The Authority established pursuant to Article (19) of Royal Decree 78/2004 WWW.GET-OMAN.OFA



میئة تنظیم الکمربا، - عمان AUTHORITY FOR ELECTRICITY REGULATION, OMAN

## ANNUAL REPORT



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## His Majesty Sultan Qaboos Bin Said

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## Glossary of Terms

Appropriate Person	A Person technically, financially and otherwise qualified to hold a Licence or Exemption
Cost-Reflective Tariff	Amounts charged by a Licensed Supplier in consideration for Supply where no Permitted Tariff exists, and such tariff shall be calculated in respect of each calendar year on the basis and rules prescribed by the Authority
DPC	The Dhofar Power Company SAOG
Economic Purchase	The procurement of goods and services on the best economic terms taking into account quality, quantity, the nature of the items intended to be purchased, the available manner of delivery and the future security, reliability and diversity of supply
EHC	The Electricity Holding Company SAOC
IPP/IWPP	Independent Power Project / Independent Water and Power Project
Liberalisation of the Electricity Market	<ol> <li>The disposal by the Government of any economic interest in the Electricity Holding Company or the Oman Power and Water Procurement Company;</li> </ol>
	(2) Permitting the sale by Licensed Generators and Licensed Generator/Desalinators of Output to any Person other than the Oman Power and Water Procurement Company;
	(3) Permitting the Import or Export of electricity by any Person other than the Oman Power and Water Procurement Company and the Rural Areas Electricity Company;
	(4) The creation of competition amongst Licensed Suppliers including those who are not also Licensed Distribution System Operators in relation to the Supply of electricity
Main Interconnected System	The interconnected systems of OETC, and the Muscat, Majan and Mazoon Discos
Majan Disco	The Majan Electricity Company SAOC
Mazoon Disco	The Mazoon Electricity Company SAOC
MHEW	The Ministry of Housing, Electricity and Water
Muscat Disco	The Muscat Electricity Distribution Company SAOC
OETC	The Oman Electricity Transmission Company SAOC
Omanisation	The Government's policy for the employment of Omani nationals
Permitted Tariff	Tariffs for the Supply of electricity or Connection to a Distribution System or a Transmission System determined in the manner stipulated in Article (9) of the Sector Lav
PPA & PWPA	Power Purchase Agreement & Power and Water Purchase Agreement
PWP	The Oman Power and Water Procurement Company SAOC
RAEC	The Rural Areas Electricity Company SAOC
RAEC System	A Transmission System or a Distribution System owned and operated by the Rural Areas Electricity Company SAOC
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 in accordance with the Sector Law
Sector Law	The law for the regulation and privatisation of the electricity and related water sector promulgated by Royal Decree 78/2004
The Authority	The Authority for Electricity Regulation, Oman, being the authority established pursuant to Article (19) of the Sector Law

## CHAIRMAN'S FOREWORD



It is my great pleasure to present the Authority's first Annual Report.

The report has been prepared in accordance with the requirements of the Sector Law promulgated by Royal Decree 78/2004 and presents highlights of what was a landmark year for the Sultanate's electricity and related water sector.

The Sector Law has significantly changed the way the Sultanate's electricity sector is organised, managed and regulated. The electricity functions of the Ministry of Housing, Electricity and Water ("MHEW") have transferred to newly established government owned successor companies. The sector is now fully corporatised comprising both government owned and private sector companies. Further electricity privatisations will be implemented through the sale of the government's interest in the successor companies.

The Sector Law established the Authority for Electricity Regulation, Oman as an independent entity responsible for the public interest regulation of the sector. The Authority's statutory functions and duties are designed to ensure the sector operates in accordance with the interests of Customers, Investors and the Government. Stakeholders can be assured the Authority is working hard to safeguard their interests in the way the law intends.

On the 1 May 2005 the Authority granted 9 licences to successor companies, 3 licences to private sector companies and 9 licence exemption orders to other entities authorising a range of regulated activities.

Since its establishment, the Authority has implemented 6 RPI-X type price controls (providing for around 140 million Rial Omani of capital investment in licensed transmission and distribution systems), approved the Sultanate's first electricity and water bulk supply tariffs, issued its first formal determination of a customer complaint, and approved competition documentation prepared by the Oman Power & Water Procurement Company SAOC ("PWP") for the procurement of a new IWPP at Barka and the privatisation of the AI Rusail Power Company SAOC. This report provides details of these and the Authority's other activities between 1 May and 31 December 2005.

This report fulfils the reporting obligation placed on the Authority by Article (29) of the Sector Law. In presenting this report to the Council of Ministers the Authority is recommending the introduction of a new Permitted Tariff for Customers with Special Needs and Cost Reflective Tariffs for Industrial customers.

The Authority wishes to acknowledge the role of MHEW in overseeing the development of the Sultanate's electricity sector from the installation of the first diesel generation unit in 1970, to a sector comprising over 3,200 MW of generating capacity and that in 2005 supplied 12.7 TWh of electricity to some 530,000 customers throughout the Sultanate. This was a considerable achievement. The Authority is now tasked with ensuring the sector responds to the electricity needs of the Sultanate's fast growing economy in order to sustain the economic growth essential to the future prosperity of citizens.

The Authority is very aware that significant responsibilities have been placed on it by the Government. Members and staff of the Authority are committed to ensuring the vision of His Majesty Sultan Qaboos Bin Said for the Sultanate's electricity and related water sector is fully and properly implemented so as to safeguard the interests and further economic development of the Sultanate and all its citizens.

Silf

Dr. Saleh Mohammed Al Alawi Chairman Authority for Electricity Regulation, Oman

### ELECTRICITY & RELATED WATER SECTOR REFORM

In December 1999 the Council of Ministers approved policies for the wholesale restructuring and privatisation of the Sultanate's electricity and related water sector. The approved policies were based on recommendations of a Consortium comprising ABN-AMRO (financial advisor), Denton Wilde Sapte (legal advisor) and Mott MacDonald (technical advisor).

To provide a statutory basis for the restructuring, a steering committee chaired by His Excellency the Secretary General of the Ministry of National Economy oversaw the development of the Law for the Regulation and Privatisation of the Electricity and Related Water Sector (the "Sector Law") that was promulgated by Royal Decree 78/2004 on 1 August 2004. The Sector Law implements all the major reforms approved by the Council of Ministers in 1999.

## Royal Decree 78/2004

The Sector Law's 155 articles implement a new market structure, pave the way for further electricity privatisation, and establish an independent regulator to oversee the public interest regulation of the sector.

The Sector Law allowed a nine month period of transition from the self regulated vertically integrated arrangements previously in place to the new market structure and independent regulatory framework. Accordingly, on 1 May 2005, the Ministry of National Economy implemented a Transfer Scheme whereby the electricity and related water assets, liabilities and staff of MHEW transferred to the successor companies shown in Figure 1.

#### Figure 1: Successor Companies

The Electricity Holding Company SAOC The Oman Power and Water Procurement Company SAOC The Oman Electricity Transmission Company SAOC The Rusail Power Company SAOC The Wadi Al Jizzi Power Company SAOC The Al Ghubrah Power and Desalination Company SAOC The Mazoon Electricity Company SAOC The Majan Electricity Company SAOC The Muscat Electricity Distribution Company SAOC The Rural Areas Electricity Company SAOC

With the exception of the Electricity Holding Company SAOC the successor companies are now responsible for the electricity functions previously undertaken by MHEW. In terms of ownership, the sector now comprises the mix of government owned and private sector companies shown in Figure 2.





The Electricity Holding Company SAOC holds the government's majority interest in the new successor companies, and is itself 100% owned by the Ministry of Finance. The Ministry of Finance and the Electricity Holding Company SAOC hold 0.01% and 99.99%, respectively, of the shares of the successor companies.

Oman has an established and successful track record of electricity privatisation. The Manah Phase 1 privatisation in 1996 was followed by Manah Phase 2 in 1999, the AI Kamil IPP and Barka IWPP projects in 2000, the Salalah Concession Agreement signed in 2001, and the Sohar IWPP in 2004.

Further electricity privatisation will be implemented through the sale of the government's interest in some of the successor companies (there are no plans to privatise the Electricity Holding Company SAOC, the PWP or RAEC successor companies). Article (13) of the Sector Law confirms the Ministry of National Economy as competent to oversee and implement electricity privatisation.

The government's approach to electricity privatisation has been to allow 100% private ownership for an initial period, with an obligation to make public offerings of stipulated shareholdings through the Muscat Securities Market. This has been an extremely successful strategy and one that is likely to be adopted for the privatisation of successor companies.

Article (135) of the Sector Law significantly amends the scope of MHEW's electricity functions (but not its Housing and Water functions). From 1 May 2005 MHEW's electricity responsibilities relate principally to matters of coordination and the provision of information to the Council of Ministers.

1 May 2005 is the date on which the Authority assumed full responsibility for the regulation of the electricity and related water sector. Article (3) of the Sector Law designates the activities listed in Figure 3 as regulated activities. Article (4) requires any Person seeking to undertake a regulated activity to be authorised by the Authority.

#### **Figure 3: Regulated Activities**

#### **Regulated Activities**

- (a) Generation, Transmission, Distribution, Export, Import or Supply of electricity;
- (b) Generation of electricity combined with the Desalination of Water;
- (c) Generation of electricity co-located with the Desalination of Water;
- (d) The operation of a system of central Dispatch;
- (e) The development and/or operation of International Interconnections; and
- (f) The functions assigned to the Oman Power and Water Procurement Company

Authorisations issued by the Authority take the form of licences and licence exemption orders. As a general rule, licences are granted to entities undertaking a regulated activity as their principal business activity. Licence exemption orders are granted to entities for which a regulated activity is ancillary to another (non regulated) business activity.

Sector Law policies have an important influence on how the sector now operates. For example, the government remains responsible for approving Permitted Tariffs (Article 10), for the timing and extent of further electricity privatisation (Article 13) for approving electricity interconnections with neighbouring countries (Article 115) and for approving proposals for further market Liberalisation (Article 32 (d)).

The Sector Law includes provisions to safeguard the interests of electricity customers; for example companies operating in the sector are required to consider the needs of sick and elderly customers. There is also protection for the employment rights of Omani employees who transferred from MHEW to successor companies earmarked for privatisation.

The Sector Law includes provisions to safeguard the interests of investors; for example in certain circumstances the law provides investors with direct recourse to international arbitration. Protections such as these reinforce Oman's status as an attractive centre of investment and will encourage further private investment in the Sultanate's electricity sector.

The Sector Law strikes a careful balance between the interests of customers, investors and the government. For example, in promoting electricity privatisation the law provides that key electricity assets will remain available to service the needs of citizens irrespective of public or private sector ownership.

Finally, the Sector Law requires companies operating in the sector to comply with government policies on Omanisation, Omani Content and the Environment.

## Market Structure

The electricity and related water sector in the Sultanate of Oman comprises three separate and distinct market segments: the Main Interconnected System (MIS) in the North of Oman; the Rural Systems of the Rural Areas Electricity Company SAOC; and the Salalah Power System. Each of these market segments is described below.

#### Main Interconnected System

The MIS market structure and 2005 summary statistics are presented in Figure 4. All the entities shown in Figure 4 operate under licenses granted by the Authority.

#### Figure 4: Main Interconnected System – Market Structure & Summary Statistics 2005

Generation Generation/Desali	nation		& Water rement		mission & spatch	Distributio	on & Supply
Al Rusail Power Com Wadi Al Jizzi Power Co			wer & Water ent Company			Distributio	Electricity on Company AOC
United Power Comp	any SAOG	S	AOC			3F	
Al Kamil Power Com	pany SAOG				Electricity sion Company		Electricity ny SAOC
AES Barka SA					AOC		Electricity ny SAOC
Sohar Power Comp (licence granted Ma						Compa	IIY JACC
Main Interconnected	System - 2005	<b>3</b>		Oractoriate		Net Dro	duction <sup>2</sup>
Production Facility	Fuel	Numbe Power	r of Units Desal	Power (MW)	ed Capacity <sup>1</sup> Desalination (M <sup>°</sup> /day)	Power (MW)	Desalination (M <sup>°</sup> /day)
Al Kamil	Natural Gas	3	-	290	-	1,210,387	-
Barka	Natural Gas	3	3	427	91,200	2,748,950	27,614,465
Ghubrah	Natural Gas	13	7	523	186,144	2,299,212	51,170,948
Manah Phase 1 & 2	Natural Gas	6	-	267	-	1,046,035	-
Rusail	Natural Gas	8	-	688	-	2,179,539	-
Wadi Al Jizzi (units 3 to 13)	Natural Gas	11	-	295	-	1,214,319	
Other PWP purchases	Natural Gas	-	-		-	97,161	-
Total		44	10	2,490	277,344	10,795,603	78,785,413

Licensed capacities @ RSC (50 ° C)

<sup>2</sup> PWP purchases of MWh sent out

<sup>3</sup> 1 January 2005 to 31 December 2005

The MIS market structure centres around the Oman Power and Water Procurement Company SAOC ("PWP") as the single buyer of capacity and output from licensed production facilities and other entities. In 2005, MIS contracted capacity comprised 2,490MW of generating capacity and 277,344 m<sup>3</sup> per day desalination capacity, from which the PWP purchased 10.8 TWh and 78.8 million m<sup>3</sup> of water, increases of 7% and 4%, respectively, on 2004.

MIS contracted capacity increased to 2,865MW in April 2006 with the commissioning of 375 MW of early power capacity from a new IWPP in Sohar. MIS contracted capacity of licensed production facilities will reach 3,075MW and 409,000 m<sup>3</sup> per day in 2007 when the Sohar IWPP is fully commissioned.

The PWP is presently conducting a competition to contract for a further 700 MW and 120,000 m<sup>3</sup>/day of IWPP capacity by 2009. The new IWPP will be located at Barka and provide 350MW of early power capacity in 2008.

These increases in MIS contracted capacity are required by the PWP to comply with the Generation Security Planning Standard of the PWP licence. The security standard is expressed in terms of expected loss of load hours (LOLH) in each year and requires the PWP to ensure that, in any one year, the expectation of there being insufficient capacity available to meet MIS demand shall not exceed 24 hours.

#### Licensed Transmission System

The Oman Electricity Transmission Company SAOC ("OETC") is a monopoly provider of transmission services to the MIS. OETC owns and operates the 220 kV and 132 kV interconnected transmission system in the north of Oman and as 'system operator' is responsible for the central dispatch of generating and desalination facilities connected to the MIS. OETC manages its system operator functions from a recently commissioned load dispatch centre in AI Mawalleh. Figure 5 presents summary statistics for OETC's transmission system in 2005.

