STATEMENT OF OPPORTUNITY

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STATEMENT OF OPPORTUNITY

CONTENTS (continued)

STATEMENT OF OPPORTUNITY

1. INTRODUCTION

1.1 THIS DOCUMENT

This document is prepared in response to the requirements of Condition 33.1 of the conveyance licence issued to Guernsey Electricity by the Office of Utility Regulation. The purpose of the document is to allow present and prospective users of the power system to assess the opportunities for them to make new or additional uses of the system.

The document presents a range of information on all aspects of the power system which should be sufficient to provide an overview. Readers having a specific project in mind are advised to contact Guernsey Electricity using the contact details given in Appendix 1.

This document is reviewed annually and updated quarterly if necessary. This version was prepared In July 2005.

1.2 THE NATURE OF THE ELECTRICITY NETWORK IN GUERNSEY

Guernsey has enjoyed a public electricity supply for over one hundred years. Until the year 2000 energy was supplied entirely from local generation. Imports from the European grid commenced in 2000 via a connection to Jersey and onwards to France.

Generation available to the system is largely concentrated in three power stations at a single site to the north of St Sampson’s Harbour. These stations provide both base load and fast start plant.

Base load plant comprises five slow speed diesel generators capable of generating 65.3MW, fuelled by heavy oil.

Fast start plant comprises three gas-turbine units capable of generating 50.0MW, fuelled by gas oil.

The island distribution network operates at 90,000, 33,000, 11,000, 6600 and 415 volts. The cable network is mainly underground with only short sections of the 415 volt system in rural areas dependent on overhead lines.

The system presently has little distributed generation with only a small number of sites utilising combined heat and power.

As befits a major finance centre there are a significant number of commercial premises equipped with standby generation, but this plant is not network connected.

Decision of the States of Deliberation render the future of the Energy from Waste plant difficult to predict, therefore the expected 7MW of local generation has been removed from the Statement of Opportunity until further notice.

1.3 VITAL STATISTICS

1.3.1 Maximum Demand

The highest demand recorded on the island power system was 70.4MW on 1st March 2005. The demand curve for that day is shown below as Fig. 1.

The maximum demand of the system is a critical measure in determining the sufficiency of both the generating and importation plant and of the individual power cables and plant that make up the conveyance and supply networks.

The system maximum demand curve represents the aggregated, concurrent demand of all electricity users on the system at any given time. For Guernsey the system maximum demand occurs in the winter months, normally between 17.00 and 18.30 on a weekday evening, as a consequence of domestic customers beginning to consume power in their homes, whilst some commercial customers are still operating.

