%	60.5%					4.5%
Water	-47.1%	-31.2%					-1.1%	-46.6%								-10.6%	4.8%	5.0%	n/a	n/a	4.7%

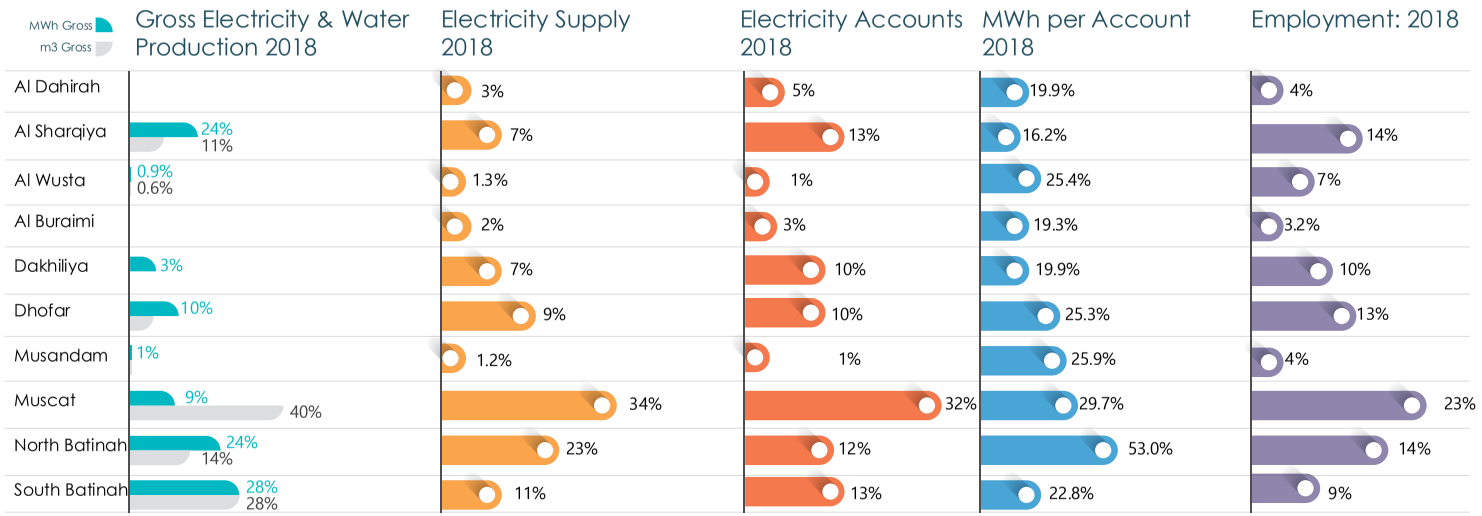
Source: PWP & Company returns
* Wadi Jizzi Power Plant only, excludes OMCO units
** Muscat CityIWP & Sharqyiyah Sur IWP plants, no direct gas utilization.

EWS Activity by Region: 2018

While all regions of Oman benefited from electricity and water sector activity in 2018, activity is heavily concentrated in Muscat, North Batinah and South Batinah. These three areas accounted for 61% of 2018 electricity production, 82% of water production, 68% of supply, 57% of customer accounts and 46% of sector related employment in 2018.

Figure 10: EWS Activity by Region (Production, Supply, Accounts, Intensity & Employment): 2018

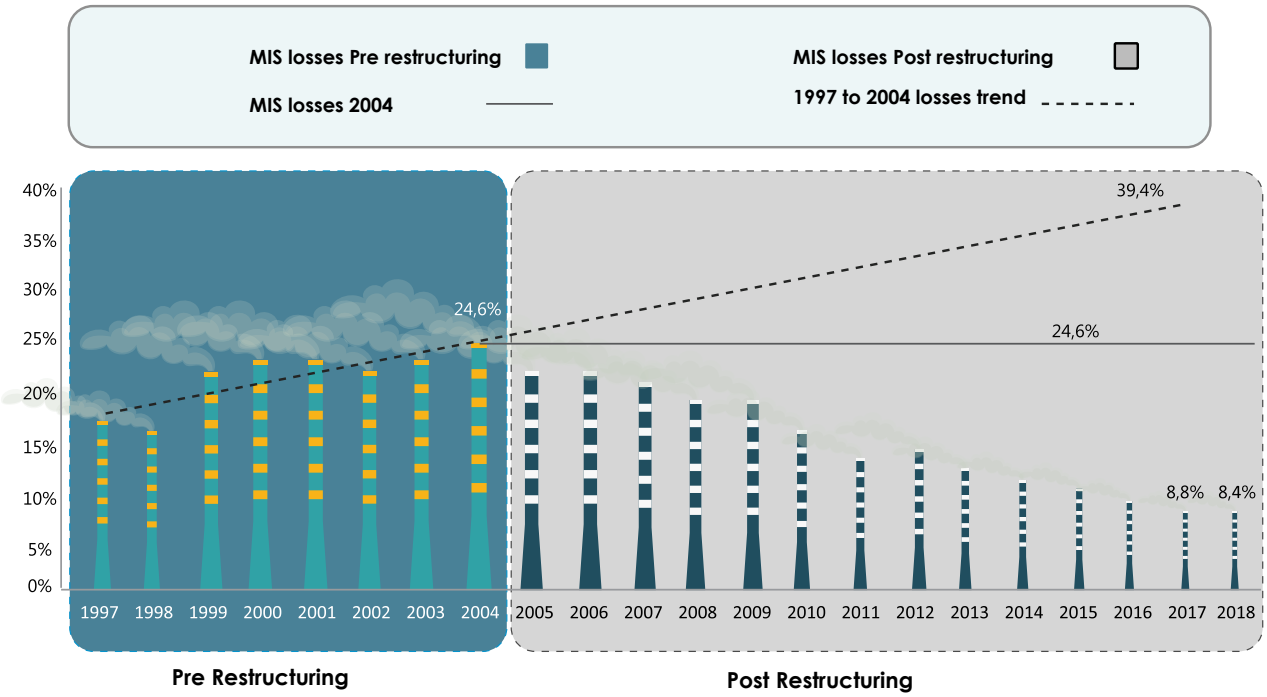
Region	Electricity Production		Water Production		Electricity Supply & Accounts			Employment
	MWh Gross	MWh Net	m3 Gross	Net m3	MWh Supplied	Accounts	MWh per Account	Direct + Contractors
Al Dahirah	133,868	133,868			1,122,391	56,477	19.9	353
Al Sharqia	8,925,656	8,916,962	37,407,540	36,535,061	2,470,463	152,511	16.2	1,293
Al Wusta	321,582	448,323	1,878,977	1,838,994	429,462	16,893	25.4	628
Al Burami					743,705	38,531	19.3	303
Al Dakhliyah	1,192,466	1,184,555			2,492,771	125,443	19.9	933
Dhofar	3,653,281	3,447,711	21,706,618	21,705,861	3,097,515	122,376	25.3	1,198
Musandam	439,430	426,565	75,570	74,376	396,531	15,326	25.9	423
Muscat	3,527,219	3,414,199	132,865,491	132,342,463	11,538,036	388,548	29.7	2,201
North Batinah	8,971,020	9,181,465	47,205,306	45,032,797	7,641,088	144,231	53.0	1,333
South Batinah	10,502,642	10,038,208	93,090,159	91,166,122	3,615,528	158,820	22.8	897
Totals	37,667,164	37,191,856	334,229,661	328,695,673	33,547,489	1,219,156	27.5	9,562



SYSTEM LOSSES

Outturn 2018 data of units supplied and units entering electricity systems shows that MIS losses, which accounts for approximately 90% of the total share of electricity supply in Oman, decreased from 8.8% in 2017 to 8.4% in 2018 and Dhofar Power System losses decreased from 11.5% in 2017 to 9.3% in 2018, while RAEC losses decreased significantly from 16.3% in 2017 to 11.7% in 2018.
The Figure below shows annual MIS losses reductions since 2005.

Figure 11: Technical and non-technical Losses in the MIS

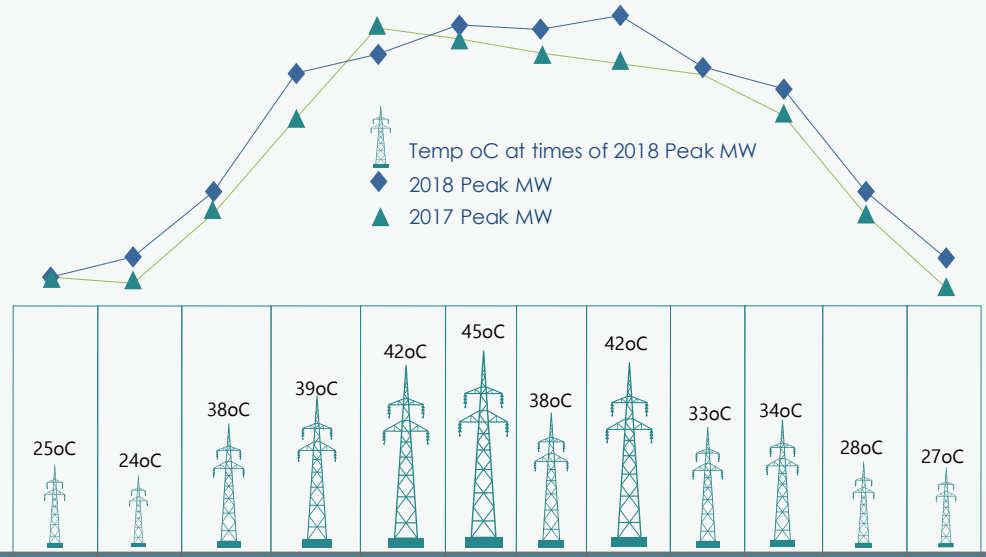


Source: Pre-restructuring data from MHEW reports, post restructuring data from the Authority

The significant losses reductions achieved since the sector restructuring in 2005 reflects the application of a clear incentive based price control mechanism and the constructive responses of licensees.
Losses reductions are of considerable economic value in terms of achieved and future cost savings. If the cost saving of a 1 MWh reduction in losses is OMR 9 (which approximates to the average variable MIS generation cost), the reduction in MIS losses from 8.8% in 2017 to 8.4% in 2018 returned benefits of around OMR 1.3 million (the benefit is OMR 47.9 million if assessed against 2004 losses of 24.6%). The cumulative value of MIS losses reductions since 2004 is OMR 296.6 million, and in present value terms the benefit of MIS losses reductions in 2018 is around OMR 22 million, using a discount rate of 6% (OMR 798 million if assessed against 2004 losses of 24.6%). These figures take no account of investment savings in generation and network infrastructure, which would significantly increase the value of losses reduction benefits.

System Peak Demands: MIS and Dhofar Power System in 2017 and 2018

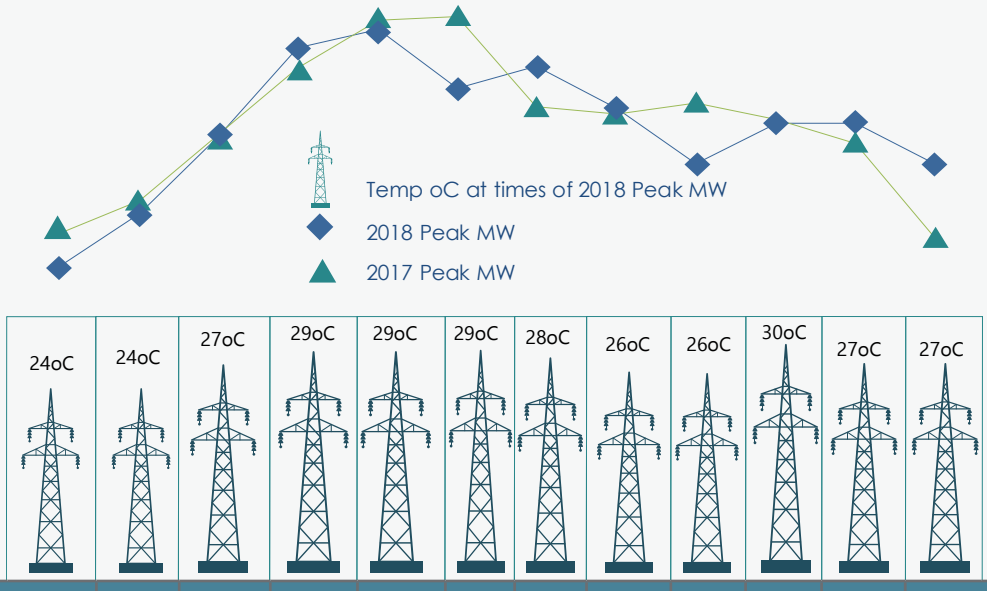
Figure 12: Main Interconnected System Peak Demand - 2017 & 2018



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak MW
2017 Peak MW	3,160	3,085	3,968	5,161	6,304	6,155	5,992	5,843	5,708	5,207	3,946	3,029	6,304
2018 Peak MW	3,163	3,417	4,238	5,737	5,955	6,339	6,279	6,456	5,804	5,535	4,241	3,396	6,456
«(% change»	0%	11%	7%	11%	-6%	3%	5%	10%	6%	6%	7%	12%	2%
Temp oC at times of 2018 Peak MW	25	24	38	39	42	45	38	42	34	34	28	27	

Source: OETC

Figure 13: Dhofar Power System Peak Demand - 2017 & 2018



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak MW
2017 Peak MW	350	380	442	504	549	552	468	462	472	456	434	346	552
2018 Peak MW	319	368	441	522	539	485	505	466	415	453	454	415	539
«(% change»	-9%	-3%	0%	4%	-2%	-12%	8%	1%	-12%	-1%	4%	20%	-2.0%
Temp oC at times of 2018 Peak MW	24	24	27	29	29	29	28	26	26	30	27	27	

Source: OETC

ELECTRICITY DEMAND FORECASTS

In accordance with Condition 5 of the Power and Water Procurement licence, the PWP publishes an annual statement presenting a 7-year outlook for electricity and desalinated water demand, and the capacities required to meet forecast demand, for the MIS and Dhofar Power System. The electricity demand forecasts in each 7-year statement are official forecasts to which electricity sector planning is referenced. The most recent 7-year statement (Issue 13, for the period 2019 to 2025) is available for review and download from the PWP's website (www.omanpwp.com). The main highlights of the electricity demand forecasts are as follows:

MIS

in the "expected case", MIS peak demand is projected to grow at 5% per year to reach 8,600 MW in 2025 which is slightly lower than previously forecast. The "low case" projects 3% annual growth, resulting in peak demand of 7,590 MW in 2025, the "high case" projects 8% annual growth and peak demand at 10,240 MW in 2025, about 1,600 MW higher than the expected case. In terms of energy, the expected, low and high case forecasts for 2025 are 46TWh, 41 TWh and 53 TWh respectively; and

DPS

in the "expected case" peak demand is expected to grow at 6% per year, reaching 827 MW in 2025. The "low case" projects 5% annual growth, reaching 747 MW by 2025. The "high case" allows for more rapid industrialization, and has peak demand increasing at 9% per year to reach 981 MW in 2025.

In terms of energy, the expected, low and high case forecasts for 2025 are 5.1 TWh, 4.6 TWh and 6.0 TWh respectively.

Please refer to Issue 13 of the PWP 7-year statement for further details of the electricity demand forecasts and how PWP plans to ensure sufficient contracted capacity will be available to meet forecast demand for electricity and related water.

Approved Projects and Capital Expenditure: 2018

Licensed system operators (OETC, MEDC, RAEC, Mazoon, Majan and DPC) approved 357 projects in 2018, with a total value of OMR 184.4 million. The following figure presents details of the approved projects by Licensee, region and value.

Figure 14: Project Approvals by Licensees in 2018

Region		OETC*	MEDC	MZEC	RAEC	DPC	MJEC	Totals	Total %
Muscat	RO	16,012,918	38,725,190					54,738,108	29.7%
Dhofar	RO	213,905			10,834,282	22,401,799		33,449,986	18.1%
Buraimi	RO						4,535,277	4,535,277	2.5%
Musanadam	RO				755,707			755,707	0.4%
Al Dahirah	RO	13,792,680		5,709,090	401,232		7,577,154	27,480,155	14.9%
Al Wusta	RO				18,822,575			18,822,575	10.2%
AL Dakhiliya	RO			2,228,344				2,228,344	1.2%
AL Batinah	RO	10,843,750		4,170,859			9,563,711	24,578,321	13.3%
AL Sharqia	RO			13,276,148	1,432,017			14,708,165	8.0%
Other*	RO	1,154,469			639,877		1,293,769	3,088,114	1.7%
Total Value		42,017,721	38,725,190	25,384,441	32,885,691	22,401,799	22,969,911	184,384,754	
% of Total		22.8%	21.0%	13.8%	17.8%	12.1%	12.5%		
Number of Projects		33	35	18	20	236	15	357	

Source: Company returns
Other : include material costs and any other costs that are general to the whole region, not specific to one region

OETC accounts for 22.8% of approved projects by value, which reflects the significant investment made to connect and transport electricity from production facilities. MEDC accounts for 21.0% of projects value, RAEC 17.8%, Mazoon 13.8% , Majan 12.5% and DPC 12.1%
In terms of regional investment, Muscat region accounts for 29.7% (OMR 54.7 million) due to significant network investments by OETC and MEDC in this region. All regions benefited from ERWS sector investment in 2018 in line with the government's policy commitment to provide electricity and related water services throughout the Sultanate

EWS Employment & Omanisation: 2017 and 2018

The Authority undertakes an annual survey of the electricity sector employment and Omanisation. The survey provides information on Direct and Indirect (contractor) employment by entity, by grade, by regulated activity, by region, and by nationality (Omani nationals and expatriates).Table 2 summarises the results of the 2018 survey

Figure15: Total EWS Employment by Type, Nationality and Function: 2017 & 2018

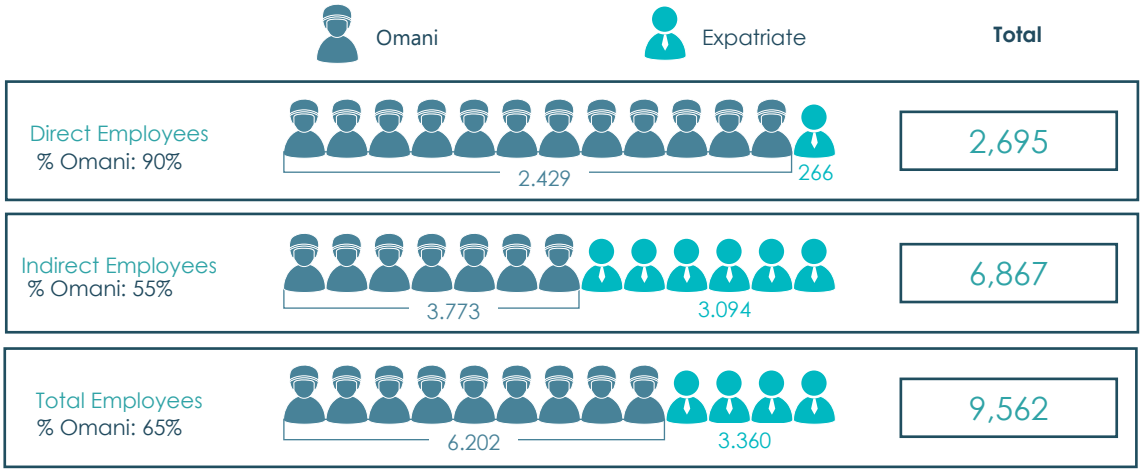
		2017			2018		
	Function	Omani	Expatriate	Total	Omani	Expatriate	Total
Direct	Admin & Supervisory	905	51	956	793	51	844
	Managerial	240	54	294	263	56	319
	Operations	417	28	445	417	43	460
	Technical	871	104	975	753	92	845
	Others	119	9	128	203	24	227
Direct Total		2,552	246	2,798	2,429	266	2,695
	Function	Omani	Expatriate	Total	Omani	Expatriate	Total
Contractor	Admin & Supervisory	226	289	515	455	374	829
	Managerial	135	107	242	158	79	237
	Operations	968	747	1,715	1,407	535	1,942
	Technical	325	965	1,290	382	1,415	1,797
	Others	1,262	799	2,061	1,371	691	2,062
Contractor Total		2,916	2,907	5,823	3,773	3,094	6,867
Total Employment		**5,468**	**3,153**	**8,621**	**6,202**	**3,360**	**9,562**
% Change from 2017					**13.4%**	**6.6%**	**10.9%**

Source: Authority 2018 employment survey

In 2018 the Direct employment was 3.7% lower than in 2017. Indirect employment in 2018 (6,867) was 17.9% higher than the previous year. Since 2005, total (Direct and Indirect) employment has almost doubled from 4,796 to 9,562 in 2018, with direct employment accounting for 33.9% of this increase.

The figure below presents the 2018 Omanisation rates for Direct and Indirect employment.

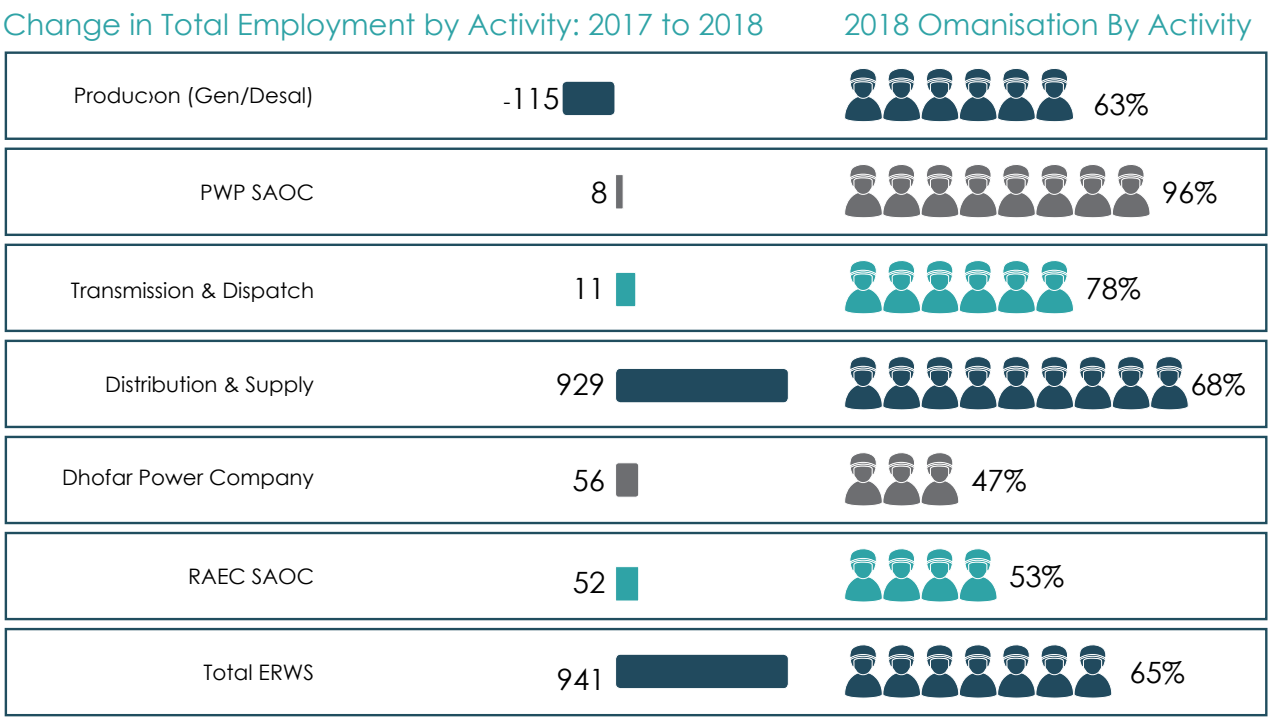
Figure 16: ERWS Employment & Omanisation - 2018



Source: Authority 2018 employment survey

Omani nationals accounted for 90% of Direct employment in 2018 and for 55% of Indirect employment, contributing to a sector Omanisation rate of 65%. The Authority's annual employment survey highlights changes in the underlying composition of electricity sector employment; these are shown in the following figure.

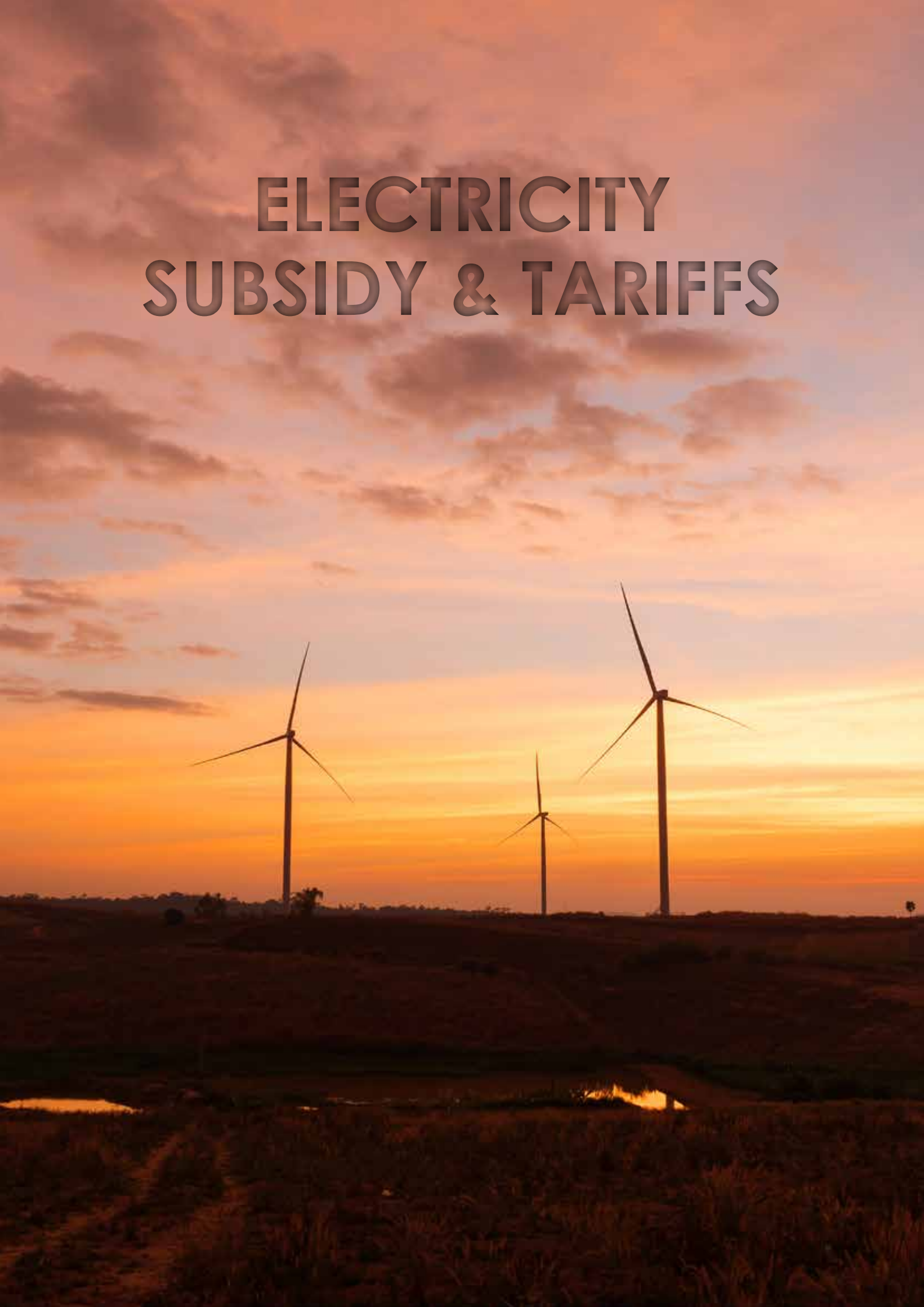
Figure 17: Employment & Omanisation by Activity: 2018



Source: Authority 2018 employment survey

The increase in 2018 electricity sector employment (shown in above-figure) reflects the continuing employment needs of a growing sector. It shows a significant increase of 941 staff from 2018, primarily from indirect (sub-contractor) staff in the Distribution network business. Working along with relevant bodies, the Authority will wish to ensure the promotion of further employment opportunities for Omanis in the electricity sub-contractor businesses.

ELECTRICITY SUBSIDY & TARIFFS



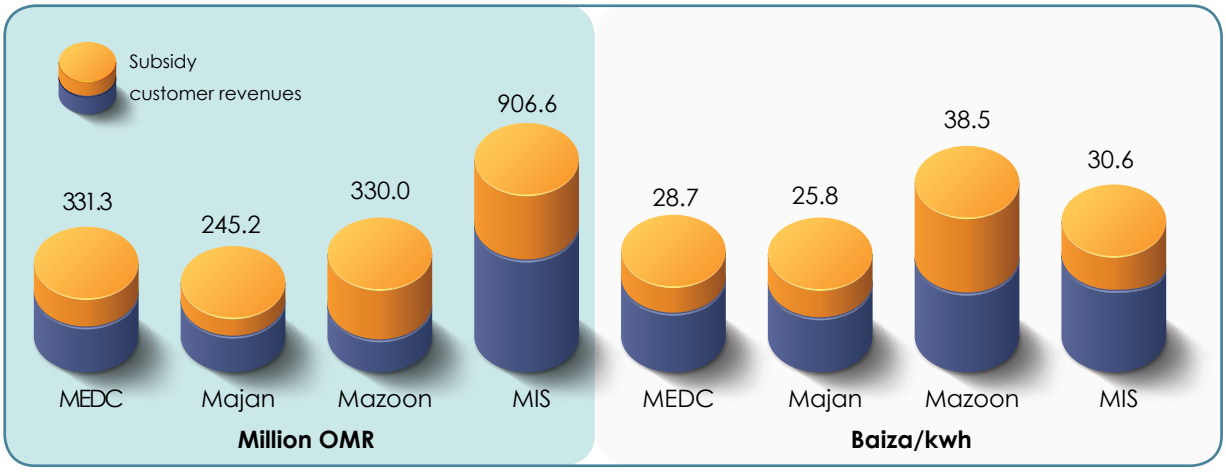
ELECTRICITY SUBSIDY

Article (18) of the Sector Law implements a mechanism through which the Ministry of Finance provides electricity Subsidy calculated by the Authority to licensed suppliers on an annual basis. The Authority undertakes three separate Subsidy calculations: (i) Main Interconnected System Subsidy (required by MEDC, Majan and Mazoon); (ii) Dhofar Power System Subsidy (required by DPC); and (iii) Rural Systems Subsidy (required by RAEC). Subsidy is defined as the difference between the economic cost of supply (including financing costs) and Permitted Tariff (and other) revenue.