#### Figure 5: OETC Transmission System - 2005

tem	Value
Service area (sq/km)	129,343
Overhead lines (circuit km)	3,049
Underground cables (circuit km)	11
132kV sub stations	30
220kV sub stations	3
Total sub stations	33
2005 System Peak Demand (MW)	2,495
2005 Units transmitted (MWh) <sup>1</sup>	9,998,946
Centrally dispatched facilities <sup>2</sup>	6

<sup>2</sup> excluding Sohar IWPP commissioned in 2006

OETC has implemented a Grid Code establishing minimum operating and planning standards, scheduling and dispatch procedures and other technical requirements with which any person connected to its system is required to comply. The Grid Code requires OETC to maintain system voltage within stipulated limits and system frequency at 50 hz.

#### **Licensed Distribution Systems**

Three licensed distribution and supply companies (the Muscat, Majan and Mazoon Discos) have a monopoly right to distribute and supply electricity within Authorised Areas stipulated in their licenses (please refer to Annex D). These areas correspond to established geographical regions in the Sultanate:

- the Authorised Area of the Muscat Electricity Distribution Company SAOC corresponds to the Muscat Governorate;
- the Authorised Area of Majan Electricity Company SAOC includes the North Batinah and Dhahrih regions
- the Authorised Area of Mazoon Electricity Company SAOC includes the Sharqyah, Dakhliah and South Batinah regions

Figure 6 presents summary statistics for the licensed distribution systems of the Muscat, Majan and Mazoon Discos in 2005.

#### Figure 6: Muscat, Majan & Mazoon Distribution Systems - 2005

#### Muscat, Majan & Mazoon Licensed Distribution Systems - 2005<sup>1</sup>

Licensee	Service Area km²	Customer Accounts	Customer density (Cust/km²)	Overhead lines (circuit km)	Under ground cables (circuit km)		rmers in nission (MVA)	Units distributed Capacity (MWh)
Muscat Electricity Distribution Company	3.900	162.801	42	6.031	1.764	4.954	5.634	4,272,970
Majan Electricity Company	50.744	110.384	2	10.840	1,704	5.664	2,720	1.743.256
Mazoon Electricity Company	74.699	194,118	3	18,434	1,225	9,035	4,612	2,385,964
Totals	1 1,000	467,303	Ū	35,306	4,367	19,653	12,966	8,402,190
<sup>1</sup> 1 January to 31 December 2005								

Source: licensee returns

Figure 7 presents details of customer accounts and electricity supplied by customer category in 2005 by the Muscat, Majan and Mazoon Discos.

#### Figure 7: Electricity Supplied & Customer Accounts in 2005 – Main Interconnected System

Electricity Supplied & Customer Accounts in 2005<sup>1</sup>- Main Interconnected System

	Musc	at Disco	Maja	n Disco	Mazoc	n Disco	Tota	al MIS
Tariff Category	Accounts	MWh Supplied						
Residential	123,963	2,049,553	84,670	1,093,480	154,361	1,616,120	362,994	4,759,154
Commercial	32,925	911,234	18,624	224,174	28,941	281,726	80,490	1,417,134
Government	5,547	981,407	5,652	232,619	9,297	380,165	20,496	1,594,191
Agriculture & Fisheries	76	1,610	1,354	42,455	1,464	71,446	2,894	115,510
Tourism & Hotels	66	44,264	25	6,605	12	2,583	103	53,452
Industrial	224	284,902	59	143,923	43	33,924	326	462,748
Totals	162,801	4,272,970	110,384	1,743,256	194,118	2,385,964	467,303	8,402,190

1 January to 31 December 2005

Source: licensee returns



Majan 1.7 TWh

#### Muscat 4.3 TWh

1 January to 31 December 2005

Source: licensee returns

Mazoon 2.4 TWh

Residential customers supplied by Muscat Disco accounted for 48% of total MIS supply in 2005. Residential customers of the Majan and Mazoon Discos accounted for 64% and 68%, respectively. Government and Commercial customers of Muscat Disco accounted for a higher share of total supply than the Majan and Mazoon Discos.

The Muscat, Majan and Mazoon Discos supplied a total of 8.4 TWh to 467,303 customer accounts from the MIS in 2005, increases of 9% and 4% respectively, on 2004. Residential customers accounted for 57% of total MIS electricity supply in 2005, Government customers 19% and Industrial and Tourism customers 5.5% and 0.6% respectively. The Industrial and Tourism customer categories will account for higher shares of MIS electricity supply in future years following the implementation of several large and important projects presently under development.

#### **Regulated transactions – Main Interconnected System**

Figure 8 summarises the principal 'regulated transactions' of MIS licensees.

#### Figure 8: Principal Regulated Transactions – Main Interconnected System



All intra sector transactions: (i) regulated & (ii) cost reflective (no direct subsidy)

The PWP purchases capacity and output from licensed production facilities in accordance with the payment terms of power (and water) purchase agreements (PPA/PWPA). These payment terms are established during competitions for market entry, and so are not directly regulated by the Authority. The Authority has a duty to ensure the PWP conducts competitions for new contracted capacity and output in a fair and transparent manner.

The PWP provides bulk supplies of electricity to the Muscat, Majan and Mazoon Discos, and bulk supplies of desalinated water to Water Departments. These transactions are implemented through cost reflective electricity and water bulk supply tariffs approved by the Authority. The electricity and water bulk supply tariffs allow the PWP to recover its purchase costs and the direct costs of its procurement functions.

Electricity is purchased by the PWP at licensed production facility exit points and transported across the transmission system of OETC at voltages of 132kV and above to the licensed distribution systems of the Muscat, Majan and Mazoon Discos for supply to customers. The Muscat, Majan and Mazoon Discos purchase electricity from the PWP at licensed production facility exit points and are responsible for the cost of transporting electricity across the transmission and distribution systems to customers. The Discos pay connection and use of system charges approved by the Authority for connection and use of OETC's licensed transmission system.

#### **Electricity Demand – Main Interconnected System**

MIS electricity demand has a distinct seasonal shape - demand in summer months is significantly higher than in winter. The profile of MIS monthly peak electricity demand in 2005 is shown in Figure 9.





MIS reached a peak of 2,495MW in June 2005, a 5% increase on the 2004 peak of 2,371MW.

Residential customer demand has a significant influence on the MIS 'load shape'. Air conditioning loads in summer rise in response to higher temperatures resulting in the strong positive correlation of monthly peak demand and maximum monthly ambient temperature shown in the right hand panel of Figure 9.

MIS daily demand also has distinct seasonal patterns. Figure 10 presents 'representative' day load profiles for June 2005 (the month in which demand was highest) and February 2005 (the month in which demand was low-est). The profiles reflect average hourly demands in each month.

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#### Figure 10: Representative MIS Electricity Demand Profiles – February & June 2005

MIS demand in June 2005 was significantly higher than in February and shows a double peak: first, in the afternoon (between 3 pm and 5 pm) and then in the late evening / early morning (between 11 pm and 4 am). In February, demand peaked at around 8 pm (when June demand was at its lowest).

#### **MIS Electricity Demand Forecast**

MIS Peak demand increased from 1,718 MW in 1999 to 2,495 MW in 2005, a 51% increase at an annual average rate of growth of 7%. MIS peak demand growth is forecast to accelerate in response to the Sultanate's continuing strong economic growth. The principal drivers of growth are increases in population, and increased activity in the Industrial and Tourism sectors.

The PWP is responsible for forecasting electricity demand in the Sultanate, including MIS demand. The PWP is also responsible for ensuring sufficient capacity is available to meet forecast demands in accordance with the Generation Security Planning Standard of the PWP licence. The PWP is required by its licence to publish annually a '7-year Statement' presenting electricity demand forecasts for different parts of the Sultanate for the succeeding seven years. Each 7-year Statement must identify sources of capacity the PWP expects will be available under contract to meet forecast demands and any new capacity required by the planning standard. The PWP is expected to publish its first 7-year Statement in July 2006.

The PWP has provided the Authority with a MIS electricity demand forecast and capacity assessment for 2006 to 2012, the peak demand forecast is presented in Figure 11.

				7 Yea	r Forecast			
Peak Demand by Category - MW	2005	2006	2007	2008	2009	2010	2011	2012
Muscat Majan Mazoon 'base case'	2,402	2,526	2,742	3,119	3,309	3,495	3,686	3,889
New Industrial Projects	0	41	98	185	242	330	418	505
New Tourism Projects	0	5	25	60	125	175	225	275
Transmission losses	33	39	43	50	55	60	65	70
MIS Peak Demand Forecast	2,435	2,610	2,908	3,415	3,731	4,060	4,394	4,739
Annual percentage growth		7.2%	11.4%	17.4%	9.3%	8.8%	8.2%	7.8%

#### Figure 11: PWP MIS Peak Demand Projection 2006 - 2012



The base case forecast is for peak electricity demand in 2012 of 3,889MW (excluding transmission losses), a 62% increase on 2005. The base case MIS peak demand forecast reflects underlying 'trend' growth and committed projects in the Muscat, Majan and Mazoon Disco areas including a Seeb airport development, the Sur independent water project, and two steel projects in Sohar.

The Muscat, Majan and Mazoon Discos have identified a number of prospective Industrial and Tourism projects that if implemented would add a further 505 MW and 275 MW, respectively, to MIS peak demand in 2012. These projects would, if implemented, increase the annual average rate of growth of MIS peak demand to 10% per annum, with peak demand reaching 4,739 MW (including 70 MW of transmission losses) in 2012.

The PWP's capacity assessment, shown in Figure 12, identifies two categories of capacity: one is the contracted capacity of licensed production facilities, the second category is additional sources of capacity that the PWP considers might be available, but which is not contracted.

#### Figure 12: PWP Assessment of Contracted and Additional Capacity 2006 - 2012

50

2,850

Contracted Capacity - netMW <sup>1</sup>	2006	2007	2008	2009	2010	2011	2012
Al-Ghubrah Power & Desalination Plant	480	480	480	480	285	285	285
Rusail Power Plant	680	680	680	680	680	680	680
Wadi Al-Jizzi Power Plant	270	290	290	290	290	290	290
Manah Power Plant	280	280	280	280	280	280	280
Al Kamil Power Plant	280	280	280	280	280	280	280
Barka Power & Desalination Plant (Phase I)	435	435	435	435	435	435	435
Sohar Power & Desalination Plant	375	585	585	585	585	585	585
Barka Power & Desalination Plant (Phase II)'	0	0	350	700	700	700	700
Total contracted capacity	2,800	3,030	3,380	3,730	3,535	3,535	3,535
' 45°C, includes deratings based on performance test. Additional Potential Capacity - netMW	S 2006	2007	2008	2009	2010	2011	2012
Authorised entities	50	85	85	85	85	85	85
UAE Interconnection	0	200	200	200	200	200	200
Sohar Aluminium	0	0	180	180	180	180	180
Al-Ghubrah (out of contract capacity)	0	0	0	0	150	150	150

Source: PWP

Total Potential additional capacity

Contracted and Potential Capacity - netMW

The PWP expects to have 4,150 MW of MIS contracted capacity in 2012, this includes the contracted capacity of the Sohar IWPP (585MW) and the Barka phase II IWPP (up to 700MW). 195 MW of Ghubrah capacity will be out of contract by 2010.

285

3,315

465

3,845

465

4,195

615

4,150

615

4,150

615

4,150

The PWP has identified 615 MW of additional potential capacity for which it may be able to contract. 85MW of this additional capacity is owned by authorised entities such as Oman Mining Company LLC, Oman Cement Company SAOG and the AI Kamil and Barka licensed production facilities. The International Interconnection with the UAE could provide up to 200MW of capacity, and the Sohar Aluminium Company a further 180 MW. 150MW of 'out of contract' capacity at Ghubrah could also be available through a new contract. Capacity for which the PWP has not contracted is not regarded as 'firm-capacity' and as such is not included in calculations to determine the compliance requirements of the Generation Security Planning Standard. Figure 13 brings together the PWP's MIS peak demand forecast and capacity assessment.

#### Figure 13: MIS Capacity Demand Balance 2006 - 2012



Source: PWP

The capacity demand balance shown in Figure 13 suggests that for the base case forecast, additional contracted capacity will be required by 2010. If prospective industrial and tourism projects are included in the forecast, new contracted capacity is required in 2008.

This assessment is subject to considerable uncertainty. For example it is not certain that all of the prospective industrial and tourism projects will materialise – and if they do whether their actual demands will accord with present expectations. Nor is it certain that the PWP will be able to contract for the additional potential capacity identified in its analysis. Such uncertainties are best assessed using probabilistic methods as are required to calculate the loss of load hours expectation of the Generation Security Planning Standard. The PWP will confirm the MIS peak demand forecast and the requirement for new capacity in its 7-year Statement.

#### **Rural Systems**

The Rural Areas Electricity Company SAOC ("RAEC") is authorised by licence to generate electricity and desalinate water, transmit, distribute and supply electricity to customers in its Authorised Area. RAEC's Authorised Area (see Annex D) extends throughout the Sultanate and includes the Musandam, Al Sharqiyah, Al Wusta and Dhofar Regions (but excludes the Salalah Concession Area).

RAEC is also responsible for the electrification of rural areas, and secures electrification funding through a mechanism established by Article (87) of the Sector Law. The Sector Law requires the Authority to encourage electricity supply to rural communities through extension of the MIS and through the disbursement of rural electrification funding to RAEC.

Electricity supplied to most RAEC rural systems is generated at diesel fuelled production facilities, although for some rural systems RAEC purchases electricity from Petroleum Development Oman. Figure 14 summarises the 2005 capacity and output of RAEC production facilities.

