HIS MAJESTY
SULTAN QABOOS BIN SAID

OPWP's 7-YEAR STATEMENT

(2010 – 2016)

APPROVED BY
THE AUTHORITY FOR ELECTRICITY REGULATION, OMAN

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Glossary

CCGT	combined-cycle gas turbine
DPC	Dhofar Power Company SAOG
GJ	gigajoule(s)
GPDC	Al-Ghubrah Power and Desalination Company SAOC
GWh	gigawatt hour(s) = million (10^6) kWh
I(W)PP	independent (water and) power project
kWh	kilowatt hour(s)
LOLH	loss of load hours
m^3	cubic metre(s)
MEDC	Muscat Electricity Distribution Company SAOC
MIGD	million imperial gallons per day
MIS	Main Interconnected System
MISC	Majis Industrial Services Company SAOC
MJEC	Majan Electricity Company SAOC
MOG	Ministry of Oil and Gas
MW	megawatt(s)
MZEC	Mazoon Electricity Company SAOC
OCGT	open-cycle gas turbine
OETC	Oman Electricity Transmission Company SAOC
OPWP	Oman Power and Water Procurement Company SAOC
ORPC	Oman Refineries and Petrochemicals Company LLC
PAEW	Public Authority for Electricity and Water
PDO	Petroleum Development Oman
RAEC	Rural Areas Electricity Company SAOC
Sm^3	standard cubic metre(s)
TCF	trillion (10^{12}) (standard) cubic feet
TWh	terawatt hour(s) = billion (10^9) kWh
WSN	water supply network

OVERVIEW

This statement provides a 7-year outlook, for the period from 2010 to 2016, on the demands for electricity and desalinated water, and the power generation and water desalination resources required to meet those demands, in the two main systems in Oman, the Main Interconnected System (MIS) and the Salalah System. The statement has been prepared and published in accordance with Condition 5 of OPWP's license.

Last year's statement noted the heightened uncertainty associated with the global economic and financial developments and the potential impact on Oman's economy and on electricity and water demands. One year on, and the impact appears to have been relatively modest. Whilst some impact has been evident in the industrial and tourism-related real estate sectors, other demand-drivers such as population growth and the construction boom continue, at least for the time being, to keep demand growth remarkably high. On the electricity side, total demand in the MIS and Salalah system has grown around 13% in 2009, about the same rate as in 2008 and well above the long-run historical average.

Meanwhile, the macroeconomic backdrop, highlighted in particular from Oman's perspective by the level of oil prices, has improved since last year. In OPWP's judgment, the risk of a major economic slowdown with consequent impact on electricity and water demands has receded somewhat since last year, whilst the probability of the elevated growth rates of recent years being sustained into the medium term has somewhat increased. These considerations are reflected in the demand projections set out in this year's statement and have resulted in an increase in the potential new capacity and fuel resource requirements identified.

However, in light of the developments over the last few years, the degree of uncertainty in the projections remains high, and OPWP will need to continue to assess the situation closely. As before, OPWP intends to take a relatively cautious approach so as to not risk underestimating future resource requirements.

In this context, the highlights of this statement are as follows:

DEMAND FOR ELECTRICITY

- The maximum power demand in the MIS is expected to grow from **3,424 MW** in 2009 to **6,043 MW** by 2016, an average increase of around 8.5% or 374 MW per year. Annual energy demand is expected to grow similarly, from **15.7 TWh** in 2009 to **28.6 TWh** in 2016.

- Under "high case" assumptions, MIS demands grow an additional 3% per year to reach **7,315 MW** and **34.6 TWh** by 2016.

- In the Salalah System, the maximum demand is expected to grow from **297 MW** in 2009 to **615 MW** by 2016, an average annual increase of around 11% or 45 MW per year, with annual energy demand growing at a similar rate, from **1.7 TWh** in 2009 to **3.6 TWh** in 2016.

- Under "high case" assumptions, Salalah System demands grow an additional 5-6% per year to reach **814 MW** and **5.1 GWh** by 2016.

DEMAND FOR DESALINATED WATER

- Demand for desalinated water in the regions covered by the MIS is expected to increase from **119 million m³** in 2009 to **272 million m³** by 2016, reflecting a policy of reduced reliance on groundwater resources, as well the effects on demand of population growth and economic development.

- Water demand in the Salalah area is expected to increase from **26 million m³** per year in 2009 to **49 million m³** per year in 2016.

ADDITIONAL POWER GENERATION / WATER DESALINATION REQUIREMENTS

- Between **2,900 MW** and **4,100 MW** of additional power generation resources are needed for the MIS by 2016, whilst between **110 MW** and **300 MW** are required on a short term basis for 2010 and between **650 MW** and **1,050 MW** for 2011 prior to the availability of early power in 2012 from the Sohar II and Barka III IPPs and the planned Ghubrah IWPP.

- Up to **180 MW** of additional power generation resources are needed for the Salalah System by 2016. Also up to **70 MW** of additional power generation is required on a short-term basis for 2010, and **135 MW** for 2011, prior to the anticipated availability of early power of the Salalah IWPP.

- At least **376,000 m³ per day (83 MIGD)** of additional water desalination capacity is needed for the regions covered by the MIS.

- For Salalah, after the scheduled operation of the IWPP plant in 2012, at least **80,000 m³ per day (17 MIGD)** of additional water desalination capacity is required by 2016.

PROCUREMENT STRATEGY

- OPWP to pursue procurement strategy focussed on:

    - ensuring sufficient resources are available to meet demands in accordance with the generation security planning standard;

    - improving fuel efficiency, to reduce energy (and water) costs and emissions, and to operate within committed gas reservations for the power and related water sector;

    - ensuring an appropriate balance between peaking and base load power generating capacity;

    - seeking to combine power and water production where feasible; and

- achieving Government goals for resource diversification through the introduction of alternative fuels into the fuel mix and the potential implementation of renewable energy projects.

- OPWP has initiated competitive procurement processes during 2009 for:
  - two new "green-field" gas-fired IPPs, located at Sohar and Barka (Sohar II and Barka III), each having a capacity of 650-750 MW. There are expected to provide around 800 MW of early power in 2012 and be fully commissioned by 2013. Bids for the projects have been received from eight bidders in December 2009. Evaluation is ongoing and award of the projects is expected to take place by mid 2010; and
  - temporary generating capacity of up to 115 MW to meet shortfalls identified for 2010 in the MIS based around alternatives of short-term PPAs utilising temporary diesel engine capacity and/or open cycle gas turbines. PPAs for this temporary capacity are due to be finalised in early 2010.

- OPWP to launch a competitive procurement process in 2010 for:
  - temporary generating capacity to meet shortfalls identified for 2011 in the MIS. This capacity will be based around alternatives of short-term PPAs utilising temporary diesel or gas engine capacity, barge mounted capacity and open cycle gas turbines;
  - expansion/redevelopment of the Al-Ghubrah Power and Desalination Plant, including a new gas-fired IWPP located on part of the site presently occupied by Al-Ghubrah Power and Desalination Company SAOC (GPDC) providing additional power capacity of up to around 650 MW and addition of new desalination capacity of at least 135,000 m^3 per day (30 MIGD), to be fully commissioned in 2013 and with around 400 MW of early power in 2012; and
  - a new "green field" I(W)PP, located at Ad-Duqm, with a capacity of up to around 1,000 MW. This is expected to be completed in phases in 2015 and 2016 with the first phase providing up to 500 MW in 2015.

- OPWP to confirm the technical and economic feasibility of converting open cycle gas turbines at Al Kamil, Manah and Rusail to combined cycle to provide 300 MW of additional capacity by 2013/2014. If the studies confirm the feasibility, a procurement process will be launched in 2010.

- OPWP to investigate during 2010 the feasibility of a new power plant at Sur for commissioning as soon as possible but no later than 2014. The capacity of this plant would be at least 400 MW. This capacity would only be required in this timescale if demand on the MIS system grows above that of the Expected forecast, but even under the Expected case would assist in managing fuel constraint issues.

- OPWP to pursue options for procurement of additional generation for the MIS from existing non-contracted resources, through interconnectors, from renewable sources such as solar or wind or from pumped storage.

- OPWP has launched a competitive procurement process during 2009 for temporary generating capacity to meet shortfalls identified for 2010 and 2011 in the Salalah system based around alternatives of temporary diesel or gas engine capacity or gas turbines located close to the existing DPC generating facilities.

- OPWP to study a range of longer term capacity options for the Salalah system for potential implementation in the 2014 to 2016 timeframe if the demand growth necessitates this additional capacity.

- OPWP will consult with water departments in relation to the procurement strategy to be followed in respect of identified additional desalination capacity requirements.

FUEL REQUIREMENTS FOR POWER GENERATION / WATER DESALINATION

- Total fuel requirements for MIS power generation and water desalination are projected to increase from **198 million GJ** in 2009 to around **262 million GJ** (equivalent to **19.4 million Sm^3 per day** of natural gas) by 2016, based on expected demand growth, or to **323 million GJ** (equivalent to **23.9 million Sm^3** per day of natural gas) under "high case" demand growth.

- Total gas requirements for Salalah System power generation and water desalination are expected to increase from around **20.9 million GJ** (or **1.5 million Sm^3 per day**) in 2009 to around **32.2 million GJ** (or **2.4 million Sm^3 per day**) by 2016, based on expected demand growth, or to **48.4 million GJ** (or **3.6 million Sm^3 per day**) under "high case" demand growth.

- MOG has provided OPWP with a medium-term committed gas reservation, covering both the MIS and Salalah systems, which is projected to be sufficient to cover requirements under the expected demand scenario. However, additional quantities (required under the "high case" demand scenario) remain subject to future MOG confirmation. This leaves a possibility of gas shortfalls in the "high case" scenario, that could need to be covered by utilization of other fuel(s) in the event that additional gas is not confirmed by MOG, and it is not possible to reduce or otherwise substitute the gas requirements.

- OPWP is providing in new I(W)PPs for optional dispatched operation on liquid fuel and will continue to focus on gas reduction/substitution options, further assess the probability of the high-case demand scenario materializing and continue to consult closely with MOG on likely gas requirements and the possibility of additional gas reservations.

Further details in respect of each of the MIS and the Salalah System are set out in Section 1 and Section 2 below. More information is available on the web at www.omanpwp.co.om.

The next statement (for 2011 to 2017) will be published in December 2010.

SECTION 1
MAIN INTERCONNECTED SYSTEM (MIS)

The Main Interconnected System (MIS) covers the Governorate of Muscat, the Governorate of Buraimi and most of the South Batinah, Dakhliyah, Sharqiya, North Batinah and Dhahirah regions, serving around 500,000 electricity customers.

It comprises a number of power generation facilities, owned and operated by various companies; a single 220/132 kV transmission grid, owned and operated by Oman Electricity Transmission Co. (OETC); and three distribution networks, owned and operated by Muscat Electricity Distribution Co. (MEDC), Mazoon Electricity Co. (MZEC) and Majan Electricity Co. (MJEC). The three distribution network operators also act as "licensed electricity suppliers", supplying existing and new electricity customers in their respective service areas. The MIS is presently interconnected in Oman with the power system of Petroleum Development Oman (PDO), and will shortly be interconnected with the power system of the Emirate of Abu Dhabi. Several of the power generation facilities connected to the MIS produce desalinated water in conjunction with electricity, to meet the regional requirements of "water departments" responsible for supplying water to customers (including the Public Authority for Electricity and Water (PAEW) and Majis Industrial Services Co. (MISC)).

OPWP's role is to aggregate the power and desalinated water requirements of licensed electricity suppliers and water departments, and to economically procure the required power and desalinated water in bulk from facilities connected to the MIS and interconnected systems. OPWP is required to ensure that sufficient power generation resources are available to meet licensed electricity suppliers' demands and wherever feasible to co-procure desalinated water to meet the needs of water departments.

1.1 DEMAND FOR ELECTRICITY

Expected Demand

The maximum power demand in the MIS is expected to grow from 3,424 MW in 2009 to 6,043 MW by 2016, an average increase of around 8.5% or 374 MW per year. Annual energy demand is expected to grow similarly, from 15.7 TWh in 2009 to 28.6 TWh in 2016.

It should be noted that a system net power demand of around 3,500 MW occurred in the MIS on 1st June 2009 as a consequence of an exceptional load demand from a large industrial customer. However on 31st May 2009, the system demand was 3,424 MW which is deemed to be the maximum system demand and is used for the purposes of this statement.