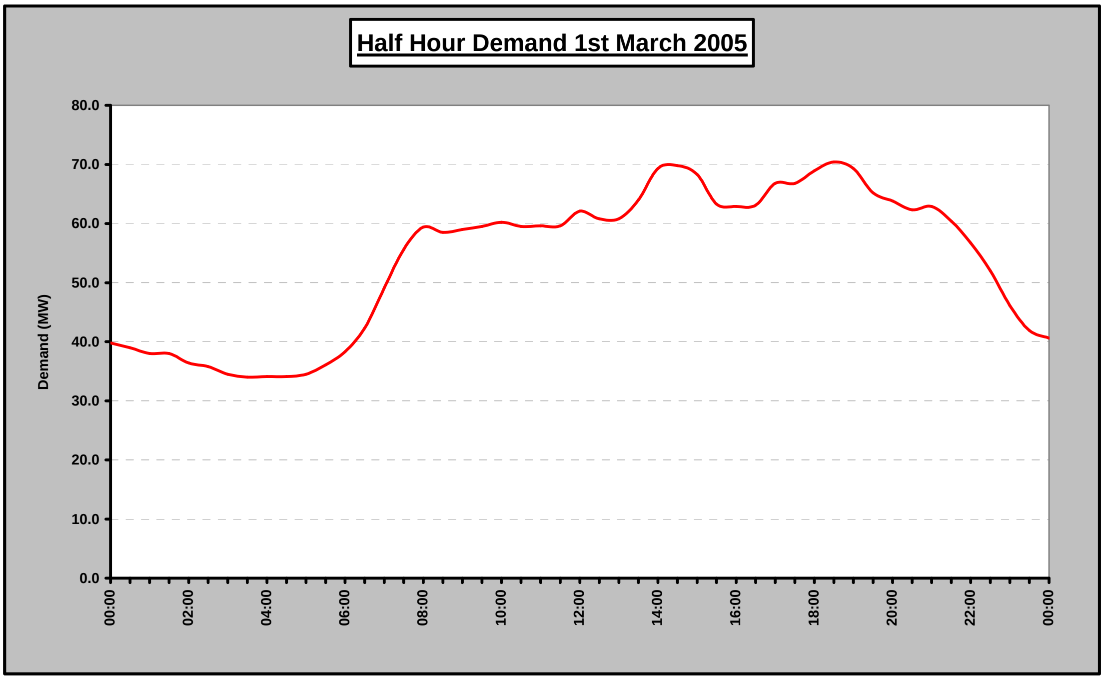


Figure 1

1.3.2 Energy Production

For the financial year April 1st 2004 to March 31st 2005 total energy production and import amounted to 340 million kWh. The growth of energy production for the last fifteen financial years is shown as Fig.2.

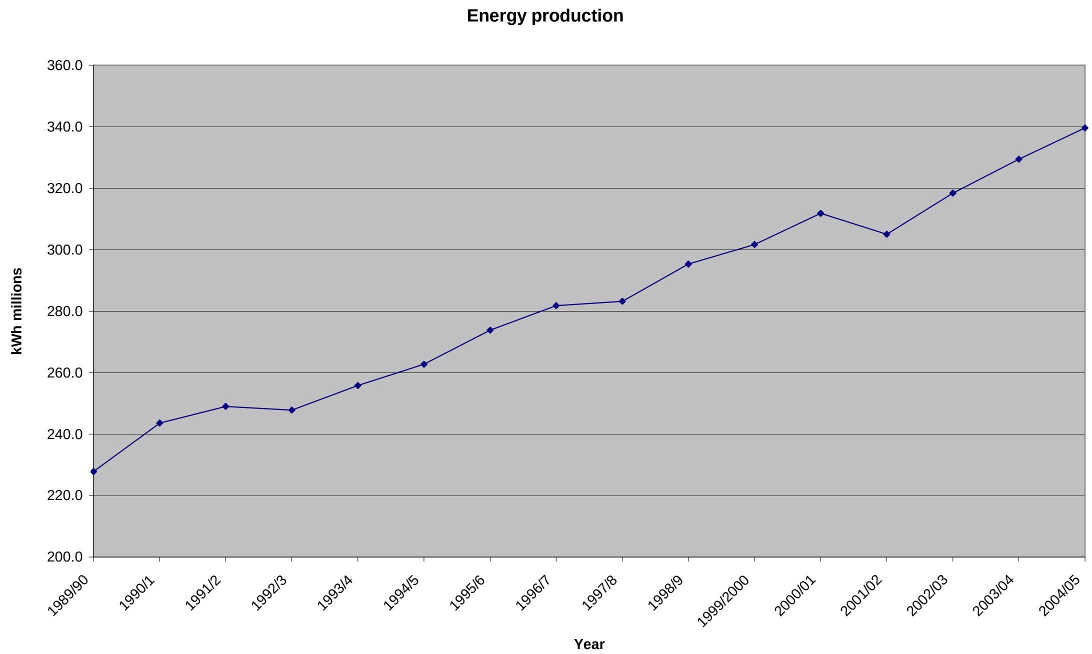


FIGURE 2

1.3.3 Customer Numbers

As at 31st March 2005 the total number of energy users connected to the island system was 28,255.

2. GENERATION

2.1 GENERATING PLANT ITEMS

Current installed local generating plant is as follows:

Plant	Manufacturer and Type	Capacity (MW)	Year Installed	Total Running Hours (**)	Retirement Year	
					25 Year	35 Year
1C	Sulzer RNF-68	12.2	1979	99792	2004	2014
2C	Sulzer RNF-68	12.2	1980	111334	2005	2015
3C	Sulzer RNF-68	12.2	1982	126501	2007	2017
4C	Sulzer RTA-58	14.2	1987	95868	2012	2022
1D	Sulzer RTA-58	14.5	1992	54495	2017	2027
GT2	Thomassen	19.5	1996	229	2021	n/a
GT3	Thomassen	19.5	1998	116	2023	n/a
GT4	Alstom (Cyclone)	11.0	2003	267	2028	n/a

***Running hours at 31 March 2005*

FIGURE 3

The slow speed diesel plant (Sulzer) represent base load capacity, operating on Heavy (Residual) fuel oil. The gas turbine generators are for peak lopping and emergency duties. These generators operate on gas oil (35cSt diesel).