#### Figure 14: Capacity & Output in 2005 – Rural Systems

#### RAEC Rural Systems - 20051

				Installe	d Capacity	Gross F	Production
Region	Fuel	Numbe Power	r of Units Desal	Power (MW)	Desalination (M3/d)	Power (MWh)	Desalination (m3)
Al Sharqiyah	Diesel	73	10	187.8	14,446	50,396	3,097,002
Al Wusta	Diesel	52	2	17.6	150	21,499	27,728
Dhofar <sup>2</sup>	Diesel	114	2	158.0	136	39,041	22,723
Musandam	Diesel	31	2	52.2	250	153,654	59,586
Totals		270	16	415.5	14,982	264,590	3,207,039

<sup>1</sup>1 January to 31 December 2005

<sup>2</sup> Excludes 2 MHEW turbines expected to transfer to DPC and new capacity not yet commissioned Source: RAEC returns

The Authority wishes to acknowledge the significant support RAEC provided to the Main Interconnected System and the Salalah Power System in 2005. 100MW of RAEC diesel generation located in AI Sharqiyah provided 3.9 GWh to the MIS during the 2005 summer peak period. In Salalah, RAEC provided 984 MWh of generation to the Salalah Power System.

Although RAEC's regulated activities extend over a wide geographic area, there are large differences in electricity and desalinated water production across regions. For example, Musandam accounted for 58% of total RAEC generation in 2005, Al Wusta 8% and Al Sharqiyah and Dhofar for 19% and 15%, respectively. Al Wusta accounted for 97% of RAEC desalinated water production in 2005.

Figure 15 presents details of RAEC customer accounts and electricity supplied by customer category in 2005.



#### Figure 15: Electricity Supplied and Customer Accounts in 2005 – Rural Systems

Residential customers accounted for 54% of total supply in 2005, Commercial customers 10% and Government customers 33%.

Electricity demand growth on RAEC rural systems has averaged 5% to 8% in recent years, rates of growth that are expected to continue. Demand in certain areas will increase sharply following the implementation of development projects such as those planned for the Duqum area and Masirah Island.

#### Salalah Power System

In March 2001, the government signed a 20 year Concession Agreement with the Dhofar Power Company SAOG ("DPC") to facilitate the privatisation of the Salalah Power System. The privatisation allowed the Government to transfer the obligation to fund a new 195 MW gas fired power plant, and operate the Salalah Power System, to the private sector.

Prior to the privatisation electricity supply in Salalah was sourced from small diesel fired generating units. The development of the gas fired power plant in the Salalah region has resulted in significant cost savings.

DPC is responsible for the generation, transmission, distribution and supply of electricity to customers in the Salalah Concession Area. Figure 16 presents summary statistics for the Salalah Power System in 2005.

#### Figure 16: Capacity & Output in 2005 – Salalah Power System

				Install	ed Capacity	Prod	uction
Facility	Fuel	Number Power	of Units Desal	Power (MW)	Desalination (M3/d)	Gross (MWh)	Net (MWh)
DPC New Power Station	Natural Gas	6	0	195	0	1,057,231	1,055,271
Frame 6	n/a	1	0	30	0	0	0
LM 2500	n/a	1	0	17	0	0	0
Other (RAEC generation)	Diesel					1,073	984
Totals		8	0	242	0	1,058,303	1,056,264
1 January to 31 December 2005							

Figure 17 presents details of customer accounts and electricity supplied by customer category in 2005

#### Figure 17: Electricity Supplied & Customer Accounts in 2005 – Salalah Power System



Residential customers accounted for 42% of total supply in the Salalah Concession Area in 2005, Commercial customers 15% and Government customers 27%.

The vertically integrated nature of the Salalah Concession Agreement is in contrast to the vertical and horizontal unbundling of the electricity and related water sector elsewhere in Oman. The Government chose to respect the property rights of the Concession Agreement, signed before the enactment of the Sector Law, rather than end the Concession Agreement early to align arrangements in Salalah to the market structure introduced by the Sector Law.

The PWP has replaced MHEW as government counterparty to the Salalah Concession Agreement. The Concession Agreement is unchanged in all other respects. The performance by the PWP of its counterparty responsibilities is subject to regulation by the Authority. A condition of the PWP licence requires the PWP to manage its Salalah responsibilities: efficiently and economically, in accordance with arrangements approved from time to time by the Authority and any directions of the Authority; and to secure that customers in the Salalah Concession Area receive services consistent in terms of quality, and efficiency with services provided by licensees elsewhere in Oman.

#### **Demand – Salalah Power System**

The profile of Salalah Power System demand is very different to that of the MIS, Figure 18 presents monthly maximum demand in 2005. After rising steadily from January to June, demand fell in July and remained broadly constant thereafter.

#### Figure 18: 2005 Monthly Peak Demand – Salalah Power System



Electricity demand growth in Salalah has accelerated in recent years in response to population growth and increased economic activity. New industrial projects at the recently established Salalah Free Zone ("SFZ") will provide further impetus for growth.

The PWP is required to prepare electricity demand forecasts for the Salalah Power System and ensure sufficient capacity is available to meet forecast demand. The Salalah demand forecast and capacity assessment will form part of the PWP '7-year Statement'.

The PWP has provided the Authority with a forecast of electricity peak demand in Salalah for 2006 to 2012, details of this forecast are summarised in Figure 19.

#### Figure 19: Salalah Power System Demand Forecast – 2006 to 2012

				7 Yea	r Forecast			
Peak Demand by Catogory	- MW 2005	2006	2007	2008	2009	2010	2011	2012
Base demand	178	188	199	210	222	235	248	262
Existing bulk customers	21	54	58	61	65	69	69	69
Salalah Free Zone			10	20	30	40	45	50
Salalah Peak Demand Forecas	t 199	242	267	291	317	344	362	382
Annual percentage growth		21.7%	10.2%	9.1%	8.9%	8.4%	5.3%	5.3%
Source: PWP								
	MW							
	450 ]							
	400 -							
Salalah Free Zone	350 -							
Salalah Free Zone	300 -							
	050	-						
Existing bulk customers	250 -							
	200 -		ļ	-	1			
Existing bulk customers Base demand	10000							
	200 - 150 -							
	200 - 150 - 100 -							
	200 - 150 -							
	200 - 150 - 100 - 50 - 0							
	200 - 150 - 100 - 50 -	2006	2007	2008	2009	2010	2011	2012

The PWP forecast identifies three categories of demand: (i) base demand (reflecting underlying growth of Residential, Commercial, Government and other customers), (ii) the demands of existing bulk customers and (iii) the Salalah Free Zone. Base demand is forecast to increase by 39% from 188MW in 2006 to 262MW in 2012. The electricity demands of existing bulk customers is forecast to reach 69 MW in 2012 by which time demand at the Salalah Free Zone is forecast to reach 50MW. If all the demands in Figure 20 materialise, electricity demand growth on the Salalah Power System between 2005 and 2012 would average 10% a year, similar to the high growth scenario for the MIS forecast.

Figure 20 brings together the PWP's Salalah peak demand forecast and capacity assessment for 2006 to 2012.





Salalah Capac	ity - Demand Balance
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Demand - MW	2005	2006	2007	2008	2009	2010	2011	2012
Base + existing bulk customers	199	242	257	271	287	304	317	332
Base + existing bulk + SFZ	199	242	267	291	317	344	362	382
Capacity - MW								
DPC + MHEW turbines net		216	266	266	266	266	266	266
RAEC diesels		63	63	63				
New IWPP					150	150	150	150
Total Capacity net MW		279	329	329	416	416	416	416

Source : PWP

The capacity of the DPC new power station will not be sufficient to meet Salalah Power System demand from 2006, even assuming the successful transfer of two gas turbines previously owned by MHEW. RAEC diesel generation will provide interim support to the Salalah Power System, but this is a very expensive source of generation. There is a clear requirement for new Salalah Power System generating capacity in 2009.

In 2005, the Authority asked the PWP to coordinate with Dhofar Municipality to assess the possibility of combining new generation capacity in Salalah with the Municipality's requirement for new desalination capacity. As a result of this coordination, the PWP is preparing competition documents to procure a new IWPP in Salalah with expected contracted capacities of up to 150MW and 68,000 m3 per day. The Salalah IWPP will provide electricity to the Salalah Power System and desalinated water to the Dhofar Municipality.

## Electricity and Related Water Sector Employment & Omanisation

The electricity sector is an important source of employment throughout the Sultanate. In September 2005, the Authority invited licensees to confirm the number and nationality of directly retained full time employees, and employees of their principal contractors. This information is summarised in Figure 21.

#### Figure 21: Employment & Omanisation - 2005



Total electricity and related water sector employment, reported in September 2005, totalled 4,796 employees, of which 22% were directly employed by licensees and 78% by licensees' contractors. These figures confirm the extent to which MHEW 'contracted out' its electricity and related water functions. The Authority and licensees are presently evaluating whether this level of contracting out remains appropriate.

Omani nationals accounted for 90% of direct employees, and 61% of contractor employees. For the sector as a whole, Omani nationals accounted for 68% of total electricity and related water employment in September 2005.

Figure 22 summarises the employment and Omanisation position of licensees in September 2005.



Figure 22: Licensee Employment & Omanisation - 2005

The Authority has asked the Ministry of Manpower to restate the Omanisation obligations of the electricity and related water sector consistent with the new market structure to help the Authority monitor licensee compliance with Omanisation obligations.

## ARTICLE (29) REPORTING

Article (29) of the Sector Law requires the Authority to report major developments in the electricity and related water sector. The principal developments in 2005 were as follows:

(i) The Majan and Mazoon Discos and RAEC implemented electricity projects identified during His Majesty's Tour. Table 1 summarizes the Willayats in which such electricity projects were and are being implemented:

#### Table 1: Electricity Projects Identified During His Majesty's Tour

Company	Willayat
Majan Electricity Company SAOC	Al Khaboora, Saham, Sohar, Liwa, Shinas, Al Buraimi, Ibri, Yanql and Mehadhah
Mazoon Electricity Company SAOC	Al Rustaq, Al Awabi, Nakhal, Wadi Al Maawel, Barka, Al Musanna and Al Suwaiq
Rural Areas Electricity Company SAOC	Dibba, Madha, Khasab and Bukha

- the Authority is pleased to report the successful implementation of the new electricity and related water sector market structure and regulatory regime with little disruption to services. The Authority attributes this to the excellent coordination and focus of the Electricity Holding Company SAOC and successor company managements;
- (iii) 2005 saw the introduction of a new mechanism through which the Ministry of Finance provides electricity subsidy to licensed suppliers. The Muscat, Majan and Mazoon Discos received 66.3 million Rial Omani of subsidy for the period 1 May 2005 to 31 December 2005, and RAEC 12 million Rial Omani for the same period;
- (iv) on 1 May 2005 the Authority issued authorisations to persons undertaking regulated activities thereby ensuring sector compliance with the new regulatory framework;
- (v) 2005 saw further progress in the construction of electricity interconnections between the Sultanate of Oman and the United Arab Emirates. The Sultanate of Oman will participate in Phase II of the GCC Interconnection Project: Phase I will link the networks of Kuwait, Saudi Arabia, Bahrain and Qatar. Phase II is the integration of the isolated networks of the United Arab Emirates and the Main Interconnected System in Oman. The Import and Export of electricity across Oman - UAE interconnections is expected to commence in 2006;
- (vi) on 2 November 2005 the PWP invited proposals for the construction of a new IWPP and the sale of Al Rusail Power Company SAOC. The new IWPP is expected to provide 700MW and 120,000 m3 per day of power and desalination capacity, respectively, by 2009 and 350 MW of early power capacity in 2008;
- (vii) AES Barka SOAG and the Dhofar Power Company SAOG successfully completed public offerings of 35% of their existing share holdings in January 2005 and May 2005, respectively; and
- (viii) the Authority initiated research into the wider use of renewable sources of electricity. The principal area of focus is the extent to which solar energy could provide electricity to customers in remote areas.

#### **Regulatory Assignments**

The Authority retained specialist consultants to assist with a number of regulatory assignments in 2005:

- Sinclair Knight Merz was retained to assess the condition of the licensed transmission and distribution systems and prepare projections of licensees operating and capital expenditure requirements from 2006 to 2010. These projections will help the Authority determine what, if any, adjustments are required to the initial price controls;
- 2) DBE Power reviewed the 2005/6 planned maintenance programmes of the Al Ghubrah, Wadi Al Jizzi, and Al Rusail production facilities. As these were the first maintenance programmes prepared since the restructuring, the Authority wished to confirm the programmes were technically justified and properly costed;
- 3) PB Power was retained to develop a RAEC information reporting framework. The assignment objective is to provide the RAEC with a means of managing, collating and providing information to the Authority required to regulate RAEC's activities. The RAEC information framework is expected to be implemented during 2006;
- 4) Advantica were asked to recommend cost effective options for emissions monitoring at the AI Ghubrah, Manah, AI Rusail and Wadi AI Jizzi licensed production facilities. The electricity operations that transferred from MHEW were found to be substantially non complaint with environmental regulations, including Ministerial Decision 118/2004 issued by the Ministry of Regional Municipalities, Environment and Water Resources. The Authority has a statutory duty to ensure licensees comply with environmental regulations and wishes to ensure the sector has due regard to the cost and benefits of environmental compliance measures;
- 5) Berwin Leighton Paisner reviewed securities documents submitted to the Authority for approval by the Sohar Power Company SAOC in accordance with Article (106) of the Sector Law;
- 6) Denton Wilde Sapte (London) provided general regulatory advice during 2005 on a range of issues, including financial and legal issues related to the proposed structure of the new IWPP/Rusail privatization project;
- 7) Horton IV Consulting was asked to review and assess a new evaluation methodology proposed by the PWP to assess proposals for a new IWPP and sale of AI Rusail Power Company SAOC. The new evaluation methodology gives greater emphasis to the costs and benefits of mid merit and peaking operation (flexibility benefits), assuming MSF/MED or reverse osmosis desalination technology. The Authority sought assurance that the methodology was both robust and consistent with the PWP's obligation to conduct a fair and transparent competition.

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). The Authority published its 2006 Forward Work Programme in December 2005 and will confirm progress on each of the assignments in the 2006 programme in the 2006 Annual Report.

## Further Market Liberalisation

Article (29) of the Sector Law requires the Authority to include in each Annual Report its assessment of whether the electricity and related water sector is ready to implement any of the four Liberalisation measures identified in the law. Table 2 lists each of the four Liberalisation measures and presents the Authority's assessment of whether the market is ready for their implementation.