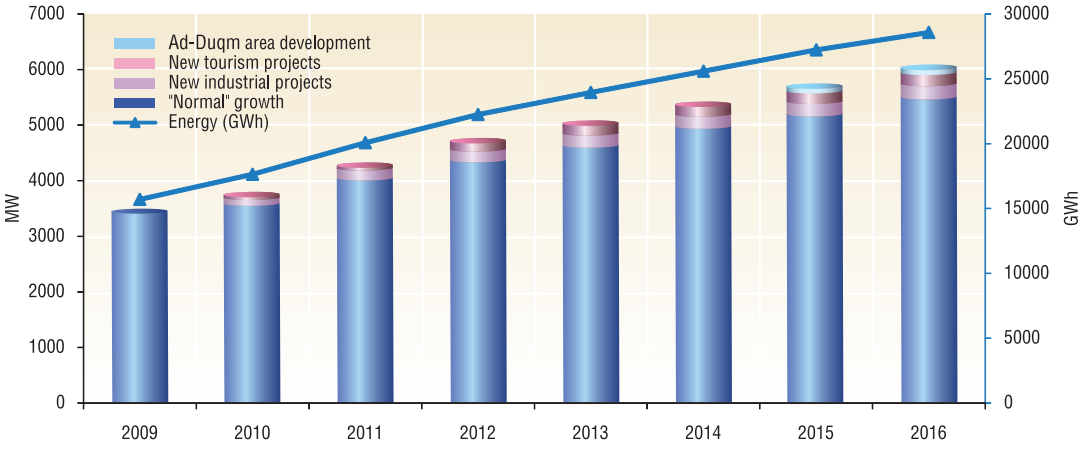
This growth is the product of:

- continuing underlying "normal" growth in all areas, from increasing population and number of households, rising personal incomes and general economic development, with the MZEC area forecasted as having the highest growth rate;
- a major increase in demand from new industrial projects, concentrated in particular around the Sohar Industrial Port (in MJEC's service area);
- a major increase in demand from new tourism related developments, concentrated in particular around Muscat (in MEDC's service area) and in the South Batinah region (in MZEC's service area); and
- a potential extension of the MIS to Ad-Duqm in the Al-Wusta region towards the end of the 7-Year period.

Over the 2010-2016 period, typically the area served by the MEDC draws the largest proportion of demand comprising around 44% of the total, with the MZEC area at around 33% and the MJEC area at around 23%.

The annual build up of expected power and energy demands to 2016, and the contribution to the growth of each of the main drivers identified above, are shown in Figure 1. These forecasts include transmission losses at 2.0% but exclude power (and desalination) plants' auxiliary consumption.

Figure 1 : Expected Power and Energy Demand – MIS



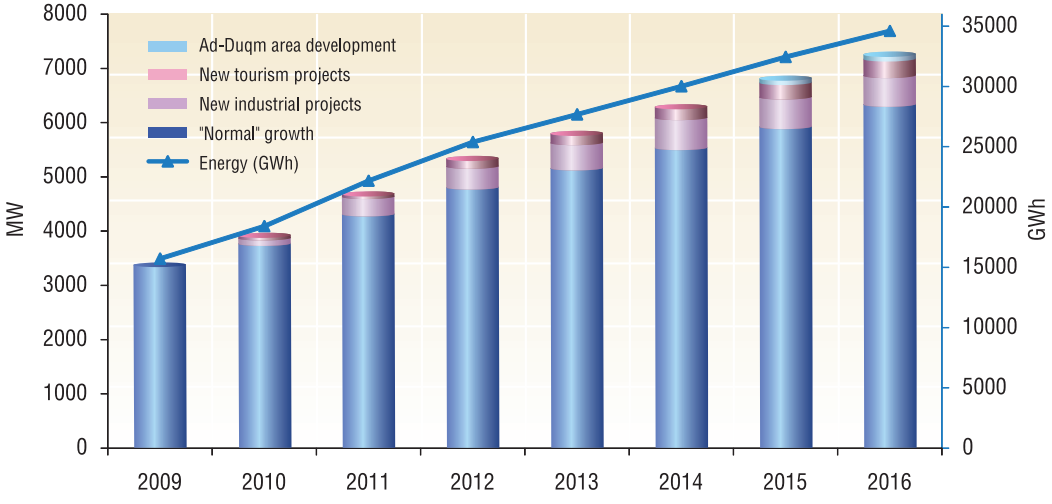
	2009	2010	2011	2012	2013	2014	2015	2016	Average Annual Growth
Demand (MW), including increase from:	**3,424**	**3,800**	**4,304**	**4,746**	**5,065**	**5,411**	**5,757**	**6,043**	**8.5%**
"Normal" growth		284	626	985	1,268	1,577	1,829	2,088	
New industrial projects		65	181	201	221	242	242	242	
New tourism projects		27	73	137	151	167	186	203	
Ad-Duqm area development		-	-	-	-	-	77	87	
Change from 2009 Statement		60	84	239	323	426	409	n.a	
Energy (GWh)	**15,721**	**17,641**	**20,078**	**22,245**	**23,958**	**25,594**	**27,232**	**28,587**	**8.9%**

The expected demand is increased somewhat over that projected in the 2009-2015 7-Year Statement. This reflects a re-assessment of the balance of probabilities associated with a near-term economic slowdown (and consequent impact on electricity demand) versus contribution of the growth rates of recent years.

"High Case" Demand

Although the projection shown in Figure 1 reflects the currently expected development of demand, OPWP is aware of the possibility of significant further industrial development at the Sohar Industrial Port Area, at Sur and Ad-Duqm as well as new tourism related developments in the South Batinah region and around Muscat. These, together with higher growth assumptions for underlying demand, could potentially add an additional 1,272 MW of peak demand by 2016, as shown in Figure 2, the "high case" demand scenario. The breakdown of the main drivers of this higher demand are tabulated under Figure 2 and the average annual growth for this forecast is 11.5%. This forecast includes transmission losses calculated at 2.5% but excludes power (and desalination) plants' auxiliary consumption.

Figure 2 : "High Case" Power and Energy Demand – MIS



	2009	2010	2011	2012	2013	2014	2015	2016	Average Annual Growth
Demand (MW), including increase from:	**3,424**	**3,964**	**4,733**	**5,389**	**5,849**	**6,342**	**6,859**	**7,315**	**11.5%**
"Normal" growth		407	858	1,356	1,710	2,082	2,463	2,870	
New industrial projects		97	358	390	463	556	556	556	
New tourism projects		35	92	219	252	280	313	342	
Ad-Duqm area development		-	-	-	-	-	103	123	
Change from 2009 Statement		70	194	501	485	682	725	n.a.	
Energy (GWh)	**15,721**	**18,402**	**22,180**	**25,375**	**27,669**	**30,000**	**32,444**	**34,602**	**12.0%**

The "high case" demands are higher than those projected in the 2009-2015 7-Year Statement. This reflects an up-rating of OPWP's view of the potential underlying rate of demand growth, if the trends of the last couple years were to be sustained.

In OPWP's view, the likelihood of the "high case" demands being realized is most dependent on the rate of recovery of the current global economic and financial conditions. OPWP intends to closely monitor the situation in order to assess the probability associated with the "high case" projection.

Exports to Interconnected systems

The MIS is presently interconnected in Oman with the PDO power system through a 132 kV link. A 220 kV link with the Emirate of Abu Dhabi has also been constructed, and can become operational once the necessary commercial and technical agreements have been executed. It is anticipated that the latter will in due course become part of the wider GCC interconnect, linking the power systems of all six GCC Member States.
In addition to providing reliability benefits (through the sharing of generation reserves), these interconnects provide the opportunity for the "commercial" export of power, which would add to the expected demand to be served by generation resources in the MIS.

For the time being, however, no definite arrangements have been agreed for commercial exports to either PDO or Abu Dhabi, and accordingly the current demand projections (presented above) only include the demands within the MIS.

1.2 POWER GENERATION RESOURCES

Contracted Generation Capacity

OPWP's present portfolio of contracted generation capacity in the MIS is expected to provide around 3,726 MW of net firm capacity in 2010. This will fall to 3,330 MW by 2016 as a result of some capacity at Al-Ghubrah and Wadi Al-Jizzi falling out of contract.

A summary of the contracted generation capacity is provided in Figure 3. This is based on the summer peak ratings of the plants at 45°C ambient.

Figure 3 : Contracted Generation Capacity – MIS

	2009	2010	2011	2012	2013	2014	2015	2016
Existing contracted capacity (net MW @ 45°C), including:								
Al-Ghubrah Power & Desalination Plant	482	475	475	475	279	237	237	237
Rusail Power Plant	684	687	687	687	687	687	687	687
Wadi Al-Jizzi Power Plant	290	300	300	300	227	227	143	143
Manah Power Plant	279	273	273	273	273	273	273	273
Al Kamil Power Plant	282	283	283	283	283	283	283	283
Barka I Power & Desalination Plant	434	434	434	434	434	434	434	434
Sohar Power & Desalination Plant	590	590	590	590	590	590	590	590
Barka II Power & Desalination Plant	683	683	683	683	683	683	683	683
Total	3,724	3,726	3,726	3,726	3,456	3,414	3,330	3,330
Reductions	-	-	-	-	-270	-312	-396	-396

Non-Contracted Generation Capacity

In addition to the contracted capacity identified above, there are a number of other generation resources in the MIS, which (subject to contract) are potentially available to OPWP during 2010- 2016. These include:

- continued availability of some out of contract capacity at Al-Ghubrah and Wadi Al Jizzi. (though, based upon the efficiency and reliability of these units, it may not be economically viable to extend the contract beyond the existing contract period);
- availability in excess of contracted capacity levels at some plants; and
- surplus capacity of several industries with captive generation (including most significantly the aluminium smelter at Sohar).

Such resources are expected to add up to around 400 MW in 2010, rising to around 780 MW by 2016, and resulting in total installed capacity potentially available to OPWP of over 4,100 MW from 2010 to 2016. The annual build up of these resources is shown in Figure 4.

Figure 4 : Contracted and Non-Contracted Generation Capacity – MIS

	2009	2010	2011	2012	2013	2014	2015	2016
Out of contract capacity								
Ghubrah Power and Desalination Plant	-	-	-	-	197	238	238	238
Wadi Jizzi Power Plant	-	-	-	-	73	73	157	157
Above contract capacity								
Sohar Power and Desalination Plant	20	20	15	15	15	15	15	15
Al Kamil Power Plant	14	14	14	14	-	-	-	-
Industries Surplus Capacity								
OMCO	20	20	20	20	20	20	20	20
ORPC	50	50	50	50	50	50	50	50
SAC	300	300	300	300	300	300	300	300
Non-Contracted capacity	**404**	**404**	**399**	**399**	**655**	**696**	**780**	**780**
Total Contracted capacity	**3,724**	**3,726**	**3,726**	**3,726**	**3,456**	**3,414**	**3,330**	**3,330**
Total Capacity Potentially available to OPWP	**4,128**	**4,130**	**4,125**	**4,125**	**4,111**	**4,110**	**4,110**	**4,110**

Imports from Interconnected Systems

As noted above, the MIS is interconnected in Oman with the PDO power system, and with the power system of the Emirate of Abu Dhabi. These interconnects facilitate both reliability imports through reserve sharing arrangements, as well as the possibility of "commercial" imports.

The import-direction capacities of the PDO and Abu Dhabi interconnects are around 70 MW (0 MW firm) and 600 MW (limited to 170 MW firm for 2010) respectively.

Subject to surplus generation availability in the interconnected systems, both interconnectors will contribute to the reliability of supply in the MIS throughout the 2010 to 2016 period. In addition, OPWP intends to pursue the possibility of importing power commercially over the Abu Dhabi interconnector as part of its overall generation resource procurement strategy and this could be either an energy exchange arrangement, a contribution to contracted capacity or a combination of the two.

1.3 ADDITIONAL POWER GENERATION REQUIREMENTS

OPWP is required to ensure the adequacy of generation resources to meet future power demands. This requires as a minimum that sufficient contracted on-peak generation capacity is available to OPWP to cover each year's expected maximum demand. Further, the Authority for Electricity Regulation (AER), Oman has stipulated a generation security standard for the MIS which takes into account expected demand profiles as well as the expected reliability and dispatch capability of generation resources. This is expressed in terms of the expected loss of load hours (known as "LOLH"), which in any year must not exceed 24 hours.

In order to comply with this requirement, OPWP needs to contract for enough firm generation resources to ensure that the expectation of these resources being insufficient to meet projected demands does not exceed 24 hours in any year.

It should be noted that for these purposes only firm generation resources are considered – whilst other (non-firm) resources including reserve sharing arrangements with interconnected systems will generally contribute to improved overall reliability, these resources are not considered for purposes of meeting the LOLH standard and are viewed instead as providing security against contingencies.

Based on the demand projections and considering OPWP's present portfolio of contracted capacity, LOLH values without the addition of new generation have been calculated over the period 2010 to 2016 and these are shown in Figure 5. Where the LOLH exceeds the 24 hour limit, this is an indication of inadequate amounts of firm generation available in that year.