2.2 RETIREMENT PROFILE

Nominal retirement dates are shown in Figure 3 above.
For slow speed diesel (Sulzer) plant, it is clear that the older machines are approaching a “standard” planning retirement age of 25 years, yet remain in serviceable condition, with good reliability and efficiency. As a result of the import of electricity through the cable link, the annual running hours of all of the slow speed diesels has been much reduced since the year 2000. It is considered that these machines should be capable of being maintained in a fully satisfactory condition for an increased life of 35 years, and this life is used for planning purposes. It is likely that capital investment may be required on some aspects of the plant to achieve this increased life, and the condition of the plant will be carefully monitored to ensure the success of the life extension.

For gas turbine plant, a more usual retirement age of 25 years is considered appropriate. Ultimately this will depend upon condition and serviceability. Gas turbine GT1 has now been retired and replaced by GT4.

2.3 THE INTERCONNECTOR: CAPACITY AND USAGE

In autumn of the year 2000 Guernsey Electricity commissioned a submarine interconnection to Jersey as part of an integrated project with Jersey Electricity, which also provided a major increase in Jersey's capacity to import power from the European grid. Figure 4 below shows a geographic representation of the interconnections.

FIGURE 4 POWER CABLE INTERCONNECTIONS BETWEEN GUERNSEY, JERSEY AND FRANCE

There is a single 90,000 volt, 60MW cable laid between Guernsey and Jersey and two 90,000 volt cables with a total capacity of 145MW, subject to thermal constraints of the cables laid between Jersey and France.

The capacity limit on the France to Jersey interconnection is not sufficient to meet the maximum demand of both islands combined in the winter months, requiring generating plant to be run locally. In the summer, however, both islands are able to rely upon imported power, with local generation placed on standby.

The contracts in place between Jersey and Guernsey Electricity and their European supplier provide Guernsey with a minimum secure power import capability of 16MW and with the ability to purchase power beyond this figure for large parts of the year. In the year April 2004 to March 2005 Guernsey has imported approximately 84% of its total electrical energy requirement, leading to a corresponding reduction in local atmospheric emissions.

As well as the ability to import power from Europe the interconnections between the islands also allow Jersey and Guernsey based generators to support load in the other island in emergency, and contracts in place allow for this.

The charts shown as figures 5, 6 and 7 illustrate the usage of the interconnector and local generation to support the load in summer, autumn and winter.