#### Table 2 Further Market Liberalisation

Liberalisation measure	Authority's assessment of market readiness:
<ol> <li>Disposal of the Government's interest in the Electricity Holding Company SAOC or the Oman Power and Water Procurement Company SOAC</li> </ol>	<ul> <li>The Authority does not consider the market ready for this liberalisation measure.</li> <li>It is not clear to the Authority that customers, investors or the government would benefit from the implementation of this measure at the present time.</li> <li>The Authority will reconsider this issue in each subsequent Annual Report but does not propose to take steps to prepare the market for the implementation of this measure.</li> </ul>
2. Permitting licensed Production Facilities to sell to persons other than Oman Power and Water Procurement Company SAOC	The Authority does not consider the market ready for this liberalisation measure. The Authority's expectation is that some customers – particularly large consumers of electricity – would benefit from the implementation of this measure. However, its implementation would imply a significant change to the risk allocation of existing contracts (PPA and PWPA), in addition to which the Authority would need to consider the implica- tions for the Generation Security Planning Standard of the PWP licence. In terms of preparatory measures, the Authority will consult with large consumers of electricity and the PWP to gauge interest in and assess the implications of implementing this measure.
3. 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. As no Import or Export has yet taken place, the Authority considers it premature to contemplate allowing persons other than the PWP or RAEC to Import or Export electricity. Several International Interconnections are expected to be commissioned in 2006 and experience of their operation will inform a decision on the future implementation of this liberalisation measure. The Authority will revisit this issue in each subsequent Annual Report but does not propose to stipulate measures at this time to prepare the market for the implementation of this measure.

Liberalisation measure	Authority's assessment of market readiness:
4. Creation of competition amongst Licensed Suppliers	The Authority does not consider the market ready for this liberalisation measure.
	The Authority has a statutory duty to promote competition and considers the introduction of Supply competition as an important and achievable objective. Subject to satisfying the conditions listed below, the Authority would hope to implement Supply competition within 5 years.
	The following measures are needed to facilitate the introduction of Supply competition:
	significant changes are required to the way the meter reading, billing and collection functions are undertaken and contracted. The Authority has significant concerns about the existing contracts for meter reading, billing and collection. For example, in 2005 Licensed Suppliers paid con- tractor fees in excess of 5 million Rial Omani. Under the terms of the existing contracts, contractors are not liable for meter reading errors – one of the principal contracted activities. The Authority is working with Licensed Suppliers to ensure more appropriate meter reading, billing and collection arrangements can be implemented in 2007;
	separation of Supply Business and Distribution Business costs. This will initially be implemented through accounting separation, supported by amendments to the distribution and supply price control formulae to provide separate allowed revenues for the supply and distribution functions. Identifying supply business costs is a critical requirement for Supply competition; and
	<ul> <li>increased customer awareness. To be successful, Supply competition will require the active participation of customers. The Authority propos- es a campaign to raise customer awareness of the new electricity mar- ket arrangements, and the standards of service customers have a right to expect from Licensed Suppliers.</li> </ul>

## 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. There are four licensed suppliers: the Muscat, Majan and Mazoon Discos and RAEC.

The Authority is required to explain in its Annual Report the methodology used to calculate electricity subsidy in each year. The Authority undertakes two subsidy calculations: first, is the subsidy required by the Muscat, Majan and Mazoon Discos, and second, the subsidy required by RAEC. Each calculation is described below.

#### Definition

The Authority defines subsidy as the difference between the economic costs of electricity supply (including financing costs) and Permitted Tariff (and other) revenue. The present level and structure of Permitted Tariffs does not provide sufficient revenue to remunerate the full economic cost of electricity supply. Subsidy is therefore required to sustain the electricity sector's operations.

#### 2005 Subsidy - Main Interconnected System

The calculation of subsidy required by Muscat, Majan and Mazoon Discos starts with the preparation of forecasts of electricity demands over the period for which subsidy is required. The Authority then estimates the economic cost of meeting forecast electricity demands and derives the subsidy requirement of the Muscat, Majan and Mazoon Discos by subtracting forecast Permitted Tariff (and other) revenue from the total economic cost of supply.

The Muscat, Majan and Mazoon Discos operate under price controls that set maximum limits on each company's revenue entitlement in each year (Permitted Tariff (and other) revenue and subsidy). These Maximum Allowed Revenues ("MAR") are determined for each year by the formula presented in Figure 23.

#### Figure 23: Muscat, Majan & Mazoon Maximum Allowed Revenue Formula

		$MAR_t = PC_t + C\&UofS_t + MANCSR_t + LF_t - K_t$
where:	PCt	is the cost of purchasing bulk supplies of electricity from the PWP in year t
	C&UofS <sub>t</sub>	are amounts paid to OETC for connection and use of the licensed transmission system in year t
	MANCSR <sub>t</sub>	is the maximum allowed network and customer service revenue of RPI-X type controls that remunerate the costs of operating the licensed distribution systems and undertaking supply activities in year t
	LFt	is the License Fee paid to the Authority in year t,
	K <sub>t</sub>	is a correction factor calculated in accordance with the following formula:
		$K_t = (ARR_{t-1} - MAR_{t-1}) \times (1 + (i/100))$
where:	ARR <sub>t-1</sub>	is the Actual Regulated Revenue in the previous year (when calculating 2006 subsidy, the previous year is 2005)
	MAR <sub>t-1</sub>	is the actual Maximum Allowed Revenue in the previous year (when calculating 2006 subsidy, the previous year is 2005)
	i	is a Specified Rate of interest added to over or under recovered revenue, and defined in the distribution and supply licence as the weighted average interest rate on deposits in the previous year as published by the Central Bank of Oman

Source: schedule charge restriction condition of the distribution and supply licence

The MAR formula allows the Discos to 'pass through' PCt and C&UofSt costs as these costs are regulated by PWP and OETC price controls.

Article (22) paragraph 9 of the Sector Law requires the Authority to ensure that licensees operating efficiently can attract finance for their licensed activities in an 'economic' manner. The Authority fulfils this obligation by including an appropriate allowance for the opportunity cost of capital in the PWP, OETC and Muscat, Majan and Mazoon Disco price controls (the cost of capital for electricity generation is included in the payment terms of PPA/PWPA). The MAR of the Muscat, Majan and Mazoon Disco price controls capture all the electricity supply related costs of the MIS, including the opportunity cost of capital. The Authority therefore considers the MAR to be a measure of the 'economic' cost of electricity supply.

The subsidy requirement of the Muscat, Majan and Mazoon Discos can be defined by the expression shown in Figure 24.

#### Figure 24: Definition of Muscat, Majan and Mazoon Electricity Subsidy

#### Disco Subsidy<sub>t</sub> = MAR<sub>t</sub> - Permitted Tariff (and other) revenue<sub>t</sub>

The subsidy requirement of the Muscat, Majan and Mazoon Discos in year t is equal to the price control Maximum Allowed Revenue in year t minus Permitted Tariff revenue (and all other revenue) in year t

The Authority's initial estimate of the subsidy required by the Muscat, Majan and Mazoon Discos for the period 1 May 2005 to 31 December 2005 was 66.3 million Rial Omani. In accordance with Article (18) of the Sector Law the Ministry of Finance provided the Muscat, Majan and Mazoon Discos with subsidy instalments during 2005 of 20.8 million RO, 18.9 million RO and 26.6 million RO, respectively.

The Authority wishes to acknowledge the significant contributions of the Electricity Holding Company SAOC and the Ministry of Finance to the successful implementation and administration of the new subsidy arrangements.

The Authority is required to ensure that any over or underpayment of subsidy in a particular year is corrected in the subsequent year. Corrections are automatically applied through the correction factors (Kt) of the Maximum Allowed Revenue price control formula, shown in Figure 23. The Ministry of Finance can be assured that whilst the Authority's initial estimates of subsidy are based on forecast demands and costs, subsequent adjustments are applied through the correction factors to reconcile estimated subsidy to actual subsidy requirements based on outturn demands and costs.

Figure 25 presents outturn values for each component element of the 2005 Maximum Allowed Revenues ( $MAR_{2005}$ ) of the Muscat, Majan and Mazoon Discos, and the 2005 Actual Regulated Revenues ( $ARR_{2005}$ ). Outturn information for 2005 presented below was provided by licensees' 'price control returns'. As these returns have not yet been audited some outturn information may be subject to subsequent amendment.

#### Figure 25: Electricity Subsidy – Main Interconnected System 2005 (Outturn

#### Main Interconnected System Subsidy Calculation (2005 outturn)

Maximum Allowed Revenues (2005 outturn)

Rial Omani (nominal)	Muscat	Majan	Mazoon	Total
$PC_t$	50,403,720	19,737,692	30,202,882	100,344,294
C&UofS <sub>t</sub>	10,498,473	5,279,641	7,668,657	23,446,771
MANCSRt	13,781,471	10,181,857	14,215,725	38,179,054
$LF_t$	112,087	112,087	112,087	336,261
$K_t$	0	0	0	0
MAR <sub>2005</sub>	74,795,752	35,311,277	52,199,351	162,306,380

#### Actual Regulated Revenues (2005 outturn)

Rial Omani (nominal)	Muscat	Majan	Mazoon	Total
Subsidy estimate	20,800,000	18,900,000	26,600,000	66,300,000
Customer revenue	58,445,996	19,440,617	25,751,459	103,638,072
ARR <sub>2005</sub>	79,245,996	38,340,617	52,351,459	169,938,072
ARR <sub>2005</sub> - MAR <sub>2005</sub>	4,450,244	3,029,339	152,109	7,631,692
Interest at specified rate ( 1.25%)	55,628	37,867	1,901	95,396
K <sub>2006</sub>	4,505,872	3,067,206	154,010	7,727,088

Note: 1 May 2005 to 31 December 2005

Source: Authority calculations based on unaudited licensee price control returns

The actual subsidy requirement of the Muscat, Majan and Mazoon Discos between 1 May and 31 December 2005 was 58.7 million RO, some 7.6 million RO lower than the Authority's 66.3 million RO estimate. After applying interest at a specified rate of 1.25%, the 2006 correction factors will deduct 7.7 million RO from the Authority's estimate of the Muscat, Majan and Mazoon Discos 2006 subsidy requirements (see Figure 26).

There are two principal reasons for the lower subsidy requirement in 2005. First, the PWP's 2005 purchase costs were lower than forecast due to lower than expected availability payments to certain licensed production facilities. A second and more significant reason is that the Muscat, Majan and Mazoon Discos recovered more revenue per kWh supplied than expected: actual customer revenue was some 5 million Rial Omani higher than forecast (the percentage increase in revenue was higher than the percentage increase in demand).

The Authority attributes the improvement in customer revenue collection to the way the Muscat, Majan and Mazoon Discos responded to the incentives of their price control. Whilst this improvement is welcome, the Authority sees scope for significant further improvement if total technical and non technical losses from the MIS are to reduce from the present level of 22 % to more acceptable levels.

#### 2006 Subsidy

The Authority's estimate of the subsidy required by the Muscat, Majan and Mazoon Discos in 2006 is presented in Figure 26.

Figure 26: Electricity Subsidy – Main Interconnected System 2006 (Estimate)

#### Main Interconnected System Subsidy Calculation (2006 estimate)

Maximum Allowed Revenue (2006 estimates):  $MAR_t = PC_t + C\&UofS_t + MANCSR_t + LF_t - K_t$ 

Rial Omani (nominal)	Muscat	Majan	Mazoon	Total
$PC_t$	73,588,238	31,975,841	40,444,329	146,008,408
C&UofS <sub>t</sub>	12,506,494	5,981,367	8,700,170	27,188,030
MANCSRt	22,196,335	16,810,303	22,873,917	61,880,554
LF <sub>t</sub>	130,011	130,011	130,011	390,033
K <sub>2006</sub>	4,505,872	3,067,206	154,010	7,727,088
MAR <sub>2006</sub>	103,915,205	51,830,316	71,994,416	227,739,936

2006 forecast MWh supplied:	4,250,100	1,915,100	2,373,800	8,539,000
Economic cost baisa/kWh supplied:	24.5	27.1	30.3	26.7

Subsidy (2006 estimates)

 $Subsidy_t = MAR_t - Permitted Tariff (\& other) revenue_t$ 

	Muscat	Majan	Mazoon	Total
Permitted Tariff (& other) revenue	72,447,198	25,726,256	31,291,682	129,465,137
2006 Subsidy requirement	31,468,007	26,104,060	40,702,734	98,274,800
Subsidy Baisa/kWh supplied:	7.4	13.6	17.1	11.5

Note: 1 January 2006 to 31 December 2006

2006 estimates of PCt reflect the approved 2006 electricity bulk supply tariff. The 2006 values of C&UofSt and MANCSRt reflect the Maximum Allowed Revenues of the respective price controls. LFt reflects the 2006 licence fees. The 2006 correction factors ( $K_{2006}$ ) are those calculated in Figure 25.

The Authority's estimate of the 2006 subsidy requirement of the Muscat, Majan and Mazoon Discos is 98.3 million Rial Omani.

#### 2005 Subsidy - RAEC

The Authority encountered considerable difficulty in attempting to calculate RAEC subsidy for 2005 - difficulties due principally to the limited availability of required information. The Authority had to depart from the price control framework of the RAEC licence, and rely on assumptions and estimates to determine a RAEC subsidy requirement between 1 May 2005 to 31 December 2005 of 12 million Rial Omani. In accordance with Article (18) of the Sector Law the Ministry of Finance provided RAEC with 12 million Rial Omani of subsidy during the course of 2005. The information used to calculate 2005 RAEC subsidy is presented in Figure 27.
#### Figure 27: RAEC Subsidy Calculation 2005

#### RAEC Electricity Subsidy - 20051 (estimate)

#### Rial Omani

**RAEC Electricity Costs** Direct Costs<sup>2</sup>

Admin & Other costs

Depreciation

Sub total

Sub total

Other revenue

Return on capital

Additional capex

Licence fee (electricity)

Total RAEC Electricity Costs

RAEC Electricity Revenue Electricity sales to private customers

Electricity sales to Government

Total RAEC Electricity Revenue

Return on	Capital	Calculations
-----------	---------	--------------

# Rial Omani

10,778,842

1,357,596

957.517

1,401,265

14,495,221

400,000

117,300

517,300

15,012,521

1,376,429

1,190,150

472.756

3,039,336

11,973,185

	Category	Electricity Assets NBV Return		
	General assets	2,480,260	187,260	
	Distribution assets	10,819,094	816,842	
	Diesel assets	4,964,549	397,164	
1	Totals	18,263,903	1,401,265	

#### Cost of Capital Assumptions real pre-tax WACC

Distribution & supply	7.55%
Generation assets	8.00%

Electricity Subsidy

<sup>1</sup> 1 May 2005 to 31 December 2005

<sup>2</sup> Of which Diesel fuel costs = 8.437 million RO

Source: Unbundled accounts, RAEC 2005 draft budget, Authority assumptions

The Authority is disappointed that the 2005 RAEC subsidy calculation falls short of the Muscat, Majan and Mazoon Disco subsidy calculation in terms of transparency, accuracy and reliability. Moreover, the Authority has not yet been able to reconcile its estimate of 2005 RAEC subsidy against outturn demands and costs.