Figure 5: Potential Generation Shortfall and LOLH – MIS

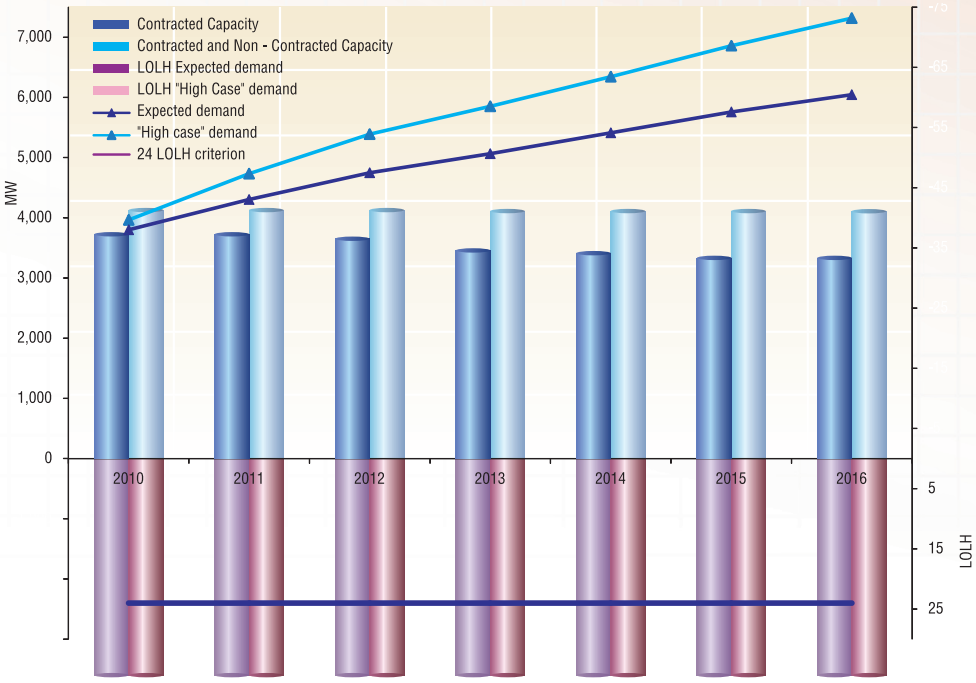
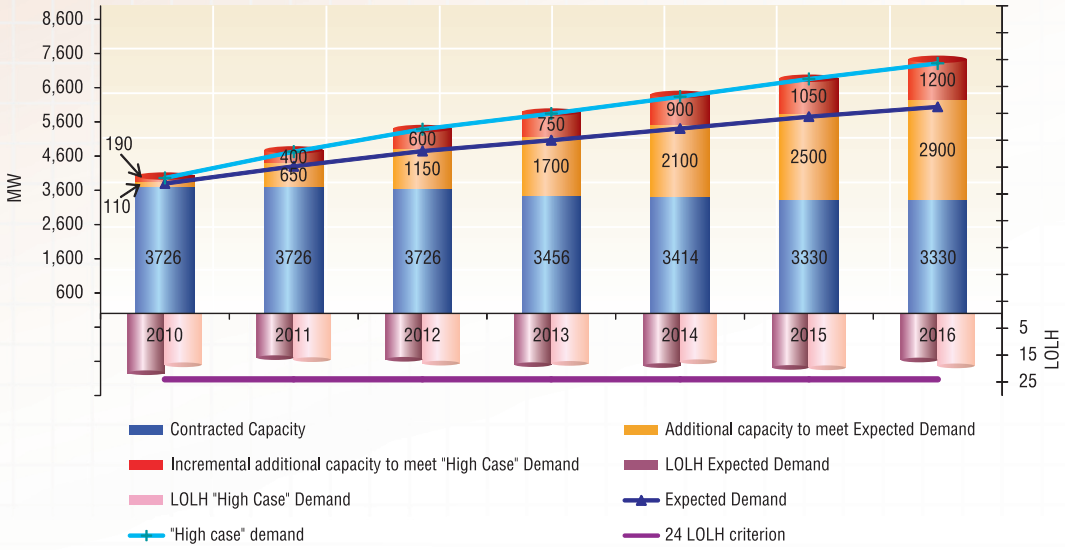


Figure 5 demonstrates that without additional generation the LOLH 24 hour criterion would not be met in any of the years from 2010 to 2016 for either the Expected or "High case" demand forecasts. This indicates the need for OPWP to contract for additional generation resources to be available in each year of the 7-Year period covered by this 7-Year Statement.

OPWP has calculated that it will need to contract for a minimum of around 2,900 MW of additional firm on-peak generation by 2016 under the expected demand scenario, and a further 1,150 MW in the "high case" demand scenario. The annual build up of these requirements is shown in Figure 6.

Figure 6 : Additional Generation Required – MIS



Minimum additional generation required	2010	2011	2012	2013	2014	2015	2016
Total required capacity - "Expected Demand"	110	650	1,150	1,700	2,100	2,500	2,900
Total required capacity - "High Case" demand	300	1,050	1,750	2,450	3,000	3,550	4,100

OPWP's strategy for procuring these additional resources is set out in section 1.8 below.

1.4 DEMAND FOR DESALINATED WATER

The total demand for desalinated water in the regions covered by the MIS is expected to grow from around 119 million m^3 per year in 2009 to 272 million m^3 per year in 2016, an average annual increase of around 13 % per year.

This increase is driven by:

- The effects on demand of population growth and economic and social development.
- The major policy drive away from reliance on groundwater resources in most regions.

Detailed demand projections have been provided to OPWP by the responsible water departments, PAEW, Sohar Development Office and MISC, and these have been organized into five separate zones, reflecting the general configuration of the water supply infrastructure and the likely sources of supply. The zones are defined as follows:

- The "Muscat" zone: Al Ghubrah Water Supply Network covers some wilayats in the Governorate of Muscat and is mainly supplied by Al Ghubrah desalination plant;

- The "Muscat" zone: Barka Water Supply Network covers wilayat A'Seeb in the Governorate of Muscat and the South Batinah and Dakhliyah regions and is mainly supplied by Barka desalination plants;

- The "Sohar" zone covers the North Batinah and Dhahirah regions, and the Governorate of Buraimi and is supplied by Sohar desalination plant;

- The "Sharqiya" zone covers the Sharqiya region, and is supplied by Sur desalination plant; and

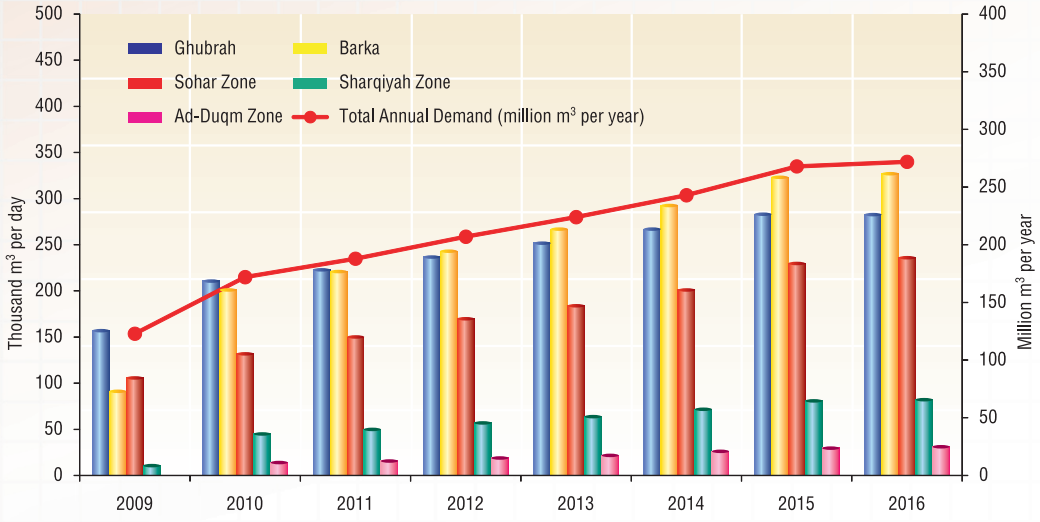
- The "Ad-Duqm" zone covers Al Wusta region currently supplied by individual desalination units distributed in different parts of the region and managed by RAECo.

A change from previous forecast water demand projections has arisen as a result of a new study conducted by PAEW in 2009. This new study is based upon different population assumptions and demand growth rates.

The "peak demand" for desalinated water is defined as the average daily demand during the peak month of the year and is forecasted as 1.25 times the average demand. The Expected forecast is based on a scenario of a population with a 40% non Omani content and demand is projected to reach 283 thousand m^3 per day in the "Muscat" zone: Al Ghubrah WSN, 327 thousand m^3 per day in the "Muscat" zone: Barka WSN, 236 thousand m^3 per day in the "Sohar" zone, 82 thousand m^3 per day in the "Sharqiya" zone and 31 thousand m^3 per day in the "Ad-Duqm" zone by 2016.

The expected build up of the total demand and the peak demands in the five zones are summarized in Figure 7.

Figure 7: Expected Desalinated Water Demand – MIS Regions



	2009*	2010	2011	2012	2013	2014	2015	2016	Growth %
Peak Water Demand ('000 m³ per day) - 40% Non Omani Population Scenario									
Muscat: Ghubrah WSN	157	211	223	237	252	267	283	283	8.8%
Muscat: Barka WSN	91	201	221	243	267	293	323	327	20.0%
Sohar Zone	106	132	150	170	184	201	230	236	12.1%
Sharqiyah Zone	35	45	50	57	64	72	81	82	12.9%
Total	**389**	**588**	**645**	**706**	**767**	**834**	**916**	**928**	**13.2%**
Total Annual Demand (million m³ per year)	**119**	**172**	**188**	**207**	**224**	**243**	**268**	**272**	**12.5%**
Ad-Duqm Zone		14	16	19	22	26	30	31	12.0%

* *Based on the actual data.*

As noted in the "Study of the demand forecast for areas served by PAEW", dated July 2009 and prepared by Mott MacDonald, the demand projections above represents the total demand from the community under the expected ultimate level of development of water supply system.

1.5 WATER DESALINATION RESOURCES

The "Muscat" zone is currently supplied by two water supply networks which are based around the Al-Ghubrah Power and Desalination Plant and the Barka I and Barka II power and desalination plants.

The Al-Ghubrah plant has a present capacity of around 182,000 m³ per day (approximately 40 MIGD). OPWP's original contract for the desalination capacity at Al-Ghubrah contemplated the retirement of two of the seven desalination units at the plant, with a combined capacity of 44,000 m³ per day (9.7 MIGD), after the summer of 2009. However, OPWP has agreed to

contract extensions to at least 2012 for these units. With this contract extension, the contracted desalination capacity at Al-Ghubrah will remain at 182,000 m^3 per day up to 2012 and will then fall to 138,000 m^3 per day from 2013 onwards. OPWP understands that PAEW is installing around 23,000 m^3 per day (5 MIGD) of temporary desalination capacity at Al Ghubrah plant, and that according to the latest schedule, this capacity will be available from the summer of 2010 until 2013. As a result, the total "Muscat" zone: Al Ghubrah WSN capacity will be 205,000 m^3 per day in 2010 dropping to 138,000 m^3 per day in 2016.

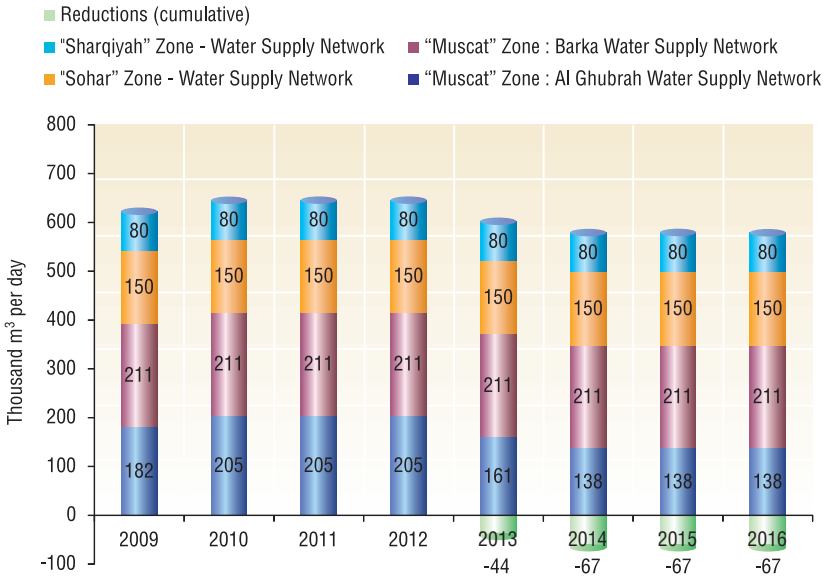
The Barka I plant has a capacity of around 91,000 m^3 per day (20 MIGD), and this capacity will be supplemented in 2010 as a result of the commissioning of the Barka II Power and Desalination Plant, with a capacity of 120,000 m^3 per day (26.4 MIGD). This will bring the total of the "Muscat" zone: Barka WSN capacity in 2010 to around 211,000 m^3 per day (46.4 MIGD). This capacity is all contracted to OPWP and the water purchased by OPWP is sold to PAEW.