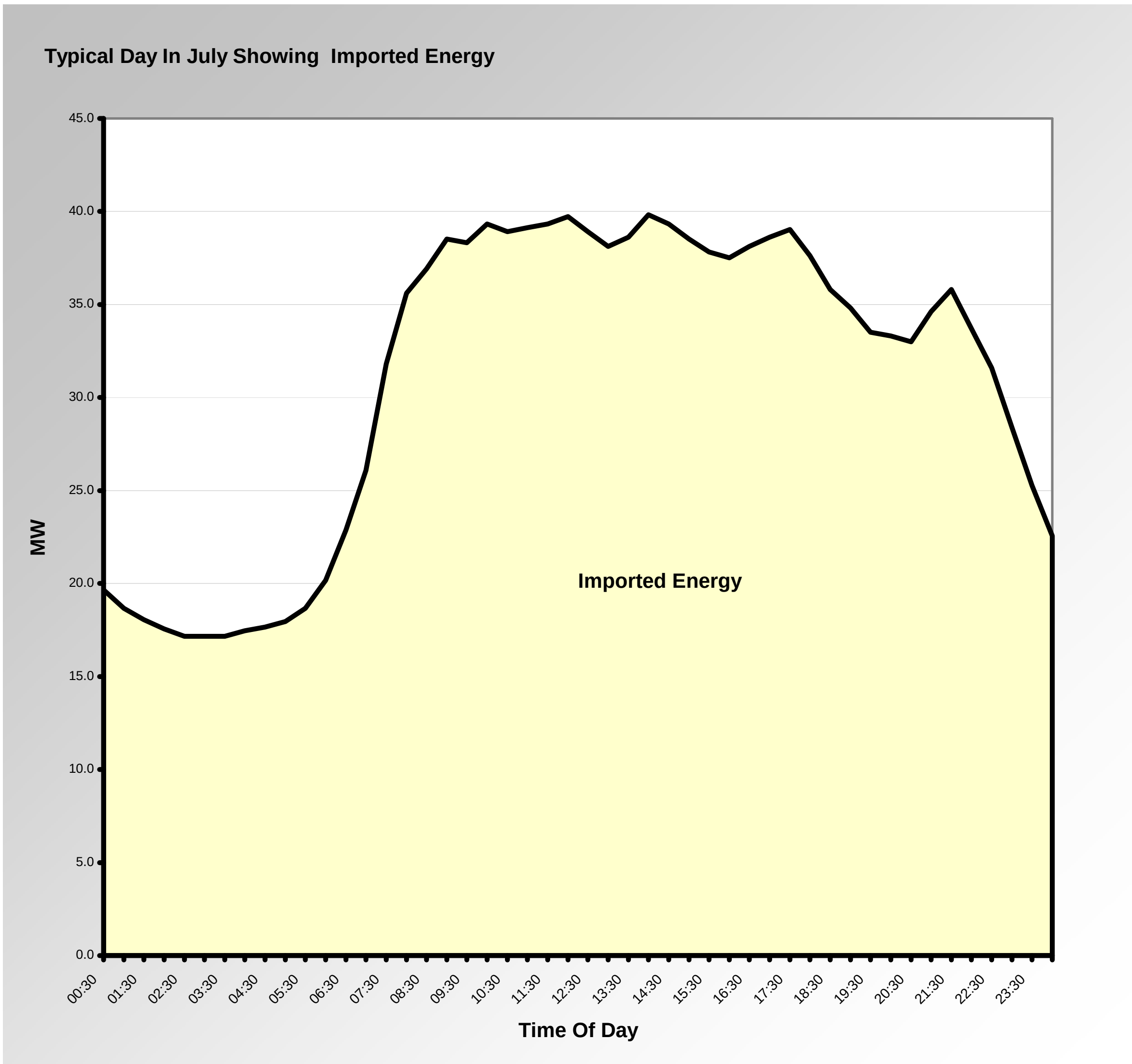
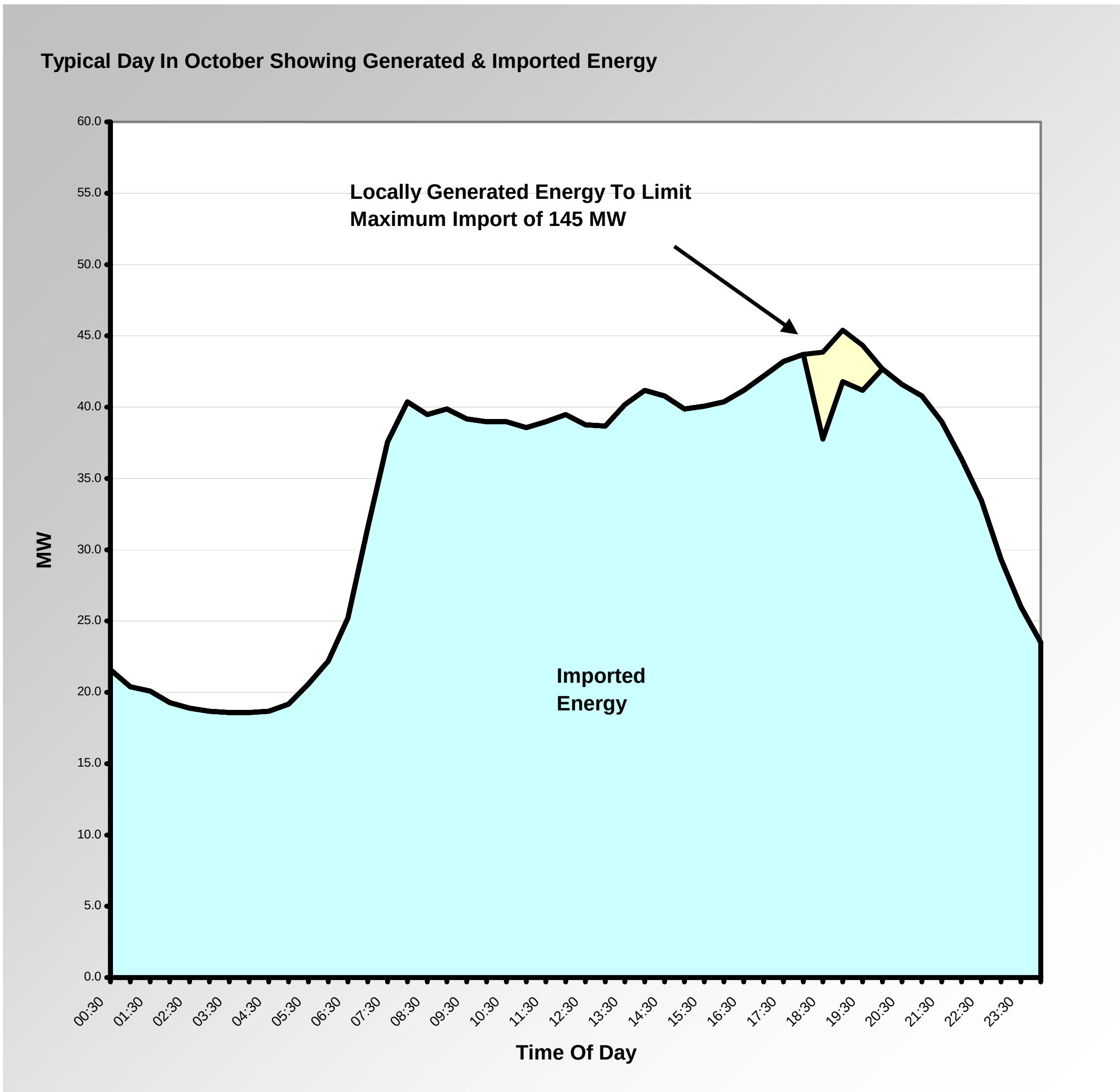