MIS Subsidy in 2018

Outturn MIS Subsidy in 2018 was OMR 418.0 million. This reflects total economic costs of OMR 906.6 million and customer revenues of OMR 488.6 million.The Figure below presents outturn MIS Subsidy in 2018 by company.

Figure 18: 2018 MIS Outturn Subsidy by Company



	Million OMR				Baiza/kwh			
Item	MEDC	Majan	Mazoon	MIS	MEDC	Majan	Mazoon	MIS
Customer Revenue	204.6	153.0	131.0	488.6	17.7	16.1	15.3	16.5
Subsidy	126.7	92.2	199.0	418.0	11.0	9.7	23.2	14.1
Economic Cost	331.3	245.2	330.0	906.6	28.7	25.8	38.5	30.6
Subsidy % Economic Cost	38%	38%	60%	46%	38%	38%	60%	46%
Company share of Subsidy	30%	22%	48%	100%				

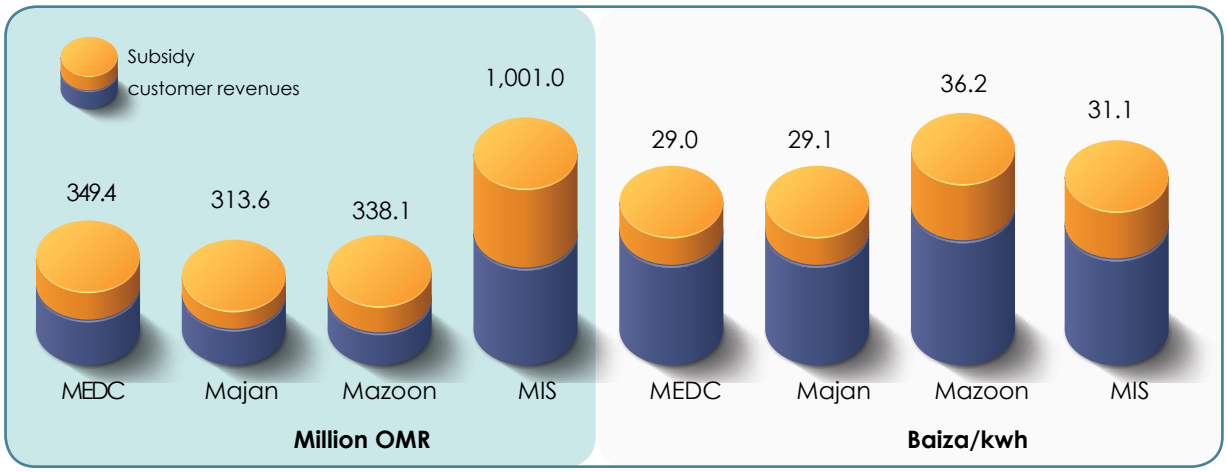
Source: 2018 audited SCRC Statements & Authority calculations

2018 MIS Subsidy accounted for 46% of the total economic cost of supply (OMR 906.6 million), the remaining 54% of costs was recovered through customer revenue. MEDC, Majan and Mazoon accounted for 30%, 22% and 48%, respectively, of total 2018 MIS Subsidy. Mazoon's 2018 Subsidy of OMR 199.0 million accounted for 60% of its total economic cost requirements, while Subsidy to Majan and MEDC (OMR 92.2 million and OMR 126.7 million respectively) constituted 38% of their respective 2018 economic costs. The Subsidy requirement of each company reflects differences in customer mix and the characteristics of their respective distribution systems.
Please refer to Annex D for further details of the 2018 MIS outturn Subsidy.

2019 MIS SUBSIDY FORECAST

The Authority's estimate of 2019 MIS Subsidy is OMR 457.9 million. This reflects total estimated economic costs of OMR 1,001.0 million of which 54% (or OMR 543.1 million) is expected to be recovered through customer revenues.

Figure 19: Subsidy Forecast - Main Interconnected System 2019



	Million OMR				Baiza/kwh			
Item	MEDC	Majan	Mazoon	MIS	MEDC	Majan	Mazoon	MIS
Customer Revenue	218.6	179.7	144.9	543.1	18.2	16.7	15.5	16.9
Subsidy	130.8	133.9	193.2	457.9	10.9	12.4	20.7	14.2
Economic Cost	349.4	313.6	338.1	1,001.0	29.0	29.1	36.2	31.1
Subsidy % Economic Cost	37%	43%	57%	46%	37%	43%	57%	46%
Company share of Subsidy	29%	29%	42%	100%				

Source: 2018 audited SCRC statements and Licensee returns

The Authority's estimate of 2019 MIS Subsidy requirement is 9.6% higher than 2018 outturn Subsidy, reflecting 1) an expected growth in supply of 8.6%; 2) commencement of full commercial operation of two new power plants (Ibri IPP and Sohar IV IWPP) with a combined capacity of 3283 MW; and 3) new 4-year Transmission and Dispatch price controls effective from 1 January 2019.
Please refer to Annex D for further details of the 2019 MIS Subsidy estimate

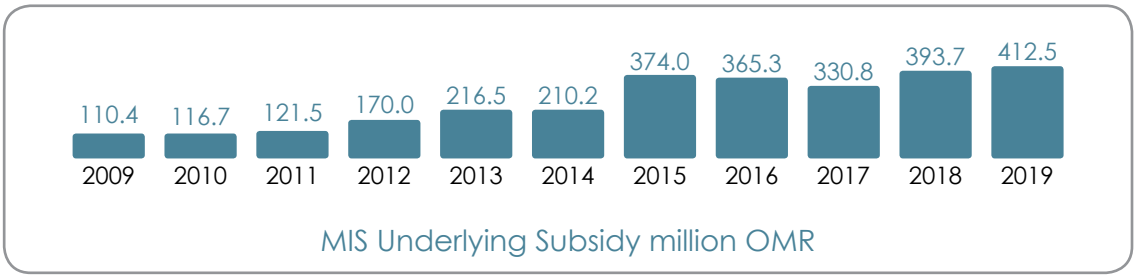
UNDERLYING MOVEMENT IN MIS SUBSIDY:2009 TO 2018, AND 2019 ESTIMATE

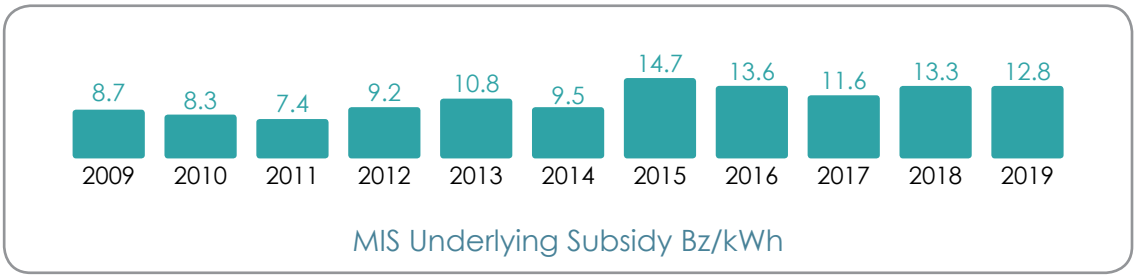
The following figure presents the Authority›s underlying measure of MIS Subsidy between 2009 and 2018 and expected MIS Subsidy in 2019. The underlying measure assumes revenue, costs and efficiencies were correctly forecast between 2009 and 2018 so as to return zero correction factors. The 2019 estimate of MIS Subsidy reflects the 2019 MAR of PWP, OETC, MEDC, Majan and Mazoon and assumed growth in Supply of 8.6%.

Figure 20: Underlying Movement in MIS Subsidy: 2009 to 2018 & 2019 Forecast

Economic Cost (OMR m)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019e
PWP (MAR excluding Kt)	177.6	198.3	222.5	249.6	295.4	312.0	498.5	504.5	522.8	551.4	583.3
OETC (MAR excluding Kt)	38.5	41.4	44.0	46.9	65.2	68.6	73.9	74.1	73.2	73.4	101.8
MEDC (MAR excluding Kt)	32.3	34.9	38.8	55.8	59.2	62.6	64.7	67.8	67.9	78.0	82.7
Majan (MAR excluding Kt)	26.0	28.0	30.8	40.8	42.1	44.4	53.1	50.6	53.5	67.0	72.3
Mazoon (MAR excluding Kt)	37.5	41.2	45.2	63.3	65.8	68.5	82.8	83.8	87.9	112.5	115.5
Underlying Economic Cost	311.9	343.8	381.3	456.4	527.7	556.1	773.0	780.8	805.3	882.3	955.7
Permitted Tariff (& other) Revenue	201.5	227.1	259.9	286.4	311.2	345.9	399.0	415.5	474.5	488.6	543.1
Underlying Economic Subsidy Requirement	110.4	116.7	121.5	170.0	216.5	210.2	374.0	365.3	330.8	393.7	412.5
Total Units Supplied (GWh)	12,714	14,122	16,374	18,502	20,021	22,098	25,513	26,843	28,582	29,624	32,163
Nominal											
Underlying Economic Cost per kWh Supplied	24.5	24.3	23.3	24.7	26.4	25.2	30.3	29.1	28.2	29.8	29.7
Customer Revenue per kWh Supplied (bz/kWh)	15.9	16.1	15.9	15.5	15.5	15.7	15.6	15.5	16.6	16.5	16.9
Underlying Subsidy per kWh Supplied (bz/kWh)	8.7	8.3	7.4	9.2	10.8	9.5	14.7	13.6	11.6	13.3	12.8
Real (2019 prices)											
Underlying Economic Cost per kWh Supplied	29.3	28.8	26.6	27.0	28.1	26.6	31.6	30.3	28.8	30.3	29.7
Underlying Subsidy per kWh Supplied (bz/kWh)	10.4	9.8	8.5	10.1	11.5	10.0	15.3	14.2	11.8	13.5	12.8

.Source: 2009 to 2018 audited SCRC Statement, Authority calculations



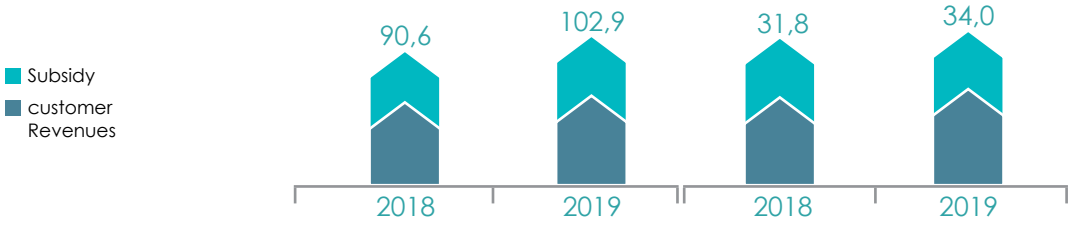


The level of underlying MIS Subsidy in 2018 (OMR 393.7 million) was 5.3% higher than 2015 (following the increase in gas price), compared to a 16% increase in units supplied over the same period. On kWh/basia, underlying subsidy declined (in real terms) by around 12% from 15.3 bz/kWh in 2015 to 13.5 bz/kWh in 2018.
The Authority estimates total underlying MIS Subsidy to increase by RO 18.8 million (or 4.8%) in 2019 and the per unit Subsidy to continue to decline (in both nominal, and real terms).

Dhofar Power System

Outturn DPS Subsidy in 2018 was OMR 43,0 million. This reflects a total economic cost of OMR 90,6 million and customer revenue of OMR 47,6 million. In 2018 DPS Subsidy accounted for 48% of the total economic cost of supply (OMR 90.6 million), the remaining 52% of costs was recovered through customer revenue.
The following figure compares outturn 2018 Subsidy and our 2019 estimate of DPC Subsidy.

Figure 21: DPS 2018 Outturn & 2019 Subsidy forecast



Item	2018	2019	2018	2019
Customer Revenue	47.6	54.8	16.7	18.1
Subsidy	43.0	48.1	15.1	15.9
Economic Cost	90.6	102.9	31.8	34.0
Subsidy % Economic Cost	48%	47%	48%	47%

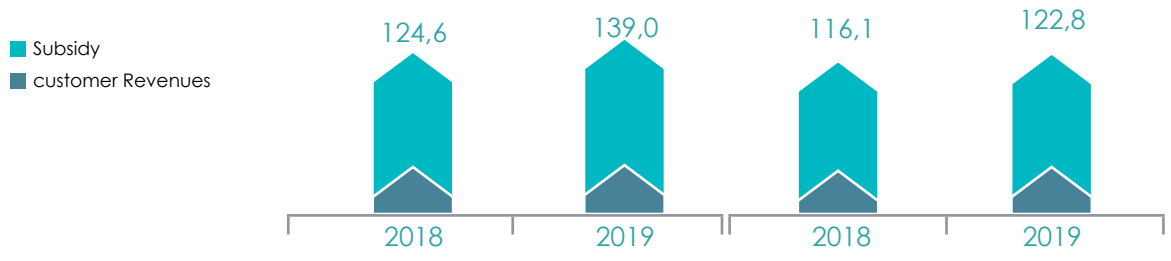
Source: 2018 audited SCRC Statements & Authority calculations

The Authority's estimate of 2019 DPS Subsidy is OMR 48.1 million, 11.9% (or OMR 5.1 million) higher than the outturn 2018 DPS subsidy. The Authority estimates that 53% (or OMR 54.8 million) of the total DPS economic cost will be recovered from customer revenue. Economic costs are expected to increase by 13.6% during the year, reflecting an increase in supply of 6% and commencement of full commercial operation of new generation capacity from the 718MW Salalah II IPP, while customer revenue is expected to increase by around 15.2%.
Please refer to Annex D for further details of the 2018 outturn DPS Subsidy and 2019 DPS Subsidy estimate

Rural Systems

Outturn RAEC Subsidy in 2018 was OMR 104.4 million (97.3 baiza/kWh). This reflects a total economic cost of OMR 124.6 million (116.1 baiza/kWh) and OMR 20.2 million (18.8 baiza/kWh) in customer revenue. Ther following figure compares outturn 2018 Subsidy and our 2019 estimate of RAEC Subsidy.

Figure 22: RAEC Outturn 2018 & Forecast Subsidy in 2019



Item	2018	2019	2018	2019
Customer Revenue	20.2	20.3	18.8	17.9
Subsidy	104.4	118.7	97.3	104.9
Economic Cost	124.6	139.0	116.1	122.8
Subsidy % Economic Cost	84%	85%	84%	85%

Source: 2018 audited SCRC Statements & Authority calculations

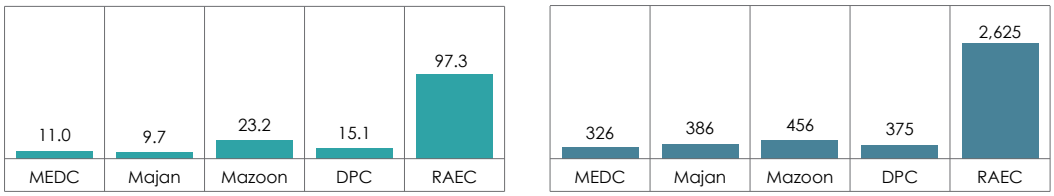
RAEC Subsidy is estimated to increase in 2019 to OMR 118.7 million (104.9 baiza/kWh); this is approximately 13.7% higher than outturn Subsidy in 2018. The increase in 2019 RAEC Subsidy is mainly driven by increases in electricity purchase costs as well as an expected increase in RAEC's fuel costs reflecting international market prices. As diesel fuel costs account for around 40% of RAEC's total economic costs, this has a direct and significant impact on the company's overall costs.

Please refer to Annex D for further details of the 2018 outturn RAEC Subsidy and 2019 RAEC Subsidy estimate.

Comparison of 2018 Subsidy by Company

The following figure presents a comparison of Subsidy provided to MEDC, Majan, Mazoon, RAEC and DPC in 2018. The left hand panel presents Subsidy (baiza) per kWh supplied, the right hand panel shows Subsidy (OMR) per Customer Account.

Figure 23: 2018 Subsidy Comparisons by Company



2018 Subsidy Baiza/KWh Supplied

2018 Subsidy OMR per Account

Item	MEDC	Majan	Mazoon	DPC	RAEC	MEDC	Majan	Mazoon	DPC	RAEC
Subsidy per KWh/Account	11.0	9.7	23.2	15.1	97.3	326	386	456	375	2,625
Subsidy OMR m	126.7	92.2	199.0	43.0	104.4	126.7	92.2	199.0	43.0	104.4
GWh/000 Accounts	11,538	9,507	8,579	2,851	1,073	389	239	437	115	40

Source: 2018 audited SCRC Statements & Licensee returns

Mazoon accounts for 35.2% of the OMR 565.4 million of Subsidy and financial support provided to the companies in 2018, MEDC accounts for 22.4%, Majan 16.3%, DPC 7.6%, and RAEC 18.5%.
RAEC Subsidy per kWh supplied and per account is significantly higher than other companies (and excludes RAEC electrification funding provided in accordance with Article (87) of the Sector Law), confirming the significant Subsidy support provided to customers in rural areas.
The Subsidy requirements of all companies reflect nominal increases in economic costs (to support increasing demand) and Permitted Tariffs that are not indexed to inflation and decline in real terms year on year.

Electricity Tariffs

Permitted Tariffs

Electricity supplied to consumers is charged at a Permitted Tariff approved by the Council of Ministers. Figure 1 presents details of the present Permitted Tariffs for different customer categories, and Permitted Tariff fees for the disconnection and reconnection of customer accounts.

Figure 24: Permitted Tariffs

Permitted Tariff Category	Tariff Structure (Bz/kWh)				
Industrial	All Regions except Dhofar			Dhofar Region	
	September to April: 12			August to March: 12	
	May to August: 24			April to July: 24	
Commercial	Flat rate @ 20 Baiza per KWh				
Ministry of Defense and the Sultan Special Forces	Flat rate @ 20 Baiza per KWh				
Residential	0-3000 kWh	3001-5000 kWh	5001-7000 kWh	7001-10000 kWh	above 10000 kWh
	10 Bz / kWh	15 Bz / kWh	20 Bz / kWh	25 Bz / kWh	30 Bz / kWh
Government	0-3000 kWh	3001-5000 kWh	5001-7000 kWh	7001-10000 kWh	above 10000 kWh
	10 Bz / kWh	15 Bz / kWh	20 Bz / kWh	25 Bz / kWh	30 Bz / kWh
Agriculture & Fisheries	0-7000 kWh			7001 kWh & above	
	10 Baiza per kWh			20 Baiza per kWh	
Tourism	0-3000 kWh	3001-5000 kWh	5001-7000 kWh	above 7001 kWh	
	10 Bz / kWh	15 Bz / kWh	20 Bz / kWh	20 Bz / kWh	
Note 1 Customers require a MOCI letter of recommendation and must maintain a power factor of least 0.9 **Note 2 Subject to Ministry of Tourism regulations and approval**					

B: Permitted Tariff fees for Disconnection & Reconnection of accounts
Disconnection fee (all types of metered accounts): 7.500 Rial Omani
Reconnection fee (all types of metered accounts): 7.500 Rial Omani

Cost Reflective Tariffs

Large Government, Commercial and Industrial customers whose annual consumption exceeds 150,000 kWh are charged at Cost Reflective Tariffs for their electricity consumption. As the name implies, Cost Reflective Tariffs do not include any element of subsidy and is designed to more accurately reflect the actual costs of electricity supply. The figure presents the component elements of the Cost Reflective Tariffs and sets out the approved 2019 charges of each componentaccounts.

Figure 25 : Cost Reflective Tariffs

Cost Reflective Tariff = BSTt + Tt + Dt + St

Where

BST_t	is the cost of energy charged at the electricity Bulk Supply Tariff in year t;
T_t	is a transmission use of system charge;
D_t	is a distribution use of system charge; and
S_t	is a charge for the administrative cost of supply

[1]not applicable to transmission connected customers

Figure 26: Approved 2019 CRT charges

CRT component	Charge	Type of Charge	Calculation of charge
BST_t	See Table 2	Energy	Applied to hourly kWh consumption
T_t	15,700 RO/MW	Demand	Charge per annum applied to customer's contribution to system peak
D_t	7.0 RO/MWh	Energy	Applied to each kWh consumption
S_t	50 RO/customer	Standing	Charge per account per annum for administering each customer account

Source: AER approved charges

Charges for subsequent calendar years will be revised based upon changes in underlying production costs as well as transmission, distribution and supply costs.

Electricity and Water Bulk Supply Tariffs

Electricity Bulk Supply Tariffs ("BST") relate to the tariff charged by PWP for the Bulk Supply of electricity to Licensed Suppliers in the MIS (MEDC, Majan, and Mazoon) and DPS. The approved 2019 PWP electricity Bulk Supply Tariffs are shown in the following figure.

2019 Electricity Bulk Supply Tariffs

Figure 27 Electricity Bulk Supply Tariff for MIS - 2019

	Off-Peak	Night-Peak	Weekday Day-Peak	Weekend Day-Peak
Jan – Mar	12.0	12.0	12.0	12.0
Apr	14.0	14.0	14.0	14.0
May - Jul	16.0	25.0	67.0	36.0
Aug - Sep	16.0	22.0	26.0	20.0
Oct	14.0	14.0	14.0	14.0
Nov - Dec	12.0	12.0	12.0	12.0

Source:PWP 2019 Electricity BST Leaflet for MIS

Figure 28 Electricity Bulk Supply Tariff for DPS - 2019

	Night - Peak		Off-Peak Morning	Day - Peak		Off-Peak Afteroon
	Weekday	Weekend	All Days	Weekday	Weekend	All Days
Jan – Mar	12.0	12.0	12.0	12.0	12.0	12.0
Apr	29.0	20.0	15.0	20.0	15.0	15.0
May - Jul	48.0	29.0	26.0	45.0	23.0	23.0
Aug - Sep	15.0	13.0	12.0	12.0	12.0	12.0
Oct	19.0	15.0	13.0	15.0	13.0	15.0
Nov - Dec	12.0	12.0	12.0	12.0	12.0	12.0

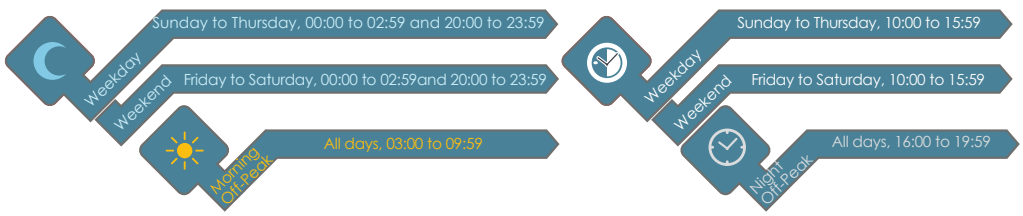


Figure 29: Electricity Bulk Supply Tariff for Musandam - 2019

	Charge	(Baiza/ kWh)
Jan – Mar	6,400	15,198
Apr	11,300	15,198
May - Jul	26,600	15,198
Aug - Sep	19,000	15,198
Oct - Dec	6,500	15,198

Source: PWP 2019 Electricity BST Leaflet for Musandam

The Authority also approves water Bulk Supply Tariffs charged by PWP and RAEC for the Bulk Supply of water to Water Departments. The figure below shows the approved 2018 PWP and RAEC water Bulk Supply Tariffs.

Figure 30:: PWP and RAEC 2018 Water Bulk Supply Tariffs

A Charges for Bulk Supply to PAEW Rate

Fixed charge for Water Desalination Capacity
Rate: OMR 0.208 per day per m3/day

	On Peak	Off Peak
Jan – Mar	0.091	0.091
Apr	0.101	0.101
May - Jun	0.309	0.119
Jul- Aug	0.147	0.114
Sep - Oct	0.101	0.101
Noc - Dec	0.091	0.091

On Peak (13:00 to 16:59 Daily)

Off-Peak (00:00 to 12:59 and 17:00 to 23:59 daily)

Source: PWP 2019 Water BST Leaflet

B Charges for Bulk Supply to WDGD

Fixed charge for Water Desalination Capacity
Rate: OMR 0.273 per day per m3/day

	On Peak	Off Peak
Jan – Mar	0.091	0.091
Apr	0.142	0.105
May - Jun	0.225	0.151
Jul- Aug	0.096	0.091
Sep - Oct	0.110	0.100
Noc - Dec	0.091	0.091

On Peak (00:00 to 03:59 and 15:00 to 16:59 Daily)

Off-Peak (04:00 to 14:59 and 17:00 to 23:59 Daily)

Source: PWP 2019 Water BST Leaflet

Charges for Bulk Supply to MISC

	Rate
Variable charge for Distillate Water Supplied to MISC	OMR 1.0273 to 0.3240 per day per m3/day

Source: PWP 2019 Water BST Leaflet

RAEC Water Bulk Supply Tariff - 2019

	Rate
RAEC Water Bulk Supply Tariff of a capacity charge	OMR 0.521 per m3/day
RAEC Water Bulk Supply Tariff of a variable charge	0.568 OMR/m3

Source: PWP 2019 Water BST Leaflet

OETC levies a Transmission Use of System ("TUoS") charge for the use of its Transmission Systems in the MIS (MEDC, Majan and Mazoon) and DPS. The approved 2019 TUoS for both MIS and DPS are shown in Table 4 below.

Figure 31: 2018 Transmission Use of System Charge

	System	
OMR/MW	**MIS**	**DPS**
2019 TUoS Charge	15,700	15,700

Source: OETC 2018 Statement of Transmission System Charges

The TUoS charge is applied to Licensed Suppliers' (MW) share of system peak demand.

Distribution Use of System Charge

Licensed Distribution companies apply a Distribution Use of System ("DUoS") charge for the use of their respective Distribution Systems. The approved 2018 DUoS charge for each distribution company (MEDC, Majan, Mazoon and DPC) are shown in Table 5 below.

Figure 32: 2018 Distribution Use of System Charges

	Company			
OMR/MWh	**MEDC**	**Majan**	**Mazoon**	**DPC**
2019 DUoS Charge	5.618	8.872	11.100	8.845

Source: Licensed Distribution companies' 2019 Distribution Use of System Methodology and Charging Statement

The above charges apply in respect of each MWh supplied through the respective Distribution System.

Electricity & Related Water Sector Issues

ELECTRICITY & RELATED WATER SECTOR ISSUES IN 2018

Health and Safety

Pursuant to its duties under the Sector Law, the Authority continued its efforts to increase awareness of the importance of health and safety in a number of ways, including:

A. Continuing routine inspections of licensee assets in public areas to identify unsecure and potentially unsafe installations, issuing fines to ensure improvement;
B. Conducting a health and safety review of Shinas Generation Company following two fatal accidents to inform a decision regarding the grant of a generation licence;
C. Investigated the underlying safety performance of the Izki-Misfah 400kV project following two similar fatal accidents; and
D. Conducting a health and safety audit of OPWP.

Fatal Accidents

Despite the increased efforts to improve safety across the electricity sector, the number of fatal injuries continued to be a concern in 2018. Regrettably, lives are still lost by people working in the electricity sector, with five deaths reported to the Authority in 2018.

: Summary of Fatal Incident Investigations by the Authority - 2018

Date	Location	Licensee	Incident
25 January 2018	Sohar	SGC	A contractor was killed when he became entangled in a travelling crane mechanism.
26 April 2018	Sohar	SGC	A contractor sustained mortal arc-flash burns whilst working in an electrical panel.
14 May 2018	Misfah	OETC	A contractor was killed when his vehicle lost control and fell off a construction access road.
14 July 2018	Al Dasur	OETC	A contractor was killed when his vehicle lost control and rolled over on an access road.

The Authority was also informed by RAEC that one fatality occurred on 24th February 2018 at Al Mazyounah. However, investigations to date have not been able to confirm the exact nature of the work the deceased was engaged in as the contractor claimed he was working for a different client at the time. This case is still with the office of the Public Prosecution.

Health and Safety Review of Shinas Generation Company

Following two fatal accidents in three months on the new Sohar IPP project, the Authority conducted a health and safety review of the project company. SGC and its shareholders engaged fully with the Authority and significant improvements were delivered.

Health and Safety Review of Izki-Misfah 400kV line project

Following two fatal accidents in three months on the Izki-Misfah 400kV line project, the Authority conducted a health and safety review of the project. OETC engaged fully with the review and, in collaboration with the main contractor, has implemented a number of initiatives to reduce the risks associated with line construction in mountainous areas. A key step has been to increase the importance of health and safety during tender evaluation stage so that minimum acceptable level must be passed as part of the technical assessment.

Health and Safety Audits of OPWP, OETC and DPC

The Authority completed a health and safety audit of OPWP. The audit identified some areas of good practice but also areas where significant improvements could easily be made.

The Authority also undertook initial works required to conduct health and safety audits of OETC and DPC in 2019.

Review and update of OES4 –Regulations for Electrical Installations

The Authority conducted a comprehensive review, revision and update to OES4, regulations for electrical installations in Oman. The work that was supported by consultants GHD included extensive consultation and site inspections. The revised OES4 is presently going through the formal legal process before being implemented.

Power System Protection Capability – Appropriate Person Audits

As noted in previous Annual Reports, the Authority has been following up the status of the power system protection capability pursuant to the Appropriate Person Criteria. In 2018, the audits were a more detailed assessment of the two companies had not met the required standard. The Authority was pleased that MEDC had continued to make excellent progress and had built on the positive steps noted in previous years. As a result of the audit MEDC was judged to have met the standard of an Appropriate Person.

Regrettably, RAEC had made no meaningful progress and the audit seemed to be the catalyst for the business to take action. This is alarming and disappointing, but at the end of 2018 RAEC eventually started to restart initiatives that had seen no progress since 2015. The Authority shall monitor steps taken by RAEC to make the necessary improvements through 2019 and 2020.

Energy Efficiency Program and Certified Energy Auditor Training

The Authority was assigned the responsibility for setting up and implementing energy efficiency in the Sultanate and since then the Authority took a number of tasks.

During 2017 & 2018, the Authority conducted Energy Building Audits for 5 Governmental buildings to understand the electricity consumption patterns and to find measures and solutions to improve the efficiency in these buildings.