The Sohar Power and Desalination Plant, with a capacity of 150,000 m^3 per day, serves the "Sohar" zone. This capacity is contracted to OPWP and the water purchased is sold by OPWP to PAEW and MISC.

The "Sharqiya" zone is presently served by the Sur Desalination Plant, with a capacity of 80,000 m^3 per day. This capacity, being desalination only, is contracted directly to PAEW not OPWP.

The existing and new desalination capacity of the four zones presently within the MIS area ("Muscat": Ghubrah WSN, "Muscat": Barka WSN, "Sohar", and "Sharqiya") is summarized in Figure 8 and the accompanying table. This indicates a total desalination plant capacity in the MIS area of 646 thousand m^3 per day in 2010 dropping to 579 thousand m^3 per day by 2016 due to retirements.

Figure 8: The Existing Desalination Capacity – MIS Regions



Thousand m^3 per day	2009	2010	2011	2012	2013	2014	2015	2016
Existing Capacity:								
"Muscat" Zone: Al Ghubrah Water Supply Network								
Al-Ghubrah Power & Desalination Plant	182	182	182	182	138	138	138	138
Contingency Unit 5MG/D (PAEW)	-	23	23	23	23	-	-	-
Reductions (Cumulative)	-	-	-	-	-44	-67	-67	-67
Total Capacity	**182**	**205**	**205**	**205**	**161**	**138**	**138**	**138**
"Muscat" Zone: Barka Water Supply Network								
Barka I Power & Desalination Plant	91	91	91	91	91	91	91	91
Barka II Power & Desalination Plant (Commissioned late 2009)	120	120	120	120	120	120	120	120
Total Capacity	**211**	**211**	**211**	**211**	**211**	**211**	**211**	**211**
"Sohar" Zone - Water Supply Network								
Sohar Power & Desalination Plant	150	150	150	150	150	150	150	150
Total Capacity	**150**	**150**	**150**	**150**	**150**	**150**	**150**	**150**
"Sharqiyah" Zone - Water Supply Network								
Sur Desalination Plant	80	80	80	80	80	80	80	80
Total Capacity	**80**	**80**	**80**	**80**	**80**	**80**	**80**	**80**
Grand Total Capacity	**623**	**646**	**646**	**646**	**602**	**579**	**579**	**579**

1.6 ADDITIONAL WATER DESALINATION REQUIREMENTS

The following highlights the supply-demand balance for each of the respective zones and identifies the minimum additional water desalination capacity required to meet the relevant supply shortfalls. Where relevant it also identifies the capacity requirement indicated by PAEW, taking into account the need to maintain appropriate capacity margins.

"Muscat" Zone: Al Ghubrah Water Supply Network (WSN)

The supply and demand balance is indicated in Figure 9 for the "Muscat" zone: Al Ghubrah WSN. The main issues are:

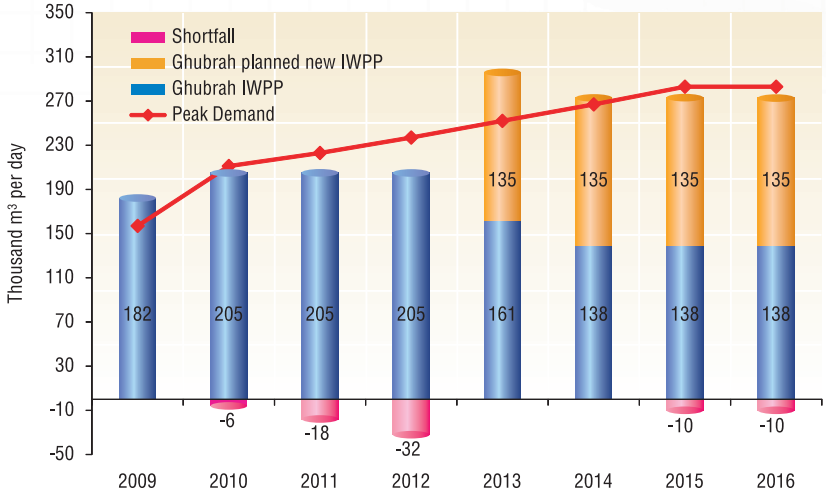
- A capacity shortfall of around 6,000 m^3 per day is indicated in 2010 – it may be possible to mitigate this by transfers from the "Muscat" zone: Barka WSN. OPWP understands that PAEW is able to transfer a certain amount of water from Barka to Al Ghubrah WSN;

- Between 2011 and 2012 shortfalls of up to 32,000 m^3 per day are forecasted. The projections for Barka show that no surplus would be available for transfer to "Muscat" zone: Al Ghubrah WSN in these years, these shortfalls would need to be met from utilisation of local groundwater resources;

- Without the commissioning of new capacity, the reduction of capacity at Al Ghubrah after 2012 will result in increased shortfalls of between 91,000 m^3 per day and 145,000 m^3 per day from 2013 to 2016. A new IWPP is planned at Al Ghubrah with a capacity of at least 135,000 m^3 per day in 2013. This will decrease the shortfall to 10,000 m^3 per day in 2015 and 2016. Without additional desalination capacity, this shortfall would need to be met from utilization of local groundwater resources.

- PAEW has indicated a requirement for total desalination capacity of 312,000 m^3 per day from 2014. This implies a need for an additional 39,000 m^3 per day over and above the planned IWPP capacity. OPWP intends to consult further with PAEW on the options for the provision of this capacity. One such option may be to enhance the size of additional desalination capacity at Barka (see below) and transfer water into the "Muscat" zone: Al Ghubrah WSN.

Figure 9 : Desalination Capacity Margin/Shortfall
"Muscat" Zone: Al-Ghubrah WSN



(Thousand m^3 per day)	2009	2010	2011	2012	2013	2014	2015	2016
"Muscat" Zone: Al-Ghubrah Water Supply Network								
Peak Demand	157	211	223	237	252	267	283	283
Production Capacity								
Ghubrah IWPP	182	205	205	205	161	138	138	138
Ghubrah planned new IWPP					135	135	135	135
Total capacity (contracteed and planned)	**182**	**205**	**205**	**205**	**296**	**273**	**273**	**273**
Shortfall	**-**	**-6**	**-18**	**-32**	**-**	**-**	**-10**	**-10**

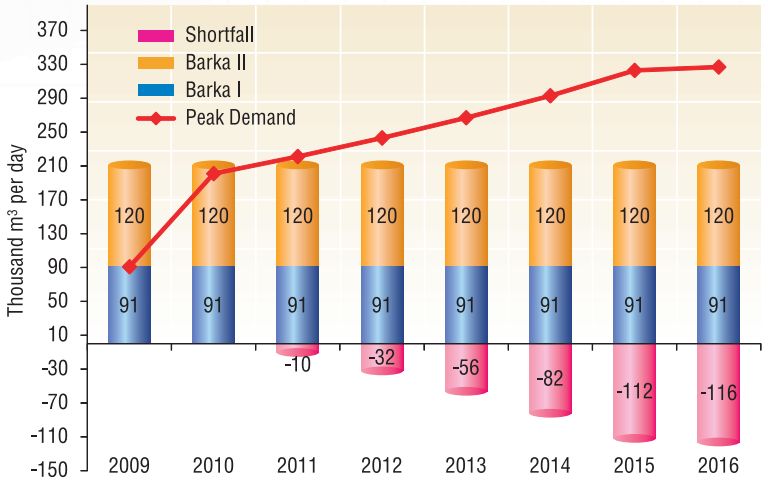
"Muscat" Zone: Barka Water Supply Network (WSN)

Figure 10, along with the associated table, summarises the extent to which additional capacity is required to meet demand on the Barka water supply network.

- Between 2011 and 2013 shortfalls of up to 56,000 m^3 per day are forecasted. These would need to be met from utilization of local groundwater resources as projections show that no surplus would be available for transfer to "Muscat" zone: Barka WSN in these years from either the "Muscat" zone: Al Ghubrah WSN or "Sohar" zones in these years;

- The shortfall indicates a minimum requirement of a new desalination plant at Barka with a capacity of at least 82,000 m^3 per day in 2014 rising to 116,000 m^3 per day by 2016. The additional capacity requirement identified by PAEW at Barka is 180,000 m^3 per day in 2014.

Figure 10 : Desalination Capacity Margin/Shortfall
"Muscat" Zone: Barka WSN



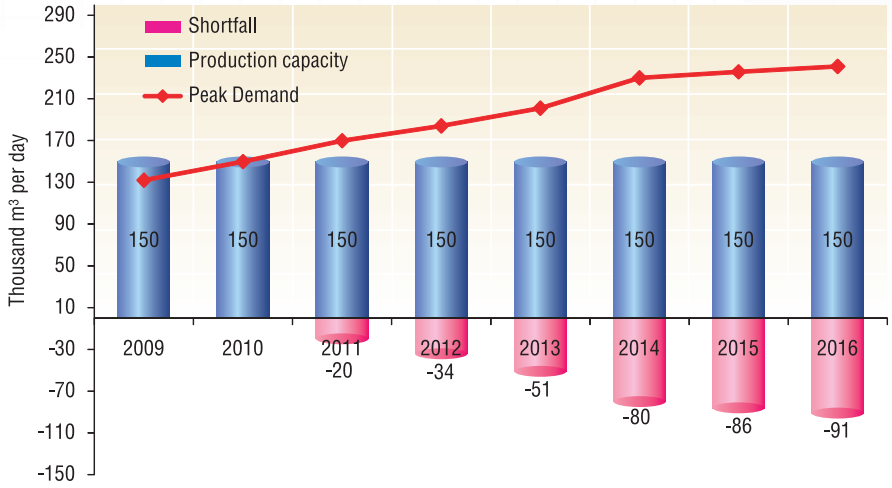
(Thousand m^3 per day)	2009	2010	2011	2012	2013	2014	2015	2016
"Muscat" Zone : Barka Water Supply Network								
Peak Demand	91	201	221	243	267	293	323	327
Production capacity								
Barka I	91	91	91	91	91	91	91	91
Barka II	120	120	120	120	120	120	120	120
Total Capacity	**211**	**211**	**211**	**211**	**211**	**211**	**211**	**211**
Shortfall	-	-	**-10**	**-32**	**-56**	**-82**	**-112**	**-116**

The "Sohar" Zone

The supply and demand balance for the "Sohar" zone is shown in Figure 11 and has the following key highlights:

- Demand and supply are in balance in 2010;
- From 2011 onwards however, shortfalls are expected in the "Sohar" zone, reaching up to 51,000 m^3 per day by 2014. This shortfall would need to be covered by additional desalination capacity or reliance on local groundwater resources.
- The shortfall indicates a minimum requirement of new desalination plant at Sohar with a capacity of 80,000 m^3 per day in 2014 rising to 91,000 m^3 per day by 2016. The additional capacity requirement identified by PAEW for Sohar is 135,000 m^3 per day in 2014.

Figure 11 : Desalination Capacity Margin/Shortfall "Sohar" Zone



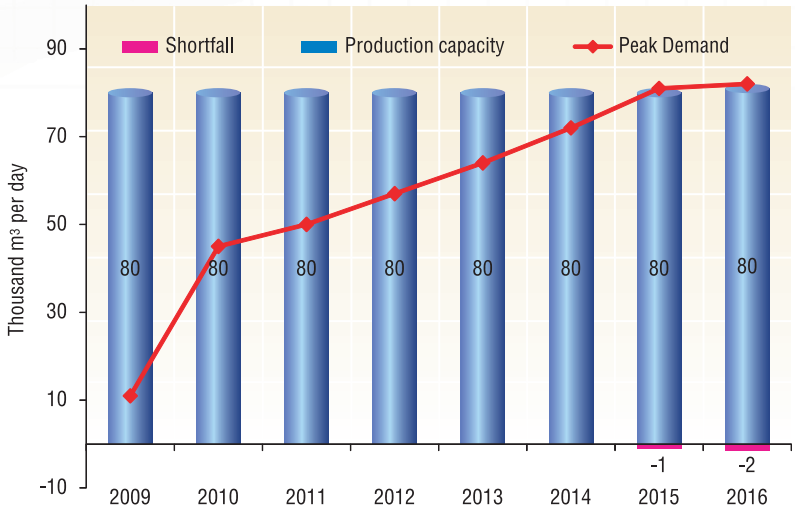
(Thousand m^3 per day)	2009	2010	2011	2012	2013	2014	2015	2016
"Sohar" Zone:								
Peak Demand	132	150	170	184	201	230	236	241
Production capacity	150	150	150	150	150	150	150	150
Shortfall	-	-	**-20**	**-34**	**-51**	**-80**	**-86**	**-91**

The "Sharqiyah" Zone

The supply and demand balance for the "Sharqiyah" zone as shown in Figure 12 has the following highlights:

- Between 2010 and 2014, a positive capacity balance is projected for each year;
- For 2016 the expected shortfall is around 2,000 m^3 per day as shown in Figure 12 below. The additional capacity requirement identified by PAEW for Sharqiyah is 22,500 m^3 per day in 2015.