FIGURE 5


Typical Day In October Showing Generated & Imported Energy
Locally Generated Energy To Limit
Maximum Import of 145 MW
Imported
Energy
MW
Time Of Day
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
00:30
01:30
02:30
03:30
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23:30

FIGURE 6

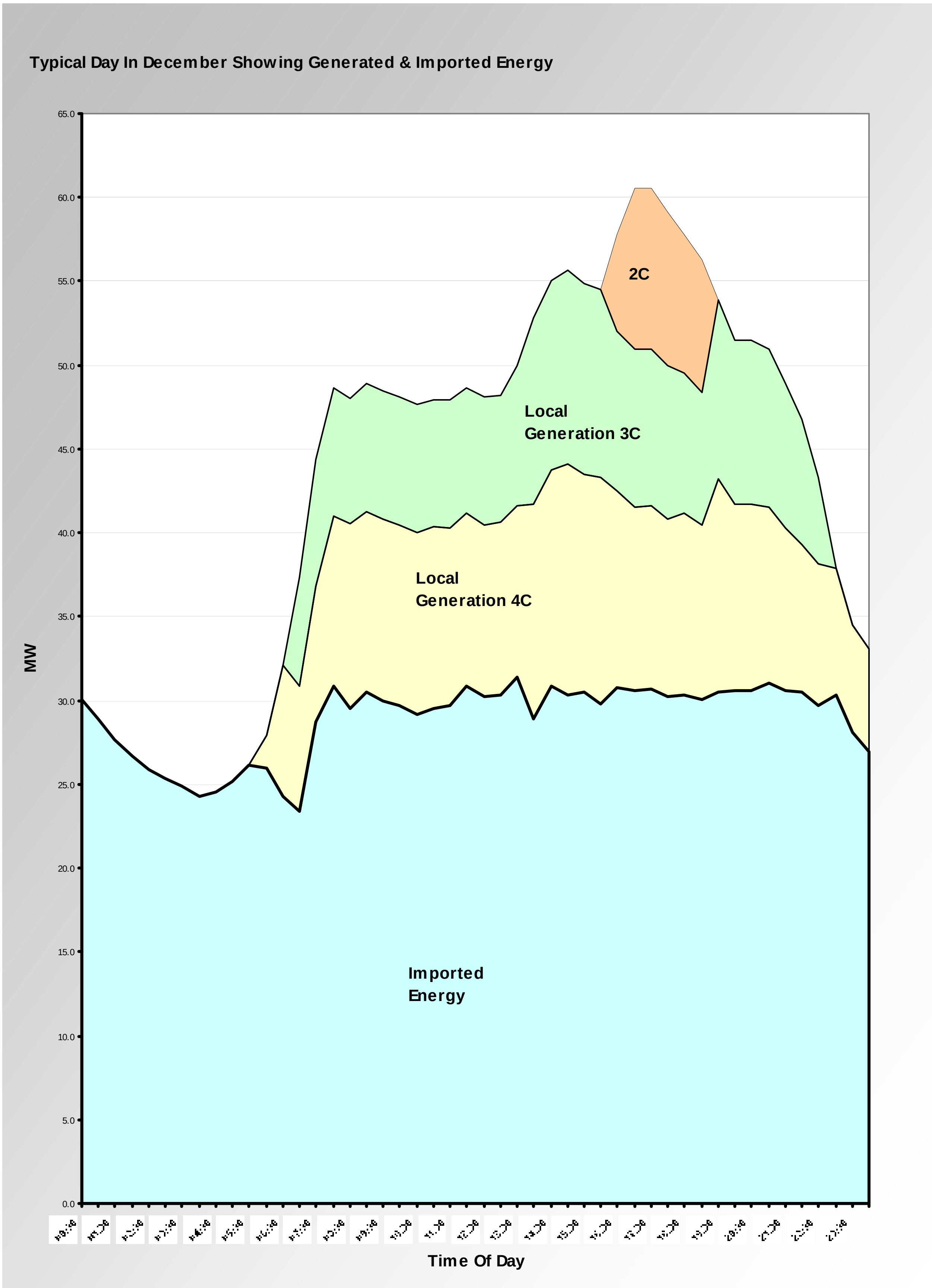
Typical Day In December Showing Generated & Imported Energy
MW
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2C
Local
Generation 3C
Local
Generation 4C
Imported
Energy
Time Of Day