#### 2006 Subsidy – Rural Systems

The Authority again encountered difficulty when attempting to calculate RAEC subsidy for 2006 – but was not prepared to rely on assumptions and estimates as it had done for the purposes of calculating RAEC subsidy in 2005. Recognizing that RAEC has an ongoing requirement for cash to sustain its activities, the Authority agreed to provide the Ministry of Finance with provisional estimates of RAEC subsidy for 2006 on a quarterly basis – details of the provisional quarterly estimates to date are presented in Figure 28.

#### Figure 28: RAEC Subsidy - 2006 Quarterly Estimates

RAECS	Subsidy - Quarterly	Estimates 2006
Q1 2006	4.2 million Rial Omani	20-Dec-05
Q2 2006	5.0 million Rial Omani	16-May-06

Source: Authority calculations

The fact that RAEC's regulated activities (electricity generation, generation/desalination, electricity distribution and supply) cover a wide geographic area clearly makes information management more difficult than if RAEC undertook a single regulated activity at a single location. The Authority is working with RAEC to improve its information management capability and expects RAEC to be able to respond to requests for consistent and reliable information within agreed timescales. RAEC has a statutory obligation to provide information requested by the Authority.

In 2005 the Authority appointed PB Power to develop a RAEC regulatory reporting framework. The framework will be based around proforma containing cost, production and asset information for each individual RAEC rural system. The proforma have been designed to provide the Authority with the information it requires to regulate RAEC's activities. The Authority hopes the information framework will be implemented during 2006, and that once implemented information required to support RAEC subsidy calculations for 2005 and 2006 will be available.

The Authority has sought the cooperation and assistance of the RAEC Board, its shareholders and management to secure improvements in RAEC's information management capability. The Authority's concern is that if the RAEC regulatory reporting framework is not successfully implemented, the government may have to reconsider the way rural activities are organized, managed and regulated.

# Electricity Tariffs

An important customer safeguard provided by the Sector Law is a requirement that all electricity supply tariffs (Permitted Tariffs) are approved by the Council of Ministers. Figure 29 presents the present Permitted Tariffs for different customer categories, and Permitted Tariff fees for the disconnection and reconnection of customer accounts.

# Figure 29: Permitted Tariffs

A:	Permitted	Tarrifs for	Electricity	Supply
----	-----------	-------------	-------------	--------

Permitted Tariff Category	Tariff Structure						
Industrial <sup>1</sup>	All Regions except Dhofar			Dhofar Reg	Dhofar Region		
	September to April: 12 Baiza per kWh			August To March: 12 E	August To March: 12 Baiza per kWh		
	May to Aug	ust: 24 Baiza per kWh		April to July: 24 Baiza per kWh			
Commercial	Flat rate @ 20 Baiza per kWh						
Ministry of Defence	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	0-3000 kWh 3001-5000 kWh 5001-700		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 & Hotels <sup>2</sup>	0-3000 kWh	3001-5000 kWh	5001-7000 kWł	above 7	'000 kWh		
	10 Bz / kWh	15 Bz / kWh	20 Bz / kWh	20 Bz	r / kWh		

1 Customers require a MOCI letter of recommendation and must maintain a power factor of at least 0.9

2 Subject to Ministry of Tourism regulations and approval

# B: Permitted Tarrif 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

The Authority is pleased to report two important Permitted Tariff developments since 1 May 2005:

- 1) the introduction of a new Permitted Tariff for electricity supply to Ministry of Defence facilities to continue a long standing tariff agreement between the Ministry of Defence and MHEW; and
- 2) Salalah members of the Shura Council expressed concern about the difficulties disconnection and reconnection fees were causing customers on low incomes. Some customers were charged a fee of 30 Rial Omani for disconnection and a further 30 Rial Omani for reconnection. The Authority was similarly concerned and initiated consultation with licensed suppliers to confirm the basis of the fees, the extent to which the fees reflected the actual costs of disconnection and reconnection, and whether such fees should continue to apply. The Authority concluded that the fees did not reflect the actual cost of disconnection and reconnection fees for all types of metered account of 7.5 Rial Omani. The Council of Ministers accepted and approved the Authority's recommendation, and confirmed the applicability of the revised disconnection and reconnection fees to all parts of the Sultanate.

The Authority thanks the Council of Ministers for approving the new Permitted Tariffs, and wishes to thank the Ministry of Defence, MHEW, and licensed suppliers for the very helpful cooperation provided in implementing the new Permitted Tariffs.

# **Recommendation for New Permitted Tariff**

The Authority has a statutory duty to protect the interests of electricity customers with special needs. In response to this duty, the Authority exempts customers in receipt of benefits from connection fee contributions, and has approved a Code Of Practice for Customers with Special Needs.

The Authority considers more could be done to assist customers with special needs and proposes the introduction of a new Permitted Tariff for Customers with Special Needs.

A Permitted Tariff for Customers with Special Needs would be an effective way of targeting assistance to where it is most needed. In terms of administration, the Authority proposes that the New Permitted Tariff apply to customers registered with a licensed supplier as a customers with special needs. The Authority will consult with interested persons on the level and structure of the new tariff and provide the Council of Ministers with detailed recommendations.

# **Recommendation for New Cost Reflective Tariff**

The Sector Law anticipates the introduction of Cost Reflective Tariffs. These tariffs, as their name implies, do not include any element of subsidy but reflect the actual cost of electricity supply. An immediate advantage of Cost Reflective Tariffs is greater transparency and better targeting of subsidy.

The Authority recommends the implementation of Cost Reflective Tariffs for Industrial Customers from 1 January 2007. The structure of Cost Reflective Tariffs would be as shown in Figure 30:

#### Figure 30: Cost Reflective Tariffs

#### Cost Reflective Tariff = $BST_t + T_t + D_t + S_t$

Where	BSTt Tt Dt <sup>1</sup> St	is the cost of energy charged at the electricity Bulk Supply Tariff in year t; is a transmission use of system charge; is a distribution use of system charge; and is a charge for the administrative costs of Supply
	St	is a charge for the administrative costs of Supply

<sup>1</sup> not applicable to transmission connected customers

The Authority expects large consumers of electricity, of which there is an increasing number in the Sultanate, who can exercise control over the timing and amount of their electricity consumption to benefit from the introduction of Cost Reflective Tariffs. The Authority will consult with Interested Persons on the introduction of Cost Reflective Tariffs and provide the Council of Ministers with detailed recommendations.

# REGULATION

# Authority for Electricity Regulation, Oman

The Authority for Electricity Regulation, Oman 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.

Significant sections of the Sector Law are devoted to the establishment and management of the Authority: for example the Authority's functions and duties are the subject of Articles (22) to (39), its constitution is set out in Articles (40) to (49), and the Authority's financial and administrative system is described in Articles (50) to (62).

The Government has determined that, pursuant to Article (40) of the Sector Law, the Authority should for an initial period have three Members. Accordingly, the Council of Ministers approved the appointment of the following persons as Members of the Authority:



Amur Mubarak Al Kiyumi non-executive Member (a part time appointment)



Dr Saleh Mohammed Al-Alawi Chairman and non-executive Member (a part time appointment)



John Cunneen Executive Director and Member (a full time appointment)

Members are collectively responsible for managing the Authority's affairs and for ensuring the Authority fulfils all of its statutory functions and duties. Following their appointments, Members met regularly in 2005 to finalise the Authority's establishment. An immediate priority for Members was to appoint a Chairman in accordance with Article (40) of the Sector Law. Members duly appointed Dr. Saleh Al Alawi as Chairman of the Authority by unanimous decision. Figure 31 presents the schedule of Member meetings in 2005.

# Figure 31: Member Meetings in 2005

# Member Meetings in 2005

			Meeting Dates						
	Appointed	26-May-05	28-Jun-05	14-Sep-05	19-Oct-05	23-Nov-05	28-Dec-05		
Dr Saleh Al Alawi	February-2005	~	$\checkmark$	$\checkmark$	$\checkmark$	~	$\checkmark$		
John Cunneen	April-2005	<ul> <li>✓</li> </ul>		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$		
Amur Al Kiyumi	October-2005				$\checkmark$	~	$\checkmark$		

# **Functions and Duties**

The Authority has a number of general and specific duties, largely reflecting key Government objectives for the electricity and related water sector in Oman. The Authority's duties are set out in Article (22) of the Sector Law and include:

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

The Authority has a number of governance duties, including:

- a duty not to discriminate against or unduly prefer any Person;
- a duty to act consistently treating like cases alike and, in particular, to ensure, so far as it considers appropriate, that all licences and licence exemption orders 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 licence exemption holders; and
- a duty to give written reasons for its decisions.

The Sector Law provides the Authority with the power to perform its functions. The Authority has power to grant licences and licence exemption orders and to set the terms and conditions on which these authorizations are issued. The Authority has licence modification powers (when the public interest so requires and subject to the procedure specified in Article (109) of the Sector Law); the power to investigative and powers to issue regulations and decisions authorised by the Sector Law.

The Ministry of Finance provided the Authority with a loan of 350,000 Rial Omani to fund its establishment. The Authority repaid this loan in full in 2005 and is now independently funded through licence fees.

The Authority recovers all of its costs through licence fees and apportions costs to each regulated activity on the basis of the time it expects to spend regulating each regulated activity. Figure 32 presents the 2005 and 2006 licence fees for each regulated activity, and the number of licensees by regulated activity.

# Figure 32: Licence Fees - Rial Omani

	20	2005		
Regulated Activity	Fees	Licenses	Fees	Licenses
Generation	19,550	4	19,900	4
Generation & Desalination	33,363	2	33,618	3
Transmission & Dispatch	117,300	1	139,297	1
Distribution & Supply	112,087	3	130,011	3
RAEC Activities	119,425	1	155,127	1
PWP Activities	132,090	1	190,373	1
PWP: Electricity	93,840		120,724	
PWP: Water	12,750		6,332	
PWP: Salalah	25,500		63,317	
Total Licence Fee Income	850,000		1,055,283	

The organisational structure of the Authority is shown in Figure 33:





The day to day work of the Authority is undertaken by four Directorates. The Finance and Administration section provides support to Members and the Directorates.

The Authority has identified a medium term staffing requirement of around 25 full time professionals. As the electricity and related water sector develops and the workload of the Authority increases, Members will review the staffing requirement and organisational structure of the Authority and implement changes when necessary.

The Authority views the recruitment of Omani nationals as an important priority. Omani nationals account for 78% of Authority staff. The recruitment of suitably qualified Omani nationals is limited by the fact that utility regulation is relatively new to Oman. The Authority's response to this problem is to recruit Omani graduates across a range of disciplines and provide specialist training and exposure to best (international) practice utility regulation. The strategy objective is to assist the professional development of well qualified Omani staff who can assume responsibility for the management of all aspects of the Authority's affairs and reduce reliance on expatriates.

# Customer Affairs Directorate



The Customer Affairs Directorate is responsible for ensuring customer interests are afforded appropriate priority and attention within the Authority.

The Directorate approves and monitors measures to be implemented by licensees that safeguard customer interests. These measures include guaranteed and overall standards of performance, a customer late payment code of practice, a register of customers with special needs, and advice to customers on the efficient use of electricity.

The Directorate liaises with customers wishing to register complaints about the services they receive from licensed suppliers and who seek advice on electricity related matters.

# In 2005 the Directorate:

- approved customer complaint handling procedures that stipulate time scales for resolving customer complaints and require licensees to keep customers informed of how their complaints are progressing. If a customer is not satisfied with the way a licensed supplier proposes to resolve their complaint, the procedures give the customer the right to refer the complaint to the Authority for determination;
- (ii) form letters were approved by the Directorate that licensed suppliers will use when corresponding with customers about their complaints. Approving the format of such correspondence ensures customers receive clear and accurate information and avoids the use of potentially intimidating terminology;
- (iii) in 2005 the Authority issued its first determination of a customer complaint. The Complaint was in relation to a request of a licensed supplier that the Customer repay unbilled revenue attributable to meter reading errors between May 1996 and January 2005. The Authority determined that customers should not be liable for meter reading errors for periods in excess of 12 consecutive months. The determination established an important policy precedent and ensures licensed suppliers and their contractors bear the financial consequences of systematic meter reading errors over sustained periods;
- (iv) the Directorate issued guidance to customers (via the Authority's web site www.aer-oman.org) on how the Authority can assist customers in their dealings with electricity suppliers. The guidance explained the new customer complaint procedures and outlined how the Authority determines customer complaints;
- (v) the Directorate dealt with 12 customer complaints referred to the Authority for determination. Three cases were resolved by the Authority's determination of 5 December 2005. In two cases the Authority supported the position of the licensed suppliers. One case was withdrawn while being investigated, the remaining six cases are ongoing.

The Directorate met regularly in 2005 with the Muscat, Majan and Mazoon Discos and RAEC to discuss customer related issues. This coordination will continue in 2006.

The Directorate has identified a number of priorities for 2006, including publication of the Authority's Customer Welfare Criteria and licensee Codes of Practice. An important priority will be to ensure licensed suppliers assume more responsibility for the meter reading, billing and collection functions that are presently 'contracted out'.

# Economics and Financial Affairs Directorate

The Economics and Financial Affairs Directorate is responsible for the economic regulation of the electricity and related water sector.

The PWP, OETC, RAEC and the Muscat, Majan and Mazoon Discos are statutory monopolists with significant potential market power. The Authority constrains the exercise of market power through economic regulation – such as the enforcement of economic purchase conditions and direct intervention to approve the pricing structures of electricity and water bulk supply tariffs and charges for connection and use of licensed systems. The principal instrument of economic regulation is RPI-X type price controls. The following sections describe the principal price control formulae and confirm the Maximum Allowed Revenues allowed by the price controls in 2005 and 2006. Assumptions made by the Authority when setting the controls are summarised in Annex C.

# **Oman Power and Water Procurement Company Price Control**

The principal duties of the PWP are to bulk supply electricity to licensed suppliers, bulk supply desalinated water to Water Departments, and fulfil the government counterparty responsibilities of the Salalah Concession Agreement. The PWP maintains separate accounts for its power and water procurement functions (Procurement Business) and Salalah functions (Salalah Business). Figure 34 describes the price controls applicable to each of these businesses.