Figure 12 : Desalination Capacity Margin/Shortfall "Sharqiyah" Zone



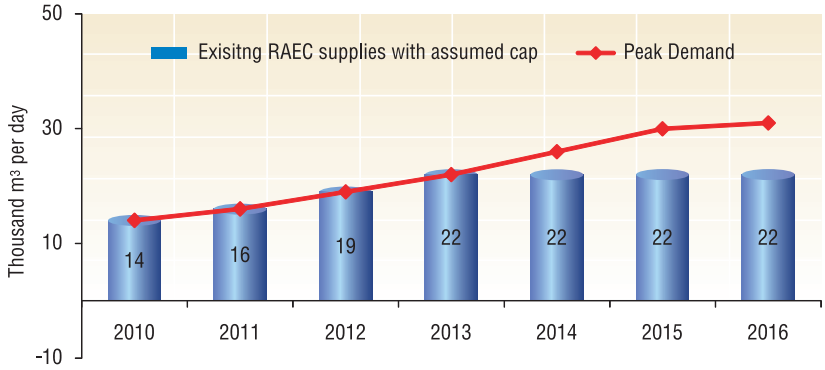
(Thousand m^3 per day)	2009	2010	2011	2012	2013	2014	2015	2016
"Sharqiya" Zone								
Peak Demand	11	45	50	57	64	72	81	82
Production capacity	80	80	80	80	80	80	80	80
Shortfall	-	-	-	-	-	-	**-1**	**-2**

The "Ad-Duqm" Zone

The supply and demand balance for the Ad-Duqm zone is shown in Figure 13 but although OPWP understands that currently RAEC supplies Al Wusta region with the water desalination capacity by small plants, it is not clear what is the limiting capability of those plants. The chart assumes that the limit is reached in 2013. Considering future years:

- High forecasts of capacity requirements in the Mott MacDonald study referred to above, suggest that new capacity is required by PAEW at Al Wusta region of 45,000 m^3 per day in 2014. This could be produced by Ad-Duqm IWPP or by small local plants if more appropriate;
- Based on the above estimates of the water demand and the capacity in Ad-Duqm zone, a desalination plant in Ad-Duqm IWPP with a capacity of around 20,000 m^3 per day in 2015 will be adequate to meet the expected demand in Ad-Duqm zone to 2016. This desalination plant could be expanded with respect to the expansion of the water supply network and interconnection. A decision would need to be made on this by the middle of 2010 in order to achieve a target commission date in 2015; and
- The balance of the water demand in Al Wusta region of around 15,000 m^3 per day in 2013 could be met by establishing a small desalination plant(s) in different parts of the region.

Figure 13 : Desalination Capacity Margin/Shortfall "Ad-Duqm" Zone



(Thousand m^3 per day)	2010	2011	2012	2013	2014	2015	2016
"'Ad-Duqm" Zone							
Peak Demand	14	16	19	22	26	30	31
Production capacity							
Exisitng RAEC supplies with assumed cap	14	16	19	22	22	22	22
Shortfall	-	-	-	-	-4	-8	-9

1.7 OPPORTUNITY FOR COMBINING POWER GENERATION AND WATER DESALINATION

In developing plans for procuring power generation resources OPWP is required to consider the opportunity for combining power generation with water desalination so as to benefit from economies of co-location and co-procurement.

A requirement for large new desalination plants has been identified by PAEW at Ghubrah (39,000 m^3 per day in 2014), Sohar (135,000 m^3 per day in 2014), Barka (180,000 m^3 per day in 2014) and Sharqiyah (22,000 m^3 per day in 2015). These are of a size consistent with operating in conjunction with power plants rated at several hundred MW. So given the need for additional power generation in the MIS of at least 2,100 MW by 2014 there is clearly an opportunity for procuring the capacity together.

Of the above locations, Ghubrah and Sharqiyah would likely be the locations most suited to future co-procurement of power and water capacity. Planned power-only plants at Barka and Sohar will raise the installed power capacities at these locations to a level such that further power capacity in the 2014 horizon would not be well suited to the geographical balance of demand and supply and would entail major transmission system reinforcement.

OPWP believes therefore that additional desalination capacity at Barka and Sohar will most likely need to be procured on a water-only basis, though consideration will be given in consultation with PAEW to the feasibility of allowing existing power and desalination plant owners to propose water-only extensions to the existing plants.

Additional power at Al Ghubrah and/or Sur in the Sharqiyah region would in contrast be viable and well aligned with the geographical demand and supply balance.

1.8 PROCUREMENT STRATEGY FOR POWER GENERATION AND WATER DESALINATION

As noted above, OPWP is required to ensure that sufficient generation resources are available to meet future power demands. As identified in section 1.3, OPWP expects to need to procure between 2,900 MW and 4,100 MW of additional generation for the MIS during the 2010 to 2016 period, to meet growing demand (and to compensate for capacity falling out of contract).

In addition, OPWP intends to focus its future procurement strategy on:

- optimizing gas utilization efficiency; and
- achieving an economic balance between the contribution of peaking and base load plants.

This requires the evaluation of the economic impact of different relative amounts of low capital cost and high operating cost plant (peaking plant) and high capital cost and low operating cost plant (base load plant) on the total cost of investing in and running the generating facilities. OPWP plans to undertake this analysis during 2010 and this will heavily influence the selection of generation options and may result in the procurement of capacity in excess of the minimum required needs in order to benefit from fuel-efficiency savings.

OPWP's present view in relation to the procurement of additional generation resources during the period from 2010 to 2016 is summarized below, and the impact of these new studies will be reflected in the next 7-Year Statement.

2010 Requirement: 110 - 300 MW

To meet the Expected forecast in 2010, OPWP intends to procure temporary generation capacity in the form of multiple diesels units to be located at sites around the MIS which have been identified by OETC. OPWP is undertaking a competitive procurement process with the aim of having 115 MW of such capacity available before the start of the 2010 period of peak demand in May.

OPWP has a number of options to supply the additional capacity required to meet the "high case" demand. These include:

- existing non-contracted resources, as identified in Figure 4 above (up to 404 MW in 2010); and/or
- supplies from the interconnections with PDO and Abu Dhabi (up to 240 MW); and/or
- additional output from existing OCGTs using evaporative inlet coolers and other performance enhancing options.

2011 Requirement: 650 - 1,050 MW

To meet the Expected forecast for 2011, an additional 650 MW of contracted capacity needs to be in place. OPWP is presently evaluating a number of options:

- Increasing the capacity of the temporary diesel plants from 115 MW to around 250 MW (studies have been undertaken to identify suitable sites where these may be connected to the OETC transmission system);
- Procuring a barge mounted power generating plant on a temporary one or two year basis (enquiries have been issued for proposals, but the capacity depends on what is available in the market); and
- Entering into contracts with the existing IPPs for temporary open cycle gas turbines which would be located at the sites of the existing IPPs.

A combination of these options will be put in place for 2011, and OPWP will confirm arrangements during 2010.

To the extent that further additional resources are required to supplement the above (to meet the "High Case" demand), OPWP will look to secure the required capacity from existing non-contracted resources and/or interconnected systems.

2012 Requirement: 1,150 - 1,750 MW

In 2012, three major new projects are expected to enter into service. These are the Sohar II and Barka III IPPs and the Ghubrah IWPP. The contracted contribution from these plants in 2012 is expected to be 400 MW each, a total of 1,200 MW.

This would enable the temporary diesels with a capacity of between 115 MW and 250 MW, depending on what was actually contracted for, to be withdrawn. It also implies that the balance of additional capacity which was available for 2011 need not be retained. However OPWP recognises that it would be prudent to have a contingency plan in place to cover any delays to the new projects through having the option to retain some of the temporary capacity obtained to meet the 2011 demand.

In the event that demand is on the "high case" path, then it will be necessary to retain a larger amount of the temporary capacity obtained in 2011.

2013 Requirement: 1,700 - 2,450 MW

In 2013, additional capacity is expected to become available from the Sohar II and Barka III IPPs, and the Ghubrah IWPP, giving a total capacity from these three plants of 2,150 MW. This would cover the capacity required for the Expected demand with a significant margin, and only 300 MW from non contracted resources and or interconnected systems would be required for the "high case" demand.

Depending on the rate of demand growth, this additional capacity may be achieved in several ways:

- OPWP is commissioning further studies to confirm the technical and economic feasibility of converting the open cycle gas turbines at Al Kamil, Manah and Rusail to combined cycle. If this project proceeds, the modifications can be in service for 2013 and will provide an estimated 300 MW additional firm capacity; and

- A new IPP could be constructed to enter service in 2013. OPWP understands that a suitable site may be available at Sur. The plant size and technology will need to be selected taking into account future indications on the rate of demand growth and system economic studies.

2014 – 2016 Requirements: 2,100 - 4,100 MW

(2,100 to 3,000 MW in 2014; 2,500 to 3,550 MW in 2015, and 2,900 to 4,065 MW in 2016)

Assuming that the three new projects at Sohar II, Barka III and Ghubrah IWPP enter service as planned, these are expected to continue to contribute 2,150 MW of firm capacity each year. This will enable the Expected demand in 2014 to be met and will require the contracting of 400 MW of additional capacity for 2015 and 800 MW for 2016.

This shortfall can be met by the capacity which the Government has decided should be constructed at Ad-Duqm. Present plans are for up to 500 MW to be in service in 2015 and up to 1,000 MW in 2016. This would enable the Expected demand to be met in both years.

Further capacity (50 to 200 MW) is expected to become available in 2014 as a result of a Government initiative to promote the development of a solar plant.

Additional capacity would be required for the "high case" demand. The requirements are calculated as between 650 and 900 MW in 2014 to 2016. Options to meet this include the conversions of the Al Kamil, Manah and Rusail plants to combined cycle (300 MW additional output), depending on the outcome of ongoing technical and economic studies, and a second phase of the Al Ghubrah IWPP which could be in service by 2016.

In the previous 7-Year Statement, OPWP noted that a decision may need to be taken at the end of 2009 on a new I(W)PP that may be required for 2014. As a result of reviewing the present demand outlook (and specifically the "high case"), OPWP is now proposing to proceed with such I(W)PP with the sizing of at least 400 MW.

This I(W)PP will be fast-tracked with a view to achieving operation prior to 2014 if possible. The most likely potential location for such I(W)PP would be at Sur. As well as providing additional security of adequate capacity, this I(W)PP will also be specified to be fully fuel flexible between gas and liquid fuel, in order to assist in managing fuel constraint issues, as are further discussed in section 1.9 below.

Longer term issues and options

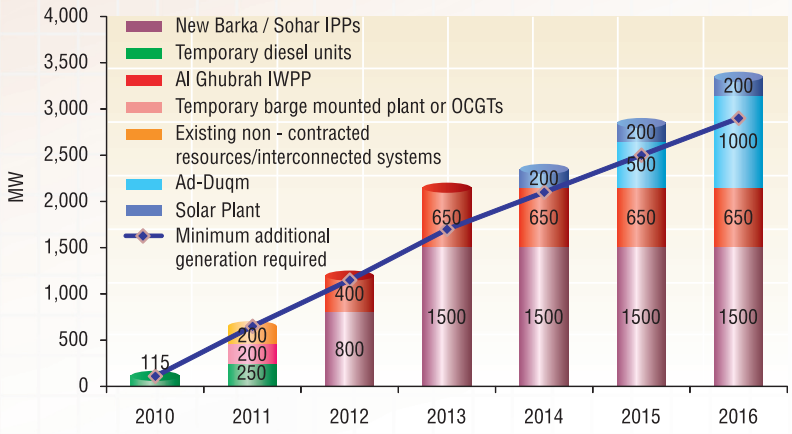
In the longer term beyond 2016 additional renewable resources such as wind energy may become economically attractive. Consideration may also be given to taking advantage of the mountainous coastal geography of the country and construct some pumped storage capacity which would be ideal for meeting the very peaky seasonal demand in Oman.

The diminishing availability of indigenous fossil fuels will create additional long-term challenges for developing new generation resources on an economic basis, and OPWP plan to work on longer term generation planting strategies using alternative fossil and non-fossil fuels as well as renewable technologies to address this challenge.

OPWP will provide an update of the anticipated requirements, and its procurement strategy, in respect of the 2011 to 2017 period in the next 7-Year Statement.

Figure 14 and Figure 15 below outline the respective strategies for capacity procurement to meet the expected and "high case" demand scenarios described above.