FIGURE 7

2.4 GENERATION PLANT PLANNING

Generation plant planning requires consideration of installed plant with regard to two major technical issues and one States Guidance issue.

Firstly, the availability of sufficient plant to meet customer demand at all times. The possibility of some generators being unavailable due to failure or maintenance requirements must also be considered. In this aspect of its generation planning Guernsey Electricity makes the assumption that all its generators are available to meet system maximum demand, less the capacity of the two largest generators.

Secondly, the availability of suitable plant types to meet customer demand in an efficient and cost effective manner. Typically, this results in a balance between higher capital cost, high efficiency plant for base load duties and lower capital cost, low efficiency plant for standby, emergency and peak lopping duties.

Thirdly, the States has determined that however electricity services are to be provided in future, they are to be provided within a policy of retaining sufficient on-Island generating plant to meet the total long term demand, to cover for the possibility of interruption or unavailability of power through the cable link to France.

2.4.1 Installed Plant Capacity and Customer Demand Projections

The chart shown as Figure 8 shows historically recorded maximum demands for the period 1986 to the present. There is a clear upward trend, but not consistent year on year. The level of maximum demand on any particular day is significantly affected by weather conditions and daylight hours. In Guernsey the annual maximum demand occurs on a weekday in the months of December, January or February at approximately 17.30. At this time the heating, lighting and cooking load of domestic customers coincides with load from commercial customers who are still operating. The conditions that will produce a particularly high demand are known to be low temperatures, coupled with snow and a strong easterly or north easterly wind. It is not possible to forecast accurately the precise level of demand since it is affected by customer's perceptions of weather conditions.

To allow for the weather dependence of maximum demand figure 8 shows the upper and lower bands used for planning purposes.