One of the main recommendations resulted from the audits was to utilize Energy Services Companies (ESCOs) to improve the consumption efficiency. ESCOs and energy auditors are not exist in Oman and therefore the Authority conducted a training course to qualify a number of local Omanis to be Certified Energy Auditors (CEA). More than 600 applications were received in response to the announcement of this training and 50 were selected who meet the requirements. The Authority in collaboration with the Association of Energy Engineering (AEE) from USA conducted the CEA training in September 2018. 22 passed the exam and gained the CEA certification to perform energy audits in Oman. Those local CEAs will be provided with further walkthrough audits during the preparation phase of ESCO market and to utilize their services at later phases of the energy efficiency program "Yaseer".

The objective of the first phase of Yaseer program is to achieve long-term reduction of energy consumption and operational costs in Government buildings, which is expected to be met by auditing and retrofitting 70% of Government buildings falling under CRTs by 2023 by appointing Energy Services Companies (ESCOs).

Regulatory Focus (1) International best practices for PEV adoption in Oman

The Authority for Electricity Regulation, (the Authority) engaged Energy and Environmental Economics, Inc. (E3) and its subcontractor Baringa Partners (Baringa) to report on international best practices for plug-in light-duty vehicles (PEVs) and provide a series of recommendations as Oman prepares for electric vehicle penetration. The findings of the study are summarized below.

Though PEVs currently carry a higher upfront cost than conventional internal combustion engine (ICE) vehicles, the study suggests that:

- Even at cost reflective electricity prices, PEVs are expected to have lower fuel and maintenance costs relative to ICE vehicles and are likely to be attractive to drivers on an economic basis;
- If PEVs are encouraged to charge during off-peak periods there could be benefits to all electricity ratepayers through enhanced efficiency in the use of the electricity networks; and PEVs can reduce carbon dioxide emissions, improve local air quality, and reduce noise pollution.
- Though wide-scale adoption may lag other markets, Oman will not be immune to these forces, regardless of whether Oman implements clear PEV policy targets. As PEV adoption increases in Oman, appropriate public and private charging infrastructure must be available.

At present, PEVs charge at 3 "levels." Level 1 uses a regular electric outlet and the charging connector, provided with the vehicle, provides up to 8 km of range per charge hour. Level 2 uses higher powered (7 to 22 kW) electric vehicle service equipment (EVSE) and is popular for home, work places, malls, cinemas, parks and hotels. Level 2 charging provides up to 100 km of range per charge hour. Level 3 (DC fast charging or DCFC) achieves an 80% charge in under 30 minutes. Recently, "ultra-fast" DCFCs have been developed that can support 350 kW charging and are claimed to provide "200 km (of electric range) in 8 minutes." DCFC equipment has so far mainly been installed for public charging of personal vehicles and re-charging of electric rental car/taxi fleets. Even with these improvements PEVs face barriers such as:

- Lack of suitable PEV models (potentially a significant issue for Oman due to the preference for larger vehicles, the small size of the market and extreme heat conditions);
- Insufficient charging infrastructure and driver range anxiety;
- Limited awareness and enthusiasm;
- Upfront cost premium of PEVs compared with internal combustion engine vehicles; and Lack of dealer incentives to sell PEVs.

The first of these will likely delay widespread PEV adoption in Oman for at least a few years, but is expected to diminish as larger vehicles become available in the GCC region.

PEV charging involves four key functions: service connection, make-ready (panel plus customer wiring), provision of EVSE activities (equipment selection, investment, installation, ownership, hosting, and maintenance), and billing. The distribution utility typically provides the service connection, including metering. Entities carrying out the other functions differ by charging location and level. PEV customers charging vehicles in private locations typically pay regulated electricity rates. Some utilities in Europe and North America offer PEV-specific time-of-use (TOU) rates designed to be more attractive than default rates if charging is carried out during off-peak periods. In the Middle East, there are no specific rates for PEV usage, though TOU rate structures are used to provide similar load signals for large industrial and commercial customers.

In order to promote competition and innovation and reduce stranded cost risks regulators have largely concentrated on enabling private sector investment, though public sector investment has been used in some areas to stimulate initial adoption. The outcome for a given jurisdiction is driven by the regulator's views on competition; the availability of government and utility capital; the

utility's ability to raise the necessary funds; and the presence of committed EVSPs that are expected to maintain installed assets over the long term. Jurisdictions actively promoting PEV adoption do so in a variety of ways. Some have established PEV adoption targets; others have proposed bans on the sale of new internal combustion vehicles by a future date. Measures taken to improve the experience of PEV drivers include:

- Regulations requiring that all charge points accessible to the public be usable by anyone without the need to enter into a pre-existing contract, offer non-discriminatory prices, and be compatible with all vehicles;
- Standardizing roadway signage and development of public databases to help drivers (and app developers) to locate public charging facilities; and
- Restrictions on the use of PEV parking areas by ICE drivers and arrangements to ensure that PEV drivers only occupy spaces for the necessary or reserved period of charging time.
- With respect to vehicle compatibility in Oman, the GSO Final Draft of Standards document lists the Type 2 European connector as the standard for AC connectors and it is likely that this will be deployed in Oman. Connectors utilized for DCFC are CHAdeMO, CCS, Tesla, and the Chinese GB/T connector. Because these differ by automobile manufacturer, the availability of both CHAdeMO and CCS EVSE will be necessary in Oman.

Lastly, technology plays a prominent role and light-duty transportation is likely to be affected by two trends that are intertwined with vehicle electrification: shared mobility (the increasing share of passenger kilometers coming from shared, on-demand travel modes such as those provided by Uber, Lyft and Scoop); and automation (the increasing market share of driver-assist and self-driving vehicle features). These have the potential to dramatically change the transportation and energy sectors. The outlook for Oman is however unclear and they are not yet being tested. The Supreme Council for Planning (SCP) is investigating their long-term potential but in the short term, SCP, Municipalities, the Ministry of Transportation and Communication, the Authority and others should focus on learning from experiences in other jurisdictions. In some markets there are concerns in relation to the impact of PEV charging on power quality, such as harmonic distortion, phase unbalance, and transformer overloading.

The report sets out a prioritised list of preparations that can be made by the Authority and other Oman government entities during the next 1-3 years, whilst attractive PEV models for the Oman market continue to be developed. In summary, those are as follows:

The Authority should continue to promote a high quality and active stakeholder debate in relation to PEV adoption in order to ensure that measures taken in the electricity sector are timely and appropriate;

The Authority should confirm that the roll-out of EVSE infrastructure will not require EVSPs to be licensed and that prices charged by EVSPs will not be regulated, subject to adherence to appropriate safety and technical standards, which will be discussed with the Ministry of Commerce and Industry;

The Authority should further assess the plans of EVSPs in relation to entry to the Oman market and, dependent upon those discussions, should further assess the costs and funding of a limited roll-out of public charging DCFC infrastructure on a demonstrator strategic corridor route;

The Authority should review the options in relation to charging for electricity provided to residential users with separately metered PEV charging facilities, including the potential benefits of TOU pricing signals designed to minimize the impact on peak generation and network capacity; The Authority should encourage Distribution companies to assess and prepare for the impacts of PEVs on their networks, including through staff development and awareness raising, development of load growth forecasts and preparation of customer guides in relation to connection, installation and safe use of private and public charging facilities; and The Authority should continue to monitor data privacy and security concerns in relation to PEV adoption in other markets and ensure that Oman's electricity networks and customers are adequately protected.

REGULATORY FOCUS (2): CUSTOMER SATISFACTION INCENTIVE SCHEME

The Authority's duty to protect the interests of electricity customers in Oman requires it to ensure that an appropriate level of customer service is achieved by the Licensees. Considering all the tools and resources available to them. Historically, this has been an area of concern for the Authority particularly in the critical areas of meter reading, billing, complaint handling and customer connections.

As part of the previous Price Control Review, the Authority developed a set of Key Performance Indicators ("KPIs") related to customer service to measure the Licensees' performance. Due to data limitations at the time the Authority introduced only reputational (i.e. reporting) rather than financial incentives attached to these KPIs.

Given the large investment and improvement in the information systems of the Licensees, the Authority decided to implement a new incentive scheme that links the customer service KPIs to financial reward / penalty for each Licensee as part of (2018 – 2021) Price Control. The KPI criteria used in the incentive scheme was refined by the Authority to include the following:

Key Customer Issue	KPI
1. Meter reading	a) Percentage of customers whose meters are read according to schedule
2. Billing	a) Percentage of customers whose bills are delivered each month
3. Complaint handling	a) Responding to complaints b) Customer satisfaction with complaint handling
4. Customer connections	a) Providing a substantive response to applications for simple connection b) Completion of connection for simple, small loads, not requiring network extension c) Completion of connection for all simple small load connections requiring network extension and all large load and complex connections

The performance of the Licensee in each one of these KPIs would be scored on a scale from zero to three and the results would be combined to derive a single composite Customer Satisfaction performance score. The Licensee's score would then be compared to the Customer Satisfaction Incentive scheme target set by the Authority to determine the financial reward / penalty of each Licensee.

The Authority decided to set a Customer Satisfaction Incentive scheme target equal to 2.40. This score was considered to provide an appropriate incentive to the Licensees to achieve a level of customer service that is valued by customers and one which, based on the Licensees' current and projected performance against measured KPIs, was considered to represent an achievable challenge for the Licensees. This target has also been set to achieve a balance between the risks and rewards of the incentive.

Depending on the Licensee's performance in relation to this Customer Satisfaction Incentive scheme, Licensees would face a financial penalty / reward through the Price Control framework that would be set with reference to total allowed revenues of the supply business.

The Distribution and Supply Licences were amended (as part of revised Schedule Charge Restriction Conditions) to include the annual calculation of the revenue adjustment associated with the Customer Satisfaction Incentive scheme. Licensees will be expected to audit their reported performance in relation to the Customer Satisfaction Incentive scheme using appropriately qualified and experienced auditors and an audit methodology approved by the Authority.

ARTICLE (29) REPORTING

Further Market Liberalisation

Table 4 presents the Authority's assessment of the possible implementation of the four Liberalisation measures identified in the Sector Law.

Table 4: Further Market Liberalisation

Liberalisation measure	Authority's assessment of market readiness:
Disposal of the Government's interest in the Electricity Holding Company SAOC or the Oman Power and Water Procurement Company SOAC	**The Authority supports the Government's decision to dispose of a proportion of its interest in the Electricity Holding Company** The Authority supports the Government's decision to dispose of assets it holds (through the Electricity Holding Company) in the transmission and distribution and supply licensees. The Authority worked during 2018 to assist the Electricity Holding Company and its consultant advisors with clarifications in relation to the Authority's statutory responsibilities and the statutory restrictions set out in the Sector Law and to ensure that the privatisation process could be undertaken in a manner that recognised them.
Permitting licensed Production Facilities to sell to persons other than Oman Power and Water Procurement Company SAOCC	**The Authority does not consider the market ready for this liberalisation measure.** The programme of work to develop a (compulsory) spot market that will enable licensed Production Facilities to sell power (to the PWP) at a price set by a market based mechanism continues. The Authority is participating actively in detailed discussions relating to the market rules and by developing the associated regulatory instruments. To this end new licence conditions for generators were introduced from December. Spot market trials and system testing are expected to commence during the middle part of 2020, with the market fully operational approximately 6 months later. Although the spot market has been designed to provide the necessary economic signals to support further investment in Oman's generation sector, without the underpinning requirement for a long-term PPA with PWP, the market is designed as a compulsory pool. PWP would therefore continue to act as the single buyer of all electricity sold through the market, even if some sales would not be supported by long-term PPAs. Some have argued that there is potential for additional, direct, sales to take place between licensed or exempted producers and customers outside of the spot market mechanism and that this form of liberalisation would provide a stimulus to further investment, as well as providing an efficient solution for Oman as a whole and benefits to the concerned producers and customers. These are complex matters with a wide range of potential solutions, as well as a number of potential obstacles. The Authority intends to carry out a full review of these matters, whilst taking due account of the potential impacts on the development of the spot market, commencing in 2019.
Permitting persons other than Oman Power and Water Procurement Company SAOC and the Rural Areas Electricity Company SOAC to Import or Export electricity from or to another country	**The Authority does not consider the market ready for this liberalisation measure** Oman became a formal signatory to the GCCIA in 2014 and the Authority ensured the proposals are consistent with the regulatory regime in Oman and provide safeguards to protect the interests of customers, and other stakeholders. The GCCIA continues to consider its position in relation to the ownership of assets in Oman and may own and/or operate the interconnector connecting the OETC System with the System of the United Arab Emirates (Transco Abu Dhabi). Following finalization of these arrangements with the GCCIA, PWP will export and import electricity through the Interconnector, whereby the delivery point will be the interconnection point between OETC System and the Interconnector of the GCCIA.
Creation of competition amongst Licensed Suppliers	**The Authority believes the market is ready for Supply Competition and will initiate the Consultation and preparatory work required by the Sector Law prior to submitting proposals to government.** The Authority developed a high-level Blueprint for introduction of competition between licensed suppliers and the measures that could be implemented. The Authroity's review concluded that the introduction of competition between licence holders and new market entrants is feasible and that the building blocks for such an arrangement are now well established internationally. These include the establishment of common, centralised meter data management and customer registration systems; unbundling of distribution from network related activities undertaken by the present licensees; establishment of a licensing and supply obligations framework for new entrants; and arrangements to ensure the continuity of customer supply in the event of supplier market exit. The consultants also concluded that, subject to the continuing purchasing monopoly of PWP (constraining suppliers' ability to earn a margin on wholesale purchases) it would be desirable, in order to permit new entrants to establish viable businesses, that they be permitted to supply all types of customers and that the supply market be fully liberalised, subject to the required tests of the supplier systems, competence and resources. In addition, the new arrangements would need to take into account a number of specific circumstances of the Oman market: such as Government subsidy; the application of uniform tariffs; immature wholesale market development; and the privatisation programme for the State-owned Distribution companies. In the process of developing its proposals, the Authority will continue to be guided by the consultants' recommendations and will take account of relevant market developments, including in the wholesale market, in relation to Distribution company metering and data gathering arrangements, in relation to central data processing arrangements provided by NAMA Support Services (as part of the AMR programme) and in relation to the privatisation programme, as well as engaging with potential new entrants and existing operators.


REGULATION

REGULATION

Authority for Electricity Regulation, Oman

The Authority was established as an administratively and financially independent entity subject to State Audit Law by Article (19) of the Sector Law. The Authority is competent to regulate the electricity and related water sector pursuant to Article (2) of the Sector Law. Authority Members are appointed by the Council of Ministers for three year terms.


Eng Saleh bin Hamood Al Rashdi
Chairman and Non-executive Member (A part time appointment)


Qais bin Saud Al Zakwani
Executive Director and Member (A full time appointment)


Mohammed bin Ahmed Al Shahri
Non-executive Member
(A part time appointment)


Ayisha bint Zaher Al Mawali
Non-executive Member
(A part time appointment)


Hamed Ali Matar Al Jabri
Non-executive Member
(A part time appointment)

Organisation Structure & Staffing

While Members are collectively responsible for managing the Authority's affairs and ensuring the Authority fulfils all of its statutory functions and duties, most day to day work is undertaken by four Directorates that are responsible for different aspects of regulation.

Authority Organisation Structure

Excluding Members, the Authority has a total compliment of 57 Directors and staff, most of whom are Omani national. Professional staff have qualifications relevant to their respective areas of regulation: 30 staff have Bachelor's Degrees and 12 have Master Degrees.

Professional Development of Authority Staff

The Authority is committed to the professional development of Omani staff. In 2018, staff member of the Authority completed Masters Programmes. Salma Al Ismaili completed an MSc in Economics with Distinction at City University, London. Mohammed Al Tobi, Regulatory Engineer, is pursuing an MSc in Energy and Sustainability with Electrical Power in Engineering.

Members Meetings in 2018

	Eng Saleh Al Rashdi	Qais Al Zakwani	Ayisha Al Mawali	Mohammed Al Shahri	Eng Hamad Al Jabri
Appointed for term in:	Chairman & Member	Chairman & Member	Chairman & Member	Chairman & Member	Chairman & Member
Meeting Dates	May-2017	May-2017	May-2017	May-2017	March-2018
9-January-2018	✓	✓	✓	✓	☐
6-March-2018	✓	✓	✓	✓	☐
1-April-2018	✓	☐	✓	✓	☐
15-May-2018	✓	✓	✓	✓	✓
25-June-2018	✓	✓	✓	☐	✓
2-August-2018	✓	✓	✓	✓	✓
17-September-2018	✓	✓	✓	☐	✓
9-October-2018	☐	✓	✓	✓	✓
26-November-2018	✓	✓	✓	☐	✓

Funding & Regulatory Costs

The Authority recovers all of its costs through licence fees that apportion the Authority's costs on the basis of the time expected to be spent regulating each activity. Table 12 presents licence fee income by regulated activity and the number of Licence Holders by activity, for 2010 to 2018, inclusive.

Licenses Fees 2010 to 2018

		Generation	Generation & DeSALINATION	DeSALINATION	Transmission& Despatch	Distribution & Suppy	RAEC /activities	PWP Activites	PWP AElectricity	PWP : Related Water	PWP : Salalah	Generation Renewables	Total Fee income
2011	Fees	118,360	164,189		285,190	492,601	132,010	362,160	123,996	11,341	226,822	0	1,554,510
	#Licenses	4	5		1	3	1	1					15
2012	Fees	213,048	241,359		427,785	620,676	211,216	386,074	145,075	14,176	386,074	0	2,100,158
	#Licenses	6	5		1	3	1	1					17
2013	Fees	312,470	241,359		410,674	777,914	211,216	179,733	151,381	28,353	0	0	2,133,367
	#Licenses	8	5		1	4	1	1					20
2014	Fees	359,341	334,117		595,477	1,127,975	306,263	283,776	227,071	56,705	0	2,000	3,008,949
	#Licenses	8	5		1	4	1	1				1	21
2015	Fees	427,491	417,316		848,124	908,704	331.875	356,897	272,611	84,286	0	2,000	3,292,407
	#Licenses	8	5		1	4	1	1				1	21
2016	Fees	386,040	366,045		553,799	855,872	275,805	296,600	226,554	70,046	0	2,000	2,736,161
	#Licenses	5	5		1	4	1	1				1	21
2017	Fees	431,696	375,822	70,357	539,405	1,382,226	470,514	410,417	337,128	73,289	0	2,000	3,664,437
	#Licenses	8	5	3	1	4	1	1				1	26
2018	Fees	496,377	416,560	112,636	910,757	1,593,824	635,550	782,063	683,067	98,995	0	2,000	4,949,767
	#Licenses	9	5	4	1	4	1	1				1	26
2019	Fees	597,386	423,643	673,560	1,571,640	1,571,640	716,511	771,177	673,560	97,617	0	2,000	4,880,868
	#Licenses	10	5	5	1	4	1	1				1	28

Changes in licence fees year on year reflect the changing scope of regulatory work as the electricity and related water sector market develops.

The cost of regulating the electricity and water sector in 2018 was around 4 OMR per customer account and around one tenth of a baiza per kWh supplied. We believe compare favourably to international benchmarks of regulatory costs.

2019 Forward Work Programme

Article (34) of the Sector Law requires the Authority to prepare a Forward Work Programme for the coming year, and consult with Persons who may be affected by the proposed work. In December 2018 the Authority consulted on its proposed 2019 Forward Work Programme and published the programme in accordance with Article (34) of the Sector Law and is in the process of implementing all of its constituent tasks. The 2019 Forward Work programme is presented in Annex ( ) of this report.

Customer Affairs Directorate

The Customer Affairs Directorate is responsible for protecting and promoting the interests of electricity customers. The Directorate carries out these functions by resolving complaints, monitoring and ensuring performance of customer related licence obligations by distribution and supply licensees and enhancing customer awareness of the legal and regulatory framework and the standard of service to which they are entitled.

In 2018 the Directorate:

- Continued monitoring the distribution and supply licensees' performance against a number of Key Performance indicators (KPIs).
- Reviewed the 2018 customer service KPIs reports of MEDC, MJEC, MZEC,DPC and RAEC.
- Updated the customer's service KPIs and linked them to specific targets that distribution and supply licensees should meet as per the customer service incentive scheme during 2021-2018 price control.
- Worked with the Directorate of Economics to develop a new model to calculate the weighted score Contributed to the investigation on Hasik blackout that was led by the Technical Directorate.
- Visited customers' premises to help in assessing and better understand their complaints.
- Launched three stakeholder awareness programs concentrating on Al Dhahira, Al Buraimi and Al Dakhilia governorates.
- Conducted ten stakeholders' one to one meetings with different entities in Mussanah, Al Suwaiq and Muscat focusing on Women Associations, Ministry of Social Development offices, Health offices and Charity groups.
- Held several meeting with the distribution and supply licensees to discuss customers' awareness programs.
- Participated in the discussions with RAEC and other stakeholders on the development of electricity infrastructure in Duqm.
- Received 87 new customer complaints and resolved 77 outstanding customer complaints.
- Advised a further 175 customers on their rights and how to progress their complaint using the approved Customer Complaint Handling Procedures;

Customer Awareness Programme

The Authority's continued the delivery of successful meetings designed to raise customers' and stakeholders' awareness of what they have a right to expect from licensed suppliers.

In 2018, the Authority focused on Al Dhahira, Al Buraimi and Al Dakhilia governorates. The Authority managed to meet its goals using the same approach of the previous events. Furthermore, visits were carried out to Women Association, Ministry of Social Development offices, health offices and charity groups in Mussanah, Al Suwaiq and Muscat. The meeting generated lively debate and provided the Authority with strong insights into the views and experiences of customers, as well as ensuring that stakeholders better understand the role of the distribution and supply company and its meter reading, billing and collection contractors. Moreover, the Directorate continued monitoring the communication programs in the distribution and Supply companies to ensure the accuracy and quality of messages delivered to customers.

Licences, Codes, Procedures and Charters:

The new service incentive mechanism linked to financial rewards/penalty was applied in January 2018 as part of the 2021-2018 distribution and supply price control to drive performance in poorer performing companies, while continuing to encourage companies that were performing efficiently to maintain their position. All changes and updates on the new customer service KPIs monitoring reports were communicated clearly to the distribution and supply licensees through ED's letter in January 2018 and during the price control review meetings. It was agreed that all distribution and supply licensees audit their performance by an external qualified auditor. The licensees' performance in 2018 will be evaluated by the Authority based on rewards and penalties in accordance with the scheme specified in the Schedule Charge Restriction Conditions. Additionally, the Authority developed a new model to calculate the weighted score against the targets set for each licensee.

Complaints and determinations

It is the Authority's policy, as set out in the approved Complaint Handling Procedure, that licensees must first be given an opportunity to resolve customer complaints. Should they fail to resolve the matter to the satisfaction of the customer, or within the timeframes specified in the Complaint Handling Procedure, the customer may refer the case to the Authority. The Authority has legal powers to determine how such complaints should be resolved.

The Authority made 75 Determinations in the period 2005 – 2017, covering all main categories of complaint. This body of precedent was sufficient to enable the Authority's staff to resolve a further 77 unresolved complaints, compared with 87 complaints received during the year.

The Authority will continue to make further Determinations when it is necessary to set a further precedent and when a Customer does not accept the resolution of his dispute on the basis of precedent and wishes to pursue the matter in Court.

The figure of 87 complaints received during 2018 was a slight increase on the 75 complaints received during 2017. Figure X below presents an analysis of the issues that were the cause of those 87 complaints.

The number of billing related complaints recorded in 2018 increased from 45 to 51, which is 59% of the annual total. This still reflects problems experienced by licensees and their agents with meter readings and with the accuracy of estimated bills. These problems are continuing to be addressed with the implementation of a new billing system, new meter reading contract and hand held devices. The number of complaints relating to asset relocation was higher than in 2018 at 20 compared with 11.

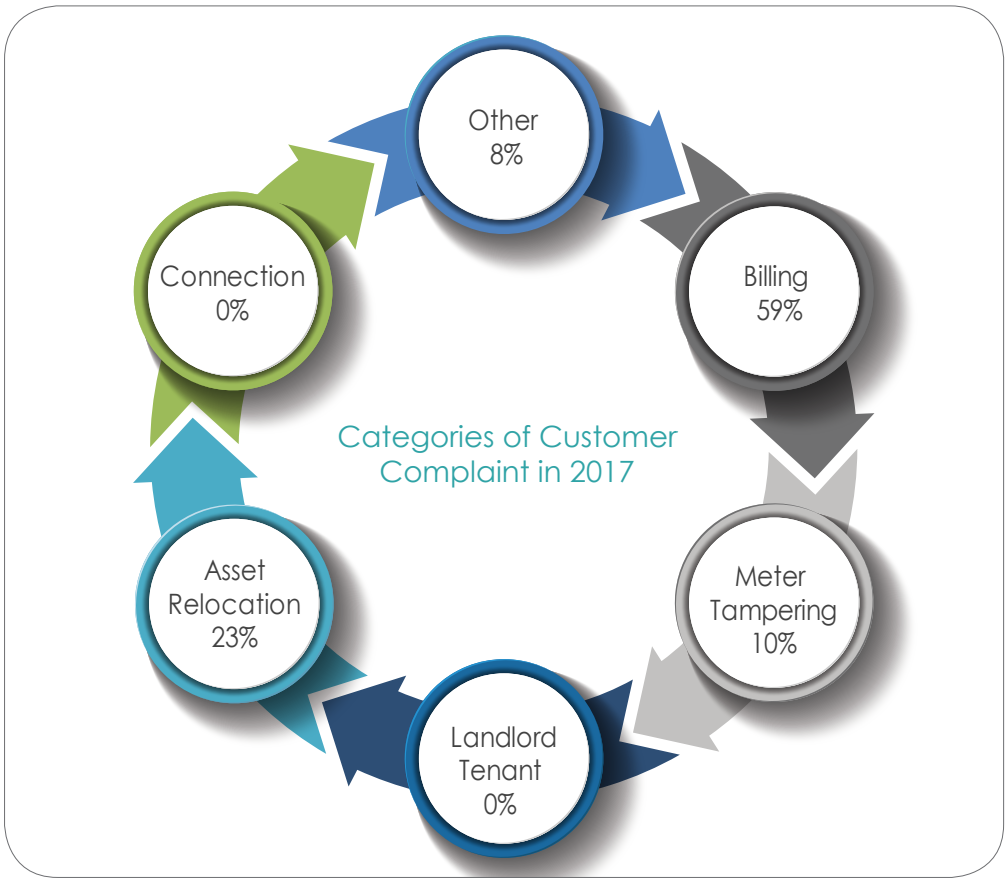
Categories of Customer Complaint in 2018

Complaint Issue	2017		2018	
	#	%	#	%
Billing	45	60%	51	59%
Meter Reading	0	0%	0	0%
Meter Tampering	10	13%	9	10%
Landlord Tenant	1	1%	0	0%
Asset Relocation	11	15%	20	23%
Connection	2	3%	0	0%
Other	6	8%	7	8%
Total	75		87	

The Authority will continue to make further Determinations when it is necessary to set a further precedent and when a Customer does not accept the resolution of his dispute on the basis of precedent and wishes to pursue the matter in Court.

The figure of 75 complaints received during 2017 was similar to the figure of complaints received during 2016. Figure 27 below presents an analysis of the issues that were the cause of those 75 complaints.

The number of billing related complaints recorded in 2017 increased from 44 to 45, which is 60% of the annual total. This still reflects problems experienced by licensees and their agents with meter readings and with the accuracy of estimated bills. These problems are continuing to be addressed with the implementation of a new billing system, new meter reading contract and hand held devices. The number of complaints relating to customer connection was lower than in 2017 at 2 compared with 7.



Customer Support

In addition to formal complaints received, the Directorate also provides advice to customers who contact the Authority before raising the matter formally with their licensed supplier or before they have received a formal response from their supplier. The Authority advises customers of their rights and, where appropriate, of precedent decisions taken in similar cases, as well as the procedure to be followed.

In 2018 the Directorate provided advice to 175 customers, compared with 249 in 2017 and 182 in 2016. Of those 175 cases, 128 related to billing, compared with 172 in 2017, a decrease of 26%. Customer connections represented 5 cases, compared with 20 in 2017.

Economics & Financial Affairs

The Directorate is responsible for the economic regulation of the electricity sector. This includes setting and monitoring RPI-X price controls, reviewing and approving electricity and related water Bulk Supply Tariffs, and calculating licensed supplier's annual Subsidy requirements.

In 2018 the Directorate:

- Completed a price control review of OETC. New 4-year Transmission and Dispatch price controls came into effect on 1 January 2019;
- Completed a price control review of PWP. New 4-year Power and Water Procurement price controls came into effect on 1 January 2019;
- Conducted a study and public consultation on options for modifying the existing Transmission and Connection Charging methodology;
- Undertook analysis to confirm outturn electricity sector Subsidy requirement in 2017 and estimated Subsidy for 2018 and 2019;
- Reviewed and approved the 2018 PWP and RAEC electricity and water Bulk Supply Tariffs;
- Published the 2019 Cost-Reflective Tariff Statement, confirming the component elements (BST, T, D and S) of the CRT to be applied in 2019;
- Undertook a review of the 2016-2022 PWP 7-Year Statement;
- Continued to oversee the development of the electricity spot market by OPWP, including modification of generator licences, participation in the monthly Implementation Working Group and training of Authority staff by the Singapore Market Operator (EMC).
- Completed its initial review of the potential for retail supply competition in Oman, including the identification of key enablers and constraints present in the market.

Directorate of Technical Regulation

The Directorate of Technical Regulation is responsible for approving technical standards and for monitoring compliance with Industry Codes, planning and operating standards, and Oman Electrical Standards. The Directorate represents the Authority on the Grid Code and Distribution Code Review Panels and plays a lead role in technical and health and safety investigations.

During 2018 the Directorate:

- Conducted investigations in relation to fatalities and serious injuries in the electricity sector;
- Conducted a review of the preparation of the Distribution Licensees for summer 2018;
- Conducted a review of two supply interruptions, one in Al Afiyah (Mazoon) and one in Hasik (RAEC);
- Completed work to update and revise OES4, regulations for electrical installations in Oman;
- Performed the technical analysis to support the price controls of OETC and OPWP;
- Reviewed the development of protection capabilities within the electricity sector against the recommendations made by Vector Power Solutions in 2013 and the follow up audit in 2018;
- Reviewed the 2018 system capability statements of MEDC, MJEC, MZEC, DPC, RAEC and OETC;
- Followed up implementation of the recommendations from Health and Safety audits of MEDC and RAEC of 2015 and MZEC and MJEC in 2016;
- Continued routine inspections of licensed distribution systems to ensure the safety and physical security of the networks;
- Reviewed the progress of MIS Distribution licensees with regard to compliance of their networks with the Distribution Security Standards to assess level of non-compliance and determine associated penalties;
- Followed up on the implementation of the Cyber Security standards compliance program by the Licensees;
- Participated in the discussions with OPWP on the development of the Spot Market, and;
- Reviewed the contingency plans of the different Distribution Licensees against the requirements to comply with the Distribution System Security Standards.