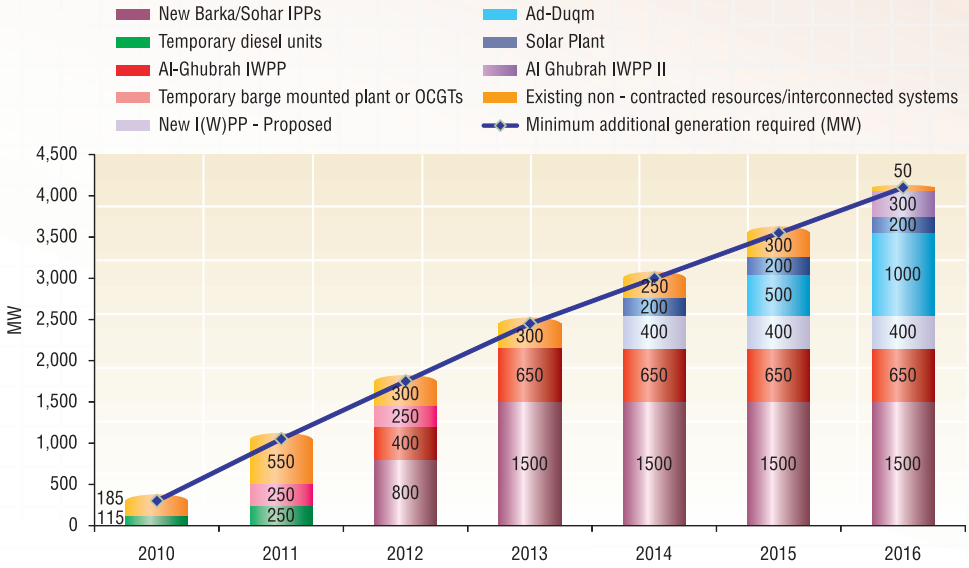
Figure 14 Expected Demand Procurement Strategy Summary



	2010	2011	2012	2013	2014	2015	2016
For Expected Demand							
Minimum additional generation required (MW)	110	650	1,150	1,700	2,100	2,500	2,900
Sources of additional generation*:							
Temporary diesel units	115	250	-	-	-	-	-
Existing non-contracted resources/interconnected systems	-	200	-	-	-	-	-
Temporary barge mounted plant or OCGTs	-	200	-	-	-	-	-
New Barka / Sohar IPPs	-	-	800	1,500	1,500	1,500	1,500
Al Ghubrah IWPP	-	-	400	650	650	650	650
Solar Plant	-	-	-	-	200	200	200
Ad-Duqm	-	-	-	-	-	500	1,000
Total	**115**	**650**	**1,200**	**2,150**	**2,350**	**2,850**	**3,350**

**The capacities shown are indicative*

Figure 15 «High Case» Demand Procurement Strategy Summary



	2010	2011	2012	2013	2014	2015	2016
For "High case" Demand							
Minimum additional generation required (MW)	300	1,050	1,750	2,450	3,000	3,550	4,100
Sources of additional generation*:							
Temporary diesel units	115	250	-	-	-	-	-
Existing non-contracted resources/interconnected systems	185	550	300	300	250	300	50
Temporary barge mounted plant or OCGTs	-	250	250	-	-	-	-
New Barka/Sohar IPPs	-	-	800	1,500	1,500	1,500	1,500
Al Ghubrah IWPP	-	-	400	650	650	650	650
Solar Plant	-	-	-	-	200	200	200
Ad-Duqm	-	-	-	-	-	500	1,000
Al-Ghubrah IWPP II	-	-	-	-	-	-	300
New I(W)PP - Proposed	-	-	-	-	400	400	400
TOTAL	**300**	**1,050**	**1,750**	**2,450**	**3,000**	**3,550**	**4,100**

**The capacities shown are indicative*

1.9 FUEL REQUIREMENTS FOR POWER GENERATION AND WATER DESALINATION

The primary fuel resource for the MIS is currently natural gas, supplied to power generation facilities by the Ministry of Oil and Gas (MOG). Essentially all MIS power generation and associated desalinated water production in 2009 was fuelled by gas, with the total consumption being around 198 million GJ (or 14.7 million Sm^3 per day), an 8% increase over 2008.

As shown in Figure 16, total fuel requirements will continue to increase with growing demands for power and water, though the impact of OPWP's fuel-efficiency focused procurement should result in the slower rates of growth in fuel consumption. Indeed, under the expected demand scenario, fuel consumption essentially remains constant between 2012 and 2016 as the efficiency benefits of the new CCGT plants and the Al-Ghubrah IWPP in particular are realized. Under the high case demand, fuel consumption continues to grow during this period but at a much slower rate than electricity demand. By 2016, total fuel consumption is expected to reach 262 million GJ per year for the expected electricity demand and 323 million GJ per year in the "high case", increases of around 32% and 63% respectively on 2009 levels. This may be compared with increases of 82% and 120% in electricity demand as well as an approximate doubling in water production.

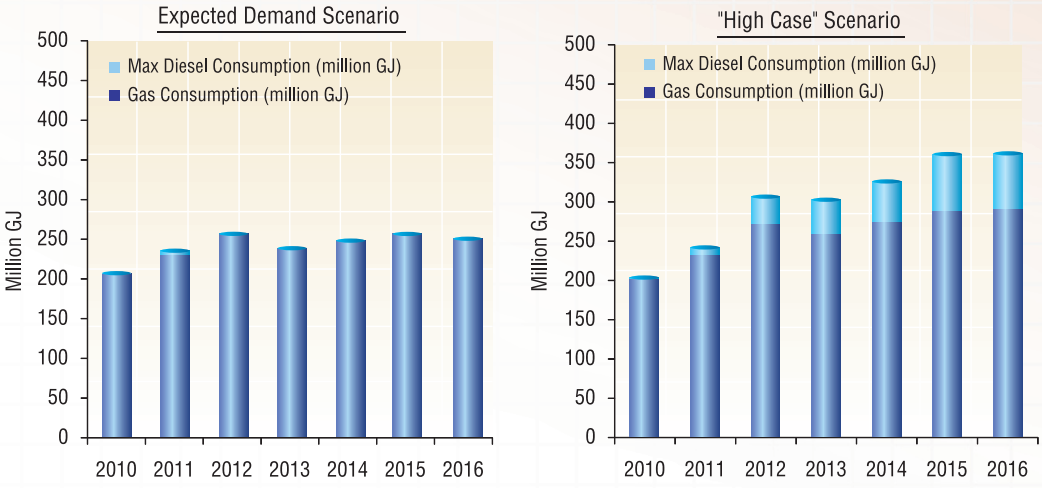
OPWP expects a relatively minor utilization of liquid fuel (most likely mainly or exclusively diesel fuel) in 2010 and 2011 in association with the temporary generation facilities discussed in section 1.8. Aside from this, the projections shown in Figure 16 are based on continued reliance on gas.

MOG has provided OPWP with a medium-term committed gas reservation, covering both the MIS and Salalah systems, which is projected to be sufficient to cover requirements under the expected demand scenario. However, additional quantities (required under the "high case" demand scenario) remain subject to future MOG confirmation. In this context, Figure 16 shows the maximum shortfalls that may arise under the current "high case" projections and could need to be met by utilization of liquid fuel, or other fuel(s), in the event that additional gas is not confirmed by MOG, and it is not possible to reduce or otherwise substitute the gas requirements. These potential requirements reach a maximum of around 25% of total fuel demand by 2015.

A number of the additional generation options described in section 1.8 above could provide means of reducing or substituting gas requirements in the short to medium term (including power imports, conversion of OCGT plants to CCGT, introduction of renewables, etc) and OPWP believes that through a combination of these options, together with further measures to optimize the utilization of existing resources, it may be possible to somewhat reduce the currently projected gas shortfalls. OPWP expects, however, that with currently committed gas reservations, significant utilisation of liquid fuel will likely be unavoidable in the "high case" demand scenario.

In light of the present position, OPWP is providing in new I(W)PPs for optional dispatched operation on liquid fuel (instead of the traditional "back-up" specification). OPWP also intends to continue to work on gas reduction/substitution options, to further assess the probability of the "high case" demand scenario (and the consequent gas shortfalls) materializing, and to continue to consult closely with MOG on likely gas requirements and the possibility of additional gas reservations.

Figure 16: Fuel Requirements – MIS



	2010	2011	2012	2013	2014	2015	2016
For expected demand							
Energy (GWh)	17,643	20,078	22,245	23,958	25,594	27,232	28,587
Water (million m³)	172	188	207	224	243	268	272
Total Fuel Consumption (million GJ)	**216**	**246**	**268**	**250**	**260**	**268**	**262**
Gas Consumption (million GJ)	216	241	268	250	260	268	262
Gas Consumption (million Sm³ per day)	16.0	18.2	19.9	18.5	19.2	19.9	19.4
Cumulative Gas Consumption (TCF)		0.2	0.5	0.7	1.0	1.2	1.5
Diesel Consumption (million GJ)	**0.2**	**5**					
Diesel Consumption (million litres)	6	143					
% of total fuel requirement	0.1%	2.0%					
For "high case" demand							
Energy (GWh)	18,402	22,180	25,375	27,669	30,000	32,444	34,602
Water (million m³)	172	188	207	224	243	268	272
Total Fuel Consumption (million GJ)	**225**	**268**	**301**	**287**	**304**	**321**	**323**
Gas Consumption (million GJ) *	**224**	**258**	**301**	**287**	**304**	**321**	**323**
Gas Consumption (million Sm³ per day)	16.7	19.8	22.3	21.2	22.5	23.7	23.9
Cumulative Gas Consumption (TCF)		0.3	0.5	0.8	1.1	1.4	1.7
Max Liquid Fuel Consumption (million GJ)	**0.6**	**10**	**39**	**48**	**57**	**79**	**78**
Max Liquid fuel Consumption (million litres)#	17	286	1,109	1,381	1,637	2,262	2,230
% of total fuel requirement	0.3%	4%	13%	17%	19%	25%	24%

* *subject to availability*

\# *volumes based upon diesel fuel*

SECTION 2 SALALAH SYSTEM

The Salalah System covers the city of Salalah and surrounding areas in the Governorate of Dhofar, serving around 54,000 electricity customers.

It currently comprises an integrated generation, transmission and distribution system, owned and operated by Dhofar Power Co. (DPC) pursuant to a Concession Agreement signed with the Government in 2001, along with a single independent generation facility owned and operated by Rural Areas Electricity Co. (RAEC). DPC acts as the electricity supplier within the service area covered by the system, supplying existing and new electricity customers.

The Salalah System presently operates as an isolated system. However, it is anticipated that an interconnect with the power system of Petroleum Development Oman (PDO) will be established by 2010.

A further significant development of the system is expected in 2011 with the phased addition of a new independent power generation and water desalination facility (the "Salalah IWPP"), providing a substantial increase in power generation capacity as well as (for the first time in Salalah) desalination capacity to meet the requirements of the responsible "water department", the Directorate General of Water in the Office of the Minister of State & Governor of Dhofar.

OPWP's role in the Salalah System is twofold. Firstly, it acts as counter-party to the Concession Agreement, in place of the Government.And secondly, it performs a similar role as in the MIS, procuring additional power to meet the requirements of the electricity supplier (that are not covered by its own generation), and wherever feasible co-procuring desalinated water to meet the needs of the water department.

2.1 DEMAND FOR ELECTRICITY

Expected Demand

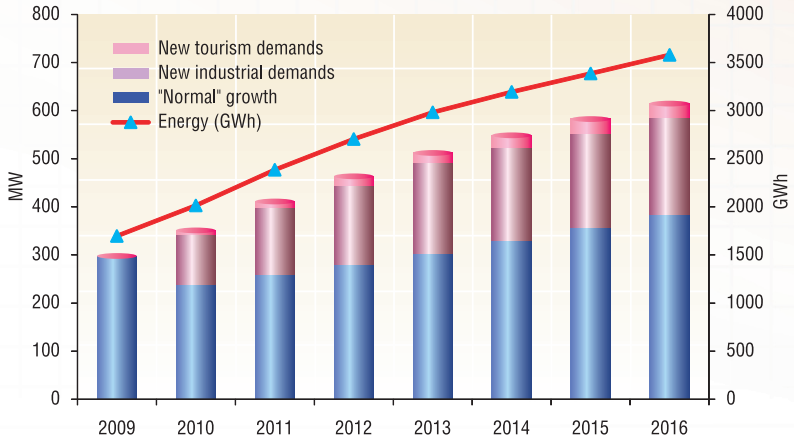
The maximum power demand in the Salalah System is expected to grow from 297 MW in 2009 to 615 MW by 2016, an average increase of around 11% or 45 MW per year. Annual energy demand is expected to grow from 1.7 TWh in 2009 to 3.6 TWh in 2016, an average annual growth rate of around 11%.