# Figure 34 PWP Separate Business Price Controls



# **Oman Power & Water Procurement Company - Separate Business Price Controls**

The PWP recovers the costs of its Procurement Business through approved cost reflective electricity and water bulk supply tariffs (see below), subject to a revenue limit determined by the price control formula shown in Figure 35.

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# Figure 35: Power & Water Procurement Business Price Control Formula

Power & Water Procurement Business Price Control Formula

## $MAR_{t} = COPC_{t} + Fuel_{t} + PWP_{t} + LF_{t} - K_{t}$

where:	COPCt	is amounts payable (other than arising out of a breach of an agreement) under PPA/PWPA and other agreements to which the PWP is a party, in year t
	Fuel <sub>t</sub>	is the value of fuel purchases net of fuel sales in year t
	PWPt	is the Notified Value determined by the Authority to remunerate the PWP's Procurement Business
		costs (including a return). The value of PWPt is indexed in each subsequent year to CPI-X.
	LFt	is the power and water License Fees in year t
	K <sub>t</sub>	is the correction factor

Source: schedule charge restriction condition of the PWP licence

The Maximum Allowed Revenue of this control allows the PWP a margin of one quarter of one per cent (0.25%) of the value of COPCt to compensate for procurement related risks.

The PWP provided the Authority with estimates of the component elements of the Procurement Business price control formula. These estimates were the basis of the initial 2005 price control and the approved 2005 electricity and water bulk supply tariffs. The Authority approved the basis on which the cogeneration costs of the Barka and Ghubrah production facilities, and the PWPt Notified Value, are apportioned to electricity and water.

Figure 36 summarises the 2005 (outturn) and 2006 (estimate) Procurement Business Maximum Allowed Revenue.

#### Figure 36: PWP Procurement Business Maximum Allowed Revenues - 2005 (outturn) & 2006 (estimate)

#### **PWP Procurement Business Price Control**

Maximum Allowed Revenue (MAR)
-------------------------------

Omani Rial (nominal)	Electricity & Water 2005 <sup>1</sup>	2006 <sup>2</sup> BST F Electricity	2006 <sup>2</sup> BST Revenue (e) Electricity Water	
COPCt	127,135,099	146,629,616	44,567,849	191,197,465
Fuelt	-756	0	0	0
PWPt	1,685,430	1,967,407	608,824	2,576,231
LFt	106,590	120,724	6,332	127,056
K <sub>t</sub>	0	2,709,339		2,709,339
MAR <sub>2005</sub>	128,926,363	146,008,408	45,183,005	191,191,413

#### 2006 unit purchases (estimates) : MWh / m3

Unit cost of purchases Baiza/kWh, Baisa/m3

11,354,421	82,648,848
12.9	0.547

#### Actual Regulated Revenue (ARR)

Omani Rial	20051
Electricity BST Revenue	100,256,670
Water BST Revenue	32,866,775
Rebate on Water Charges	-1,521,192
ARR <sub>2005</sub>	131,602,253
ARR <sub>2005</sub> - MAR <sub>2005</sub>	2,675,890
Interest at specified rate ( 1.25%)	33,449
K <sub>2006</sub>	2,709,339

<sup>1</sup> from 1 May 2005 to 31 December 2005

<sup>2</sup> from 1 January 2006 to 31 December 2006

There was significant over-recovery of electricity and water bulk supply tariff revenue in 2005, due to differences in the assumed and outturn availability of certain licensed production facilities. The PWP has agreed to revise the basis of its availability assumptions in order to avoid similar over-recovery in 2006. The water over-recovery was directly rebated to MHEW (the purchasing Water Department) in 2005. The correction factor deducts over-recovered electricity revenue (including interest at a specified rate of 1.25%) from the 2006 electricity bulk supply tariff revenue.

The approved electricity and water bulk supply tariffs for 2006 allow the PWP to recover a total of 191.2 million Rial Omani: 146 million RO and 45.2 million RO through the electricity and water bulk supply tariffs, respectively. The approved 2006 electricity and water bulk supply tariffs are shown in Figure 37.

# Figure 37: 2006 Electricity & Water Bulk Supply Tariffs

#### 2006 Bulk Supply Tariffs

Electricity Bulk Supply Tariff - 2006

Omani Rial	Off Peak	Night Peak	Weekday Day-peak	Thursday Day-peak	Friday Day-peak
January to April	7.5	7.5	7.5	7.5	7.5
May to August	7.5	10.0	80.0	30.0	20.0
September to December	7.5	7.5	7.5	7.5	7.5

Rate Band	Day(s) / Time
Off Peak	All days : 02:00 to 13:00 and 17:00 to 22:00
Night Peak	All days : 22:00 to 02:00 (following day)
Weekday Day-peak	Saturday to Wednesday, 13:00 to 17:00
Thursday Day-peak	Thursday, 13:00 to 17:00
Friday Day-peak	Friday, 13:00 to 17:00

Source: PWP 2006 BST Tariff Leaflet

Water Bulk Supply Tariff - 2006

	Ghubrah	Barka
Fixed charge: million Rial per month	1.981	1.213
Variable charge: Rial per m <sup>3</sup>	0.100	0.050
Expected offtake: million m <sup>3</sup>	54.354	28.295

Source: PWP

The electricity bulk supply tariff provides important information about the cost of electricity at different times of day and in different months. This price signal will be an important component of the Cost Reflective Tariffs the Authority hopes will be available to large industrial customers from 1 January 2007.

#### Salalah Business Price Control

As counterparty to the Salalah Concession Agreement, the PWP monitors the compliance of DPC against performance criteria stipulated in the Concession Agreement and facilitates the payment of the monthly allowances to which DPC is entitled. The Ministry of Finance funds the monthly allowances and compensates the PWP for the administrative costs of its Salalah Business activities. The PWP's Salalah Business costs (excluding DPC allowances) are subject to a price control that limits the amount PWP can recover from the Ministry of Finance in each year. ANNUAL REPORT 2005

## Figure 38: PWP Salalah Business Price Control Formula

PWP Salalah Business Price Control Formula

#### $MASR_t = SB_t + LFS_t$

where:	MASRt	is the Maximum Allowed Salalah Revenue in year t
	SBt	is the Notified Value determined by the Authority to remunerate the PWP's Salalah Business costs. The value of SBt is indexed in each subsequent year to CPI-X.
	LFSt	is the Salalah Business Licence Fee in year t

Source: schedule charge restriction condition of the PWP licence

MASRt in 2005 (1 May to 31 December) was 345,814 Rial Omani and increased to 551,868 Rial Omani in 2006.

# **Transmission and Dispatch Price Control**

The OETC price control covers the period 1 May 2005 to 31 December 2007, details of the price control formula are presented in Figure 39.

#### Figure 39: Transmission & Dispatch Price Control Formula

Transmission & Dispatch Price Control Formula

		$MAR_{t} = (a_{t} + (b_{t} \times MTSD_{t}) + (c_{t} \times RUT_{t})) + LF_{t} - K_{t}$
where:	$\mathbf{a}_{t}$ $\mathbf{b}_{t}$ and $\mathbf{c}_{t}$	are the Notified Values determined by the Authority for 2005 and indexed in each subsequent year by CPI - X.
	MTSD <sub>t</sub>	is the Maximum Transmission System Demand in year t metered at exit points from the Transmission System
	RUT <sub>t</sub>	is the aggregate of Regulated Units Transmitted in year t metered at exit points from the Transmission System
	LFt	is the License Fee paid to the Authority in year t,
	K <sub>t</sub>	is a correction factor

Source: schedule charge restriction condition of the transmission & dispatch licence

Setting the OETC price control required forecasts of transmission system maximum demand and units transmitted in each year of the price control period. The present value of the expected costs (capital costs, operating costs, and capital employed) of meeting forecast demand was derived using a real pre-tax weighted average cost of capital of 7.55%. The Authority then determined values for the  $a_t$ ,  $b_t$  and  $c_t$  revenue drivers that returned a present value of allowed revenue equal to the present value of costs.

Details of the OETC 2005 (outturn) and 2006 (estimate) Maximum Allowed Revenues, and other price control information is presented in Figure 40.

# Figure 40: OETC Maximum Allowed Revenue – 2005 (outturn) & 2006 (estimate)

Item	Basis	<b>2005</b> <sup>1</sup>	<b>2006<sup>2</sup></b>
a <sub>t</sub>	Rial Omani	15,364,938	15,764,426
bt	rial per kW MTSDt	2.4130	2.4757
MTSDt <sup>3</sup>	k W	2,395,100	2,657,255
ct	rial per RUTt	0.2797	0.4276
RUT <sub>t</sub> ₄	MWh	7,798,102	11,014,307
X <sub>t</sub>		0.0	0.0
LF <sub>t</sub>	Rial Omani	117,300	139,297
K <sub>t</sub>	Rial Omani	0	3,646
MARt		23,442,886	27,188,029
Actual Regulated Revenues (200	2006 Baiza per kWh 05 outturn)	2005	2.468
J X	)5 outturn)	<b>2005</b> <sup>1</sup> 23 446 486	2.468
ARR <sub>2005</sub>	05 outturn) Rial Omani	23,446,486	2.468
ARR <sub>2005</sub>	)5 outturn)		2.468
ARR <sub>2005</sub> ARR <sub>2005</sub> - MAR <sub>2005</sub>	05 outturn) Rial Omani Rial Omani	23,446,486 3,600	2.468
ARR <sub>2005</sub> ARR <sub>2005</sub> - MAR <sub>2005</sub> Interest at specified rate ( 1.25%)	D5 outturn) Rial Omani Rial Omani Rial Omani	23,446,486 3,600 45	2.468
$ARR_{2005}$ $ARR_{2005} - MAR_{2005}$ Interest at specified rate ( 1.25%) $Kt_{2006}$	75 outturn) Rial Omani Rial Omani Rial Omani 205	23,446,486 3,600 45	2.468
$ARR_{2005}$ $ARR_{2005}$ - MAR <sub>2005</sub> Interest at specified rate ( 1.25%) $Kt_{2006}$ <sup>1</sup> from 1 May 2005 to 31 December 200	75 outturn) Rial Omani Rial Omani Rial Omani 205	23,446,486 3,600 45	2.468

The 2006 Maximum Allowed Revenue is 27.2 million Rial Omani, which OETC will recover through connection and use of system charges.

# **Distribution and Supply Price Control**

The Muscat, Majan and Mazoon Discos price controls cover the period 1 May 2005 to 31 December 2007, the distribution and supply price control formula is shown in Figure 41.

Figure 41: Di	istribution &	Supply Price Control
Distribut	tion & Supply	y Price Control Formula
	$MAR_t = PC$	$C_t + C\&UofS_t + MANCSR_t + LF_t - K_t$
where:	PCt	is the cost of purchasing bulk supplies of electricity from the PWP in year t
	C&UofS <sub>t</sub>	are amounts paid to OETC for connection and use of the licensed transmission system in year t
	MANCSRt	is the Maximum Allowed Network and Customer Service Revenue of RPI-X type controls that remunerate the costs of operating the licensed distribution systems and undertaking supply activities in year t, and is determined by the following formula:
	MANCSRt	$= \mathbf{a}_t + (\mathbf{b}_t \times \mathbf{RUD}_t) + (\mathbf{c}_t \times \mathbf{CA}_t)$
where:	at bt and ct	are the Notified Values determined by the Authority for 2005 and indexed in each subsequent year by CPI - X.
	RUD <sub>t</sub>	is the Regulated Units Distributed in year t
	CA <sub>t</sub>	is the number of registered Customer Accounts in year t
From the	MAR formula:	
	LF <sub>t</sub>	is the License Fee paid to the Authority in year t,
	K <sub>t</sub>	is a correction factor
Source: sch	edule charge res	triction condition of the distribution and supply licence

The Maximum Allowed Revenue formula was described when presenting the MIS subsidy calculation methodology.

The Maximum Allowed Network and Customer Service Revenue was determined by discounting expected distribution and supply business costs (capital costs, operating costs, and capital employed) in each year of the price control period using a real pre-tax weighted average cost of capital of 7.55%. The Authority then determined values for the at, bt and ct revenue drivers that returned a present value of allowed revenue equal to the present value of costs. Figure 42 presents the distribution and supply Maximum Allowed Revenue for 2005 (outturn) and 2006 (estimate).

# Figure 42: Distribution & Supply Maximum Allowed Revenues – 2005 (outturn) & 2006 (estimate)

Rial Omani (	nominal)		2005 (outtum) <sup>1</sup>			2	006 (estimate) <sup>2</sup>	
ltem	Basis	Muscat	Majan	Mazoon		Muscat	Majan	Mazoon
MANCSRt								
a <sub>t</sub>	Rial Omani	8,638,658	6,532,001	8,929,030	- F	13,204,453	9,984,363	13,648,296
b <sub>t</sub>	rial per MWh	0.709074	1.200240	0.982658		1.083841	1.834604	1.502023
RUD <sub>t</sub> <sup>3</sup>	MWh	3,338,032	1,409,044	1,920,736		4,250,102	1,915,059	2,373,761
Ct	rial per account	17.050899	17.744106	17.511346		26.062821	27.122409	26.766629
CA <sub>t</sub> <sup>4</sup>	No Accounts	162,801	110,384	194,118		168,265	122,134	211,464
Xt		0	0	0		0	0	0
MANCSRt		13,781,471	10,181,857	14,215,725		22,196,335	16,810,303	22,873,91
MARt								
PCt	Rial Omani	50,403,720	19,737,692	30,202,882	- F	73,588,238	31,975,841	40,444,329
C&UofSt	Rial Omani	10,498,473	5,279,641	7,668,657		12,506,494	5,981,367	8,700,170
MANCSRt	Rial Omani	13,781,471	10,181,857	14,215,725		22,196,335	16,810,303	22,873,917
LF <sub>t</sub>	Rial Omani	112,087	112,087	112,087		130,011	130,011	130,011
K <sub>t</sub>	Rial Omani	0	0	0		4,505,872	3,067,206	154,010
MARt	Rial Omani	74,795,752	35,311,277	52,199,351		103,915,205	51,830,316	71,994,41
MWh supplie	d:	3,338,032	1,409,044	1,920,736	Г	4,250,102	1,915,059	2,373,761
Economic cos	st baisa/kWh supplied:	22.4	25.1	27.2		24.5	27.1	30.3

#### Muscat, Majan Mazoon Maximum Allowed Revenue - 2005 outturn & 2006 estimate

Actual Regulated Revenues (2005 outturn)

Rial Omani	Muscat	Majan	Mazoon
ARR <sub>2005</sub>	79,245,996	38,340,617	52,351,459
ARR <sub>2005</sub> - MAR <sub>2005</sub>	4,450,244	3,029,339	152,109
Interest at specified rate ( 1.25%)	55,628	37,867	1,901
K <sub>2006</sub>	4,505,872	3,067,206	154,010

<sup>1</sup> 1 May 2005 to 31 December 2005

<sup>2</sup> 1 January 2006 to 31 December 2006

<sup>3</sup> 2005 actual, 2006 forecast

4 2005 actual, 2006 forecast

The Authority recognises that some of the information used to establish the initial price controls described above was subject to some uncertainty. The Authority is monitoring the performance of the initial price controls and will intervene if necessary to make adjustments in the light of new and more reliable information.