Price Control technical mini audit of OETC

The Directorate concluded its technical review of price control and set new price control allowances for the Licensees.

Al Afiyah Eid Day Blackout

Following a sustained blackout on Friday 15th June 2018 during Eid Al Fitr day in the village of Al Afiyah in Dhalkhiyah the Authority conducted a review of the actions taken by Mazoon. The review identified a number of serious safety, operational and customer service deficiencies that contributed to the outage being extended far beyond what would normally be expected. The Authority was disappointed to note that the generic failings that led to sustained outage had been identified many times to Mazoon management in recent years and that there was no justification for the extent of the customer interruptions.

Hasik Blackout

Following a sustained blackout over 9th and 10th November 2018 in the village of Hasik in Dhofar the Authority conducted a review of the actions taken by RAEC. The review identified a number of serious safety, operational and customer service deficiencies that contributed to the outage being extended far beyond what would normally be expected. The Authority was disappointed to note that several simple measures that RAEC management were already aware of could and should have been taken that could have significantly reduced the impact of the customer interruptions.

Grid Code Review Panel

The Grid Code Review Panel (GCRP) met four times during 2018, see Figure 30.

Grid Code Review Panel meetings in 2018

Meeting	Meeting date	Chaired by	Location
GCRP 52	05-Feb-18	OETC	Muscat
GCRP 53	07-May-18	OETC	Muscat
GCRP 54	06-Aug-18	OETC	Muscat
GCRP 55	05-Dec-18	OETC	Muscat

Distribution Code Review Panel

The Distribution Code Review Panel (DCRP) met four times during 2018, see Figure 31.

Distribution Code Review Panel meetings in 2018

Meeting	Meeting date	Chaired by	Location
1/2018	06-Feb-18	DPC	Muscat
2/2018	14-May-18	MEDC	Muscat
3/2018	13-Aug-18	MEDC	Muscat
4/2018	05-Nov-18	MEDC	Muscat

During 2018 the DCRP continued its efforts to improve the product and contractor approval processes. The DCRP continued to improve its internal processes and procedures to be more efficient in product and contractor approvals, and to expedite processes for SME companies, companies that meet their Omanisation requirements, and suppliers of Omani products. DCPR also took proactive steps to enhance the capability of the market to provide competent PV installers and to improve the safety of those working in the electricity sector.

In 2018 the DCRP issued 42 new product approvals and certified 89 contractors. In line with the national strategy to enhance the deployment of solar energy, DCRP certified 25 solar installers and approved 2 Oman specific solar energy training courses. In addition the DCRP continued to assess and approve protection engineers, such that by the end of 2018 there were 141 protection engineers with valid DCRP competency certificates working for contractors and consultants.

Licensing & Legal Affairs

In general, the Licensing and Legal Affairs Directorate acts as a legal counsel to the Authority Members to ensure that all Authority's decisions comply with the requirements of the Sector Law and other applicable Laws. In addition, the Directorate is responsible for maintaining channels of communication with the relevant Government entities as well as competent authorities to ensure that the Authority has all information needed.
The functions of the Directorate have two steams: Licensing; and Legal Affairs.
From the Licensing perspective, the Directorate is responsible for handling and processing Licenses, Exemptions, Change of Control and Article (106) Consent Applications submitted to the Authority. It also has the duty to monitor compliance of Licence Holders and Exemption Holders with the Sector Law and the authorizations granted by the Authority. In addition, the Directorate is responsible for maintaining the Public Register.
On the Legal Affairs side, the Directorate handles and represents the Authority in litigation cases involving the Authority before a number of Omani courts. The Authority handled all its cases internally without appointing external lawyers. Moreover, the Directorate plays a key role in drafting regulations and other regulatory documents issued by the Authority, as well as provide legal opinions to the Authority Members and other Directorates when required.
Along with other employees of the Authority, some employees of the Directorate have the capacity of judicial authority which allows them to undertake certain duties in inspections and investigations.

In 2018, the Directorate:

1.Concluded the process of granting Barka Desalination Company SAOC (BDC) a Desalination Licence of a Special Nature to authorize the Licensee to undertake the regulated activity of Desalination of water from a Desalination Facility of a Special Nature effective from 1 January 2018, for a period of 25 years. The Production Facilities are located in Barka at the coastal region of Al Batinah, with a Production Capacity of 281,000 m3/day.

2.Reviewed and processed a Licence application from Ad-Dhahirah Generating Company SAOC (AGC). The Authority granted AGC a Generation Licence to authorize the Licensee to Generate electricity from its Production Facilities effective from 1 April 2018, for a period of 25 years. The Production Facilities are located in Wilayat Ibri at the Governorate of Ad Dhahirah with a Production Capacity of 1,509.1 MW.

3.Reviewed and processed a Licence application from Shinas Generating Company SAOC (SGC). The Authority granted SGC a Generation Licence Exemption to authorize the activity of electricity Generation from its Production Facilities effective from 30 July 2018, for a period of one year. The Generation Licence Exemption will be replaced by a Generation Licence on satisfying the regulatory requirements set by the Authority.

4.Consulted with all Generation & Generation and Desalination Licensees on the proposed modifications to their Licenses by modifying and adding new Licence Conditions related to the inception of the Spot Market. The modifications are effective from 1 January 2019.

5.Reviewed and processed a Licence Exemption application from Daleel Petroleum LLC. The Authority granted Daleel Petroleum LLC a Licence Exemption Order No (2018/2) to authorize the Generation of electricity from its Production Facilities effective from 27 December 2018, for a period of 15 years.

6.Coordinated with other Directorates of the Authority on the modification of the Schedule Charge Restriction Condition of the Oman Electricity Transmission Company Licence (OETC), Oman Power and Water Procurement Company Licence (OPWP), the Rural Areas Electricity Company Licence (RAEC) and the Distribution and Supply Licensees such as Muscat Electricity Distribution Company (MEDC), Mazoon Electricity Company (MZEC) and Dhofar Power Company (DPC). These modifications are required to facilitate implementation of new four years price controls for the Licensees.

7.Modified the Licence Exemption Order No. (2016/1) of BP Exploration (Epsilon) by adding paragraph (ii) to Schedule (A) – Purposes (1) (b) to authorize the Transmission of excess electricity to PDO System via 132 Kv line connecting Mussalim Substation to PDO.This modification took effect in July 2018.

8.Modified the Technology and Installed Capacity of Schedule A of the Exemption Order No. (2005/4) of Oman India Fertiliser SAOC (OMIFC). This modification took effect in September 2018.

9.Reviewed and approved an application for Approval of Change of Control for Dhofar Generating Company SAOC and Musandam Power Company SAOC. The names of the Licensees remained the same following the change of Control.

10.Reviewed and granted an Article (106) Consent to Dhofar Desalination Company SAOC, and Al Asilah Desalination Company SAOC.

11.Reviewed and approved applications for disposal of assets and transfer of shares submitted by Licensees.

12.Amended the Sector Law pursuant to Royal Decree (2018/43).

13.Represented the Authority in all court cases involving the Authority in litigation levels; Preliminary, Appeals and Supreme Courts.

14.Participated in international conferences and meetings (including GCC Interconnection Authority Advisory and Regulatory Committee meetings).

Annex A

Audited Financial Statements

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2018

Registered address:

P.O. Box 954, PC 133
Al Khuwair, Muscat
Sultanate of Oman

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2018

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INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF AUTHORITY FOR ELECTRICITY REGULATION, OMAN

Report on the financial statements

Opinion

We have audited the financial statements of Authority for Electricity Regulation, Oman ('the Authority'), which comprise the statement of financial position as at 31 December 2018, and the statement of revenue and expenses, statement of changes in surplus fund and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Authority as at 31 December 2018, and its financial performance and its cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRSs).

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the 'Auditor's responsibilities for the audit of the financial statements' section of our report. We are independent of the Authority in accordance with the ethical requirements that are relevant to our audit of the financial statements in Sultanate of Oman, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other matters

The financial statements of the Authority as at 31 December 2017 were audited by another auditor, whose report dated 04 July 2018, expressed an unmodified opinion on those financial statements.

Responsibilities of management and members for the financial statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with IFRSs and, compliance with the relevant requirements of the Law for the Regulation and Privatisation of the Electricity and Related Water Sector ("the Sector Law"), promulgated by the Royal Decree 78/2004, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Authority's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Authority or to cease operations, or has no realistic alternative but to do so.

The Members are responsible for overseeing the Authority's financial reporting process.

Crowe

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF AUTHORITY FOR ELECTRICITY REGULATION, OMAN (continued)

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Authority's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Authority to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF AUTHORITY FOR ELECTRICITY REGULATION, OMAN (continued)

Auditor's responsibilities for the audit of the financial statements (continued)

We communicate with management regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Report on other legal and regulatory requirements

Further, we report that the financial statements comply, in all material respects, with the relevant financial reporting requirements of the Law for the Regulation and Privatisation of the Electricity and Related Water Sector ("the Sector Law"), promulgated by the Royal Decree 78/2004.

CROWE MAK GHAZALI LLC

Davis Kallukaran
Managing Partner

Muscat, Sultanate of Oman
27 June 2019

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 2018

	Note	2018 RO	2017 RO
ASSETS			
Non-current assets			
Property and equipment	4	**167,954**	99,262
Current assets			
Receivables and prepayments	5	**90,052**	202,505
Cash and bank balances	6	**2,741,619**	1,877,070
		2,831,671	2,079,575
Total assets		**2,999,625**	2,178,837
RETAINED SURPLUS FUND AND LIABILITIES			
Retained surplus fund	7	**2,499,678**	1,820,859
Liabilities			
Non-current liabilities			
Employees' end of service benefits	8	**129,653**	109,947
Current liabilities			
Accruals and other payables	9	**370,294**	248,031
Total liabilities		**499,947**	357,978
Total retained surplus fund and liabilities		**2,999,625**	2,178,837

These financial statements were approved by the members on 27th JUNE and signed on their behalf by:

Chairman **Member** **Executive Director**

The notes on pages 8 to 21 form part of these financial statements.

Auditor's report: pages 1-3

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

STATEMENT OF REVENUE AND EXPENSES
FOR THE YEAR ENDED 31 DECEMBER 2018

	Note	2018 RO	2017 RO
Income from operations	10	**4,919,199**	3,739,592
Interest income		**19,939**	47,000
Other income		**216,745**	8,912
Total revenue		**5,155,883**	3,795,504
Salaries and employee related costs	11	**(2,734,428)**	(2,178,840)
Administrative expenses	12	**(547,151)**	(461,193)
Consultancy expenses		**(1,145,891)**	(580,340)
Depreciation	4	**(49,594)**	(48,204)
Total expenses		**(4,477,064)**	(3,268,577)
Surplus for the year		**678,819**	526,927

The notes on pages 8 to 21 form part of these financial statements.

Auditor's report: pages 1-3

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

STATEMENT OF CHANGES IN SURPLUS FUND
FOR THE YEAR ENDED 31 DECEMBER 2018

	Retained Surplus RO
At 1 January 2017	1,293,932
Surplus for the year	526,927
At 31 December 2017	1,820,859
At 1 January 2018	**1,820,859**
Surplus for the year	**678,819**
At 31 December 2018	**2,499,678**

The notes on pages 8 to 21 form part of these financial statements.

Auditor's report: pages 1-3

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED 31 DECEMBER 2018

	Note	2018 RO	2017 RO
Cash flows from operating activities			
Cash receipts from licensees and application fees for license exemptions and other income		**5,157,257**	3,728,355
Cash paid to employees and other suppliers		**(4,194,361)**	(3,349,831)
Net cash from operating activities		**962,896**	378,524
Cash flows from investing activities			
Purchase of property and equipment	4	**(118,286)**	(44,406)
Net cash used in investing activities		**(118,286)**	(44,406)
Cash flows from financing activities			
Interest income received		**19,939**	8,912
Net cash from financing activities		**19,939**	8,912
Net change in cash and cash equivalents during the year		**864,549**	343,030
Cash and cash equivalents at the beginning of the year		**1,877,070**	1,534,040
Cash and cash equivalents at the end of the year	6	**2,741,619**	1,877,070

The notes on pages 8 to 21 form part of these financial statements.

Auditor's report: pages 1-3

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2018

1 Legal status and principal activities

The Authority for Electricity Regulation, Oman (hereafter referred to as "the Authority"), was established under Article 19 of the Law for the Regulation and Privatisation of the Electricity and Related Water Sector ("the Sector Law") promulgated by the Royal Decree 78/2004 issued on 1 August 2004.

The Authority is primarily engaged in the regulation of the electricity and related water sector in the Sultanate of Oman. Under the Sector Law regulating the Authority's activities, the Authority levies fees on licensee companies that will enable the Authority to recover an amount not more than its expenses. Accordingly, surpluses of income over expenditure are held as explained in Note 7 to the financial statements.

The registered address of the Authority is P O Box 954, Postal Code 133, Al Khuwair, Sultanate of Oman.

2 Basis of preparation and adoption of new and amended IFRS

Basis of preparation

The financial statements have been prepared on the historical cost basis, as modified to include the fair value of certain financial assets and liabilities.

Functional and presentation currency

The financial statements have been presented in Rial Omani ("RO"), which is the functional and presentation currency of the Authority.

Statement of compliance

The financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB) and the requirements of the Sector Law of the Sultanate of Oman.

Adoption of new IFRS

The financial statements have been prepared based on accounting standards effective for the accounting periods beginning on or after 1 January 2018. The Authority has adopted the following standards for the first time for the annual reporting period beginning from 1 January 2018:

i) IFRS 15: Revenue from Contracts with Customers

a) *Overview*

IFRS 15: 'Revenue from contracts with customers' ("IFRS 15") is applicable to annual reporting periods beginning on or after 1 January 2018. IFRS 15 replaces mainly IAS 18 Revenue, IAS 11 Construction Contracts and some revenue related interpretations.

2 Basis of preparation and adoption of new and amended IFRS (continued)

Adoption of new IFRS (continued)

i) IFRS 15: Revenue from Contracts with Customers (continued)

a) *Overview (continued)*

The new standard is based on the principle that revenue is recognized when control of goods or services is transferred to a customer, so the notion of control replaces the existing notion of risks and rewards. The new standard replaces the separate models for goods, services and construction contracts previously included in IAS 18 Revenue and IAS 11 Construction Contracts. The core principle in IFRS 15 is that an entity recognises revenue represent the transfer of promised goods or services to the customer in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Revenue is recognised when a customer obtains control of goods or services, i.e. when the customer has the ability to direct the use of and obtain the benefits from the goods or services.

Under IFRS 15, a new five–step process is applied for recognition of revenue as:

i. Identify contracts with customers;
ii. Identify the separate performance obligations;
iii. Determine the transaction price of the contract;
iv. Allocate the transaction price to each of the separate performance obligations; and
v. Recognise the revenue as each performance obligation is satisfied.

b) *Impact*

The Authority has adopted IFRS 15 using the cumulative effect method (modified retrospective method, without practical expedients), with the effect of initially applying IFRS 15 at the date of initial application on 1 January 2018. IFRS 15 did not have a significant impact on the Authority's accounting policies with respect to revenue.

Accordingly, the information presented for the year 2017 has not been restated. However, the disclosure requirements in IFRS 15 have been applied to comparative information. New accounting policy for revenue recognition under IFRS 15 is detailed in note 3.

ii) IFRS 9: Financial Instruments

a) *Overview*

In July 2014, the International Accounting Standards Board (IASB) issued a new International Financial Reporting Standard – IFRS 9 'Financial Instruments' effective for annual periods beginning on or after 1 January 2018, which replaced the existing International Accounting Standard 39 'Financial Instruments: Recognition and measurement'.

The requirements of IFRS 9 represent a significant change from IAS 39 Financial Instruments: Recognition and Measurement. The new standard brings fundamental changes to the accounting for financial assets and to certain aspects of the accounting for financial liabilities. IFRS 9 requires the Authority to record expected credit losses (ECL) on all of its financial assets at amortized cost and debt instruments, if any, measured at fair value through other comprehensive income.

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2018 (continued)

2 Basis of preparation and adoption of new and amended IFRS (continued)

Adoption of new IFRS (continued)

ii) IFRS 9: Financial Instruments (continued)

a) *Overview* (continued)

b) *Impact*

As of the date of initial application of IFRS 9 on 1 January 2018, the classification, measurement and impairment requirements have been adopted retrospectively with an option not to restate comparatives. The Authority decided that adjustment on that date, if any, due to re-classification, re-measurement or adjustment arising from new impairment requirements to be recognized in the opening surplus funds. However, there is no such adjustment applicable for the current period.

The following table shows the original measurement categories and carrying value in accordance with IAS 39 and new measurement categories under IFRS 9 for the Authoritys's financial assets at 1 January 2018.

	Original classification (IAS 39)	New classification (IFRS 9)	Original carrying amount RO	Remeasurement – ECL RO	New carrying amount RO
Cash and bank balances	Loans and receivables	Amortised cost	1,877,070	-	1,877,070
License fee receivable	Loans and receivables	Amortised cost	70,552	-	70,552
Total financial assets			1,947,622	-	1,947,622

The application of new ECL model under IFRS 9 has not changed the carrying amounts of the Authority's receivables measured at amortized cost. There is no ECL allowance on such financial assets measured at amortized cost to be recognised as described above. IFRS 7 'Financial Instruments – Disclosures' has been amended in line with IFRS 9 requirements and has been applied accordingly. The comparative information presented for the year 2017 does not reflect the requirements of IFRS 9. New accounting policy for IFRS 9 is detailed in note 3.

The adoption of IFRS 9 did not result in any change in the classification or measurement of financial liabilities.

2 Basis of preparation and adoption of new and amended IFRS (continued)

Other standards, amendments and interpretations to existing IFRS effective 1 January 2018

The Authority has adopted all other standards and amendments for the first time for the annual reporting period beginning from 1 January 2018, while has accounted for and disclosed only the relevant and applicable standards and amendments:

- Amendments to IFRS 2: 'Share-based Payment' – Classification and Measurement of Share-based Payment
- Amendments to IAS 40: 'Investment Property' – Transfers of Investment Property;
- Annual Improvements to IFRSs published in December 2016 (2014-2016 cycle);
- IFRIC 22: 'Foreign Currency Transactions and Advance Consideration'.

Standards, amendments and interpretations to existing IFRS that are not yet effective

Certain new standards, amendments and interpretations to the existing IFRS have been published that are not mandatory for the reporting period ended 31 December 2018 and have not been early adopted by the Authority:

- IFRS 16: 'Leases';
- IFRS 17: 'Insurance Contracts';
- Amendments to IAS 19: 'Employee Benefits' – Plan Amendment, Curtailment or Settlement;
- Amendments to IAS 28: 'Investments in Associates and Joint Ventures' – Long-term Interests in Associates and
- Amendments to IAS 28: 'Investments in Associates and Joint Ventures', and IFRS 10: 'Consolidated Financial
- Annual Improvements to IFRSs published in December 2017 (2015-2017 cycle);
- IFRIC 23, 'Uncertainty over Income Tax Treatments'.

Management believes that adoption of the new standards, amendments and interpretations which are in issue, but not yet effective is not likely to have any material impact, on the recognition, measurement, presentation and disclosure of items in the financial statements for current and future periods and foreseeable future transactions.

3 Summary of significant accounting policies

The principal accounting policies applied in the preparation of the financial statements are set out below. These accounting policies have been consistently applied by the Authority to all the years presented, unless otherwise stated.

Income from operations

Policy effective from 1 January 2018 under IFRS 15

Income from operations represents license fee from licensees and is recognised at a point in time when the performance obligation is satisfied and is based on the amount of the transaction price that is allocated to the performance obligation. The transaction price is the amount of consideration to which the Authority expects to be entitled in exchange for transferring promised services to the customer.

The consideration expected by the Authority may include fixed or variable amounts. Income from operations is recognized when control of the asset is transferred to the buyer and only when it is highly probable that a significant reversal of revenue will not occur when uncertainties related to a variable consideration are resolved.

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2018 (continued)

3 Summary of significant accounting policies (continued)

Income from operations (continued)

Policy effective from 1 January 2018 under IFRS 15 (continued)

Transfer of control varies depending on the individual terms of the contract of sale. Revenue from transactions that have distinct services are accounted for separately based on their stand-alone selling prices. A variable consideration is recognised to the extent it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved.

For products for which a right of return exists during a defined period, revenue recognition is determined based on the historical pattern of actual returns, or in cases where such information is not available, revenue recognition is postponed until the return period has lapsed.

Policy effective before 1 January 2018 under IAS 18

Licence fees represent the amounts invoiced to the licensees for the year.

Financial instruments

Policy effective from 1 January 2018 under IFRS 9

To determine the classification and measurement category, IFRS 9 requires all financial assets, except equity instruments and derivatives, to be assessed based on a combination of the entity's business model for managing the assets and the instruments' contractual cash flow characteristics. The IAS 39 measurement categories of financial assets at fair value through profit or loss (FVTPL), available for sale (AFS), held-to-maturity and amortised cost have been replaced by:

- Financial assets carried at amortised cost;
- Financial assets carried at fair value through other comprehensive income (FVOCI); and
- Financial assets carried at fair value through profit or loss (FVTPL)

i) Recognition and measurement

Financial assets and financial liabilities are initially recognised when the Authority becomes a party to the contractual provisions of the instrument.

A financial asset is initially measured at fair value plus, for an item not at FVTPL, transaction costs that are directly attributable to its acquisition or issue. License fee receivables are measured at the transaction price determined under IFRS 15.

3 Summary of significant accounting policies (continued)

Financial instruments (continued)

Policy effective from 1 January 2018 under IFRS 9 (continued)

i) Recognition and measurement (continued)

All financial liabilities are recognised initially at fair value and, in the case of payables, net of directly attributable transaction costs.

The Authority does not trade in any financial liabilities and does not classify or measure any financial liabilities as at fair value through profit or loss. Consequently, all financial liabilities are classified and subsequently measured at amortized cost.

ii) Derecognition of financial assets and liabilities

The Authority derecognises a financial asset when the contractual rights to the cash flows from the financial asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which the Authority neither transfer nor retain substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Authority derecognises a financial liability when its contractual obligations are discharged, cancelled, or expired.

Policy effective before 1 January 2018 under IAS 39

Financial assets and liabilities are recognised on the statement of financial position when the Authority becomes a party to the contractual provisions of the instrument.

The principal financial instruments are cash and bank balances, license fees receivable, other receivables and accruals and other payables. License fees receivable are stated at their nominal value as reduced by allowances for doubtful balances, if any. Trade and other payables are stated at their amortised cost.

Impairment of financial assets

Policy effective from 1 January 2018 under IFRS 9

The Authority recognises allowances for expected credit losses (ECLs) on financial instruments, including financial assets measured at amortised cost and trade and other receivables. Credit losses are measured as the present value of all cash shortfalls.

ECLs are recognised in two stages:

- For credit exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12-months (a 12-month ECL).
- For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure, irrespective of the timing of the default (a lifetime ECL).

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2018 (continued)

3 Summary of significant accounting policies (continued)

Impairment of financial assets (continued)

Policy effective from 1 January 2018 under IFRS 9 (continued)

For receivable, the Authority applies a simplified approach in calculating ECLs. Loss allowances for receivables are always measured at an amount equal to lifetime ECLs. Therefore, the Authority does not track changes in credit risk, but instead recognises a loss allowance based on lifetime ECLs at each reporting date. The Authority has a provision method that is based on its historical credit loss experience, adjusted for forward-looking factors specific to the debtors and the economic environment. At every reporting date, the historical observed default rates are updated and changes in the forward-looking estimates are analysed.

Credit-impaired financial assets
At each reporting date, the Authority assesses whether financial assets carried at amortised cost are credit impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred. A receivable is considered as in default, if the receivable is past due more than 90 days.

Impairment provisions for other receivables are also recognised based on a forward looking expected credit loss model.

Write-off
A financial asset is written off when there is no reasonable expectation of recovering the contractual cash flows. The gross carrying amount of a financial asset is written off against the related provision, when the Authority has no reasonable expectations of recovering a financial asset in its entirety or a portion thereof.

Policy effective before 1 January 2018 under IAS 39

At each statement of financial position date, the Authority reviews the carrying amounts of its assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss, if any.

The loss arising on an impairment of an asset or cash generating unit is determined as the difference between the recoverable amount and carrying amount of the asset or cash generating unit and is recognised immediately in the statement of revenue and expenses.

Where an impairment loss subsequently reverses, the carrying amount of the asset is increased to the revised estimate of its recoverable amount and the increase is recognised as income immediately, provided that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognised earlier.

3 Summary of significant accounting policies (continued)

Property and equipment

Items of property and equipment purchased are recorded at cost together with any incidental expenses of acquisition.

The cost of property and equipment is written off over their estimated useful economic lives as follows:

	Years
Furniture, fixtures and office equipment	6.67
Vehicles	5
Computers	3-4

Gains and losses on disposals of items of property and equipment are determined by reference to their carrying amount and sale proceeds and are recognised within other income in the statement of revenue and expenses.

Impairment of non-financial assets

At the end of each reporting period, the Authority assesses if there is any indication of impairment of its non-financial assets. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss.

The loss arising on an impairment of an asset is determined as the difference between the recoverable amount and carrying amount of the asset and is recognised immediately in the statement of comprehensive income.

Cash and cash equivalents

For the purpose of cash flow statement, cash and cash equivalents consist of cash in hand and bank balances maturing within three months from the date of placement.

Accounts payable and accruals

Liabilities are recognised for amounts to be paid in the future for goods or services received whether or not billed to the Authority.

Provisions

A provision is recognised in the statement of financial position when the Authority has a legal or constructive obligation as a result of a past event and it is probable that an outflow of economic benefits will be required to settle the obligation. If the effect is material, provisions are determined by discounting the expected future cash flows at a rate that reflects current market assessments of the time value of money and, where appropriate, the risks specific to the liability.

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2018 (continued)

3 Summary of significant accounting policies (continued)

Employees' end of service benefits

Payment is made to the Pension and Gratuities Fund for Omani Government Employees pursuant to the provisions of the Law of Post Service Pensions and Gratuities for Omani Government Employees issued by Royal Decree (26/86), as amended).

Provision for non-Omani employee terminal benefits, which is an unfunded defined benefit retirement plan, is made in accordance with Oman Labour Law and is based on the liability that would arise if the employment of all employees were terminated at the end of the reporting period.

Foreign currencies

Transactions denominated in foreign currencies entered into during the year have been translated into Rials Omani and recorded at the rates of exchange prevailing at the dates of transactions. Foreign currency monetary assets and liabilities at the reporting date are translated at the rates of exchange prevailing at that date. Exchange differences that arise are taken to the statement of revenue and expenses.

Grants related to assets

Government grants in the form of freehold land are credited to statement of revenue and expenses, here no rational basis exists for allocating the grant to a period other than the one in which it was received. Government grants related to assets are credited to deferred grants and recognized in the statement of revenue and expenses over the useful life of the assets constructed or acquired.

Taxation

The Authority is exempt from taxation as per Article 56 of the Sector Law.

Estimates and judgments

In preparing the financial statements, management is required to make estimates and assumptions which affect reported income and expenses, assets, liabilities and related disclosures. The use of available information and application of judgment based on historical experience and other factors are inherent in the formation of estimates. Actual results in future could differ from such estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised and in any future periods affected. In particular, estimates that involves uncertainties and judgments which have significant effect on the financial statement include residual values and useful lives of property and equipment and impairment of financial assets.

Licence fees

The significant estimate in the preparation of these financial statements is primarily in respect of licence fee income to be recovered in respect of regulation by the Authority of the licensed companies.

Depreciation

Depreciation is charged so as to write off the cost of assets over their estimated useful lives. The calculation of useful lives is based on management's assessment of various factors such as the operating cycles, the maintenance programs, and normal wear and tear using its best estimates.

4 Property and equipment

Cost	Furniture, fixtures and office equipment RO	Vehicles RO	Computers RO	Total RO
At 1 January 2017	288,258	173,500	152,087	613,845
Additions	27,431	-	16,975	44,406
At 31 December 2017	315,689	173,500	169,062	658,251
At 1 January 2018	**315,689**	**173,500**	**169,062**	**658,251**
Additions	**9,788**	**43,450**	**65,048**	**118,286**
At 31 December 2018	**325,477**	**216,950**	**234,110**	**776,537**
Depreciation				
At 1 January 2017	260,229	110,365	140,191	510,785
Charge for the year	13,897	25,213	9,094	48,204
At 31 December 2017	274,126	135,578	149,285	558,989
At 1 January 2018	**274,126**	**135,578**	**149,285**	**558,989**
Charge for the year	**8,041**	**26,066**	**15,487**	**49,594**
At 31 December 2018	**282,167**	**161,644**	**164,772**	**608,583**
Net book value				
At 31 December 2018	**43,310**	**55,306**	**69,338**	**167,954**
At 31 December 2017	41,563	37,922	19,777	99,262

The Ministry of Housing allotted 5,001 Sqm. of land to the Authority in 2015 in Plot No 1816 at Bausher. The land is given free of cost for the purpose of constructing office building for the Authority. The Authority cannot use the land for any other purposes. Management is showing the land at zero value as the land can be used only for the purpose designated by the Ministry

5 Receivables and prepayments

	2018 RO	2017 RO
License fee receivable	**19,816**	70,552
Prepayments	**19,448**	85,771
Advances and others	**50,788**	46,182
	90,052	202,505

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2018 (continued)

6 Cash and bank balances

	2018 RO	2017 RO
Cash in hand	**1,499**	1,522
Cash at bank	**2,740,120**	1,875,548
	2,741,619	1,877,070

7 Retained surplus

The retained surplus represents the cumulative amount of excess or deficit of income over expenses which will be offset against future funding requirements in accordance with Article 55 of the Sector Law.