As for the Main Interconnected System, this growth is the product of:

- continuing underlying "normal" growth from increasing population and number of households, rising personal incomes and general economic development;
- an increase in demand from new industrial projects, in the case of the Salalah System concentrated in particular around the Salalah Free Zone; and
- a significant increase in demand from new tourism related developments.

The annual build up of expected power and energy demands to 2016 are shown on Figure 17 and tabulated below are the contributions to the growth of each of the main drivers.

Figure 17 : Expected Power and Energy Demand – Salalah System



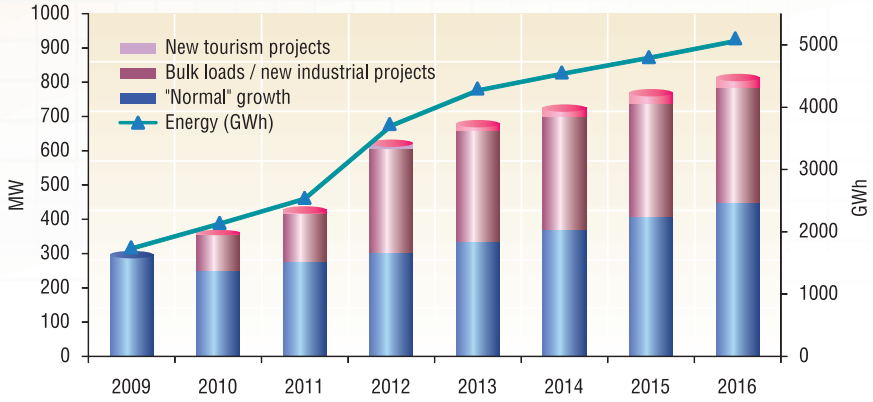
	2009	2010	2011	2012	2013	2014	2015	2016	Average annual growth
Demand (MW), including increase from:	297	351	411	464	512	549	583	615	10.9%
"Normal" growth		22	43	64	87	113	140	168	
New industrial demands		25	58	85	108	113	116	120	
New tourism demands		6	12	18	19	25	29	29	
Change from 2008 Statement	-7	2	-15	6	21	26	30	n.a.	
Energy (GWh)	**1,734**	**2,013**	**2,384**	**2,703**	**2,982**	**3,193**	**3,386**	**3,579**	**10.9%**

The 2009 maximum demand was approximately 2% less than that forecast in the previous 7-Year Statement. Although the prevailing economic conditions are expected to affect the likely demands from industry and tourism sectors in the short term, prospects for the medium term remain relatively strong and this is reflected in the forecast presented in Figure 17.

"High Case" Demand

As for the MIS, a "high case" demand projection has been developed for the Salalah System, reflecting a plausible scenario of higher than expected growth. In the case of the Salalah System, this scenario is seen as potentially adding an additional 199 MW of peak demand by 2016. The build up of this forecast is shown in Figure 18 and tabulated below are the additional elements contributing to the higher growth forecast. This higher growth is primarily driven by a more rapid growth in the Salalah Free Zone.

Figure 18: "High Case" Power and Energy Demand – Salalah System



	2009	2010	2011	2012	2013	2014	2015	2016	Average annual growth
Demand (MW), including:	297	362	428	622	679	725	769	814	15.5%
Expected demand	297	351	411	464	512	549	583	615	
Add. "Normal" growth	-	11	17	24	32	41	52	64	
Add. Bulk loads / new industrial projects	-	-	-	135	135	135	135	135	
Change from 2008 Statement	-23	-18	-52	95	88	76	59	n.a.	
"High Case" Energy (GWh)	**1,734**	**2,123**	**2,530**	**3,704**	**4,269**	**4,540**	**4,798**	**5,067**	**16.6%**

Exports to Interconnected Systems

An interconnector between the Salalah System and the PDO power system (via a 132 kV link between Thumrait and Harweel) is scheduled for completion after the 2010 summer peak.

In addition to providing reliability benefits (through the sharing of generation reserves), this interconnect could provide the opportunity either for the "commercial" export of power to the PDO system, or as a source of additional power and energy to the Salalah System.

Since an agreement for "commercial exports" has not been finalised, the forecasts presented above only include the power and energy demands for the Salalah System.

2.2 POWER GENERATION RESOURCES

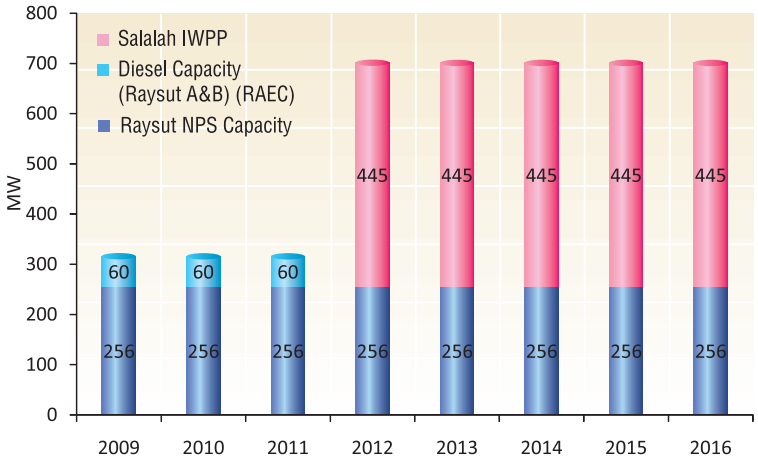
Power generation capacity in the Salalah System currently comprises the gas-fired new power station (NPS) at Raysut, owned and operated by DPC, and the diesel-fired Raysut A&B stations, owned and operated by RAEC.

The NPS comprises six gas turbine units installed in 2003, together with two older gas turbine units acquired from the Government and re-commissioned during 2007. The combined capacity of these units is 256 MW. The Raysut A&B stations comprise a total of 14 diesel engines, with a combined available capacity of around 60 MW. This capacity is expected to remain available to the system until at least 2011.

A new IWPP has been contracted with a power generation capacity of 445 MW and a desalination capacity of 68,000 m^3 per day (15 MIGD). The generation capacity will be phased in with around 60 MW in service during third quarter of 2011, 170 MW during the last quarter of 2011 and the full 445 MW capacity during the second quarter of 2012.

A summary of these resources (rated at 35°C ambient, corresponding to peak summer conditions in Salalah) is provided in Figure 19.

Figure 19: Generation Capacity – Salalah System



	2009	2010	2011	2012	2013	2014	2015	2016
Existing contracted capacity including: (net MW @ 35°C)								
Raysut NPS Capacity	256	256	256	256	256	256	256	256
Diesel Capacity (Raysut A&B) (RAEC)	60	60	60	-	-	-	-	-
Salalah IWPP	-	-	-	445	445	445	445	445
	316	**316**	**316**	**701**	**701**	**701**	**701**	**701**

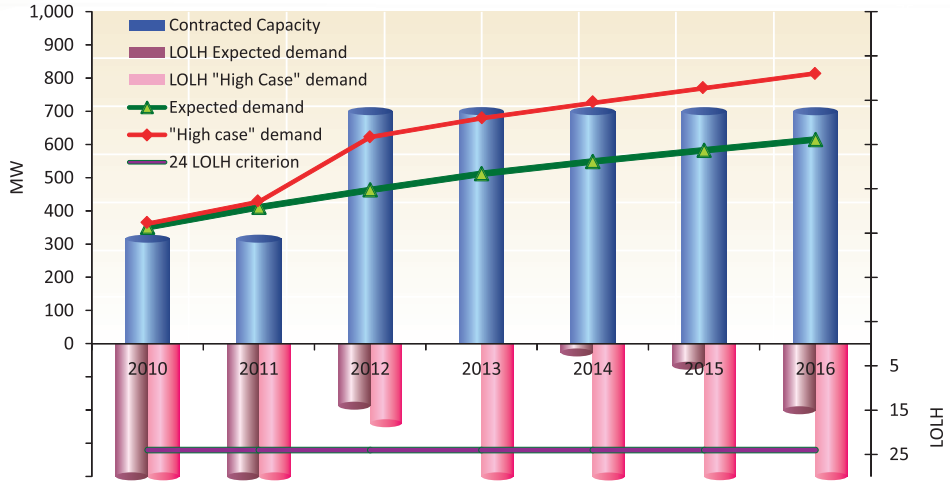
2.3 ADDITIONAL POWER GENERATION REQUIREMENTS

As for the MIS, OPWP is required to ensure the adequacy of generation resources to meet future power demands in the Salalah System and, further, to ensure that electricity customers in the Salalah System receive services generally of equivalent quality as those received by customers in the MIS.

This requires, that as a minimum, sufficient capacity is installed on the Salalah System to cover each year's expected peak demand and that the 24 hour LOLH criterion stipulated by the Authority for Electricity Regulation, Oman in respect of the MIS be similarly complied with in the Salalah System.

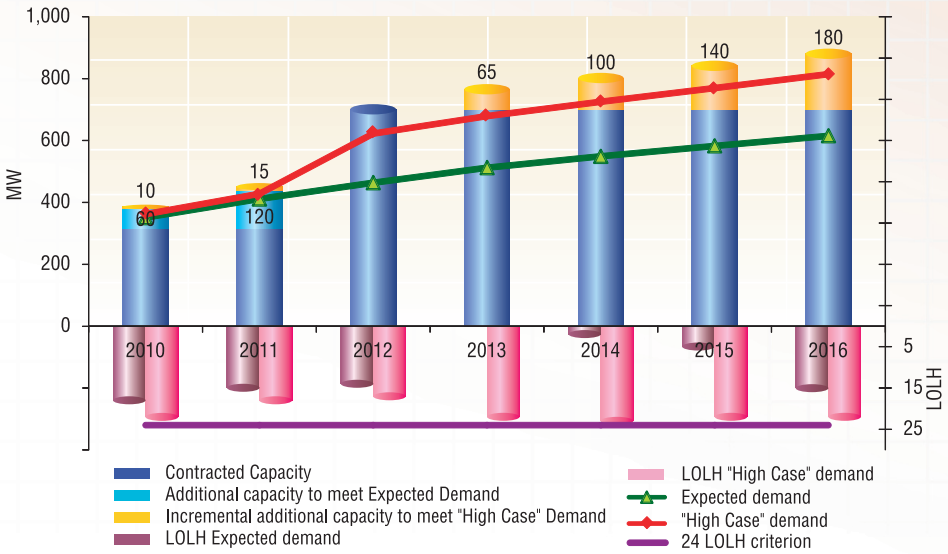
Considering the Expected Demand forecast in conjunction with the generation capacities identified above, LOLH excesses (above the 24 hour limit) are only expected in 2010 and 2011, as shown in Figure 20. Under the "high case" forecast, the criterion is not met in any of the years to 2016 apart from 2012 due to the beneficial impact of the Salalah IWPP.

Figure 20: Potential Generation Shortfall and LOLH – Salalah System



Consequently, there is a need for additional generation resources to be in service on the Salalah System in 2010 and 2011 to meet the respective Expected demand for those years, but not for subsequent years to 2016. OPWP has calculated that the shortfall in 2010 is 60 MW and 120 MW in 2011. Under the "high case" OPWP will need to contract for a minimum of around 180 MW of firm capacity by 2016 and the annual build up of this requirement is shown in Figure 21 and tabulated below.

Figure 21: Additional Generation Required – Salalah System



	2010	2011	2012	2013	2014	2015	2016
Additional required capacity - Expected Demand	60	120	-	-	-	-	-
Additional required capacity - "High Case" demand	70	135	-	65	100	140	180

Details of OPWP's strategy in respect of additional resource needs are set out in section 2.8 below.

2.4 WATER DESALINATION RESOURCES (DHOFAR ZONE)

The responsible water department in the Dhofar region, the Directorate General of Water in the Office of the Minister of State & Governor of Dhofar, has provided projections for total water demand in the Dhofar Zone (including the Wilayats of Salalah, Taqa and Mirbat) from 2009 to 2016.

These projections show an annual demand of 25.9 million m^3 in 2009 rising to 48.6 million m^3 by 2016, at an average annual growth rate of around 9.4%. Based on these annual demands, OPWP has estimated that the "peak demand" for water will increase from around 78,000 m^3 per day in 2009 to around 146,000 m^3 per day in 2016.

Whereas in previous years the water department had indicated that water requirements not met by the Salalah IWPP would be covered by local ground water resources, it has now indicated its objective to cease reliance on ground water resources (other than for contingency purposes) and accordingly requires desalination capacity to be installed to cover expected peak water demand.

2.5 WATER DESALINATION RESOURCES

There is presently no desalination capacity in the Dhofar Zone – water demands have to be met entirely from local groundwater resources.