The Authority hopes the initial price controls can remain in place for their expected durations, and that new price controls of five year durations will be implemented from January 2008.

# Technical Directorate

The electricity systems in Oman are now subject to a new framework of technical regulation that includes Industry Codes, planning and operating standards, and Oman Electrical Standards. The Technical Directorate is responsible for approving technical standards and for monitoring compliance with them.



# During 2005 the Directorate:

- (i) represented the Authority in meetings of the newly established Grid Code and Distribution Code Review Panels;
- (ii) carried out investigations into various power system failures. These investigations led to a review of the gas to fuel oil changeover arrangements at power stations and to a requirement on OETC to establish a Protection Policy for its system;
- (iii) prepared a draft Planning & Operational Standards Statement for OETC required by the transmission and dispatch licence. The Statement sets out the standards OETC will use in the planning and operation of the licensed transmission system;
- (iv) prepared draft Charging Statements for issue by OETC as required by the transmission and dispatch licence. These statements set out the methodology to be used by OETC in the calculation of charges for connection and use of the OETC transmission system;
- (v) participated in consultations with the Civil Aviation Authority on possible changes to Oman Electrical Standard No 32 in respect of aircraft warning measures on transmission towers and overhead lines. In liaison with the National Survey Authority and OETC, terms of reference were prepared for a study to digitally map the positions of all transmission towers;
- (vi) led a review of the maintenance programmes and spares holdings at Al Ghubrah, Wadi Al Jizzi and Al Russail Power Companies.

# **Industry Codes**

The Sector Law requires the implementation of a Grid Code (applicable to OETC's licensed transmission system), a Distribution Code (that applies to persons connected to and users of the licensed distribution systems of Muscat, Majan & Mazoon Discos), and a Rural Systems Code.

The present versions of these codes were prepared by the Consortium of advisors, with significant input from the Authority.

Each Industry Code contains conditions with which persons seeking to connect to a licensed system are required to comply. These conditions include connection conditions, and required planning and operating standards.

The scheduling and dispatch code of the Grid Code stipulates procedures for the scheduling and dispatch of all connected generating units in excess of 5 MW. OETC, as system operator, approves the planned maintenance programmes of licensed facilities in a way that ensures sufficient capacity is available at times of high demand.

OETC has established a Grid Code Review Panel to oversee the implementation and management of the Grid Code. The review panel is chaired by OETC and includes representatives of all classes of transmission system Users. The panel meets regularly and is responsible for approving material and contractors that may form part of or work on, respectively, OETC's system.

A Distribution Code Review Panel has been established to oversee the implementation of the Distribution Code. The Chair of the review panel is shared by Muscat, Majan and Mazoon Discos on a 12 month rotating bases. The review panel provides representation of all classes of distribution system Users.

# Metering and Data Exchange Code

The Metering and Data Exchange Code of the Grid Code implements standards for meter type, accuracy, calibration, and requirements for main and check metering, meter location and meter ownership. These requirements apply to all metering systems at all facilities connected to the licensed transmission and distribution systems.

In 2005, the Authority identified significant scope for improvement in the coverage and accuracy in metering the MIS. The Technical Directorate, in consultation with licensees, established a metering policy that defines timescales for compliance with the Metering and Data Exchange Code. OETC is currently implementing the policy in respect of metering at Grid Supply Points. A number of Derogations against the Metering and Data Exchange Code of the Grid Code were issued to licensees with stipulated timescales for compliance.

# Licensing & Legal Affairs Directorate



The Licensing and Legal Affairs Directorate is responsible for ensuring the Authority complies with its statutory obligations and acts as 'in house' counsel to Members. The Directorate is responsible for the monitoring and enforcement of licence conditions which is the principal means by which the Authority influences the conduct and performance of licensees.

The Directorate maintains clear channels of communication with various ministries and government bodies to ensure the Authority can provide up to date advice on matters of statutory compliance such as environmental obligations, health and safety, Omanisation and Omani Content.

# During 2005 the Directorate:

- (i) established a Public Register open to persons with an interest in the electricity and related water sector;
- (ii) responded to various requests for clarification of the role of the Authority and regulatory documentation. This included liaison with the Ministry of Legal Affairs (general legal issues), the Ministry of Manpower (Omanisation), the Ministry of Regional Municipalities, Environment and Water Resources (environmental issues), the Supreme Committee for Town Planning (regarding policy for under-grounding electric lines) and the Royal Oman Police (to ensure emergency procedures are properly aligned to the new market structure);
- (iii) assisted the modification of the AI Ghubrah Power and Water Desalination Company SOAC licence (revising production facility capacities) and the RAEC licence (authorising RAEC to undertake certain activities outside of its Authorised Area);
- (iv) advised Members on AES Oasis Ltd request for approval of a Change of Control; and
- (v) reviewed the licence exemption application of Occidental of Oman (Exemption Order 10/2005 was granted in October 2005).

# **Licensing Regime**

Authorisations granted by the Authority must accord with the licensing regime established by Articles (99) to (122) of the Sector Law concerning the form and content of authorisations, and a requirement to consult and publish notices before granting authorisations. The Authority can only grant authorisations to persons who satisfy the Appropriate Person criteria published in accordance with Article (22) of the Sector Law. The criteria requires Authorised Persons to have appropriate technical abilities, be solvent and financially sound, and otherwise qualified to undertake a regulated activity.

# Form of Licenses

Licences are the principal form of authorisation granted by the Authority. The governing language of all licenses is the English language. The Authority may include any licence conditions it considers necessary, but each licence must contain the mandatory conditions stipulated in Article (110) of the Sector Law.

Licenses granted by the Authority are broadly similar in structure but vary in terms of the number and type of licence conditions they contain reflecting the regulated activity being authorised.

The Authority may revoke a licence (in accordance with procedures stipulated in Articles (116) to (122) of the Sector Law) if a licensee does not comply with a licence condition. All licenses contain general conditions, and conditions that support technical, economic and customer service regulation, see Figure 43.

#### Figure 43: Licence Conditions

General Conditions	Technical	Fianancial/Economics	Customer Service
<ul> <li>Prohibited activities</li> <li>Cross ownership restriction</li> <li>Provision of information</li> <li>Coordination requirement</li> <li>Health &amp; Safety</li> <li>Omanisation /Omani content</li> <li>Insurance requirements</li> <li>Non - discrimination</li> </ul>	<ul> <li>Security Standards</li> <li>Planning Standards</li> <li>Operating Standards</li> <li>Grid Code</li> <li>Distribution Code</li> <li>RAEC Code</li> <li>Quality Regulations</li> </ul>	<ul> <li>Price Controls</li> <li>Tariff Structures</li> <li>Market Share Restrictions</li> <li>Prohibition of Cross Subsidy</li> <li>Economic Purchase</li> <li>Non discriminatory terms for network access</li> </ul>	<ul> <li>Codes of Practice</li> <li>(i) Late Payment/Disconnection</li> <li>(ii) Energy Efficiency</li> <li>(iii) Customers with Special Needs</li> <li>Performance Standards</li> <li>Complaint Handling</li> <li>Supply Terms</li> </ul>
<ul><li>Asset disposal restriction</li><li>Licence Fee</li></ul>			
Licence Revocation			

# ANNEXES

# Annex A: Audited Financial Statements

#### MOORE STEPHENS CHARTERED ACCOUNTANTS

P.O. Box 933, Ruwi Postal Code 112 Sultanate of Oman Tel : 24812041 Fax : 24812043 E-mail : stephens@omantel.net.om

#### AUDITORS' REPORT TO THE MEMBERS

We have audited the accompanying balance sheet of Authority for Electricity Regulation, Oman as at 31 December 2005 and the related statements of income and cash flows for the period then ended. These financial statements, set out on the pages 2 to 9, are the responsibility of the Authority's Members. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with International Standards on Auditing. Those Standards require that we plan and perform the audit to obtain reasonable assurance as to whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the Members, as well as evaluating the overall financial statements presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements present fairly, in all material respects, the financial position of the Authority as at 31 December 2005 and the results of its operations and its cash flows for the period then ended in accordance with International Financial Reporting Standards and also comply, in all material respects, with the relevant requirements of the Law for the Regulation and Privatization of the Electricity and Related Water Sector ("Sector Law"), promulgated by Royal Decree 78/2004.

18 May 2006

Muno Stohes

A member firm of Moore Stephens International Limited - members in principal cities throughout the world

Commercial Registration N0. 1/42907/8
 Registration No. MH/14

http://www.moorestephens.com

BALANCE SHEET at 31 December 2005

ASSETS	Note	2005 <b>RO</b>
Non-current assets Equipment and total non-current assets	3	94,392
Current assets Prepayments and other receivables Bank balances and cash Total current assets		25,331 453,435  478,766
Total assets		<b>573,158</b>
RETAINED SURPLUS AND LIABILITIES		
Retained surplus	4	526,628
<b>Liabilities</b> <b>Non-current liabilities</b> End of service benefits and total non-current liabilities	6 b)	3,489
<b>Current liabilities</b> Accruals and total current liabilities	5	43,041
Total liabilities		46,530
Total retained surplus and liabilities		573,158 = = = = =

The financial statements were authorised for issue by the Members on

al 0 Chairman and Member 17.5.06

Member

17 Mar 2006.

Executive Director and Member

The attached notes 1 to 11 form part of these financial statements.

# STATEMENT OF INCOME

for the period ended 31 December 2005

INCOME	Note	2005 <b>RO</b>
Licence fees Other income	2 h)	850,002 3,760
		853,762
<b>EXPENSES</b> Salaries and employee related costs General and administration Depreciation	1 and 6 a) 1 and 7 3	194,045 121,332 11,757
		327,134
Surplus for the period and retained surplus at 31 December 2005	4	526,628 =====

The attached notes 1 to 11 form part of these financial statements.

2005 (Rials Omani)
850,052 (294,903)
555,149
(105,424) 3,710
(101,714)
453,435

The attached notes 1 to 11 form part of these financial statements.

# NOTES TO THE FINANCIAL STATEMENTS at 31 December 2005

# 1 ACTIVITIES

The Authority for Electricity Regulation, Oman (hereafter referred to as "the Authority"), was established by 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 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 its expenses, but not more. For that reason surpluses arising are held for the benefit of the licensee companies as explained in note 4 to the financial statements.

Although the Authority commenced its operations from 1 May 2005 the financial statements includes certain pre commencement expenses that were incurred from October 2004. These are the first set of financial statements of the Authority and accordingly no comparatives for the prior period are presented.

# 2 SIGNIFICANT ACCOUNTING POLICIES

#### **Basis of preparation**

The financial statements have been prepared in accordance with International Financial Reporting Standards issued by the International Accounting Standards Board, interpretations issued by the International Financial Reporting Interpretations Committee and the requirements of the Sector Law of the Sultanate of Oman.

The following accounting policies have been applied in dealing with items considered material to the Authority's financial statements.

#### a) Accounting convention

The financial statements are prepared under the historical cost convention.

#### b) Equipment and depreciation

Equipment purchased is recorded at cost together with any incidental expenses of acquisition.

The cost of equipment is depreciated by equal annual instalments over the estimated useful lives of the equipment. The estimated useful lives of the assets for the calculation of depreciation are as follows

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

#### c) Impairment

#### Financial assets

At the balance sheet date, the Authority assesses if there is any objective evidence indicating impairment of financial assets carried at cost or non-collectability of receivables.

An impairment loss, if any, arrived at as a difference between the carrying amount and the recoverable amount, is recognised in the statement of income. The recoverable amount represents the present value of expected future cash flows discounted at the original effective interest rate. Cash flows relating to short term receivables are not discounted.

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) at 31 December 2005

#### 2 SIGNIFICANT ACCOUNTING POLICIES (Continued)

#### c) Impairment (Continued)

#### Non financial assets

At the balance sheet date, the Authority assesses if there is any indication of impairment of non financial assets. If an indication exists, the Authority estimates the recoverable amount of the asset and recognises an impairment loss in the statement of income. The resultant impairment loss or reversals are recognised immediately in the statement of income.

#### d) 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 & Gratuities for Omani Government Employees issued by Royal Decree (26/86) as amended. Provision is made for amounts payable under the Oman Labour Law applicable to expatriate employees' accumulated periods of service at the balance sheet date.

# e) Cash and cash equivalents

For purpose of cash flow statements, cash and cash equivalents consist of cash and bank balances with an original maturity of three months.

#### f) Financial liabilities

All the financial liabilities are initially measured at cost and are subsequently measured at amortised cost.

#### g) Accounts payable and accruals

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

#### h) Licence fees

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

#### i) Provisions

A provision is recognized in the balance sheet 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.

#### j) 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 balance sheet date are translated at the rates of exchange prevailing at the balance sheet date. Exchange differences that arise are taken to the statement of income.

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) at 31 December 2005

# 2 SIGNIFICANT ACCOUNTING POLICIES (Continued)

# k) Estimates and judgements

In preparing the financial statements, the Members are 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 judgement based on historical experience and other factors are inherent in the formation of estimates. Actual results in the future could differ from such estimates. 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.

# 3 EQUIPMENT

The movements and balances of equipment are set out below.

RO	Furniture, fixtures and equipment RO	Vehicles RO	Computers RO	Total
<b>Cost</b> Additions during the period	NO	NO	NO	
and at 31 December 2005	61,244 ======	11,750 =====	33,155 =====	106,149
<b>Depreciation</b> Charge for the period				
and at 31 December 2005	5,978 =====	1,114	4,665	11,757 =====
Net book values				
At 31 December 2005	55,266 =====	10,636 =====	28,490	94,392 =====

## **4 RETAINED SURPLUS**

The surplus represents excess funding received over expenditure in 2005 which will be offset against future funding requirements in accordance with Article (55) of the Sector Law.