8 Employees' end of service benefits

	2018 RO	2017 RO
Movement in expatriate employees' end of service benefits:		
At 1 January	**109,947**	133,260
End of service benefits recognized during the year	**19,706**	26,998
Paid during the year	**-**	(50,311)
At 31 December	**129,653**	109,947

9 Accruals and other payables

	2018 RO	2017 RO
Accruals	**370,294**	246,591
Other payables	**-**	1,440
	370,294	248,031

10 Income from operations

Disaggregation of revenue from contracts with customers:

The Authority's income from operations represents the income from license fee charged at a point in time in the following geographical region and service line.

a) *Primary geographical region*

	2018 RO	2017 RO
Sultanate of Oman	**4,919,199**	3,739,592

10 Income from operations (continued)

b) *Service line*

	2018 RO	2017 RO
License fee	**4,919,199**	3,739,592

11 Salaries and employees related costs

Salaries and employee related costs comprise:

	2018 RO	2017 RO
Salaries and allowances	**2,322,442**	1,854,109
End of service benefits for expatriate employees (Note 8)	**19,706**	26,998
Contribution to defined contribution retirement plan	**225,953**	152,954
Other employee related costs	**166,327**	144,779
	2,734,428	2,178,840

12 Administrative expenses

	2018 RO	2017 RO
Rent	**135,165**	179,400
Insurance	**79,176**	74,511
Communications	**17,224**	14,826
Advertisement and publicity	**26,508**	23,147
Travelling and conveyance	**108,103**	66,986
Printing and stationery	**10,027**	18,456
Utilities	**11,366**	11,969
Repairs and maintenance	**2,428**	8,186
Bad debts written off	**20,828**	-
Communication team events	**49,563**	-
Miscellaneous expenses	**86,763**	63,712
	547,151	461,193

13 Income tax

The Authority is exempt from taxation as per Article 56 of the Sector Law.

AUTHORITY FOR ELECTRICITY REGULATION, OMAN

NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2018 (continued)

14 Related party transaction

The Authority enters into transactions in the normal course of business with the Chairman and Members. These transactions are entered into at terms and conditions which management believes could be obtained on an arms's length basis from independent third parties.

The Government is not considered as a related party in view of the exemption from disclosure requirements set out in IFRS in relation to related party transcations and outstanding balances with government that has control or joint control of, or significant influence over the Authority and an entity that is a related party of the same government. The Authority has applied the exemptions in IAS 24:25 related to governmen entitites and only disclosed cetain information to meet the disclosure requirements of IAS 24.

Such transactions comprise key management personnel compensation as follows:

	2018	2017
	RO	RO
Short term employment benefits	**217,368**	196,483
Pension fund contribution	**6,372**	6,372

15 Financial instruments and related risk management

The Authority's financial assets include license fee receivable and cash and bank balances. Financial liabilities include other payables. Management believes that the fair values of the financial assets and liabilities approximate their carrying values.

The Authority's activities expose it to various financial risks, primarily being market risk, credit risk and liquidity risk. The Authority's risk management is carried out internally in accordance with the policies approved by the Board of Directors.

a) Market risk

Market risk is the risk that changes in market prices, such as foreign exchange rates and interest rates will affect the Authority's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimising the return.

(i) Currency risk

Currency risk is the risk that the value of a financial instrument will fluctuate due to changes in foreign exchange rates. The majority of the Authority's financial assets and financial liabilities are either denominated in Rial Omani or currency fixed against Rial Omani. Hence, management believes that there would not be a material impact on the surplus if these foreign currencies weakens or strengthens against the Rial Omani, with all other variables held constant.

(ii) Interest rate risk

The Authority has balances with banks, which are interest bearing and exposed to changes in market interest rates.

15 Financial instruments and related risk management (continued)

b) Credit risk

Credit risk is the risk of financial loss to the Authority if a licensee or counterparty to a financial instrument fails to meet its contractual obligations and arises principally from the Authority's receivables from licensees.

Credit risk arises from cash and cash equivalents and license fee and other receivables.

License fee and other receivables

The Authority's exposure to credit risk is influenced mainly by the individual characteristics of each licensee. All licensees are based in Sultanate of Oman. The potential risk in respect of amounts receivable is limited to their carrying values as management regularly reviews these balances whose recoverability is in doubt.

c) Liquidity risk

Liquidity risk is the risk that the Authority will not be able to meet its financial obligations as they fall due. The Authority's approach to managing liquidity is to ensure, as far as possible, that it will have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the Authority's reputation.

Typically, the Authority ensures that it has sufficient cash on demand to meet expected operational expenses. This excludes the potential impact of extreme circumstances that cannot reasonably be predicted, such as natural disasters. Based on the contractual maturity date, the financial liabilities are payable within a period of six month from the end of the reporting period.

16 Commitments

	2018 **RO**	2017 RO
Operating lease commitments	-	346,328

The notes on pages 8 to 21 form part of these financial statements.

Auditor's report: pages 1-3

Annex B
Authorised Entities

Licensees Holders

Majan Electricity Company SAOC
Regulated Activities: Distribution and Supply of electricity to Premises

Mazoon Electricity Company SAOC
Regulated Activities: Distribution and Supply of electricity to Premises

Muscat Electricity Distribution Company SAOC
Regulated Activities: Distribution and Supply of electricity to Premises

Oman Electricity Transmission Company SAOC
Regulated Activity: Transmission and Dispatch of electricity

Rural Areas Electricity Company SAOC
Regulated Activities: Generation of electricity and Desalination of water, Transmission, Dispatch, Distribution and Supply of electricity, and .Bulk Supply of Desalinated water to the Water Department

Wadi Al Jizzi Power Company SAOC
Regulated Activity: Generation of electricity

Al Rusail Power Company SAOC
Regulated Activity: Generation of electricity

Al Ghubrah Power and Desalination Company SAOC
Regulated Activity: Generation of electricity and Desalination of water

Al Kamil Power Company SAOC
Regulated Activity: Generation of electricity

United Power Company SAOC
Regulated Activity: Generation of electricity

ACWA Power Barka SAOC
Regulated Activities: Generation of electricity and Desalination of Water

SMN Barka Power Company SAOC
Regulated Activities: Generation of electricity and Desalination of water

Sohar Power Company SAOC
Regulated Activities: Generation of electricity and Desalination of water

Oman Power and Water Procurement company SAOC
Regulated Activities: Demand Forecasting; Capacity Procurement; Bulk Supply of electricity & water and Procurement of electricity and Desalinated water

Licensees Holder

Sembcorp Salalah Power & Water Company SAOC
Regulated Activities: Generation of electricity and Desalination of water

Al Batinah Power Company SAOC
Regulated Activity: Generation of electricity

Al Suwadi Power Company SAOC
Regulated Activity: Generation of electricity

Phoenix Power Company SAOC
Regulated Activity : the Generation of electricity

Dhofar Power Company SAOC
Regulated Activity: Distribution and Supply of electricity to Premises

Dhofar Generating Company SAOC
Regulated Activity: Generation of electricity

Bahwan Astonfield Solar Power LLC
Regulated Activity: Generation of electricity (Renewable Energy)

Sharqiyah Desalination Company SAOG
Regulated Activity: Desalination of water from a Desalination Facility of a special Nature

Muscat City Desalination Company SAOC
Regulated Activity: Desalination of water from a Desalination Facility of a Special Nature.

Muscat Water LLC
Regulated Activity: Desalination of Water from a Desalination Facility of a Special Nature

Musandam Power Company
Regulated Activity: Generation of electricity

Qurayyat Desalination SAOC
Regulated Activity: Desalination of water from a Desalination Facility of a Special Nature.

Barka Desalination Company SAOC
Regulated Activity: Desalination of water from a Desalination Facility of a Special Nature.

Ad Dhahirah Generating Company SAOC
Regulated Activity: Generation of electricity

Exemption Holders

Sohar International Urea Chemical Industries SAOC
Regulated Activities: Generation of electricity co-located with the Desalination of water in the same site.

Oman India Fertiliser Company SAOG
Regulated Activities: Generation of electricity related with Desalination of water.

Oman Cement Company SAOG
Regulated Activities: Generation, Distribution and Supply of electricity.

Barr Al Jissah Resort Company SAOC
Regulated Activity: Distribution of electricity.

Orpic Refineries LLC
Regulated Activities: Generation of electricity co-located with Desalination of water at the same site, and Distribution and Supply of electricity (at Mina Al Fahal site).Generation of electricity related with Desalination of water, and Transmission, Distribution and Supply of electricity (at Sohar site).

Oman LNG LLC
Regulated Activities: Generation of electricity related with Desalination of water and, Distribution and Supply of .electricity

Petroleum Development Oman LLC
Regulated Activities: Generation, Transmission, Distribution and Supply of electricity.

Occidental of Oman INC
Regulated Activities: Generation and Distribution of electricity.

Sohar Aluminium Company LLC
Regulated Activities: Generation of electricity co-located with Desalination of water, Transmission and Distribution of electricity.

Occidental Mukhaizna
Regulated Activities: Generation of electricity related with Desalination of water and Distribution of electricity.

Ministry of Defence
Regulated Activity: Generation of electricity for Sale to OPWPa

Oman Oil Company Exploration & Production
Regulated Activities: Generation of electricity co-located with the Desalination of water in the same site.

BP Exploration (Epsilon) Limited
Regulated Activities: Generation of electricity co-located with Desalination of water, and the Distribution and Transmission of electricity.

Shinas Generating Company SAOC
Regulated Activity: Generation of electricity from its Production Facilities.

Daleel Petroleum LLC
Regulated Activity: Generationand Distribution of electricity from its Production Facilities.

Annex C
Electricity Sector Statistics

Table 1: Electricity Customer Accounts by System, Company and Tariff Category : 2017 & 2018

2017 Accounts	Main Interconnected System (MIS)								Rural System		Dhofar System		Total Oman	
	Muscat	% Total	Majan	% Total	Mazoon	% Total	Total MIS	% Total	RAEC	% Total	DPC	% Total		% Total
Residential	274,255	75.6%	160,745	71.4%	306,912	74.5%	741,912	74.2%	25,910	69.1%	84,562	76.8%	852,384	74.3%
(Non-CRT)Industrial	6	0.0%	357	0.2%	41	0.0%	404	0.0%	35	0.1%	45	0.0%	484	0.0%
(Non-CRT)Commercial	76,215	21.0%	50,143	22.3%	84,038	20.4%	210,396	21.0%	7,181	19.1%	19,049	17.3%	236,626	20.6%
Agriculture & Fisheries	189	0.1%	4,026	1.8%	3,885	0.9%	8,100	0.8%	509	1.4%	105	0.1%	8,714	0.8%
Hotels / Tourism	284	0.1%	396	0.2%	103	0.0%	783	0.1%	67	0.2%	98	0.1%	948	0.1%
(Non-CRT)Government	7,403	2.0%	7,912	3.5%	13,873	3.4%	29,188	2.9%	3,329	8.9%	5,024	4.6%	37,541	3.3%
Ministry of Defence	80	0.0%	72	0.0%	57	0.0%	209	0.0%	115	0.3%	110	0.1%	434	0.0%
(CRT)Industrial	172	0.0%	238	0.1%	90	0.0%	500	0.1%	28	0.1%	59	0.1%	587	0.1%
(CRT)Commercial	3,561	1.0%	774	0.3%	1,572	0.4%	5,907	0.6%	110	0.3%	516	0.5%	6,533	0.6%
(CRT)Government	726	0.2%	532	0.2%	1,168	0.3%	2,426	0.2%	229	0.6%	495	0.4%	3,150	0.3%
2017 Total	362,891	100.0%	225,195	100.0%	411,739	100.0%	999,825	100.0%	37,513	100.0%	110,063	100.0%	1,147,401	100.0%
% of Oman	31.6%		19.6%		35.9%		87.1%		3.3%		9.6%		100.0%	

2018 Accounts	Main Interconnected System (MIS)								Rural System		Dhofar System		Total Oman	
	Muscat	% Total	Majan	% Total	Mazoon	% Total	Total MIS	% Total	RAEC	% Total	DPC	% Total		% Total
Residential	292,660	80.6%	169,543	75.3%	324,169	78.7%	786,372	78.7%	27,266	72.7%	88,362	80.3%	902,000	78.6%
(Non-CRT)Industrial	10	0.0%	375	0.2%	9	0.0%	394	0.0%	33	0.1%	12	0.0%	439	0.0%
(Non-CRT)Commercial	82,885	22.8%	54,933	24.4%	91,954	22.3%	229,772	23.0%	7,921	21.1%	20,203	18.4%	257,896	22.5%
Agriculture & Fisheries	209	0.1%	4,197	1.9%	3,997	1.0%	8,403	0.8%	564	1.5%	116	0.1%	9,083	0.8%
Hotels / Tourism	330	0.1%	391	0.2%	115	0.0%	836	0.1%	68	0.2%	155	0.1%	1,059	0.1%
(Non-CRT)Government	7,459	2.1%	8,088	3.6%	13,755	3.3%	29,302	2.9%	3,420	9.1%	4,923	4.5%	37,645	3.3%
Ministry of Defence	79	0.0%	76	0.0%	52	0.0%	207	0.0%	126	0.3%	108	0.1%	441	0.0%
(CRT)Industrial	168	0.0%	224	0.1%	74	0.0%	466	0.0%	24	0.1%	55	0.0%	545	0.0%
(CRT)Commercial	3,890	1.1%	845	0.4%	1,491	0.4%	6,226	0.6%	114	0.3%	573	0.5%	6,913	0.6%
(CRT)Government	858	0.2%	567	0.3%	1,158	0.3%	2,583	0.3%	237	0.6%	315	0.3%	3,135	0.3%
2018 Total	388,548	107.1%	239,239	106.2%	436,774	106.1%	1,064,61	106.5%	39,773	106.0%	114,822	104.3%	1,219,156	106.3%
% of Oman	31.9%		19.6%		35.8%		87.3%		3.3%		9.4%		100.0%	
Net Change in Accounts	25,657		14,044		25,035		64,736		2,260		4,759		71,755	
Annual % Change	7.1%		6.2%		6.1%		6.5%		6.0%		4.3%		6.3%	

Table 2: Electricity Supplied to Customers by System, Company and Tariff Category : 2017 & 2018

2017 MWh	Main Interconnected System (MIS)								Rural System		Dhofar System		Total Oman	
	Muscat	% Total	Majan	% Total	Mazoon	% Total	Total MIS	% Total	RAEC	% Total	DPC	% Total		% Total
Residential	5,032,326	46.1%	3,063,802	33.8%	5,172,200	60.1%	13,268,328	46.4%	451,348	49.4%	1,172,414	41.1%	14,892,090	46.0%
(Non-CRT)Industrial	(8,772)	-0.1%	11,548	0.1%	2,843	0.0%	5,619	0.0%	722	0.1%	(1,232)	0.0%	5,109	0.0%
(Non-CRT)Commercial	1,159,226	10.6%	547,388	6.0%	899,150	10.4%	2,605,764	9.1%	83,228	9.1%	230,102	8.1%	2,919,094	9.0%
Agriculture & Fisheries	7,500	0.1%	159,799	1.8%	203,749	2.4%	371,048	1.3%	44,646	4.9%	9,228	0.3%	424,922	1.3%
Hotels / Tourism	125,318	1.1%	24,872	0.3%	23,201	0.3%	173,392	0.6%	30,508	3.3%	13,784	0.5%	217,684	0.7%
(Non-CRT)Government	398,768	3.7%	296,042	3.3%	446,182	5.2%	1,140,993	4.0%	91,426	10.0%	175,697	6.2%	1,408,116	4.4%
Ministry of Defence	80,485	0.7%	17,849	0.2%	212,885	2.5%	311,219	1.1%	35,618	3.9%	102,464	3.6%	449,302	1.4%
(CRT)Industrial	408,999	3.7%	3,940,165	43.5%	132,719	1.5%	4,481,884	15.7%	37,794	4.1%	495,819	17.4%	5,015,496	15.5%
(CRT)Commercial	2,596,891	23.8%	726,918	8.0%	897,839	10.4%	4,221,648	14.8%	60,892	6.7%	329,320	11.5%	4,611,859	14.3%
(CRT)Government	1,117,776	10.2%	263,644	2.9%	620,870	7.2%	2,002,290	7.0%	77,788	8.5%	325,736	11.4%	2,405,813	7.4%
2017 Total	10,918,517	100.0%	9,052,027	100.0%	8,611,639	100.0%	28,582,183	100.0%	913,969	100.0%	2,853,332	100.0%	32,349,484	100.0%
% of Oman	33.8%		28.0%		26.6%		88.4%		2.8%		8.8%		100.0%	

2018 MWh	Main Interconnected System (MIS)								Rural System		Dhofar System		Total Oman	
	Muscat	% Total	Majan	% Total	Mazoon	% Total	Total MIS	% Total	RAEC	% Total	DPC	% Total		% Total
Residential	Muscat	% Total	Majan	% Total	Mazoon	% Total	Total MIS	% Total	450,942	42.0%	1,147,154	40.2%	15,325,840	45.7%
(Non-CRT)Industrial	5,265,627	45.6%	3,201,073	33.7%	5,261,044	61.3%	13,727,744	46.3%	599	0.1%	828	0.0%	14,111	0.0%
(Non-CRT)Commercial	887	0.0%	11,581	0.1%	216	0.0%	12,684	0.0%	96,370	9.0%	310,298	10.9%	2,919,143	8.7%
Agriculture & Fisheries	1,219,549	10.6%	616,505	6.5%	676,422	7.9%	2,512,476	8.5%	90,169	8.4%	25,783	0.9%	520,437	1.6%
Hotels / Tourism	9,381	0.1%	170,730	1.8%	224,374	2.6%	404,485	1.4%	29,080	2.7%	25,390	0.9%	338,574	1.0%
(Non-CRT)Government	220,722	1.9%	28,615	0.3%	34,767	0.4%	284,104	1.0%	121,014	11.3%	187,480	6.6%	1,423,298	4.2%
Ministry of Defence	398,062	3.4%	312,842	3.3%	403,900	4.7%	1,114,804	3.8%	41,195	3.8%	109,498	3.8%	475,708	1.4%
(CRT)Industrial	84,495	0.7%	18,100	0.2%	222,419	2.6%	325,014	1.1%	93,651	8.7%	462,200	16.2%	5,154,516	15.4%
(CRT)Commercial	412,651	3.6%	4,064,097	42.7%	121,916	1.4%	4,598,664	15.5%	52,413	4.9%	357,640	12.5%	4,917,359	14.7%
(CRT)Government	2,728,301	23.6%	784,530	8.3%	994,475	11.6%	4,507,306	15.2%	97,516	9.1%	224,287	7.9%	2,458,504	7.3%
2018 Total	1,198,361	10.4%	299,111	3.1%	639,229	7.5%	2,136,701	7.2%	1,072,950	100.0%	2,850,557	100.0%	33,547,489	100.0%
% of Oman	11,538,036	100.0%	9,507,184	100.0%	8,578,761	100.0%	29,623,982	100.0%	3.2%		8.5%		100.0%	
Net Change in MWh	619,519		455,157		(32,878)		1,041,798		158,981		(2,774)		1,198,005	
Annual % Change	5.7%		5.0%		-0.4%		3.6%		17.4%		-0.1%		3.7%	

Table 3: Customer Accounts, MWh Supplied and MWh per Account by System,Company and Tariff Category 2018

Main Interconnected System (MIS)		Main Interconnected System (MIS)				Rural System	Dhofar System	Total Oman
Tariff Category	Item	Muscat	Majan	Mazoon	Total MIS	RAEC	DPC	
Residential	Accounts	292,660	169,543	324,169	786,372	27,266	88,362	902,000
	MWh Supplied	5,265,627	3,201,073	5,261,044	13,727,744	450,942	1,147,154	15,325,840
	MWh Supplied per Accounts	18.0	18.9	16.2	17.5	16.5	13.0	17.0
Industrial	Accounts	10	375	9	394	33	12	439
	MWh Supplied	887	11,581	216	12,684	599	828	14,111
	MWh Supplied per Accounts	88.7	30.9	24.0	144	18.1	69.0	32.1
Commercial	Accounts	82,885	54,933	91,954	229,772	7,921	20,203	257,896
	MWh Supplied	1,219,549	616,505	676,422	2,512,476	96,370	310,298	2,919,143
	MWh Supplied per Accounts	14.7	11.2	7.4	33	12.2	15.4	11.3
Agriculture & Fisheries	Accounts	209	4,197	3,997	8,403	564	116	9,083
	MWh Supplied	9,381	170,730	224,374	404,485	90,169	25,783	520,437
	MWh Supplied per Accounts	44.9	40.7	56.1	48.1	159.9	222.3	57.3
Hotels / Tourism	Accounts	330	391	115	836	68	155	1,059
	MWh Supplied	220,722	28,615	34,767	284,104	29,080	25,390	338,574
	MWh Supplied per Accounts	668.9	73.2	302.3	339.8	427.7	163.8	319.7
Government	Accounts	7,459	8,088	13,755	29,302	3,420	4,923	37,645
	MWh Supplied	398,062	312,842	403,900	1,114,804	121,014	187,480	1,423,298
	MWh Supplied per Accounts	53.4	38.7	29.4	38.0	35.4	38.1	37.8
Ministry of Defence	Accounts	79	76	52	207	126	108	441
	MWh Supplied	84,495	18,100	222,419	325,014	41,195	109,498	475,708
	MWh Supplied per Accounts	1,069.6	238.2	4,277.3	1,570.1	326.9	1,013.9	1,078.7
CRT/Industrial	Accounts	168	224	74	466	24	55	545
	MWh Supplied	412,651	4,064,097	121,916	4,598,664	93,651	462,200	5,154,516
	MWh Supplied per Accounts	2,456.3	18,143.3	1,647.5	9,868.4	3,902.1	8,403.6	9,457.8
CRT/Commercial	Accounts	3,890	845	1,491	6,226	114	573	6,913
	MWh Supplied	2,728,301	784,530	994,475	4,507,306	52,413	357,640	4,917,359
	MWh Supplied per Accounts	701.4	928.4	667.0	723.9	459.8	624.2	711.3
CRT/Government	Accounts	858	567	1,158	2,583	237	315	3,135
	MWh Supplied	1,198,361	299,111	639,229	2,136,701	97,516	224,287	2,458,504
	MWh Supplied per Accounts	1,396.7	527.5	552.0	827.2	411.5	712.0	784.2
Total Customer Accounts in 2018		388,548	239,239	436,774	1,064,561	39,773	114,822	1,219,156
Total MWh Supplied in 2018		11,538,036	9,507,184	8,578,761	29,623,982	1,072,950	2,850,557	33,547,489
MWh Supplied per Account in 2018		29.7	39.7	19.6	27.8	27.0	24.8	27.5
% Change MWh per Account from 2017		-1.3%	-1.1%	-6.1%	-2.7%	10.70%	-4.20%	-2.40%

Table 4: Electriciy Supply & Registered Accounts by Region & Company : 2017 and 2018

2017

Region	Company	MWh Supplied	% Oman	Accounts	% Oman	MWh Supply per Account
Al Dahirah	Majan	1,050,960	3%	53,198	4.6%	19.8
Al Sharquia North	Mazoon	1,140,711	4%	74,910	6.5%	15.2
Al Sharquia South	Mazoon	1,357,943	4%	71,180	6.2%	19.1
Al Wusta	RAEC	348,860	1%	15,682	1.4%	22.2
Burami	Majan	764,662	2%	37,276	3.2%	20.5
Dakhliyah	Mazoon	2,447,288	8%	118,254	10.3%	20.7
Dhofar	DPC	2,853,332	9%	110,063	9.6%	25.9
Dhofar	RAEC	244,562	1%	7,145	0.6%	34.2
Musandam	RAEC	320,548	1%	14,686	1.3%	21.8
Muscat	RAEC	10,918,517	34%	362,891	31.6%	30.1
North Batinah	Muscat	7,236,405	22%	134,721	11.7%	53.7
South Batinah	Majan	3,665,697	11%	147,395	12.8%	24.9
Sultanate totals 2017		32,349,484		1,147,401		28.2

2018

Region	Company	MWh Supplied	% Oman	Accounts	% Oman	MWh Supply per Account
Al Dahirah	Majan	1,122,391	3.3%	56,477	4.6%	19.9
Al Sharquia North	Mazoon	1,104,740	3.3%	78,036	6.4%	14.2
Al Sharquia South	Mazoon	1,365,723	4.1%	74,475	6.1%	18.3
Al Wusta	RAEC	429,462	1.3%	16,893	1.4%	25.4
Burami	Majan	743,705	2.2%	38,531	3.2%	19.3
Dakhliyah	Mazoon	2,492,771	7.4%	125,443	10.3%	19.9
Dhofar	DPC	2,850,557	8.5%	114,822	9.4%	24.8
Dhofar	RAEC	246,958	0.7%	7,554	0.6%	32.7
Musandam	RAEC	396,531	1.2%	15,326	1.3%	25.9
Muscat	RAEC	11,538,036	34.4%	388,548	31.9%	29.7
North Batinah	Muscat	7,641,088	22.8%	144,231	11.8%	53.0
South Batinah	Majan	3,615,528	10.8%	158,820	13.0%	22.8
Sultanate totals 2018		33,547,489		1,219,156		27.5

Table 5: Electricity Production by System: 2015 to 2018

2015 Electricity Production

System	Gross MWh	% Year	Net MWh	% Year
Main Interconnected System	28,772,266	87.8%	28,333,588	88.0%
Rural Systems	863,105	2.6%	914,068	2.8%
Dhofar Power System	3,122,649	9.5%	2,941,665	9.1%
Total for 2015	32,758,020		32,189,321	

2016 Electricity Production

System	Gross MWh	% Year	Net MWh	% Year
Main Interconnected System	30,039,357	87.8%	29,548,736	87.9%
Rural Systems	940,008	2.7%	994,557	3.0%
Dhofar Power System	3,248,297	9.5%	3,057,168	9.1%
Total for 2016	34,227,662		33,600,461	

2017 Electricity Production

System	Gross MWh	% Year	Net MWh	% Year
Main Interconnected System	31,783,535	88.0%	31,351,002	87.9%
Rural Systems	1,038,319	2.9%	1,091,702	3.1%
Dhofar Power System	3,304,103	9.1%	3,223,947	9.0%
Total for 2017	36,125,957		35,666,650	

2018 Electricity Production

System	Gross MWh	% Year	Net MWh	% Year
Main Interconnected System	33,169,076	88.1%	32,833,003	88.3%
Rural Systems	1,129,624	3.0%	1,215,535	3.3%
Dhofar Power System	3,368,464	8.9%	3,143,319	8.5%
Total for 2018	37,667,164		37,191,856	

Table 6: Electricity Production by System and Company: 2017 & 2018

A

2017	Electricity Production			
	Gross MWh	Oman %	Net MWh	Oman %
Main Interconnected System				
ACWA Power Barka SAOG	3,282,503	9.1%	2,987,638	8.4%
Al Batinah Power Company SAOC	4,501,556	12.5%	4,331,115	12.1%
Al Ghubrah Power & Desalination Company SAOC	1,969,933	5.5%	1,817,169	5.1%
Al Kamil Power Company SAOC	217,272	0.6%	214,390	0.6%
Al Rusail Power Company SAOC	1,918,028	5.3%	1,903,338	5.3%
Al Suwadi Power Company SAOC	4,570,363	12.7%	4,471,289	12.5%
Phoenix Power Company SAOC	7,809,942	21.6%	7,809,787	21.9%
PWP Othe Purchases		0.0%	772,604	2.2%
SMN Barka Power Company SAOC	2,433,232	6.7%	2,223,916	6.2%
Sohar Power Company SAOG	٣,٥٧١,١٩٧	9.9%	3,320,642	9.3%
United Power Company SAOC	1,133,239	3.1%	1,125,513	3.2%
Wadi Al Jizzi Power Company SAOC	376,270	1.0%	373,600	1.0%
MIS sub-total	31,783,535	88.0%	31,351,002	87.9%

B

2017	Electricity Production			
	Gross MWh	Oman %	Net MWh	Oman %
Rural Systems				
Bahwan Astonfield Solar Power LLC	569	0.0%	564	0.0%
'Musandam Power Company SAOC	206,654	0.6%	188,514	0.5%
RAEC Pruchases from PDO		0.0%	125,618	0.4%
RAEC SAOC	831,096	2.3%	777,005	2.2%
Rural Systems sub-total	1,038,319	2.9%	1,091,702	3.1%

C

2017	Electricity Production			
	Gross MWh	Oman %	Net MWh	Oman %
Dhofar Power System				
Dhofar Generating Company SAOC	663,437	1.8%	786,205	2.2%
PWP Other Purchases		0.0%	-6,361	0.0%
SembCorp Salalah Power & Water Company SAOC	2,640,666	7.3%	2,444,103	6.9%
Dhofar System sub-total	3,304,103	9.1%	3,223,947	9.0%
Totals for 2017	36,125,957	100%	35,666,650	100%

Table 6: Electricity Production by System and Company: 2017 & 2018

A

2018	Electricity Production			
	Gross MWh	Oman %	Net MWh	Oman %
Main Interconnected System				
ACWA Power Barka SAOG	2,643,764	7.0%	2,454,934	6.6%
AD'Dhahira Generating Company SAOC	133,868	0.4%	133,868	0.4%
Al Batinah Power Company SAOC	4,958,490	13.2%	4,803,603	12.9%
Al Ghubrah Power & Desalination Company SAOC	1,346,105	3.6%	1,235,819	3.3%
Al Kamil Power Company SAOC	387,903	1.0%	383,741	1.0%
Al Rusail Power Company SAOC	2,181,114	5.8%	2,164,054	5.8%
Al Suwadi Power Company SAOC	4,940,972	13.1%	4,821,049	13.0%
Phoenix Power Company SAOC	8,453,959	22.4%	8,453,804	22.7%
PWP Othe Purchases		0.0%	671,397	1.8%
Shinas Generating Company	81,411	0.2%	81,411	0.2%
SMN Barka Power Company SAOC	2,917,906	7.7%	2,762,225	7.4%
Sohar Power Company SAOG	3,790,294	10.1%	3,543,035	9.5%
United Power Company SAOC	1,192,466	3.2%	1,184,555	3.2%
Wadi Al Jizzi Power Company SAOC	140,825	0.4%	139,508	0.4%
MIS sub-total	33,169,076	88.1%	32,833,003	88.3%
% change from 2017	4.4%		4.7%	

B

2018	Electricity Production			
	Gross MWh	Oman %	Net MWh	Oman %
Rural Systems				
Bahwan Astonfield Solar Power LLC	558	0.0%	551	0.0%
'Musandam Power Company SAOC	354,022	0.9%	343,718	0.9%
RAEC Pruchases from PDO		0.0%	140,679	0.4%
RAEC SAOC	775,044	2.1%	730,586	2.0%
Rural Systems sub-total	1,129,624	3.0%	1,215,535	3.3%
% change from 2017	8.8%		11.3%	