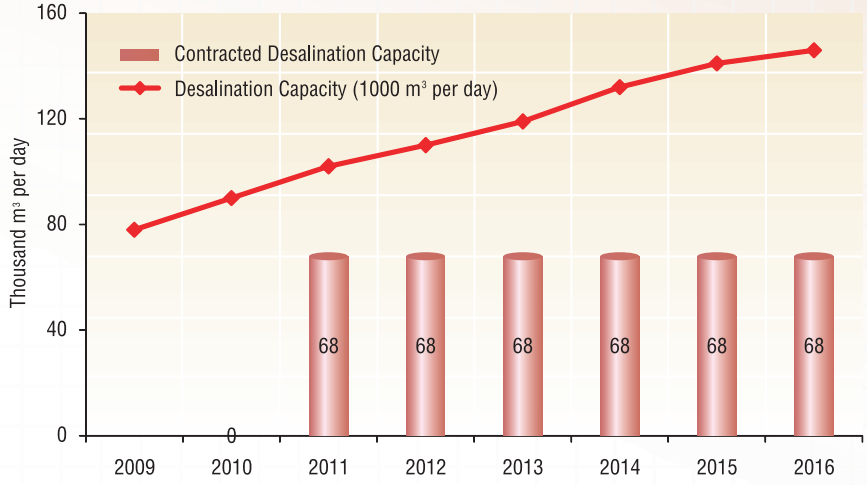
The Salalah IWPP project will provide 68,000 m^3 per day (15 MIGD) of new desalination capacity, from the last quarter of 2011.

2.6 ADDITIONAL WATER DESALINATION REQUIREMENTS

Supply and demand projections for the "Dhofar" zone are shown in Figure 22 and the associated table. These indicate that:

- Between 2010 and mid of 2011 meeting the expected peak demand will continue to depend on the local groundwater resources of up to 90,000 m^3 per day;
- In the last quarter of 2011, the Salalah IWPP will be commissioned with a capacity of 68,000 m^3 per day and this will meet the major part of the demand;
- The shortfall indicates a minimum requirement of new desalination plant at Dhofar Zone with a capacity of 80,000 m^3 per day in 2016; and
- Based on the above estimates of water demand and the presently contracted capacity, and due to the major policy drive away from reliance on groundwater resources, a new desalination plant with a capacity of around 80,000 m^3 per day would be required to meet the demand in the period up to 2016.

Figure 22 : Desalination Capacity Margin/Shortfall "Dhofar" zone



"Dhofar" Zone	2009	2010	2011	2012	2013	2014	2015	2016
Thousand m³ per day	78	90	102	110	119	132	141	146
Contracted Desalination Capacity		-	68	68	68	68	68	68
Shortfall	**-78**	**-90**	**-34**	**-42**	**-51**	**-64**	**-73**	**-78**

2.7 OPPORTUNITY FOR COMBINING POWER GENERATION AND WATER DESALINATION

In light of the identified need for additional desalination capacity as well as the potential need for additional generating capacity during the 2013 to 2016 period, OPWP will consult with the water department to determine the possibility for combining the procurement of relevant capacities.

In respect of the additional power requirements in advance of the Salalah IWPP, there are not seen to be any practicable opportunities for co-procurement of desalinated water.

2.8 PROCUREMENT STRATEGY FOR POWER GENERATION AND WATER DESALINATION

As mentioned in 2.2 above, the Salalah IWPP is scheduled to provide around 60 MW of power generation in third quarter of 2011, 170 MW in the last quarter of 2011 and 445 MW in the second quarter of 2012 together with 68,000 m³ per day (15 MIGD) of desalination capacity from the last quarter of 2011.

However, based on the analysis presented in section 2.3 above, further additional power generation is required, both for the period from 2010 to 2011 and potentially (in the "high case" demand scenario) over the period from 2013 to 2016. OPWP's present assessment in relation to the procurement of these requirements is summarized below.

2010 Requirement: 60 - 70 MW

OPWP has requested proposals from RAEC and DPC to procure a number of units for short-term temporary generation during summer 2010. The precise capacity requirement will be finalised based upon the specific units identified and consideration of certain system constraints. A final decision on the exact amount of capacity to be contracted for will be made in early 2010.

2011 Requirement: 120 - 135 MW

The following options are currently being pursued and/or considered by OPWP:

- Continuation of the use of temporary generators procured to meet the 2010 summer peak demand with the option to supplement the numbers to meet the full shortfall;
- utilisation of the interconnector with the PDO system, tapping surplus generation resources available in the PDO system; and
- enhancement of the capacity of the Raysut NPS gas turbines by DPC.

OPWP expects to finalize its strategy in respect of the above by mid-2010.

2012 Requirement: 0MW

No additional capacity is expected to be required for meeting the 2012 peak demand under either demand forecast due to the anticipated availability of the full capacity of the new IWPP.

Assuming on-schedule completion of the Salalah IWPP, neither temporary generation nor RAECO's Raysut diesel units (60 MW) would be required in summer 2012. Nevertheless, OPWP intends to give consideration to extending the contracted period for the Raysut diesel units as standby capacity during the commissioning and initial operation of the IWPP. Further to this, if the demand rises faster than the Expected forecast there could be benefits in extending the contract for 2013 as well as a means of deferring by one year the need to commission significant amounts of new capacity. OPWP plans to study the economic merits of this approach during 2010.

2013-2016 Requirement: 0-180 MW

The requirement in this period will depend on how the demand materializes. Based on the Expected forecast, no new capacity would be required until beyond 2016. If the demand trends towards the "high case", the maximum potential requirements during this period range from 100 MW in 2014 to 180 MW by 2016.

As for the MIS, OPWP's medium to longer term procurement strategy will combine the need to balance the proportion of peaking and base load capacity together with the aim of improving overall fuel efficiency.

Options to meet this shortfall include:

- The conversion of the Raysut NPS gas turbines to combined-cycle configuration. If implemented, this option could both improve fuel efficiency and provide up to around 100 MW of additional capacity within the 2013 to 2014 timeframe, although this would be insufficient to meet all the demand under the "high case". A study is underway to examine this option in more detail and the results should be available in the first half of 2010 which would enable a decision to be made in time to meet the required commissioning date;

- New efficient gas fired plant. This could be favoured if the study referred to above indicates that the conversion of the Raysut NPS to combined cycle would not be economic, but a decision would need to be made during 2010 to meet an in-service date of 2014 and this will be examined by OPWP during 2010;

- There are also some possibilities for the development of renewable energy resources; in particular wind and/or solar power. These could be completed in the Salalah area in time for the 2014 to 2015 timeframe. This could significantly reduce fuel consumption, though further analysis is required to define the extent to which these resources would provide firm generation, or whatever complementary arrangements such as storage or back-up generation would be required to cover the output variability; and

- Imports from outside the Salalah system. These could include power from the proposed Ad-Duqm IWPP starting in 2015.

All medium and longer term options will also be studied in the context of the interconnected Salalah-PDO-MIS system, seeking to maximize the benefits of interconnection.

OPWP will provide an update of the anticipated requirements and its procurement strategy in respect of the 2013 to 2016 period in the next 7-Year Statement.

2.9 FUEL REQUIREMENTS FOR POWER GENERATION AND WATER DESALINATION

The primary fuel resources for the Salalah System are currently natural gas, supplied by pipeline to the Raysut NPS by MOG, and petroleum diesel delivered by road tankers to the Raysut A&B stations. The total fuel consumption for power generation in 2009 was around 21.5 million GJ, comprising 20.9 million GJ (or around 1.57 million Sm^3 per day) of gas and 0.6 million GJ (or 14.4 million litres) of diesel .

Both gas and diesel consumption are expected to increase during the 2010-2012 period with rising power demand, with the exact quantities depending on the demand scenario and the specific generation options pursued in respect of the additional requirements identified in section 2.8. The proportion of gas usage compared to the total consumption is expected to reduce over the period 2010 to 2011 and for the expected demand, total fuel consumption is expected to reach 29.2 million GJ in 2011, with gas consumption of 26.3 million GJ (1.97 million Sm^3 per day) and diesel consumption of 2.9 million GJ (82 million litres). In the "high case" demand

scenario, the total fuel consumption could be expected to reach 29.8 million GJ in 2011, with gas consumption of 26.0 million GJ (1.95 million Sm^3 per day) and diesel consumption of 3.8 million GJ (108 million litres).

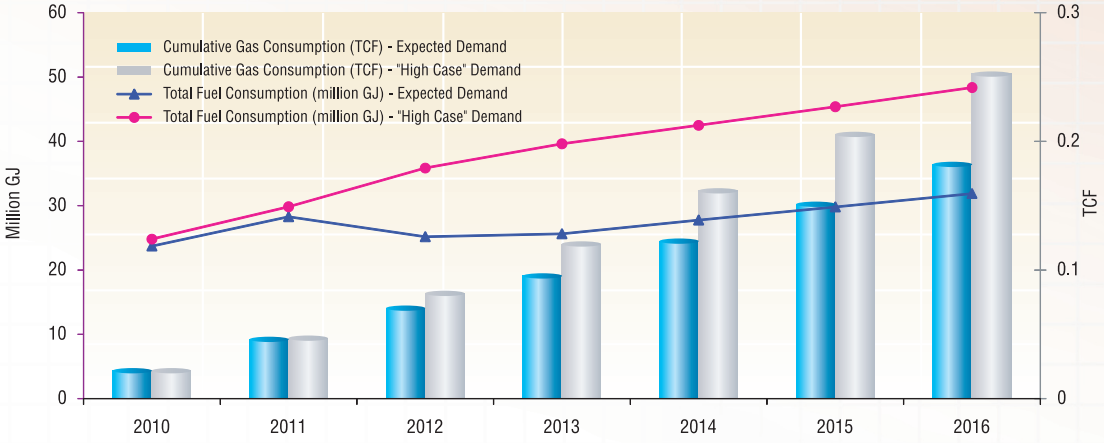
From late 2011, with the anticipated commissioning of "early power" from the Salalah IWPP on gas, the projected diesel consumption falls to zero throughout the period from 2012 to 2016 in the expected case and to virtually zero in the "high case" demand. All generation in the Salalah System is then expected to be gas-fuelled through to 2016. Given the fuel efficiency of combined-cycle gas turbine (CCGT) technology, the Salalah IWPP is expected to help stabilise fuel consumption in the Salalah System once it is fully commissioned in 2012. This is due to the Salalah IWPP generation displacing a significant amount of generation from the relatively less fuel-efficient open-cycle gas turbines (OCGT) at Raysut NPS.

In the expected demand scenario, for example, fuel consumption rises slowly from 29.2 million GJ in 2011 to 32.2 million GJ by 2016, an average growth rate of 2% compared to the annual 8.5% growth in electrical energy demand. For the "high case" fuel demand over the same period, it is forecast to rise from 30.8 million GJ to 48.7 million GJ.

These amounts may be reduced to some extent if either of the fuel-saving options mentioned above (conversion of Raysut NPS or renewable resources) were to be implemented in the 2014 to 2016 timeframe. In all cases, though, around 0.2 TCF of gas will be required for the 7-Year period from 2010 to 2016.

The projected annual fuel requirements, for the expected and "high case" demand scenarios, are shown in detail in Figure 23.

Figure 23: Fuel Requirements – Salalah System



	2010	2011	2012	2013	2014	2015	2016
For Expected demand							
Energy (GWh)	2,013	2,384	2,703	2,982	3,193	3,386	3,579
Water (million m3)			24.8	24.8	24.8	24.8	24.8
Total Fuel Consumption (million GJ)	**24.7**	**29.2**	**25.4**	**25.8**	**28.0**	**30.1**	**32.2**
Gas Consumption (million GJ)	**23.2**	**26.3**	**25.4**	**25.8**	**28.0**	**30.1**	**32.2**
Gas Consumption (million Sm3 per day)	1.74	1.97	1.90	1.93	2.10	2.26	2.41
Diesel Consumption (million GJ)	**1.56**	**2.88**	-	-	-	-	-
Cumulative Gas Consumption (TCF)	0.02	0.05	0.07	0.10	0.12	0.15	0.19
Diesel Consumption (million litres)	45	82	-	-	-	-	-
For "High Case" demand							
Energy (GWh)	2,123	2,530	3,704	4,269	4,540	4,798	5,067
Water (million m3)	-	24.8	24.8	24.8	24.8	24.8	-
Total Fuel Consumption (million GJ)	**25.8**	**30.8**	**36.4**	**40.3**	**42.8**	**45.6**	**48.7**
Gas Consumption (million GJ)	**23.7**	**27.0**	**36.4**	**40.3**	**42.8**	**45.6**	**48.7**
Gas Consumption (million Sm3 per day)	1.78	2.02	2.82	3.02	3.21	3.42	3.64
Diesel Consumption (million GJ)	**2.17**	**3.80**	**0.08**	**0.02**	-	-	-
Cumulative Gas Consumption (TCF)	0.02	0.05	0.08	0.12	0.16	0.21	0.26
Diesel Consumption (million litres)	62	108	2	1	-	-	-