5 ACCRUALS	2005 RO
Accruals Other payables	12,313 30,728
	43,041
	======

	L REPORT	DODE
ANNUA		
		2000

# **NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)** at 31 December 2005

# 6 SALARIES AND EMPLOYEE RELATED COSTS

a) Salaries and employee related costs for the period comprise:

	2005 RO
Salaries and allowances	174,205
Cost of end of service benefits for expatriate employees	3,489
Contribution to defined contribution retirement plan	6,789
Other employee related costs	9,562
	194,045
	=====

b) Movement in expatriates employees' end of service benefits liability recognised in the balance sheet are as follows:-

	2005 RO
Expense recognised in the statement of income and at the end of the year	3,489
GENERAL AND ADMINISTRATION	2005 RO
Rent Consultancy fees Communications Advertisement and publicity Travelling and conveyance Printing and stationery Utilities Repairs and maintenance Miscellaneous	31,125 54,675 3,463 5,289 10,064 5,990 848 563 9,315
	 121,332 =====

# 8 TAXATION

7

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

# 9 RELATED PARTY TRANSACTIONS

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 Members believe could be obtained on an arms length basis from independent third parties.

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) at 31 December 2005

# 9 RELATED PARTY TRANSACTIONS (Continued)

Such transactions comprise compensation to key management personnel and which for the period amount to:

	2005
	RO
Short term employment benefits	75.867
	- 1
End of service benefits	1,899

#### 10 FINANCIAL INSTRUMENTS

The Authority's financial assets include prepayments and other receivables and bank balances and cash. Financial liabilities include accruals and employees' end of service benefits.

The interest rates applicable to bank balances are in conformity to rates applicable to similar organisations in the Sultanate of Oman.

# 11 COMMITMENTS

At the balance sheet date, the Authority has outstanding revenue commitments amounting to RO 80,249.

#### Authorised Entities Annex B:

#### **Licence Holders**



ش_رکة کهرب_اء هج_ان (ش.م.ع.م)	
Majan Electricity Company (SAOC)	

# Majan Electricity Company SAOC

Regulated Activities: the Distribution; and Supply of electricity to Premises Commencement Date: 1 May 2005 Tel: 24573300, Fax: 24573330, P.O Box 701 P.C 116, Mina Al Fahal, Sultanate of Oman

# Mazoon Electricity Company SAOC



Regulated Activities: the Distribution; and Supply of electricity to Premises Commencement Date: 1 May 2005 Tel: 24573400, Fax: 24573440, P.O Box 1229, Postal Code 131, Al Hamriya, Sultanate of Oman



# **Muscat Distribution Company SAOC**

Regulated Activities: the Distribution; and Supply of electricity to Premises Commencement Date: 1 May 2005 Tel: 24588600, Fax: 24588666, P. O. Box 1239, Postal Code 131 Al Hamriya, Sultanate of Oman

# **Oman Electricity Transmission Company SAOC**

Regulated Activities: the Transmission; and Dispatch of electricity Commencement Date: 1 May 2005 Tel: 24573221, Fax: 24573222, P.O Box 1224, Postal Code 131, Al Hamriya, Sultanate of Oman

# **Rural Areas Electricity Company SAOC**

Regulated Activities: the Generation of electricity co-located with the Desalination of water at the same site; the Transmission; Dispatch; Distribution; and Supply of electricity to Premises; and bulk supply desalinated water to Water Departments Commencement Date: 1 May 2005 Tel: 24473200, Fax: 24473208, P.O Box 1166, Postal Code 133, Al Khuwair, Sultanate of Oman

# Wadi Al Jizzi Power Company SAOC

Regulated Activity: the Generation of electricity Commencement Date: 1 May 2005 Tel: 24473200, Fax: 24473244, P.O Box 1166, Postal Code 133, Al Khuwair, Sultanate of Oman









شركة وادي الجزي للطاقة شههعه WADI AL JIZZI POWER COMPANY SAOC













النسركة العمانية لشراء الطاقة والمياد (ش.م.ع.م) Oman Power & Water Procurement Co. SAOC

# Al Rusail Power Company SAOC

Regulated Activity: the Generation of electricity Commencement Date: 1 May 2005 Tel: 24473200, Fax: 24473208, P.O Box 1166, Postal Code 133, Al Khuwair, Sultanate of Oman

#### Al Ghubrah Power and Desalination Company SAOC

Regulated Activity: The combined Generation of electricity and Desalination of water Commencement Date: 1 May 2005 Tel: 24473200, Fax: 24473208, P.O Box 490, Postal Code 133, Al Azaiba, Sultanate of Oman

#### Al Kamil Power Company SAOG

Regulated Activity: the Generation of electricity Commencement Date: 1 May 2005 Tel: 24607466, Fax: 24607441, P.O Box 1360, Postal Code 112, Ruwi, Sultanate of Oman

#### **United Power Company SAOG**

Regulated Activity: the Generation of electricity Commencement Date: 1 May 2005 Tel: 24698498, Fax:24698496, P.O Box 147, Postal Code 134, Jawaharat Al Shatti, Sultanate of Oman

## AES Barka SAOG

Regulated Activity: The combined Generation of electricity and Desalination of water Commencement Date: 1 May 2005 Tel: 26894382, Fax: 26894381, P.O Box 572,Postal Code 320, Barka, Sultanate of Oman

# Sohar Power Company SAOC

Regulated Activity: The combined Generation of electricity and Desalination of water Commencement Date: 29 March 2006 Tel: 24698498, Fax:24698496, P.O Box 147, Postal Code 134, Jawaharat Al Shatti, Sultanate of Oman

#### **Oman Power and Water Procurement Company SAOC**

Regulated Activities: Forecast electricity demand in the Sultanate; procure electricity and desalinated water capacity and output; bulk supply (i) electricity to licensed suppliers and (ii) desalinated water to Water Departments, and act as government counterparty to the Salalah Concession Agreement Commencement Date: 1 May 2005 Tel: 24823000, Fax: 24816328, P.O Box 1388, Postal Code 112, Ruwi, Sultanate of Oman

# **Licence Exemption Holders**











# Sohar International Urea Chemical Industries SAOC

Regulated Activity: the Generation of electricity co-located with the Desalination of water at the same site Licence Exemption Order Number : 1/2005 Commencement Date: 1 May 2005 Tel: 24562631, Fax: 24562731, P.O Box 3352,Postal Code 112, Ruwi, Sultanate of Oman

# Sohar Refinery Company LLC

Regulated Activity: The combined Generation of electricity and Desalination of water; the Distribution of electricity; the Supply of electricity to Premises Licence Exemption Order Number : 2/2005 Commencement Date:1 May 2005 Tel: 26864001, Fax: 26864049, P.O Box 282, Postal Code 322, Falaj Al Qabail, Sultanate of Oman

#### **Oman Mining Company LLC**

Regulated Activities: the Generation; Distribution; and Supply of electricity to Premises Licence Exemption Order Number : 3/2005 Commencement Date: 1 May 2005 Tel: 25669435/ 25669420, Fax: 25669411/ 25669409 P.O Box 758, Postal Code 113, Muscat, Sultanate of Oman

#### **Oman India Fertiliser Company SAOC**

Regulated Activity: the combined Generation of electricity and Desalination of water Licence Exemption Order Number : 4/2005 Commencement Date:1 May 2005 Tel: 2553200, Fax: 25562847, P.O Box 67, Postal Code 411, Sur, Sultanate of Oman

## **Oman Cement Company SAOG**

Regulated Activities: the Generation; Distribution; and Supply of electricity to Premises Licence Exemption Order Number : 5/2005 Commencement Date: 1 May 2005 Tel: 24437070, Fax: 24437777, P.O Box 560, Postal Code 112, Ruwi, Sultanate of Oman



# Barr Al Jissah Resort Company

Regulated Activity: the Distribution of electricity Licence Exemption Order Number : 6/2005 Commencement Date: 1 May 2005 Tel: 24783700, Fax: 24787939, P.O Box 644, Postal Code 113, Muscat, Sultanate of Oman











Regulated Activity: the Generation of electricity co-located with the Desalination of water at the same site; the Distribution; and the Supply of electricity to Premises Licence Exemption Order Number : 7/2005 Commencement Date: 1 May 2005 Tel: 24561200, Fax:24561384, P.O Box 3568, Postal Code 112, Ruwi, Sultanate of Oman

# Oman LNG LLC

Regulated Activity: the combined Generation of electricity and Desalination of water; the Distribution; and the Supply of electricity to Premises Licence Exemption Order Number : 8/2005 Commencement Date: 1 May 2005 Tel: 24609999, Fax:24609900, P.O Box 560, Postal Code 116, Mina Al Fahal, Muscat, Sultanate of Oman

#### Petroleum Development Oman

Regulated Activities: the Generation; Distribution; Transmission; and Supply of electricity to Premises Licence Exemption Order Number : 9/2005 Commencement Date: 1 May 2005 Tel: 24677821, Fax: 24675544, P.O Box 81, Postal Code 113, Muscat, Sultanate of Oman

# **Occidental of Oman Inc**

Regulated Activity: the Generation; and Distribution of electricity. Licence Exemption Order Number : 10/2005 Commencement Date: 10 December 2005 Tel: 24 683 595, Fax.: 24 685 358, P.O. Box 2271, Postal Code 112 Muscat, Sultanate of Oman



# Annex C: Price Control Assumptions

The initial distribution and supply and transmission and dispatch price controls incorporate a range of assumptions made by the Authority regarding the outputs and costs of licensees. The principal assumptions are summarised in the tables below.

Price control costs were stated in 2005 prices.

2005 values are for the period 1 May 2005 to 31 December 2005. The OETC price control was tilted to provide additional revenue for the 8 months of 2005 given OETC's significant capital expenditure obligations in that year.

# Table C1: Demand Assumptions

#### Initial Price Control Demand Assumptions

OETC		2005	2006	2007
Maximum Transmission System Demand	MW	2,472	2,657	2,857
Annual % increase			7.5%	7.5%
Regulated Units Transmitted (RUT):	TWh	7.811	11.014	11.840
Annual % increase			7.5%	7.5%
MUSCAT		2005	2006	2007
Units Distributed (RUDt):	GWh	3,275	4,250	4,463
Annual % increase			5%	5%
Customer Accounts (CAt):		161,793	168,265	174,995
Annual % increase			4%	4%
MAJAN		2005	2006	2007
Units Distributed (RUDt):	GWh	1,367	1,915	2,049
Annual % increase			7%	7%
Customer Accounts (CAt):		116,318	122,134	128,241
Annual % increase			5%	5%
MAZOON		2005	2006	2007
Units Distributed (RUDt):	GWh	1,811	2,374	2,516
			5.4%	6%
Annual % increase				
Annual % increase Customer Accounts (CAt):		201,394	211,464	222,037

Note: 1 May 2005 to 31 December 2007

# Table C2: Distribution & Supply Capex & Opex Assumptions

# Distribution and Supply Capex & Opex Assumptions

Capital Expenditure

RO million (2005 prices)	2005	2006	2007	Total
Musact	6.3	7.0	7.0	20.3
Majan	4.5	6.0	6.0	16.5
Mazoon	6.7	8.0	8.0	22.7
Total	17.5	21.0	21.0	59.5

Operating Expenditure (excluding depreciation)

RO million (2005 prices)	2005	2006	2007	Total
Muscat	6.3	9.9	10.3	26.5
Majan	3.8	5.8	5.9	15.5
Mazoon	5.2	8.1	8.6	21.9
Total	15.3	23.8	24.8	63.9

Note : 1 May 2005 to 31 December 2007

# Table C3: Transmission & Dispatch Capex & Opex Assumptions

# Transmission & Dispatch Price Control Assumptions

RO million (2005 prices)	2005	2006	2007	Total
Capital expenditure	52.0	20.0	8.0	80.0
Operating costs (excluding depreciation)	3.9	4.5	4.6	13.0

Note : 1 May 2005 to 31 Decamber 2007

# Table C4: Regulated Asset Base Assumptions

### **Regulated Asset Base Assumptions**

RO million (2005 prices)	Opening Value (1 May 2005)	Closing Value (31 Dec 2007)
Musact	72.8	76.9
Majan	73.3	76.5
Mazoon	95.7	100.1
OETC	133.7	193.4
Total	375.5	446.9

# **Cost of Capital**

The discount rate used in the price control calculations for the transmission and distribution businesses is a real pre-tax weighted average cost of capital, which is a weighted composite of the cost of debt and the cost of equity.

The Capital Asset Pricing Model (CAPM) was used to estimate the cost of equity and incorporates an estimate of the systematic risk faced by investors for the price control activities. The cost of debt was derived by adding a 'corporate risk premium' to a risk free rate of interest.

In line with the practice of regulators in other jurisdictions, the Authority estimated a lower, central and upper value for the cost of capital. The central estimate of 7.55% was used in the price control calculations.

The principal assumptions used to derive the weighted average cost of capital are presented below.

# Table C5: Weighted Average Cost of Capital Assumptions

#### Transmission & Distribution Weighted Average Cost of Capital

Component	Low	Centrel	High
Risk free rate (real)	2.5%	3.5%	4.5%
Equity Risk Premium	3.0%	5.0%	7.0%
Gearing	40.0%	50.0%	60.0%
Asset Beta	0.44	0.48	0.43
Equity Beta	0.70	0.90	1.00
Post-tax cost of equity (real)	4.60%	8.00%	11.50%
Pre-tax cost of equity (real)	5.23%	9.09%	13.07%
Debt premium	1.75%	2.50%	3.25%
Cost of Debt	4.25%	6.00%	7.75%
Corporation Tax rate	12.00%	12.00%	12.00%
Post-tax WACC	4.46%	7.00%	9.25%
Pre-tax WACC	4.84%	7.55%	9.88%

#### Real pre tax WACC = $(g.(r_f+p)) + (((1-g)(r_f + (ERP).b))/1-t_c))$

Where	g	=	gearing (D/(D+E))
	r <sub>f</sub>	=	risk free rate of interest
	р	=	debt premium
	t <sub>c</sub>	=	corporation tax rate
	ERP	=	Equity Risk Premium
	b	=	equity beta





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