C

2018	Electricity Production			
	Gross MWh	Oman %	Net MWh	Oman %
Dhofar Power System				
Dhofar Generating Company SAOC	1,723,108	4.6%	1,674,273	4.5%
PWP Other Purchases		0.0%	-2,645	0.0%
SembCorp Salalah Power & Water Company SAOC	1,645,356	4.4%	1,471,691	4.0%
Dhofar System sub-total	3,368,464	8.9%	3,143,319	8.5%
% change from 2017	1.9%		-2.5%	

Totals for 2018	37,667,164	100%	37,191,856	100%
Actual change from 2017	1,541,207		1,525,206	
% change from 2017	4.3%		4.3%	

Table 7: Electricity Production by Region: 2017 & 2018

2017

Region	MWh Gross	% Oman	MWh Net	% Oman
Al Dahirah	1,859	0%	1,822	0.0%
Al Sharqiya	8,109,769	22%	8,093,729	22.7%
Al Wusta	278,261	1%	382,219	1.1%
Dakhliyah	1,133,239	3%	1,125,513	3.2%
Dhofar	3,590,696	10%	3,525,711	9.9%
Musandam	389,051	1%	363,930	1.0%
Muscat	3,887,961	11%	3,735,915	10.5%
North Batinah	8,449,023	23%	8,754,966	24.5%
South Batinah	10,286,098	28%	9,682,844	27.1%
Total for 2017	36,125,957		35,666,650	

2018

Region	MWh Gross	% Oman	MWh Net	% Oman
Al Dahirah	133,868	0.4%	133,868	0.4%
Change from 2017 (%)	7102.4%		7246.7%	
Al Sharqiya	8,925,656	23.7%	8,916,962	24.0%
Change from 2017 (%)	10.1%		10.2%	
Al Wusta	321,582	0.9%	448,323	1.2%
Change from 2017 (%)	15.6%		17.3%	
Dakhliyah	1,192,466	3.2%	1,184,555	3.2%
Change from 2017 (%)	5.2%		5.2%	
Dhofar	3,653,281	9.7%	3,447,711	9.3%
Change from 2017 (%)	1.7%		-2.2%	
Musandam	439,430	1.2%	426,565	1.1%
Change from 2017 (%)	12.9%		17.2%	
Muscat	3,527,219	9.4%	3,414,199	9.2%
Change from 2017 (%)	-9.3%		-8.6%	
North Batinah	8,971,020	23.8%	9,181,465	24.7%
Change from 2017 (%)	6.2%		4.9%	
South Batinah	10,502,642	27.9%	10,038,208	27.0%
Change from 2017 (%)	2.1%		3.7%	
Sultanate Totals 2018	37,667,164		37,191,856	
Change from 2017 (%)	4.3%		4.3%	

Table 8: Electricity Production by System and Company: 2017 & 2018

2017 **Electricity Production**

Region	Company	Gross MWh	Oman %	Net MWh	Oman %
Al Dahirah	RAEC SAOC	1,859	0.0%	1,822	0.0%
Al Sharqiya	Al Kamil SAOG	217,272	0.6%	214,390	0.6%
	Phoenix Power Company SAOC	7,809,942	21.6%	7,809,787	21.9%
	PWP other purchases		0.0%	82	0.0%
	RAEC SAOC	82,555	0.2%	69,470	0.2%
Al Wusta	PWP other purchases		0.0%	27,505	0.1%
	RAEC purchases from PDO		0.0%	100,523	0.3%
	RAEC SAOC	278,261	0.8%	254,192	0.7%
Dakhliyah	UPC Manah SAOG	1,133,239	3.1%	1,125,513	3.2%
Dhofar	Bahwan Astonfield Solar Power LLC	569	0.0%	564	0.0%
	DGC SAOC	663,437	1.8%	786,205	2.2%
	PWP other purchases		0.0%	-6,361	0.0%
	RAEC purchases from PDO		0.0%	25,096	0.1%
	RAEC SAOC	286,024	0.8%	276,105	0.8%
	SembcorpSalalah SAOC	2,640,666	7.3%	2,444,103	6.9%
Musandam	Musandam Power Company SAOC	206,654	0.6%	188,514	0.5%
	RAEC SAOC	182,397	0.5%	175,416	0.5%
Muscat	Al Ghubrah SAOC	1,969,933	5.5%	1,817,169	5.1%
	Al Rusail SAOG	1,918,028	5.3%	1,903,338	5.3%
	PWP other purchases		0.0%	15,409	0.0%
North Batinah	Al Batinah PC SAOC	4,501,556	12.5%	4,331,115	12.1%
	PWP other purchases		0.0%	729,609	2.0%
	Sohar Power Company SAOG	3,571,197	9.9%	3,320,642	9.3%
	Wadi Jizzi SAOC	376,270	1.0%	373,600	1.0%
South Batinah	ACWA Power Barka SAOG	3,282,503	9.1%	2,987,638	8.4%
	Al Suwadi PC SAOC	4,570,363	12.7%	4,471,289	12.5%
	SMN Barka SAOG	2,433,232	6.7%	2,223,916	6.2%
Sultanate Totals 2017		36,125,957		35,666,650	

Table 8: Electricity Production by System and Company: 2017 & 2018

2018 **Electricity Production**

Region	Company	Gross MWh	Oman %	Net MWh	Oman %
Al Dahirah	AD'Dhahira Generating Company SAOC	133,868	0.4%	133,868	0.4%
Al Sharqiya	Al Kamil SAOG	387,903	1.1%	383,741	1.1%
	Phoenix Power Company SAOC	8,453,959	23.4%	8,453,804	23.7%
	PWP other purchases		0.0%	180	0.0%
	RAEC SAOC	83,794	0.2%	79,238	0.2%
Al Wusta	PWP other purchases		0.0%	42,983	0.1%
	RAEC purchases from PDO		0.0%	111,155	0.3%
	RAEC SAOC	321,582	0.9%	294,185	0.8%
Dakhliyah	UPC Manah SAOG	1,192,466	3.3%	1,184,555	3.3%
Dhofar	Bahwan Astonfield Solar Power LLC	558	0.0%	551	0.0%
	DGC SAOC	1,723,108	4.8%	1,674,273	4.7%
	PWP other purchases		0.0%	2,645-	0.0%
	RAEC purchases from PDO		0.0%	29,523	0.1%
	RAEC SAOC	284,259	0.8%	274,318	0.8%
	SembcorpSalalah SAOC	1,645,356	4.6%	1,471,691	4.1%
Musandam	Musandam Power Company SAOC	354,022	1.0%	343,718	1.0%
	RAEC purchases from PDO		0.0%		0.0%
	RAEC SAOC	85,409	0.2%	82,847	0.2%
Muscat	Al Ghubrah SAOC	1,346,105	3.7%	1,235,819	3.5%
	Al Rusail SAOG	2,181,114	6.0%	2,164,054	6.1%
	PWP other purchases		0.0%	14,326	0.0%
North Batinah	Al Batinah PC SAOC	4,958,490	13.7%	4,803,603	13.5%
	PWP other purchases		0.0%	613,907	1.7%
	Shinas Generating Company	81,411	0.2%	81,411	0.2%
	Sohar Power Company SAOG	3,790,294	10.5%	3,543,035	9.9%
	Wadi Jizzi SAOC	140,825	0.4%	139,508	0.4%
South Batinah	ACWA Power Barka SAOG	2,643,764	7.3%	2,454,934	6.9%
	Al Suwadi PC SAOC	4,940,972	13.7%	4,821,049	13.5%
	SMN Barka SAOG	2,917,906	8.1%	2,762,225	7.7%
Sultanate Totals 2018		37,667,164		37,191,856	
Change from 2017 (%)			4.3%		4.3%

Table 9-1: Monthly Electricity Production by System: MIS 2015 to 2018

2015 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
MIS	Jan-15	1,507	5.2%	1,435	5.1%
MIS	Feb-15	1,532	5.3%	1,460	5.2%
MIS	Mar-15	1,900	6.6%	1,806	6.4%
MIS	Apr-15	2,451	8.5%	2,366	8.4%
MIS	May-15	2,952	10.3%	2,921	10.3%
MIS	Jun-15	3,045	10.6%	3,066	10.8%
MIS	Jul-15	3,221	11.2%	3,257	11.5%
MIS	Aug-15	3,041	10.6%	3,073	10.8%
MIS	Sep-15	2,820	9.8%	2,834	10.0%
MIS	Oct-15	2,563	8.9%	2,549	9.0%
MIS	Nov-15	2,127	7.4%	2,041	7.2%
MIS	Dec-15	1,613	5.6%	1,525	5.4%
2015 Totals		28,772		28,334	

2016 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
MIS	Jan-16	1,697	5.6%	1,614	5.5%
MIS	Feb-16	1,642	5.5%	1,561	5.3%
MIS	Mar-16	2,016	6.7%	1,928	6.5%
MIS	Apr-16	2,257	7.5%	2,165	7.3%
MIS	May-16	2,981	9.9%	3,113	10.5%
MIS	Jun-16	3,115	10.4%	3,275	11.1%
MIS	Jul-16	3,464	11.5%	3,329	11.3%
MIS	Aug-16	3,379	11.2%	3,227	10.9%
MIS	Sep-16	2,870	9.6%	2,856	9.7%
MIS	Oct-16	2,635	8.8%	2,666	9.0%
MIS	Nov-16	2,070	6.9%	1,996	6.8%
MIS	Dec-16	1,913	6.4%	1,826	6.2%
2016 Totals		30,039.4		29,555.7	

Table 9-2: Monthly Electricity Production by System: MIS 2015 to 2018

2017 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
MIS	Jan-17	1,854	5.8%	1,772	5.7%
MIS	Feb-17	1,642	5.2%	1,568	5.0%
MIS	Mar-17	2,172	6.8%	2,088	6.7%
MIS	Apr-17	2,704	8.5%	2,591	8.3%
MIS	May-17	3,324	10.5%	3,310	10.6%
MIS	Jun-17	3,482	11.0%	3,500	11.2%
MIS	Jul-17	3,563	11.2%	3,588	11.4%
MIS	Aug-17	3,309	10.4%	3,353	10.7%
MIS	Sep-17	3,061	9.6%	3,094	9.9%
MIS	Oct-17	2,856	9.0%	2,831	9.0%
MIS	Nov-17	2,144	6.7%	2,055	6.6%
MIS	Dec-17	1,672	5.3%	1,600	5.1%
2017 Totals		31,783.5		31,351.0	

2018 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
MIS	Jan-18	1,739	5.2%	1,666	5.1%
MIS	Feb-18	1,736	5.2%	1,650	5.0%
MIS	Mar-18	2,252	6.8%	2,174	6.6%
MIS	Apr-18	2,773	8.4%	2,705	8.2%
MIS	May-18	3,275	9.9%	3,390	10.3%
MIS	Jun-18	3,500	10.6%	3,679	11.2%
MIS	Jul-18	3,765	11.4%	3,713	11.3%
MIS	Aug-18	3,589	10.8%	3,509	10.7%
MIS	Sep-18	3,117	9.4%	3,147	9.6%
MIS	Oct-18	3,033	9.1%	2,958	9.0%
MIS	Nov-18	2,376	7.2%	2,308	7.0%
MIS	Dec-18	2,014	6.1%	1,935	5.9%
2018 Totals		33,169.1		32,833.0	

Table 9-3: Monthly Electricity Production by System: Rural Systems 2015 to 2018

2015 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Rural Systems	Jan-15	40,673	4.7%	40,590	4.4%
Rural Systems	Feb-15	41,921	4.9%	41,756	4.6%
Rural Systems	Mar-15	54,124	6.3%	53,615	5.9%
Rural Systems	Apr-15	74,539	8.6%	84,258	9.2%
Rural Systems	May-15	90,937	10.5%	97,257	10.6%
Rural Systems	Jun-15	91,874	10.6%	98,417	10.8%
Rural Systems	Jul-15	90,389	10.5%	96,323	10.5%
Rural Systems	Aug-15	89,420	10.4%	95,324	10.4%
Rural Systems	Sep-15	89,069	10.3%	94,407	10.3%
Rural Systems	Oct-15	86,557	10.0%	92,202	10.1%
Rural Systems	Nov-15	62,696	7.3%	65,841	7.2%
Rural Systems	Dec-15	50,906	5.9%	54,079	5.9%
2015 Totals		863,105		914,068	

2016 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Rural Systems	Jan-16	48.6	5.2%	50.3	5.1%
Rural Systems	Feb-16	48.0	5.1%	49.9	5.0%
Rural Systems	Mar-16	69.1	7.3%	72.9	7.3%
Rural Systems	Apr-16	76.3	8.1%	79.6	8.0%
Rural Systems	May-16	101.1	10.8%	107.7	10.8%
Rural Systems	Jun-16	99.6	10.6%	105.4	10.6%
Rural Systems	Jul-16	96.6	10.3%	102.3	10.3%
Rural Systems	Aug-16	94.6	10.1%	98.8	9.9%
Rural Systems	Sep-16	94.7	10.1%	99.0	10.0%
Rural Systems	Oct-16	86.2	9.2%	94.7	9.5%
Rural Systems	Nov-16	66.5	7.1%	70.0	7.0%
Rural Systems	Dec-16	58.9	6.3%	64.0	6.4%
2016 Totals		940.0		994.6	

Table 9-4: Monthly Electricity Production by System: Rural Systems 2015 to 2018

2017 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Rural Systems	Jan-17	62.6	6.0%	58.1	5.3%
Rural Systems	Feb-17	56.3	5.4%	51.0	4.7%
Rural Systems	Mar-17	74.9	7.2%	83.7	7.7%
Rural Systems	Apr-17	92.6	8.9%	96.0	8.8%
Rural Systems	May-17	108.7	10.5%	114.3	10.5%
Rural Systems	Jun-17	112.6	10.8%	122.6	11.2%
Rural Systems	Jul-17	104.8	10.1%	107.8	9.9%
Rural Systems	Aug-17	103.1	9.9%	99.5	9.1%
Rural Systems	Sep-17	102.3	9.9%	113.9	10.4%
Rural Systems	Oct-17	97.9	9.4%	112.7	10.3%
Rural Systems	Nov-17	68.7	6.6%	73.4	6.7%
Rural Systems	Dec-17	53.8	5.2%	58.8	5.4%
2017 Totals		1,038.3		1,091.7	

2018 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Rural Systems	Jan-18	54.7	4.8%	55.6	4.6%
Rural Systems	Feb-18	55.2	4.9%	56.9	4.7%
Rural Systems	Mar-18	82.0	7.3%	85.9	7.1%
Rural Systems	Apr-18	102.6	9.1%	107.4	8.8%
Rural Systems	May-18	118.7	10.5%	126.8	10.4%
Rural Systems	Jun-18	116.0	10.3%	127.8	10.5%
Rural Systems	Jul-18	112.5	10.0%	124.2	10.2%
Rural Systems	Aug-18	113.2	10.0%	123.6	10.2%
Rural Systems	Sep-18	109.0	9.7%	118.9	9.8%
Rural Systems	Oct-18	105.2	9.3%	116.4	9.6%
Rural Systems	Nov-18	87.5	7.7%	95.2	7.8%
Rural Systems	Dec-18	73.0	6.5%	76.9	6.3%
2018 Totals		1,129.6		1,215.5	

Table 9-5: Monthly Electricity Production by System: DPS 2015 to 2018

2015 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Dhofar Power System	Jan-15	185.9	6.0%	169.8	5.8%
Dhofar Power System	Feb-15	181.1	5.8%	168.3	5.7%
Dhofar Power System	Mar-15	235.5	7.5%	220.9	7.5%
Dhofar Power System	Apr-15	271.2	8.7%	255.4	8.7%
Dhofar Power System	May-15	319.8	10.2%	303.6	10.3%
Dhofar Power System	Jun-15	320.2	10.3%	303.6	10.3%
Dhofar Power System	Jul-15	279.4	8.9%	262.7	8.9%
Dhofar Power System	Aug-15	277.5	8.9%	262.3	8.9%
Dhofar Power System	Sep-15	283.1	9.1%	268.8	9.1%
Dhofar Power System	Oct-15	292.7	9.4%	278.0	9.5%
Dhofar Power System	Nov-15	259.2	8.3%	244.1	8.3%
Dhofar Power System	Dec-15	217.1	7.0%	204.1	6.9%
2015 Totals		3,122.6		2,941.7	

2016 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Dhofar Power System	Jan-16	211.1	6.5%	196.1	6.4%
Dhofar Power System	Feb-16	197.8	6.1%	183.6	6.0%
Dhofar Power System	Mar-16	271.8	8.4%	256.8	8.4%
Dhofar Power System	Apr-16	308.7	9.5%	283.9	9.3%
Dhofar Power System	May-16	351.1	10.8%	332.7	10.9%
Dhofar Power System	Jun-16	311.1	9.6%	304.5	10.0%
Dhofar Power System	Jul-16	261.1	8.0%	243.2	8.0%
Dhofar Power System	Aug-16	277.7	8.5%	262.7	8.6%
Dhofar Power System	Sep-16	278.7	8.6%	263.8	8.6%
Dhofar Power System	Oct-16	279.5	8.6%	264.6	8.7%
Dhofar Power System	Nov-16	258.0	7.9%	237.3	7.8%
Dhofar Power System	Dec-16	241.7	7.4%	228.1	7.5%
2016 Totals		3,248.3		3,057.2	

Table 9-6: Monthly Electricity Production by System: DPS 2017 to 2018

2017 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Dhofar Power System	Jan-17	223.9	6.8%	208.9	6.5%
Dhofar Power System	Feb-17	206.2	6.2%	192.9	6.0%
Dhofar Power System	Mar-17	278.0	8.4%	262.3	8.1%
Dhofar Power System	Apr-17	319.9	9.7%	294.8	9.1%
Dhofar Power System	May-17	356.8	10.8%	337.2	10.5%
Dhofar Power System	Jun-17	364.5	11.0%	338.7	10.5%
Dhofar Power System	Jul-17	297.5	9.0%	285.1	8.8%
Dhofar Power System	Aug-17	297.2	9.0%	283.8	8.8%
Dhofar Power System	Sep-17	298.9	9.0%	281.8	8.7%
Dhofar Power System	Oct-17	272.1	8.2%	284.6	8.8%
Dhofar Power System	Nov-17	235.6	7.1%	253.6	7.9%
Dhofar Power System	Dec-17	153.4	4.6%	200.2	6.2%
2017 Totals		3,304.1		3,223.9	

2018 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Dhofar Power System	Jan-18	207.0	6.1%	193.5	6.2%
Dhofar Power System	Feb-18	227.8	6.8%	191.7	6.1%
Dhofar Power System	Mar-18	274.9	8.2%	256.9	8.2%
Dhofar Power System	Apr-18	324.1	9.6%	315.1	10.0%
Dhofar Power System	May-18	326.9	9.7%	312.4	9.9%
Dhofar Power System	Jun-18	321.3	9.5%	303.1	9.6%
Dhofar Power System	Jul-18	314.8	9.3%	296.7	9.4%
Dhofar Power System	Aug-18	278.5	8.3%	262.3	8.3%
Dhofar Power System	Sep-18	269.3	8.0%	252.7	8.0%
Dhofar Power System	Oct-18	287.5	8.5%	269.7	8.6%
Dhofar Power System	Nov-18	283.0	8.4%	265.2	8.4%
Dhofar Power System	Dec-18	253.4	7.5%	224.0	7.1%
2018 Totals		3,368.5		3,143.3	

Table 10-1: Quarterly electricity production by System : 2015 to 2018

2015 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
MIS	Qtr1-2015	4,939.5	17.2%	4,701.6	16.6%
MIS	Qtr2-2015	8,447.4	29.4%	8,353.2	29.5%
MIS	Qtr3-2015	9,082.2	31.6%	9,164.0	32.3%
MIS	Qtr4-2015	6,303.1	21.9%	6,114.8	21.6%
2015 total		28,772.3		28,333.6	

2016 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
MIS	Qtr1-2016	5,354.8	17.8%	5,103.5	17.3%
MIS	Qtr2-2016	8,354.0	27.8%	8,552.9	28.9%
MIS	Qtr3-2016	9,712.7	32.3%	9,411.6	31.8%
MIS	Qtr4-2016	6,617.8	22.0%	6,487.6	22.0%
2016 total		30,039.4		29,555.7	

2017 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
MIS	Qtr1-2017	5,668.0	17.8%	5,428.3	17.3%
MIS	Qtr2-2017	9,509.7	29.9%	9,401.8	30.0%
MIS	Qtr3-2017	9,933.9	31.3%	10,034.2	32.0%
MIS	Qtr4-2017	6,671.9	21.0%	6,486.6	20.7%
2017 total		31,783.5		31,351.0	

2018 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
MIS	Qtr1-2018	5,726.9	17.3%	5,489.5	16.7%
MIS	Qtr2-2018	9,548.4	28.8%	9,774.1	29.8%
MIS	Qtr3-2018	10,472.0	31.6%	10,368.6	31.6%
MIS	Qtr4-2018	7,421.9	22.4%	7,200.8	21.9%
2018 total		33,169.1		32,833.0	

Table 10-2:Quarterly electricity production by System : 2015 to 2018

2015 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Rural Systems	Qtr1-2015	136.72	15.8%	135.96	14.9%
Rural Systems	Qtr2-2015	257.35	29.8%	279.93	30.6%
Rural Systems	Qtr3-2015	268.88	31.2%	286.05	31.3%
Rural Systems	Qtr4-2015	200.16	23.2%	212.12	23.2%
2015 total		863.1		914.1	

2016 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Rural Systems	Qtr1-2016	165.58	17.6%	173.03	17.4%
Rural Systems	Qtr2-2016	276.98	29.5%	292.71	29.4%
Rural Systems	Qtr3-2016	285.85	30.4%	300.09	30.2%
Rural Systems	Qtr4-2016	211.59	22.5%	228.73	23.0%
2016 total		940.0		994.6	

2017 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Rural Systems	Qtr1-2017	193.8	18.7%	192.8	17.7%
Rural Systems	Qtr2-2017	313.9	30.2%	332.9	30.5%
Rural Systems	Qtr3-2017	310.2	29.9%	321.1	29.4%
Rural Systems	Qtr4-2017	220.4	21.2%	244.9	22.4%
2017 total		1,038.3		1,091.7	

2018 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Rural Systems	Qtr1-2018	191.9	17.0%	198.4	16.3%
Rural Systems	Qtr2-2018	337.3	29.9%	362.0	29.8%
Rural Systems	Qtr3-2018	334.7	29.6%	366.6	30.2%
Rural Systems	Qtr4-2018	265.7	23.5%	288.5	23.7%
2018 total		1,129.6		1,215.5	

Table 10-3:Quarterly electricity production by System : 2015 to 2018

2015 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Dhofar Power System	Qtr1-2015	602.5	19.3%	559.0	19.0%
Dhofar Power System	Qtr2-2015	911.1	29.2%	862.7	29.3%
Dhofar Power System	Qtr3-2015	840.1	26.9%	793.8	27.0%
Dhofar Power System	Qtr4-2015	769.0	24.6%	726.2	24.7%
2015 total		3,122.6		2,941.7	

2016 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Dhofar Power System	Qtr1-2016	680.6	21.0%	636.4	20.8%
Dhofar Power System	Qtr2-2016	970.9	29.9%	921.1	30.1%
Dhofar Power System	Qtr3-2016	817.6	25.2%	769.7	25.2%
Dhofar Power System	Qtr4-2016	779.2	24.0%	729.9	23.9%
2016 total		3,248.3		3,057.2	

2017 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Dhofar Power System	Qtr1-2017	708.1	21.4%	664.1	20.6%
Dhofar Power System	Qtr2-2017	1,041.2	31.5%	970.7	30.1%
Dhofar Power System	Qtr3-2017	893.6	27.0%	850.7	26.4%
Dhofar Power System	Qtr4-2017	661.1	20.0%	738.5	22.9%
2017 total		3,304.1		3,223.9	

2018 Electricity Production

System	Month	Gross GWh	% Year	Net GWh	% Year
Dhofar Power System	Qtr1-2018	709.7	21.1%	642.0	20.4%
Dhofar Power System	Qtr2-2018	972.2	28.9%	930.6	29.6%
Dhofar Power System	Qtr3-2018	862.6	25.6%	811.7	25.8%
Dhofar Power System	Qtr4-2018	823.9	24.5%	758.9	24.1%
2018 total		3,368.5		3,143.3	

Table 11-1:RAEC Capacity, System Peak demands, Electricity and Water Production, and Fuel consumption by Region

2018				Generating Capacity			Water Capacity			System Peak Demands, Production & Fuel Consumption						
RSNum	Facility	Type	Start Year	Installed kW	Derated kW	Num units	Installed m3/day	Num units	@ Ref SC	System Peak kW	Demand margin 1	Gross MWh	Net MWh	Gross 000'm3	Net 000'm3	Diesel 000'Ltrs
Al Dahirah																
020/02	Masrooq	Electricity	1994	1,200	960	4			50oC	740	%22.9	2,380	2,344			778
	Totals for 1 Systems in Al Dahirah			1,200	960	4						2,380	2,344			778
Al Sharqiya																
019/02	Masirah	Cogen	1976	12,431	9,944	8	6,100	10	50oC	1,550	%84.4	477	50	1,655	1,485	140
059/02	Masirah (New)	Electricity	2017	56,819	45,455	7			50oC	17,944	%60.5	83,318	79,187			21,329
	Totals for 2 Systems in Al Sharqiya			69,250	55,399	15	6,100	10				83,794	79,238	1,655	1,485	21,469
Al Wusta																
001/02	AbuMudabi	Cogen	1985				200	3	50oC					44	43	0
027/02	Sawgrah	Cogen	1998				250	2	50oC					44	44	0
037/02	Al Duqm (new)	Cogen	2010	52,748	42,198	9	8,000	4	50oC	38,800	%8.1	183,662	162,339	1,790	1,752	50,749
005/02	Al Khaluf	Electricity	2007	2,508	2,006	3			50oC	1,106	%44.9	4,752	4,595			1,465
006/02	Al Khuiaima	Electricity	2004	8,016	6,412	9			50oC	3,980	%37.9	17,680	17,377			5,087
010/02	AlNajdah	Electricity	2007	2,700	2,160	4			50oC	1,336	%38.1	4,858	4,737			1,502
016/02	Hij	Electricity	1999	31,600	25,280	16			50oC	16,260	%35.7	60,863	58,183			16,336
017/02	Hitam	Electricity	2007	2,932	2,746	6			50oC	1,560	%43.2	6,018	5,686			1,885
030/02	Surab	Electricity	2006	4,000	3,200	4			50oC	2,240	%30.0	8,489	8,314			2,671
045/02	Dhafrat	Electricity	2009	2,000	1,600	4			50oC	1,310	%18.1	3,891	3,708			1,329
046/02	Al Khadra	Electricity	2011	12,500	10,000	5			50oC	5,850	%41.5	27,157	25,070			7,804
	Totals for 11 Systems in Al Wusta			119,004	95,602	60	8,450	9				317,369	290,008	1,879	1,839	88,828

Table 11-2: RAEC Capacity, System Peak demands, Electricity and Water Production, and Fuel consumption by Region

2018				Generating Capacity			Water Capacity			System Peak Demands, Production & Fuel Consumption						
RSNum	Facility	Type	Start Year	Installed kW	Derated kW	Num units	Installed m3/day	Num units	@ Ref SC	System Peak kW	Demand margin 1	Gross MWh	Net MWh	Gross 000'm3	Net 000'm3	Diesel 000'Ltrs
Dhofar																
001/01	Al Halaniyat	Cogen	1987	1,565	1,252	4	198	3	50oC	485	%61.3	1,904	1,332	53	52	644
002/01	Al Mathfa	Electricity	2002	660	528	5			50oC	165	%68.8	83	82			36
004/01	Andat	Electricity	2011	2,012	1,610	5			50oC	870	%46.0	3,262	3,252			934
007/01	Ayun	Electricity	2000	715	572	3			50oC	210	%63.3	852	844			352
008/01	Barbazum	Electricity	2000	1,680	1,344	5			50oC	789	%41.3	2,684	2,671			804
012/01	Dhahabun	Electricity	2000	4,379	3,503	7			50oC	2,267	%35.3	9,042	9,025			3,021
014/01	Fatkhat	Electricity	2002	822	658	3			50oC	285	%56.7	1,172	1,164			423
016/01	Hirweeb	Electricity	2001	2,775	2,220	7			50oC	1,260	%43.2	3,925	3,902			1,198
019/01	Mahwice	Electricity	2002	872	697	4			50oC	234	%66.4	1,029	1,013			358
020/01	Maqshan	Electricity	2001	2,780	2,224	7			50oC	900	%59.5	3,598	3,563			1,246
021/01	Mazyunah	Electricity	2000	13,000	11,400	7			50oC	8,380	%26.5	35,363	33,737			9,575
023/01	Mitan	Electricity	2001	2,887	2,310	5			50oC	940	%59.3	3,703	3,681			1,122
024/01	Mothorah	Electricity	2006	1,100	880	4			50oC	440	%50.0	1,733	1,725			555
035/01	Shahb Asayb	Electricity	2000	26,000	21,200	9			50oC	8,470	%60.0	35,753	34,608			9,500
037/01	Sharbatat	Electricity	1998	4,292	1,833	5			50oC	1,160	%36.7	5,138	5,082			1,687
040/01	Tushnat	Electricity	2001	1,170	936	4			50oC	380	%59.4	1,731	1,715			545
046/01	Mudhai (new)	Electricity	2011	3,872	3,097	6			50oC	2,160	%30.3	8,994	8,450			2,729
047/01	Hasik (new)	Electricity	2012	8,500	7,400	6			50oC	2,731	%63.1	11,908	11,653			3,558
052/01	Saih Al Khirat (N	Electricity	2016	48,702	38,962	6			50oC	25,100	%35.6	152,072	146,595			36,374
053/01	Fershat Qatbee	Electricity	2017	10,000	8,000	6			50oC	980	%87.8	314	223			328
	Totals for 20 Systems in Dhofar			137,783	110,626	108	198	3				284,259	274,318	53	52	74,986

Table 11-3: RAEC Capacity, System Peak demands, Electricity and Water Production, and Fuel consumption by Region