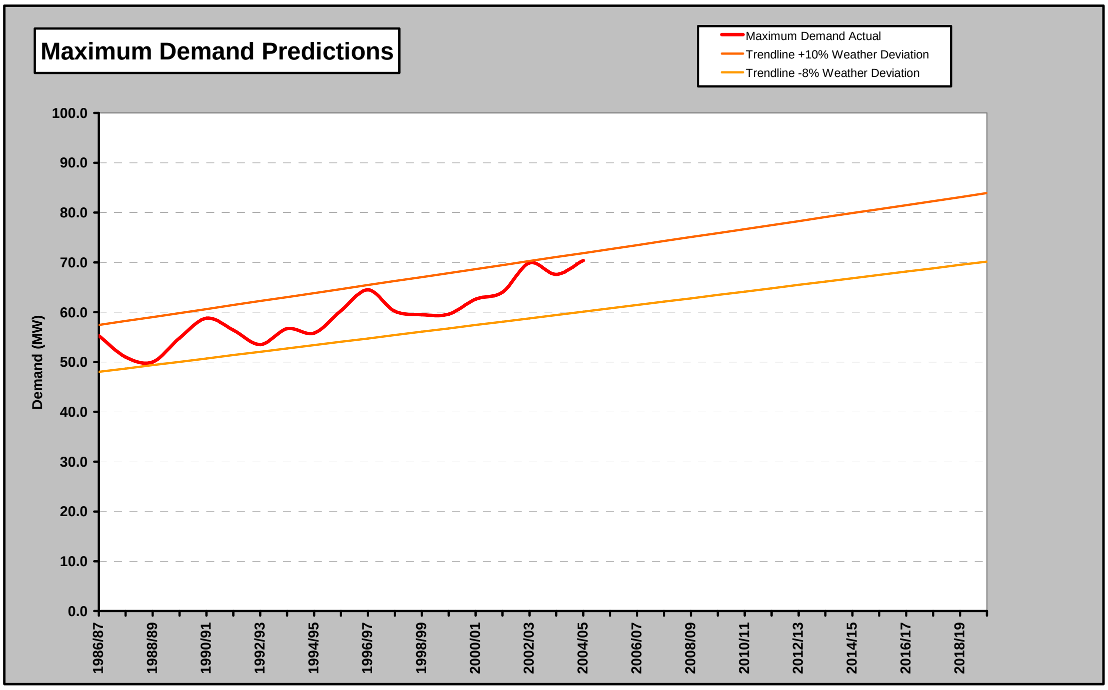

FIGURE 8

Based upon the upper planning margin for maximum demand, the effect of planned plant retirements can be demonstrated, as shown in Figure 9. This is based upon the following assumptions:

- Total plant capacity is the sum of local installed plant plus the minimum capacity from the cable link (that being the power guaranteed by long term contract i.e. 16MW).
- The capacity of the largest two sets is subtracted for planning purposes to allow for maintenance and/or breakdowns. The plant capacity remaining after the capacity of the two largest sets has been subtracted is referred to as "Firm" capacity and the graphs of this capacity are shown as the "n-2" criteria.
- The base case shown in Figure 9 allows only for natural growth in demand and does not account for the effect of any power intensive development.

This demonstrates that existing plant capacity is expected to be sufficient until about 2014, based upon the assumptions made.