2018				Generating Capacity			Water Capacity			System Peak Demands, Production & Fuel Consumption						
RSNum	Facility	Type	Start Year	Installed kW	Derated kW	Num units	Installed m3/day	Num units	@ Ref SC	System Peak kW	Demand margin 1	Gross MWh	Net MWh	Gross 000'm3	Net 000'm3	Diesel 000'Ltrs
Musandam																
006/03	Kumzar	Cogen	1984	465	375	1	450	3	50oC	0	%100.0			76	74	0
002/03	Dibba	Electricity	1978	24,935	19,948	4			50oC	15,600	%21.8	43,299	42,889			12,174
007/03	Madha	Electricity	1982	11,000	9,400	6			50oC	6,070	%35.4	28,962	27,389			8,700
011/03	Khasab (New)	Electricity	1982	79,590	79,590	11			50oC	30,892	%61.2	13,148	12,569			2,885
	Totals for 4 Systems in Musandam			115,990	109,313	22	450	3				85,409	82,847	76	74	23,759
Totals for 38 RAEC Production Systems				443,227	371,900	209	15,198	25				773,211	728,754	3,663	3,451	209,819

note 1 Tibat Power Station was commissioned on summer 2017, and replaced old Khasab power s

note 2 Rental generation supported systems with negative demand margins.

note 3 additional rental engines was included in Wadi Aswad (058/02), with total G Net Production of 1,833 MWh

2018 Regional Summary	Generating Capacity			Water Capacity		Production & Fuel Consumption				
	Installed kW	Derated kW	Num units	Installed m3/day	Num units	Gross MWh	Net MWh	Gross 000'm3	Net 000'm3	Diesel 000'Ltrs
Totals for 1 RAEC System in Al Dahirah	1,200	960	4			2,380	2,344			778
Totals for 2 RAEC Systems in Al Sharqiya	69,250	55,399	15	6,100	10	83,794	79,238	1,655	1,485	21,469
Totals for 11 RAEC Systems in Al Wusta	119,004	95,602	60	8,450	9	317,369	290,008	1,879	1,839	88,828
Totals for 20 RAEC Systems in Dhofar	137,783	110,626	108	198	3	284,259	274,318	53	52	74,986
Totals for 4 RAEC Systems in Musandam	115,990	109,313	22	450	3	85,409	82,847	76	74	23,759
Totals for 38 RAEC Production System	443,227	371,900	209	15,198	25	773,211	728,754	3,663	3,451	209,819

Annex C
Water Sector Statistics

Table 1: water production by Zone : 2015 to 2018

2015 Water production

Zone	Gross m^3	% Year	Net m^3	% Year
Interconnected & Sharqiyah Zones	224,926,710	90.1%	221,891,664	90.1%
Rural Zones	2,801,593	1.1%	2,627,190	1.1%
Dhofar Zone	21,803,963	8.7%	21,803,963	8.9%
Total for 2015	249,532,266		246,322,817	

2016 Water production

Zone	Gross m^3	% Year	Net m^3	% Year
Interconnected & Sharqiyah Zones	268,443,881	90.9%	263,343,474	90.8%
Rural Zones	3,424,350	1.2%	3,221,419	1.1%
Dhofar Zone	23,331,493	7.9%	23,331,493	8.0%
Total for 2016	295,199,724		289,896,386	

2017 Water production

Zone	Gross m^3	% Year	Net m^3	% Year
Interconnected & Sharqiyah Zones	280,270,041	91.0%	277,322,613	91.0%
Rural Zones	3,549,383	1.2%	3,381,030	1.1%
Dhofar Zone	24,212,130	7.9%	24,212,130	7.9%
Total for 2017	308,031,553		304,915,773	

2018 Water production

Zone	Gross m^3	% Year	Net m^3	% Year
Interconnected & Sharqiyah Zones	308,913,027	92.4%	303,588,256	92.4%
Rural Zones	3,663,004	1.1%	3,453,787	1.1%
Dhofar Zone	21,653,631	6.5%	21,653,631	6.6%
Total for 2018	334,229,661		328,695,673	

Table 2: water production by Zone and Company : 2017 & 2018

2017 Water production

Zone	Gross m^3	% Oman	Net m^3	% Oman
A : Interconnected & Sharqiyah Zones				
ACWA Power Barka SAOG	62,221,232	20.2%	62,089,830	20.4%
Al Ghubrah SAOC	37,865,959	12.3%	37,142,662	12.2%
Muscat City Desalination Company SAOC	57,162,655	18.6%	57,162,668	18.7%
Sharqiyah Desalination Company SAOG	34,039,289	11.1%	33,334,863	10.9%
SMN Barka SAOG	41,250,255	13.4%	41,060,649	13.5%
Sohar Power Company SAOG	47,730,651	15.5%	46,531,941	15.3%
ISZ sub-total	280,270,041	91.0%	277,322,613	91.0%
B : Rural Zones				
RAEC SAOC	3,549,383	1.2%	3,381,030	1.1%
Rural Zones sub-total	3,549,383	1.2%	3,381,030	1.1%
C : Dhofar Zone				
SembcorpSalalah SAOC	24,212,130	7.9%	24,212,130	7.9%
Dhofar Zone sub-total	24,212,130	7.9%	24,212,130	7.9%
Total for 2017	308,031,553		304,915,773	

2018 Water production

Zone	Gross m^3	% Oman	Net m^3	% Oman
A : Interconnected & Sharqiyah Zones				
ACWA Power Barka SAOG	32,935,978	9.9%	32,839,858	10.0%
Al Ghubrah SAOC	26,048,553	7.8%	25,575,525	7.8%
Barka Desalination Company SAOC	38,114,065	11.4%	36,503,886	11.1%
Muscat City Desalination Company SAOC	59,929,864	17.9%	59,929,864	18.2%
Qurayyat Desalination SAOC	35,111,907	10.5%	35,061,907	10.7%
Qurayyat Temporary	11,775,167	3.5%	11,775,167	3.6%
Sharqiyah Desalination Company SAOG	35,752,070	10.7%	35,046,874	10.7%
SMN Barka SAOG	22,040,116	6.6%	21,822,378	6.6%
Sohar Power Company SAOG	47,205,306	14.1%	45,032,797	13.7%
ISZ sub-total	308,913,027	92.4%	303,588,256	92.4%
% change from 2017	10.2%		9.5%	
B : Rural Zones				
RAEC SAOC	3,663,004	1.1%	3,453,787	1.1%
Rural Zones sub-total	3,663,004	1.1%	3,453,787	1.1%
% change from 2017	%3.2		%2.2	
C : Dhofar Zone				
SembcorpSalalah SAOC	21,653,631	6.5%	21,653,631	6.6%
Dhofar Zone sub-total	21,653,631	6.5%	21,653,631	6.6%
% change from 2017	-10.6%		-10.6%	
Total for 2018	334,229,661		328,695,673	
Actual change from 2017	26,198,108		23,779,900	
% change from 2017	8.5%		7.8%	

Table 3: water production by Region : 2017 & 2018

2017 Water production

Zone	Gross m^3	% Oman	Net m^3	% Oman
Al Sharqiya	35,602,569	11.6%	34,785,618	11.4%
Al Wusta	1,857,610	0.6%	1,803,475	0.6%
Dhofar	24,265,848	7.9%	24,265,320	8.0%
Musandam	74,775	0.0%	73,610	0.0%
Muscat	95,028,614	30.9%	94,305,330	30.9%
North Batinah	47,730,651	15.5%	46,531,941	15.3%
South Batinah	103,471,487	33.6%	103,150,479	33.8%
Total for 2017	308,031,553		304,915,773	

2018 Water production

Zone	Gross m^3	% Oman	Net m^3	% Oman
Al Sharqiya	37,407,540	11.2%	36,535,061	11.1%
Al Wusta	1,878,977	0.6%	1,838,994	0.6%
Dhofar	21,706,618	6.5%	21,705,861	6.6%
Musandam	75,570	0.0%	74,376	0.0%
Muscat	132,865,491	39.8%	132,342,463	40.3%
North Batinah	47,205,306	14.1%	45,032,797	13.7%
South Batinah	93,090,159	27.9%	91,166,122	27.7%
Total for 2018	334,229,661		328,695,673	
% change from 2017	8.5%		7.8%	

Table 4: water production by Region and Company : 2017 & 2018

2017 — **Water production**

Region	Company	Gross m^3	% Oman	Net m^3	% Oman
Al Sharqiya	RAEC SAOC	1,563,280	0.5%	1,450,755	0.5%
	Sharqiyah Desalination Company SAOG	34,039,289	11.1%	33,334,863	10.9%
Al Wusta	RAEC SAOC	1,857,610	0.6%	1,803,475	0.6%
Dhofar	RAEC SAOC	53,718	0.0%	53,190	0.0%
	SembcorpSalalah SAOC	24,212,130	7.9%	24,212,130	7.9%
Musandam	RAEC SAOC	74,775	0.0%	73,610	0.0%
Muscat	Al Ghubrah SAOC	37,865,959	12.3%	37,142,662	12.2%
	Muscat City Desalination Company SAOC	57,162,655	18.6%	57,162,668	18.7%
North Batinah	Sohar Power Company SAOG	47,730,651	15.5%	46,531,941	15.3%
North Batinah	ACWA Power Barka SAOG	62,221,232	20.2%	62,089,830	20.4%
	SMN Barka SAOG	41,250,255	13.4%	41,060,649	13.5%
Total for 2017		308,031,553		304,915,773	

2018 — **Water production**

Region	Company	Gross m^3	% Oman	Net m^3	% Oman
Al Sharqiya	RAEC SAOC	1,655,470	0.5%	1,488,187	0.5%
	Sharqiyah Desalination Company SAOG	35,752,070	10.7%	35,046,874	10.7%
Al Wusta	RAEC SAOC	1,878,977	0.6%	1,838,994	0.6%
Dhofar	RAEC SAOC	52,987	0.0%	52,230	0.0%
	SembcorpSalalah SAOC	21,653,631	6.5%	21,653,631	6.6%
Musandam	RAEC SAOC	75,570	0.0%	74,376	0.0%
Muscat	Al Ghubrah SAOC	26,048,553	7.8%	25,575,525	7.8%
	Muscat City Desalination Company SAOC	59,929,864	17.9%	59,929,864	18.2%
	Qurayyat Desalination SAOC	35,111,907	10.5%	35,061,907	10.7%
	Qurayyat Temporary	11,775,167	3.5%	11,775,167	3.6%
North Batinah	Sohar Power Company SAOG	47,205,306	14.1%	45,032,797	13.7%
North Batinah	ACWA Power Barka SAOG	32,935,978	9.9%	32,839,858	10.0%
	Barka Desalination Company SAOC	38,114,065	11.4%	36,503,886	11.1%
	SMN Barka SAOG	22,040,116	6.6%	21,822,378	6.6%
Total for 2018		334,229,661		328,695,673	
Change from 2017 (%)		8.5%		7.8%	

Table 5-1: Monthly Water production by Zone : Interconnected & Sharqiyah Zones 2015 to 2018

2015 **Water production**

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Interconnected & Sharqiyah Zones	Jan-15	17,646	7.8%	17,348	7.8%
Interconnected & Sharqiyah Zones	Feb-15	16,304	7.2%	16,105	7.3%
Interconnected & Sharqiyah Zones	Mar-15	17,698	7.9%	17,459	7.9%
Interconnected & Sharqiyah Zones	Apr-15	18,244	8.1%	17,944	8.1%
Interconnected & Sharqiyah Zones	May-15	17,952	8.0%	17,676	8.0%
Interconnected & Sharqiyah Zones	Jun-15	17,834	7.9%	17,551	7.9%
Interconnected & Sharqiyah Zones	Jul-15	19,204	8.5%	18,929	8.5%
Interconnected & Sharqiyah Zones	Aug-15	19,404	8.6%	19,170	8.6%
Interconnected & Sharqiyah Zones	Sep-15	20,379	9.1%	20,139	9.1%
Interconnected & Sharqiyah Zones	Oct-15	19,494	8.7%	19,373	8.7%
Interconnected & Sharqiyah Zones	Nov-15	19,648	8.7%	19,323	8.7%
Interconnected & Sharqiyah Zones	Dec-15	21,120	9.4%	20,875	9.4%
Total for 2015		224,927		221,892	

2016 **Water production**

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Interconnected & Sharqiyah Zones	Jan-16	22,117	8.2%	21,588	8.2%
Interconnected & Sharqiyah Zones	Feb-16	19,896	7.4%	19,334	7.3%
Interconnected & Sharqiyah Zones	Mar-16	21,515	8.0%	20,929	7.9%
Interconnected & Sharqiyah Zones	Apr-16	22,350	8.3%	21,948	8.3%
Interconnected & Sharqiyah Zones	May-16	23,384	8.7%	23,150	8.8%
Interconnected & Sharqiyah Zones	Jun-16	22,766	8.5%	22,441	8.5%
Interconnected & Sharqiyah Zones	Jul-16	22,688	8.5%	22,482	8.5%
Interconnected & Sharqiyah Zones	Aug-16	23,583	8.8%	23,298	8.8%
Interconnected & Sharqiyah Zones	Sep-16	22,988	8.6%	21,995	8.4%
Interconnected & Sharqiyah Zones	Oct-16	23,088	8.6%	22,688	8.6%
Interconnected & Sharqiyah Zones	Nov-16	22,140	8.2%	21,838	8.3%
Interconnected & Sharqiyah Zones	Dec-16	21,928	8.2%	21,654	8.2%
Total for 2016		268,444		263,343	

Table 5-2: Monthly Water production by Zone : Interconnected & Sharqiyah Zones 2015 to 2018

2017 **Water production**

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Interconnected & Sharqiyah Zones	Jan-17	21,830	7.8%	21,513	7.8%
Interconnected & Sharqiyah Zones	Feb-17	19,448	6.9%	19,152	6.9%
Interconnected & Sharqiyah Zones	Mar-17	21,988	7.8%	21,652	7.8%
Interconnected & Sharqiyah Zones	Apr-17	22,477	8.0%	22,211	8.0%
Interconnected & Sharqiyah Zones	May-17	24,442	8.7%	24,199	8.7%
Interconnected & Sharqiyah Zones	Jun-17	24,108	8.6%	23,858	8.6%
Interconnected & Sharqiyah Zones	Jul-17	25,177	9.0%	24,905	9.0%
Interconnected & Sharqiyah Zones	Aug-17	24,928	8.9%	24,752	8.9%
Interconnected & Sharqiyah Zones	Sep-17	23,832	8.5%	23,652	8.5%
Interconnected & Sharqiyah Zones	Oct-17	25,309	9.0%	25,093	9.0%
Interconnected & Sharqiyah Zones	Nov-17	23,658	8.4%	23,495	8.5%
Interconnected & Sharqiyah Zones	Dec-17	23,072	8.2%	22,841	8.2%
Total for 2017		280,270		277,323	

2018 **Water production**

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Interconnected & Sharqiyah Zones	Jan-18	23,020	7.5%	22,604	7.4%
Interconnected & Sharqiyah Zones	Feb-18	20,732	6.7%	20,449	6.7%
Interconnected & Sharqiyah Zones	Mar-18	23,353	7.6%	23,083	7.6%
Interconnected & Sharqiyah Zones	Apr-18	24,913	8.1%	24,513	8.1%
Interconnected & Sharqiyah Zones	May-18	23,617	7.6%	23,250	7.7%
Interconnected & Sharqiyah Zones	Jun-18	28,726	9.3%	27,846	9.2%
Interconnected & Sharqiyah Zones	Jul-18	32,701	10.6%	31,453	10.4%
Interconnected & Sharqiyah Zones	Aug-18	27,295	8.8%	26,980	8.9%
Interconnected & Sharqiyah Zones	Sep-18	26,435	8.6%	26,100	8.6%
Interconnected & Sharqiyah Zones	Oct-18	26,860	8.7%	26,559	8.7%
Interconnected & Sharqiyah Zones	Nov-18	25,614	8.3%	25,362	8.4%
Interconnected & Sharqiyah Zones	Dec-18	25,647	8.3%	25,388	8.4%
Total for 2018		308,913		303,588	

Table 5-3: Monthly Water production by Zone : Rural Zones 2015 to 2018

2015 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Rural Zones	Jan-15	197.4	7.0%	187.9	7.2%
Rural Zones	Feb-15	190.5	6.8%	186.1	7.1%
Rural Zones	Mar-15	214.3	7.6%	191.7	7.3%
Rural Zones	Apr-15	231.1	8.2%	210.5	8.0%
Rural Zones	May-15	244.3	8.7%	234.1	8.9%
Rural Zones	Jun-15	236.9	8.5%	221.5	8.4%
Rural Zones	Jul-15	228.9	8.2%	218.5	8.3%
Rural Zones	Aug-15	223.7	8.0%	210.0	8.0%
Rural Zones	Sep-15	245.1	8.7%	235.8	9.0%
Rural Zones	Oct-15	252.2	9.0%	232.5	8.8%
Rural Zones	Nov-15	264.4	9.4%	239.9	9.1%
Rural Zones	Dec-15	272.7	9.7%	258.6	9.8%
Total for 2015		2,801.6		2,627.2	

2016 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Rural Zones	Jan-16	271.0	7.9%	254.4	7.9%
Rural Zones	Feb-16	276.7	8.1%	258.0	8.0%
Rural Zones	Mar-16	300.8	8.8%	287.0	8.9%
Rural Zones	Apr-16	277.3	8.1%	264.1	8.2%
Rural Zones	May-16	312.0	9.1%	295.1	9.2%
Rural Zones	Jun-16	295.8	8.6%	275.7	8.6%
Rural Zones	Jul-16	286.5	8.4%	266.5	8.3%
Rural Zones	Aug-16	273.4	8.0%	256.4	8.0%
Rural Zones	Sep-16	277.7	8.1%	261.3	8.1%
Rural Zones	Oct-16	288.3	8.4%	271.2	8.4%
Rural Zones	Nov-16	274.7	8.0%	258.6	8.0%
Rural Zones	Dec-16	290.2	8.5%	273.4	8.5%
Total for 2016		3,424.4		3,221.4	

Table 5-4: Monthly Water production by Zone : Rural Zones 2015 to 2018

2017		Water production			
Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Rural Zones	Jan-17	286.7	8.1%	273.4	8.1%
Rural Zones	Feb-17	262.3	7.4%	248.6	7.4%
Rural Zones	Mar-17	308.8	8.7%	291.5	8.6%
Rural Zones	Apr-17	308.4	8.7%	293.8	8.7%
Rural Zones	May-17	322.6	9.1%	306.7	9.1%
Rural Zones	Jun-17	295.5	8.3%	281.3	8.3%
Rural Zones	Jul-17	294.4	8.3%	277.0	8.2%
Rural Zones	Aug-17	298.4	8.4%	280.2	8.3%
Rural Zones	Sep-17	284.7	8.0%	263.0	7.8%
Rural Zones	Oct-17	296.4	8.4%	273.2	8.1%
Rural Zones	Nov-17	300.0	8.5%	283.6	8.4%
Rural Zones	Dec-17	291.2	8.2%	308.8	9.1%
Total for 2017		3,549.4		3,381.0	

2018		Water production			
Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Rural Zones	Jan-18	302.8	8.3%	286.2	8.3%
Rural Zones	Feb-18	289.5	7.9%	272.3	7.9%
Rural Zones	Mar-18	324.5	8.9%	311.1	9.0%
Rural Zones	Apr-18	301.6	8.2%	284.5	8.2%
Rural Zones	May-18	316.1	8.6%	301.2	8.7%
Rural Zones	Jun-18	318.0	8.7%	299.2	8.7%
Rural Zones	Jul-18	315.7	8.6%	299.6	8.7%
Rural Zones	Aug-18	292.4	8.0%	270.1	7.8%
Rural Zones	Sep-18	288.7	7.9%	266.3	7.7%
Rural Zones	Oct-18	313.1	8.5%	289.3	8.4%
Rural Zones	Nov-18	299.7	8.2%	284.4	8.2%
Rural Zones	Dec-18	300.8	8.2%	289.7	8.4%
Total for 2018		3,663.0		3,453.8	

Table 5-4: Monthly Water production by Zone : Dhofar Zone 2015 to 2018

2015 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Dhofar Zone	Jan-15	1951.857	9.0%	1951.857	9.0%
Dhofar Zone	Feb-15	1682.73	7.7%	1682.73	7.7%
Dhofar Zone	Mar-15	1733.499	8.0%	1733.499	8.0%
Dhofar Zone	Apr-15	1591.333	7.3%	1591.333	7.3%
Dhofar Zone	May-15	1699.915	7.8%	1699.915	7.8%
Dhofar Zone	Jun-15	1826.578	8.4%	1826.578	8.4%
Dhofar Zone	Jul-15	1908.14	8.8%	1908.14	8.8%
Dhofar Zone	Aug-15	2018.65	9.3%	2018.65	9.3%
Dhofar Zone	Sep-15	1832.13	8.4%	1832.13	8.4%
Dhofar Zone	Oct-15	1900.78	8.7%	1900.78	8.7%
Dhofar Zone	Nov-15	1774.298	8.1%	1774.298	8.1%
Dhofar Zone	Dec-15	1884.053	8.6%	1884.053	8.6%
Total for 2015		21,804		21,804	

2016 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Dhofar Zone	Jan-16	1847.196	7.9%	1847.196	7.9%
Dhofar Zone	Feb-16	1806.146	7.7%	1806.146	7.7%
Dhofar Zone	Mar-16	1956.432	8.4%	1956.432	8.4%
Dhofar Zone	Apr-16	1917.677	8.2%	1917.677	8.2%
Dhofar Zone	May-16	2037.16	8.7%	2037.16	8.7%
Dhofar Zone	Jun-16	1968.004	8.4%	1968.004	8.4%
Dhofar Zone	Jul-16	1929.692	8.3%	1929.692	8.3%
Dhofar Zone	Aug-16	2023.078	8.7%	2023.078	8.7%
Dhofar Zone	Sep-16	1914.802	8.2%	1914.802	8.2%
Dhofar Zone	Oct-16	2092.38	9.0%	2092.38	9.0%
Dhofar Zone	Nov-16	1850.704	7.9%	1850.704	7.9%
Dhofar Zone	Dec-16	1988.222	8.5%	1988.222	8.5%
Total for 2016		23,331		23,331	

Table 5-5: Monthly Water production by Zone : Dhofar Zone 2015 to 2018

2017 **Water production**

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Dhofar Zone	Jan-17	2019.766	8.3%	2019.766	8.3%
Dhofar Zone	Feb-17	1800.786	7.4%	1800.786	7.4%
Dhofar Zone	Mar-17	1951.128	8.1%	1951.128	8.1%
Dhofar Zone	Apr-17	2037.136	8.4%	2037.136	8.4%
Dhofar Zone	May-17	2113.89	8.7%	2113.89	8.7%
Dhofar Zone	Jun-17	2038.456	8.4%	2038.456	8.4%
Dhofar Zone	Jul-17	2102.168	8.7%	2102.168	8.7%
Dhofar Zone	Aug-17	1934.648	8.0%	1934.648	8.0%
Dhofar Zone	Sep-17	2038.856	8.4%	2038.856	8.4%
Dhofar Zone	Oct-17	2097.384	8.7%	2097.384	8.7%
Dhofar Zone	Nov-17	2008.504	8.3%	2008.504	8.3%
Dhofar Zone	Dec-17	2069.408	8.5%	2069.408	8.5%
Total for 2017		24,212		24,212	

2018 **Water production**

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Dhofar Zone	Jan-18	1,991	9.2%	1,991	9.2%
Dhofar Zone	Feb-18	1,805	8.3%	1,805	8.3%
Dhofar Zone	Mar-18	2,061	9.5%	2,061	9.5%
Dhofar Zone	Apr-18	1,978	9.1%	1,978	9.1%
Dhofar Zone	May-18	1,766	8.2%	1,766	8.2%
Dhofar Zone	Jun-18	1,329	6.1%	1,329	6.1%
Dhofar Zone	Jul-18	1,410	6.5%	1,410	6.5%
Dhofar Zone	Aug-18	1,369	6.3%	1,369	6.3%
Dhofar Zone	Sep-18	1,855	8.6%	1,855	8.6%
Dhofar Zone	Oct-18	1,995	9.2%	1,995	9.2%
Dhofar Zone	Nov-18	2,011	9.3%	2,011	9.3%
Dhofar Zone	Dec-18	2,084	9.6%	2,084	9.6%
Total for 2018		21,654		21,654	

Table 6-1: Quarterly Water production by Zone : 2015 to 2018

2015 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Interconnected & Sharqiyah Zones	Qtr1-2015	51,648	23.0%	50,912	22.9%
Interconnected & Sharqiyah Zones	Qtr2-2015	54,030	24.0%	53,171	24.0%
Interconnected & Sharqiyah Zones	Qtr3-2015	58,987	26.2%	58,237	26.2%
Interconnected & Sharqiyah Zones	Qtr4-2015	60,262	26.8%	59,571	26.8%
2015 total		224,927		221,892	

2016 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Interconnected & Sharqiyah Zones	Qtr1-2016	63,528	23.7%	61,850	23.5%
Interconnected & Sharqiyah Zones	Qtr2-2016	68,500	25.5%	67,538	25.6%
Interconnected & Sharqiyah Zones	Qtr3-2016	69,259	25.8%	67,774	25.7%
Interconnected & Sharqiyah Zones	Qtr4-2016	67,156	25.0%	66,180	25.1%
2016 total		268,444		263,343	

2017 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Interconnected & Sharqiyah Zones	Qtr1-2017	63,266	22.6%	62,317	22.5%
Interconnected & Sharqiyah Zones	Qtr2-2017	71,027	25.3%	70,269	25.3%
Interconnected & Sharqiyah Zones	Qtr3-2017	73,938	26.4%	73,308	26.4%
Interconnected & Sharqiyah Zones	Qtr4-2017	72,039	25.7%	71,429	25.8%
2017 total		280,270		277,323	

2018 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Interconnected & Sharqiyah Zones	Qtr1-2018	67,105	21.7%	66,136	21.8%
Interconnected & Sharqiyah Zones	Qtr2-2018	77,256	25.0%	75,609	24.9%
Interconnected & Sharqiyah Zones	Qtr3-2018	86,431	28.0%	84,533	27.8%
Interconnected & Sharqiyah Zones	Qtr4-2018	78,122	25.3%	77,310	25.5%
2018 total		308,913		303,588	

Table 6-2: Quarterly Water production by Zone : 2015 to 2018

2015 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Rural Zones	Qtr1-2015	602	21.5%	566	21.5%
Rural Zones	Qtr2-2015	712	25.4%	666	25.4%
Rural Zones	Qtr3-2015	698	24.9%	664	25.3%
Rural Zones	Qtr4-2015	789	28.2%	731	27.8%
2015 total		2802		2627	

2016 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Rural Zones	Qtr1-2016	848	24.8%	799	24.8%
Rural Zones	Qtr2-2016	885	25.8%	835	25.9%
Rural Zones	Qtr3-2016	838	24.5%	784	24.3%
Rural Zones	Qtr4-2016	853	24.9%	803	24.9%
2016 total		3424		3221	

2017 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Rural Zones	Qtr1-2017	858	24.2%	813	24.1%
Rural Zones	Qtr2-2017	927	26.1%	882	26.1%
Rural Zones	Qtr3-2017	877	24.7%	820	24.3%
Rural Zones	Qtr4-2017	888	25.0%	866	25.6%
2017 total		3549		3381	

2018 Water production

Zone	Month	Gross '000 m^3	% Year	Net '000m^3	% Year
Rural Zones	Qtr1-2018	917	25.0%	870	25.2%
Rural Zones	Qtr2-2018	936	25.5%	885	25.6%
Rural Zones	Qtr3-2018	897	24.5%	836	24.2%
Rural Zones	Qtr4-2018	914	24.9%	863	25.0%
2018 total		3663		3454	

Table 6-3: Quarterly Water production by Zone : 2015 to 2018

2015 Water production

Zone	Month	Gross '000 m³	% Year	Net '000m³	% Year
Dhofar Zone	Qtr1-2015	5,368	24.6%	5,368	24.6%
Dhofar Zone	Qtr2-2015	5,118	23.5%	5,118	23.5%
Dhofar Zone	Qtr3-2015	5,759	26.4%	5,759	26.4%
Dhofar Zone	Qtr4-2015	5,559	25.5%	5,559	25.5%
2015 total		21,804		21,804	

2016 Water production

Zone	Month	Gross '000 m³	% Year	Net '000m³	% Year
Dhofar Zone	Qtr1-2016	5,610	24.0%	5,610	24.0%
Dhofar Zone	Qtr2-2016	5,923	25.4%	5,923	25.4%
Dhofar Zone	Qtr3-2016	5,868	25.1%	5,868	25.1%
Dhofar Zone	Qtr4-2016	5,931	25.4%	5,931	25.4%
2016 total		23,331		23,331	

2017 Water production

Zone	Month	Gross '000 m³	% Year	Net '000m³	% Year
Dhofar Zone	Qtr1-2017	5,772	23.8%	5,772	23.8%
Dhofar Zone	Qtr2-2017	6,189	25.6%	6,189	25.6%
Dhofar Zone	Qtr3-2017	6,076	25.1%	6,076	25.1%
Dhofar Zone	Qtr4-2017	6,175	25.5%	6,175	25.5%
2017 total		24,212		24,212	

2018 Water production

Zone	Month	Gross '000 m³	% Year	Net '000m³	% Year
Dhofar Zone	Qtr1-2018	5,857	27.0%	5,857	27.0%
Dhofar Zone	Qtr2-2018	5,073	23.4%	5,073	23.4%
Dhofar Zone	Qtr3-2018	4,634	21.4%	4,634	21.4%
Dhofar Zone	Qtr4-2018	6,089	28.1%	6,089	28.1%
2018 total		21,654		21,654	

Annex D
Electricity Subsidy Calculations

2018 MIS Outturn Subsidy

Maximum Allowed Supply Revenue — 2018 Outturn — 2017 Outturn

Rial Omani	MEDC	MJEC	MZEC	Total	Total	% Change
PC (Energy cost)	224,183,461	173,218,166	187,082,121	584,483,748	571,188,098	2%
TUoS (Transmission cost)	26,433,901	16,730,198	25,255,178	68,419,277	69,862,949	-2%
DUoS (Distribution cost)	53,323,313	49,681,792	82,464,763	185,469,869	157,027,996	18%
SB (Supply cost)	12,746,522	9,652,353	12,287,741	34,686,616	33,255,878	4%
LF (Licence fee)	99,614	99,614	99,614	298,842	259,167	15%
KS (Correction factor)	-14,531,207	4,176,918	-22,850,822	-33,205,111	-4,883,939	580%
Maximum Allowed Supply Revenue	331,318,018	245,205,205	330,040,240	906,563,463	836,478,028	8%

Actual Regulated Supply Revenue — 2018 Outturn — 2017 Outturn

Rial Omani	MEDC	MJEC	MZEC	Total	Total	Variance
Approved Subsidy	127,806,767	90,758,235	197,808,962	416,373,965	329,293,760	26%
Permitted Tariff (& other) Revenue	204,608,188	152,974,796	131,011,668	488,594,652	474,523,678	3%
Actual Regulated Supply Revenue	332,414,955	243,733,031	328,820,630	904,968,617	803,817,438	13%
Outturn Subsidy Requirement	126,709,830	92,230,409	199,028,572	417,968,811	361,954,350	15%

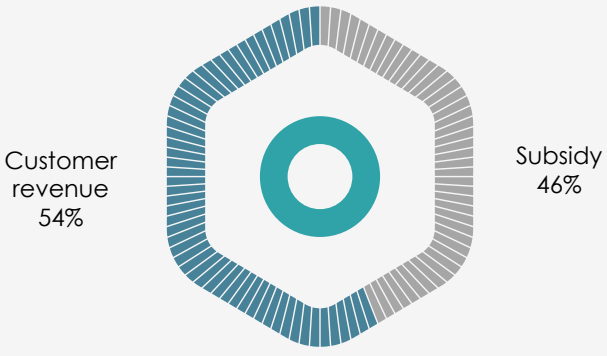
Subsidy per kWh — 2018 Outturn — 2017 Outturn

(bz/kWh)	MEDC	MJEC	MZEC	Total	Total	Variance
Economic Cost	28.7	25.8	38.5	30.6	29.3	4.4%
Subsidy (Outturn)	11.0	9.7	23.2	14.1	12.7	11%
Customer Revenue	17.7	16.1	15.3	16.5	16.6	-1%

Source: Company SCRCs, Authority calculations

PC	means the cost of bulk supply purchaces from PWP
TUoS	means Transmission Use of System costs
DUoS	means Distribution Use of System costs
SB	means Supply Business costs
LF	means the Supply Business Licence Fees
KS	means the Supply Business Correction Factor
	All in relevant year t

2018 MIS Revenue and Subsidy Outturn



2019 MIS Subsidy Forecast

Maximum Allowed Supply Revenue — 2019 Forecast — 2018 Outturn

Rial Omani	MEDC	MJEC	MZEC	Total	Total	% Change
PC (Energy cost)	233,901,174	210,591,522	182,677,806	627,170,502	584,483,748	7%
TUoS (Transmission cost)	37,006,685	26,446,754	36,784,310	100,237,749	68,419,277	47%
DUoS (Distribution cost)	64,980,067	64,006,711	103,839,088	232,825,866	185,469,869	26%
SB (Supply cost)	14,205,077	10,669,368	13,444,251	38,318,696	34,686,616	10%
LF (Licence fee)	98,227	98,227	98,227	294,682	298,842	-1%
KS (Correction factor)	1,116,181	-1,496,348	-1,225,297	-1,605,463	-33,205,111	-95%
Maximum Allowed Supply Revenue	349,075,049	313,308,930	338,068,979	1,001,029,479	906,563,463	10%

Actual Regulated Supply Revenue — 2019 Forecast — 2018 Outturn

Rial Omani	MEDC	MJEC	MZEC	Total	Total	Variance
Approved Subsidy	130,823,474	133,878,083	193,204,053	457,905,610	416,373,965	10%
Permitted Tariff (& other) Revenue	218,582,891	179,676,052	144,864,926	543,123,869	488,594,652	11%
Actual Regulated Supply Revenue	349,406,365	313,554,135	338,068,979	1,001,029,479	904,968,617	11%

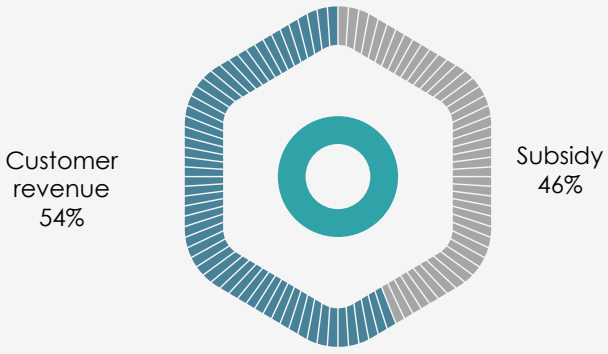
Subsidy per kWh — 2019 Forecast — 2018 Outturn

(bz/kWh)	MEDC	MJEC	MZEC	Total	Total	Variance
Economic Cost	29.0	29.1	36.2	31.1	30.6	2%
Subsidy (Outturn)	10.9	12.4	20.7	14.2	14.1	1%
Customer Revenue	18.2	16.7	15.5	16.9	16.5	2%

Source: Company SCRCs, Authority calculations

PC	means the cost of bulk supply purchaces from PWP
TUoS	means Transmission Use of System costs
DUoS	means Distribution Use of System costs
SB	means Supply Business costs
LF	means the Supply Business Licence Fees
KS	means the Supply Business Correction Factor
	All in relevant year t

2019 MIS Revenue & Subsidy Forecast



2018 DPS Outturn Subsidy

Maximum Allowed Supply Revenue	2018 Outturn	2017 Outturn	
Rial Omani	Total	Total	% Change
PC (Energy cost)	55,825,213	59,871,962	-7%
TUoS (Transmission cost)	6,084,649	6,217,590	-2%
DUoS (Distribution cost)	24,815,902	16,816,814	48%
SB (Supply cost)	4,097,974	4,594,753	-11%
LF (Licence fee)	99,614	86,402	15%
KS (Correction factor)	321,668	-2,000,832	-116%
Maximum Allowed Supply Revenue	90,601,684	89,588,352	1%

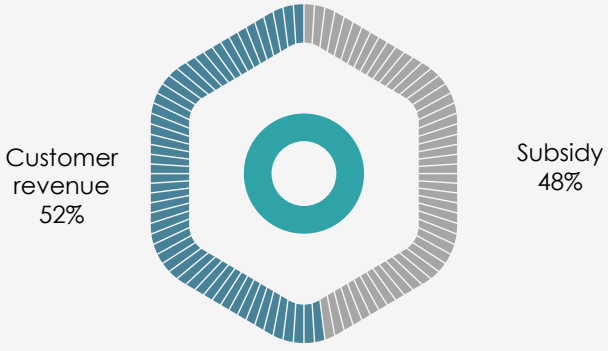
Actual Regulated Supply Revenue	2018 Outturn	2017 Outturn	
Rial Omani	Total	Total	Variance
Approved Subsidy	44,411,294	37,458,451	19%
Permitted Tariff (& other) Revenue	47,559,591	52,458,876	-9%
Actual Regulated Supply Revenue	91,970,885	89,917,327	2%
Outturn Subsidy Requirement	43,042,093	37,129,476	16%

Subsidy per kWh	2018 Outturn	2017 Outturn	
(bz/kWh)	Total	Total	Variance
Economic Cost	31.8	31.4	1%
Subsidy (Outturn)	15.1	13.0	16%
Customer Revenue	16.7	18.4	-9%

Source: Company SCRCs, Authority calculations

PC	means the cost of bulk supply purchaces from PWP
TUoS	means Transmission Use of System costs
DUoS	means Distribution Use of System costs
SB	means Supply Business costs
LF	means the Supply Business Licence Fees
KS	means the Supply Business Correction Factor
	All in relevant year t

2018 MIS Revenue and Subsidy Outturn



2018 Outturn & 2019 Forecast DPS Subsidy

Maximum Allowed Supply Revenue	2019 Forecast	2018 Outturn	
Rial Omani	Total	Total	% Change
PC (Energy cost)	59,500,828	55,825,213	6.6%
TUoS (Transmission cost)	9,523,573	6,084,649	56.5%
DUoS (Distribution cost)	30,832,484	24,815,902	24.2%
SB (Supply cost)	4,363,993	4,097,974	6.5%
LF (Licence fee)	98,227	99,614	-1.4%
KS (Correction factor)	1,391,575	321,668	332.6%
Maximum Allowed Supply Revenue	102,897,329	90,601,684	13.6%

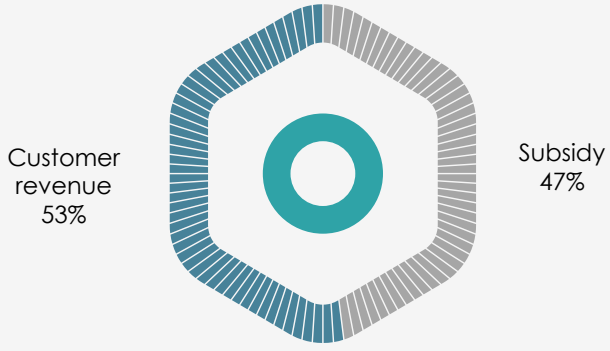
Actual Regulated Supply Revenue	2019 Forecast	2018 Outturn	
Rial Omani	Total	Total	Variance
Approved Subsidy	48,114,984	44,411,294	8%
Permitted Tariff (& other) Revenue	54,782,346	47,559,591	15%
Actual Regulated Supply Revenue	102,897,330	91,970,885	12%

Subsidy per kWh	2019 Forecast	2018 Outturn	
(bz/kWh)	Total	Total	Variance
Economic Cost	34.0	31.8	7%
Subsidy (Outturn)	15.9	15.1	5%
Customer Revenue	18.1	16.7	9%

Source: Company SCRCs, Authority calculations

PC means the cost of bulk supply purchaces from PWP
TUoS means Transmission Use of System costs
DUoS means Distribution Use of System costs
SB means Supply Business costs
LF means the Supply Business Licence Fees
KS means the Supply Business Correction Factor
All in relevant year t

2019 DPS Revenue & Subsidy Forecast



2018 RAEC Subsidy Outturn

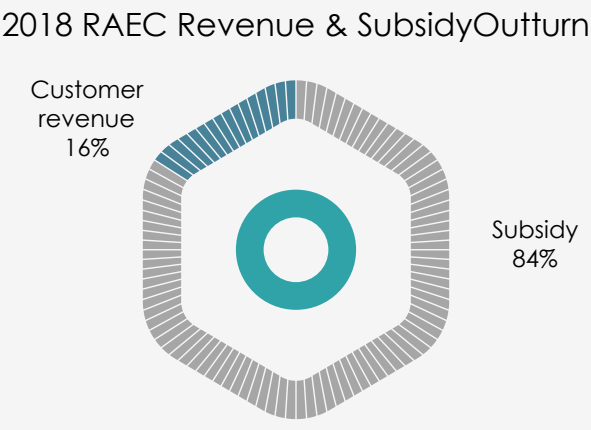
Maximum Allowed Supply Revenue	2018 Outturn	2017 Outturn	
Rial Omani	Total	Total	% Change
MAGR (Generation cost)	90,695,567	76,967,021	18%
MANR (Networks cost)	27,070,326	18,885,006	43%
MASR (Supply cost)	5,227,552	5,813,050	-10%
LF (Licence fee)	591,992	438,267	35%
K (Correction factor)	-1,027,869	-5,406,695	-81%
Maximum Allowed Electricity Revenue	124,613,305	107,510,038	16%

Actual Regulated Supply Revenue	2018 Outturn	2017 Outturn	
Rial Omani	Total	Total	Variance
Approved Subsidy	102,507,104	89,523,460	15%
Permitted Tariff (& other) Revenue	20,204,520	16,983,342	19%
Actual Regulated Supply Revenue	122,711,624	106,506,802	15%
Outturn Subsidy Requirement	104,408,786	90,526,696	15%

Subsidy per kWh	2018 Outturn	2017 Outturn	
Rial Omani	Total	Total	Variance
Economic Cost	116.1	117.6	-1%
Subsidy (Outturn)	97.3	99.0	-2%
Customer Revenue	18.8	18.6	1%

Source: Company SCRCs, Authority calculations

PC	means the cost of bulk supply purchaces from PWP
TUoS	means Transmission Use of System costs
DUoS	means Distribution Use of System costs
SB	means Supply Business costs
LF	means the Supply Business Licence Fees
KS	means the Supply Business Correction Factor
	All in relevant year t



2019 RAEC Subsidy Forecast

Maximum Allowed Supply Revenue	2019 Forecast	2018 Outturn	
Rial Omani	Total	Total	% Change
MAGR (Generation cost)	103,041,886	90,695,567	14%
MANR (Networks cost)	28,564,766	27,070,326	6%
MASR (Supply cost)	5,795,322	5,227,552	11%
LF (Licence fee)	673,560	591,992	14%
K (Correction factor)	-888,101	-1,027,869	-14%
Maximum Allowed Electricity Revenue	138,963,635	124,613,305	12%

Actual Regulated Supply Revenue	2019 Forecast	2018 Outturn	
Rial Omani	Total	Total	Variance
Approved Subsidy	118,667,119	102,507,104	16%
Permitted Tariff (& other) Revenue	20,296,516	20,204,520	0%
Actual Regulated Supply Revenue	138,963,635	122,711,624	13%

Subsidy per kWh	2019 Forecast	2018 Outturn	
Rial Omani	Total	Total	Variance
Economic Cost	122.8	116.1	6%
Subsidy (Outturn)	104.9	97.3	8%
Customer Revenue	17.9	18.8	-5%

Source: Company SCRCs, Authority calculations

PC	means the cost of bulk supply purchaces from PWP
TUoS	means Transmission Use of System costs
DUoS	means Distribution Use of System costs
SB	means Supply Business costs
LF	means the Supply Business Licence Fees
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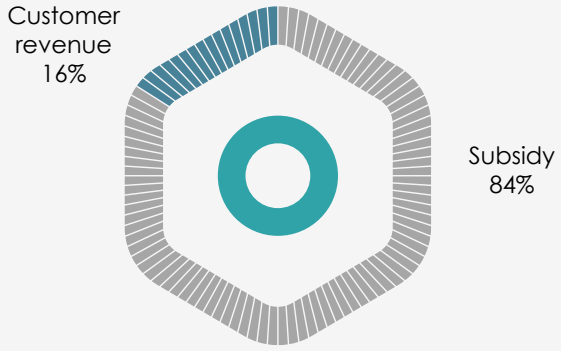
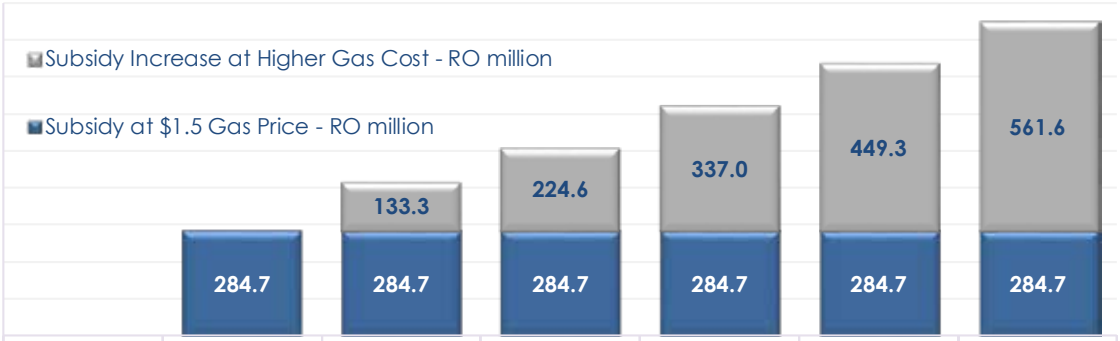
	All in relevant year t

2019 RAEC Revenue & SubsidyForecast

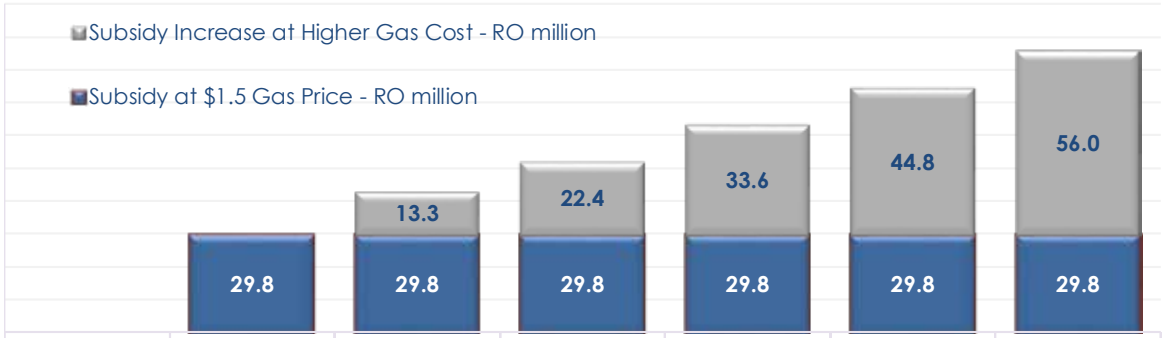


2018 MIS Electricity Subsidy (Gas Cost Sensitivities)



Gas Cost	$1.5 mmBTu	$3.28 mmBTu	$4.5 mmBTu	$6 mmBTu	$7.5 mmBTu	$9 mmBTu
Subsidy	284.7 mRO	418 mRO	509.3 mRO	621.6 mRO	734 mRO	846.3 mRO
Subsidy per KWh	9.6 Bz/kWh	14.1 Bz/kWh	17.2 Bz/kWh	21 Bz/kWh	24.8 Bz/kWh	28.6 Bz/kWh

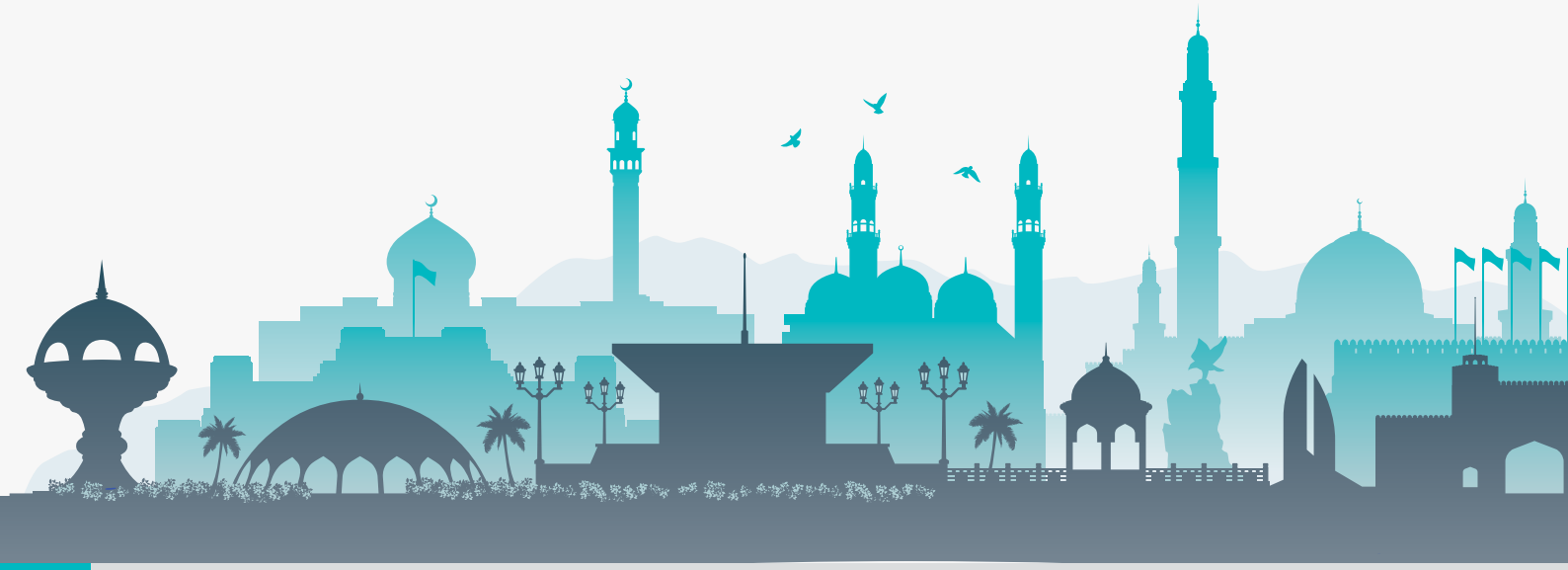
2018 DPC Electricity Subsidy (Gas Cost Sensitivities)



Gas Cost	$1.5 mmBTu	$3.28 mmBTu	$4.5 mmBTu	$6 mmBTu	$7.5 mmBTu	$9 mmBTu
Subsidy	29.8 mRO	43 mRO	52.1 mRO	63.3 mRO	74.5 mRO	85.7 mRO
Subsidy per	10.4 Bz/kWh	15.1 Bz/kWh	18.3 Bz/kWh	22.2 Bz/kWh	26.1 Bz/kWh	30.1 Bz/kWh

2018 RAEC Electricity Subsidy (Diesel Cost Sensitivities)

Subsidy	104mRO	124.6mRO
Subsidy	40.3 Bz/kWh	69Bz/Ltr
Diesel Cost	140Bz/Ltr	238Bz/Ltr



Annex E

2019 Forward Work Programme

CONTENTS

Foreword

The Authority for Electricity Regulation, Oman ("the Authority") is responsible for regulating the electricity and related water sector in the Sultanate of Oman. The Authority was established pursuant to Article (19) of the law for the regulation and privatization of the electricity and related water sector (the "Sector Law") promulgated by Royal Decree 78/2004 and amended by Royal Decree 59/2009 and Royal Decree 47/2013.

Article (34) of the Sector Law requires the Authority to publish a Forward Work Programme before the commencement of each Financial Year (1 January to 31 December) setting out the principal areas of work for the coming year.

Further information about the Authority and the structure and regulation of the electricity and related water sector in Oman is available for review on the Authority's website:
www.aer.om

Statutory Functions and Duties

The Authority has a range of statutory functions and duties that are set out in various sections of the Sector Law. The Authority's principal duties (see Article (22) of the Sector Law) require the Authority to:

- secure the provision of electricity and related water services in Oman;
- promote competition in the electricity and related water sector;
- secure the safe, effective and economic operation of the electricity and related water sector in the public interest;
- protect the interests of customers, in particular those with limited income, the elderly and sick; to prepare criteria relating to the welfare of customers and to act in accordance with such criteria;
- secure compliance with Government policy relating to the protection of the environment, Omanisation and Omani Content;
- ensure the financial and technical capabilities of licensees and ensure companies operating efficiently can finance their activities;
- secure the conduct of fair and transparent competitions for new capacity by the Oman Power and Water Procurement Company SAOC;
- facilitate the privatisation of the electricity and related water sector;
- review on an annual basis the scope for further liberalisation of the electricity and related water sector; and
- prepare and maintain a Public Register of all matters relating to licenses and exemptions.
-

The Authority is also subject to important governance duties including: a duty not to discriminate against or unduly prefer any Person; to act consistently, treating like cases alike and, in particular, to ensure, so far as it is appropriate, that all Licenses and Exemptions for the same Regulated Activities are granted in substantially the same form; a duty to minimise, insofar as it is able to do so, the regulatory burden on licence holders and exemption holders; and to give written reasons for its decisions.

All of the Authority's work, including that envisaged in the 2019 Forward Work Plan, must be conducted in accordance with these statutory duties.

Consultation

The Authority consulted on the draft 2019 Forward Work Programme and invited interested Persons to submit comments and objections. The Authority responded to all comments and objections received in response to the consultation within thirty days of receipt.

Purpose of Forward Work Programme

The Authority's Forward Work Programme serves a number of purposes:

i. Publication of each Forward Work Programme provides notice to Persons who may be affected by the programme thereby affording them the opportunity to comment on what is proposed;
ii. The Forward Work Programme is an important determinant of the Authority's costs (and licensees' fees) and as such is an important input in the development of the Authority's budget; and
iii. Publication of a Forward Work Programme reinforces transparency and accountability by allowing interested Persons, such as licensees and the Government, to ensure work planned for each subsequent year is consistent with Government objectives and aligned to the Authority's statutory functions and duties.

Each Forward Work Programme sets out work the Authority proposes to undertake in the coming year. During the course of a year the Authority may need to reprioritise work in response to events and changing circumstances and may therefore undertake work that was not included in a Forward Work Programme and be unable to undertake or complete items in a published programme.

Context & Content of 2019 Forward Work Programme

The 2019 Forward Work Programme is the fourteenth programme published by the Authority since its establishment.

All of the work items in the 2019 Forward Work Programme are in addition to work undertaken by the Authority in the normal course of business.

2019 Work Priorities

The 2019 Forward Work Programme includes a number of general policy areas of work:

1) Sahim Project

During the first phase of the Sahim project customers that installed rooftop PV solar systems, at their own cost, were allowed to be compensated for PV electricity exported to a licensed system at the relevant approved Bulk Supply Tariff ("BST"). During 2018 the second phase of Sahim was launched which aimed to drive the wide-scale deployment of small PV systems (3kWp – 5kWp) at between 10% to 30% of residential Premises in Oman. Unlike Sahim 1, the costs of procuring, installing, operating and maintaining Sahim 2 residential PV systems will not be met by Customers but will be met by private sector entities who will recover related costs through contracts with Licensed Suppliers. The Authority aims to issue a tender for the first tranche of houses as part of the Sahim 2 project during 2019.

2) Energy Efficiency

The establishment of Energy Services Companies (ESCOs) in Oman is considered an area of high priority for the Authority. The Authority intends to build further upon the audits of various Government buildings that were undertaken in 2017 and 2018, to support the Government's energy efficiency efforts.

Lowering electricity consumption in the Omani Government sector can be achieved by utilizing ESCOs. ESCOs have long served markets internationally by providing improved building performance, access to expertise, installation of new more efficient equipment and training of building staff, with little to no upfront costs; with inherent risks being managed by the ESCOs. The comprehensive building retrofits that ESCOs can perform will allow for simultaneous targeting of multiple building systems, including the building envelope, lighting, ventilation, and air conditioning (HVAC).

The roll-out of the program is expected to commence over multiple phases, with the overarching objective of achieving long-term reduction of energy consumption and operational costs in Government buildings. Initially this is expected to be met by auditing and retrofitting 70% of Government buildings falling under CRTs by 2023.

3) Environmental Audit

In 2008 the Authority conducted Environmental Audits of the licensed transmission and distribution systems. The Authority believes it is appropriate to conduct similar audits in 2019 in order to assess continuing compliance with environmental obligations.

4) Cyber Security Audits

The Authority is planning to undertake a full cyber security audit that will include the IWPs and other Licensees that were not audited previously, to ensure that comprehensive audits of all Licensees have been undertaken.

5) Electric Vehicles

Following on from its 2018 review of international best practice the Authority will continue to assess developments in this fast moving field and to promote an informed debate about

the role to be played by electricity distribution companies, as well as key stakeholders in the transport sector. In particular, in order to assess the impacts on the sector, the Authority will continue to review the attractiveness of electric vehicles in Oman, developing battery technologies and the potential timescales for cost parity between electric and combustion engine vehicles. It will also assess the options for public versus private roll-out of charging infrastructure on strategic highways, the most appropriate tariff structure for residential customers wishing to charge their vehicles at home and critical public safety related issues.

6) Dispatch Audit for OETC

Economic Dispatch, which includes the implementation of the merit order, the management of system constraints and the correct level of spinning reserve are all important areas that need to be assessed in detail by the Authority. It is very important that the Authority establishes a good understanding of the manner in which OETC is undertaking its economic dispatch activities ahead of the spot market implementation and therefore an audit is planned for 2019.

7) Guaranteed and Overall Standards of Performance

In 2019 the Authority intends to finalise the preparation and implementation of the Guaranteed and Overall Standards of Performance scheme. This exercise was moved to 2019 to allow licensed suppliers to adapt to the new KPI incentive scheme and to undertake the required system enhancements.

8) Supply Competition

The Authority will progress the competitive market review, working closely with key stakeholders, including existing licensees and potential new entrants, to build a shared understanding of the key building blocks that must be put in place to enable customer choice. These include the functional separation of Distribution Network from Retail Supply activities, the organization of market support services such as metering and data management and the development of customer registration and switching systems. In addition, the Authority will develop and consult on a series of arrangements necessary to protect the interests of customers, such as those required to ensure continuity of electricity supply in the event a supplier chooses to exit the market and arrangements to ensure that customer supply terms are fair and reasonable.

9) Review of Market Liberalisation Measures

In 2018 the Authority completed work to assess the readiness of the market for the introduction of competition between licensed suppliers. This confirmed that the introduction of competition between licence holders and new market entrants is feasible and desirable. Although the precise arrangements will need to reflect the specific circumstances of the Oman market, the Authority also received proposals from interested participants proposing specific arrangements for electricity purchasing. In addition, the Government is actively progressing key privatisation measures, with the Authority›s full support. The Authority wishes to ensure that the liberalization programme is co-ordinated and will therefore undertake a comprehensive review of the market structure and other factors, to ensure that there is a coherent overview and to establish the pre-conditions and timeline for introducing a consistent and timely series of liberalisation measures, within the overall framework of the electricity sector market development.

10) Water Restructuring

In anticipation of the water restructuring that is planned for 2020 the Authority expects that it will actively work with relevant entities on the finalization of the legal and regulatory framework for the restructured water sector, to ensure that it meets the Government's objectives.

Authority for Electricity Regulation, Oman

Glossary of Terms

Licence	An authorization granted by the Authority to undertake one or more of the Regulated Activities stipulated in Article (3) of the Sector Law
OES	Oman Electrical Standards
Discos	The Distribution & Supply Licensees; Muscat Electricity Distribution Company SAOC, Majan Electricity Company SAOC, Mazoon Electricity Company SAOC and Dhofar Power Company SA
PAEW	The Public Authority for Electricity and Water established by Royal Decree 92/2007
Price control	A mechanism for determining the maximum allowed revenue a licensee can recover in each year from users of its services, as stipulated in a schedule charge restriction condition of a Licence
RAEC	The Rural Areas Electricity Company SAOC
Regulated Activities	The activities stipulated in Article (3) of the Sector Law
Sector Law	The law for the regulation and privatization of the electricity and related water sector promulgated by Royal Decree 78/2004 and amended by Royal Decree 59/2009 and Royal Decree 47/2013
Cyber Security	The tools, policies, security concepts, security safeguards, guidelines, risk management approaches, actions, training, best practices, assurance and technologies used to protect and safeguard SCADA and DCS systems from threats to the availability and integrity of those systems, and the confidentiality of data held by those systems and/or exchanged with other systems
The Authority	The Authority for Electricity Regulation, Oman, being the authority established pursuant to Article (19) of the Sector Law