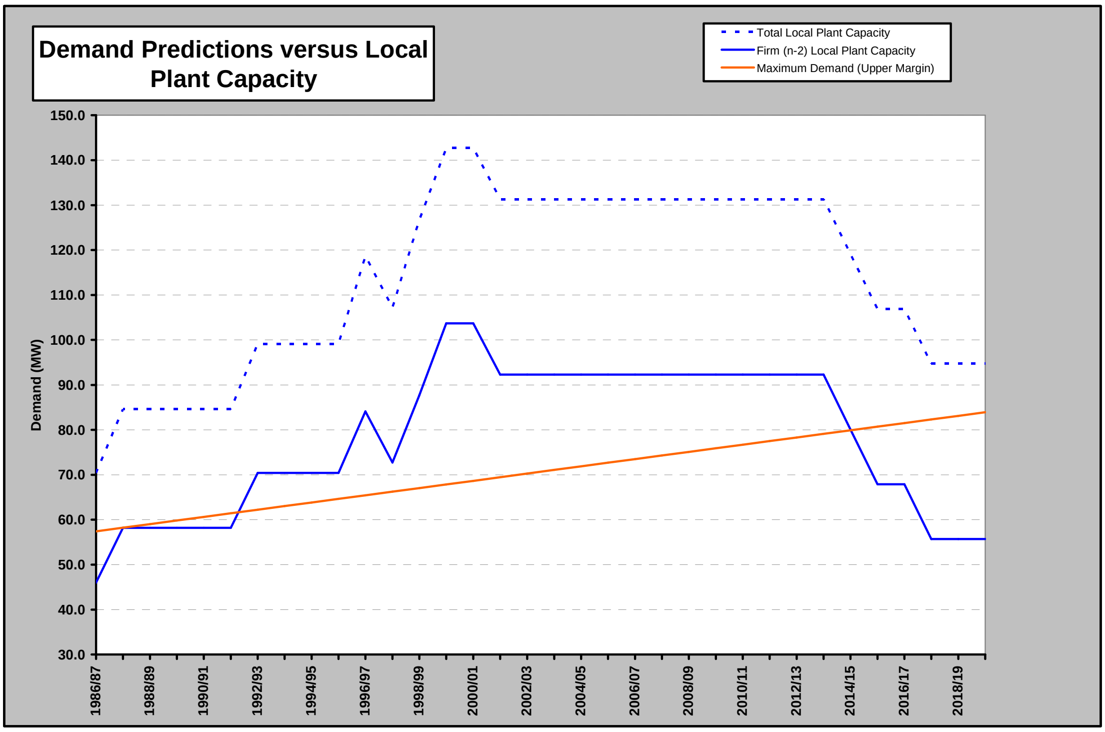

FIGURE 9 BASE CASE CAPACITY AND DEMAND CHART, WITH ONLY NATURAL GROWTH AND EXCLUDING THE ENERGY FROM WASTE PLANT

2.4.2 Economic Power Production

In addition to simple installed capacity considerations, there is also the need to balance between high capital cost, high efficiency plant for base load and lower capital cost, low efficiency plant for peak lopping and standby duties.
Base load plant, whilst being more expensive to purchase and install, will be more efficient and cheaper to operate. Provided the operational savings outweigh the additional capital costs, then base load plant will be more effective over its lifecycle.

Gas turbine plant is significantly cheaper than slow-speed diesel plant to purchase and install. For peak lopping and emergency duties (requiring relatively few running hours per year) then Gas Turbines represent the lower lifetime cost.

The chart shown as Figure 10 illustrates the operating cost comparison for a typical base load generator and a typical fast start generator.

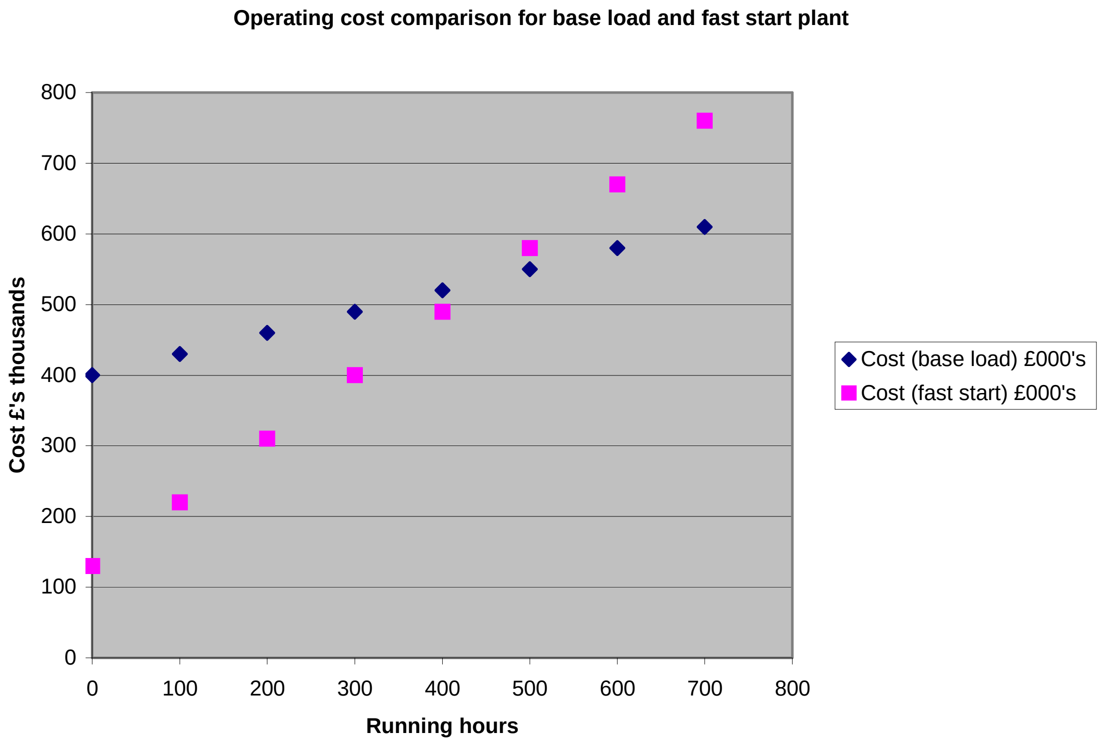

FIGURE 10 OPERATING COST VERSUS RUNNING HOURS FOR TYPICAL BASE LOAD AND FAST START GENERATORS

It will be seen that for this example it is less expensive to operate the fast start machine provided it is used for 500 hours or less per annum.

The chart shown as Figure 11 illustrates the period of time for which the power system load in the island is above any power demand level.

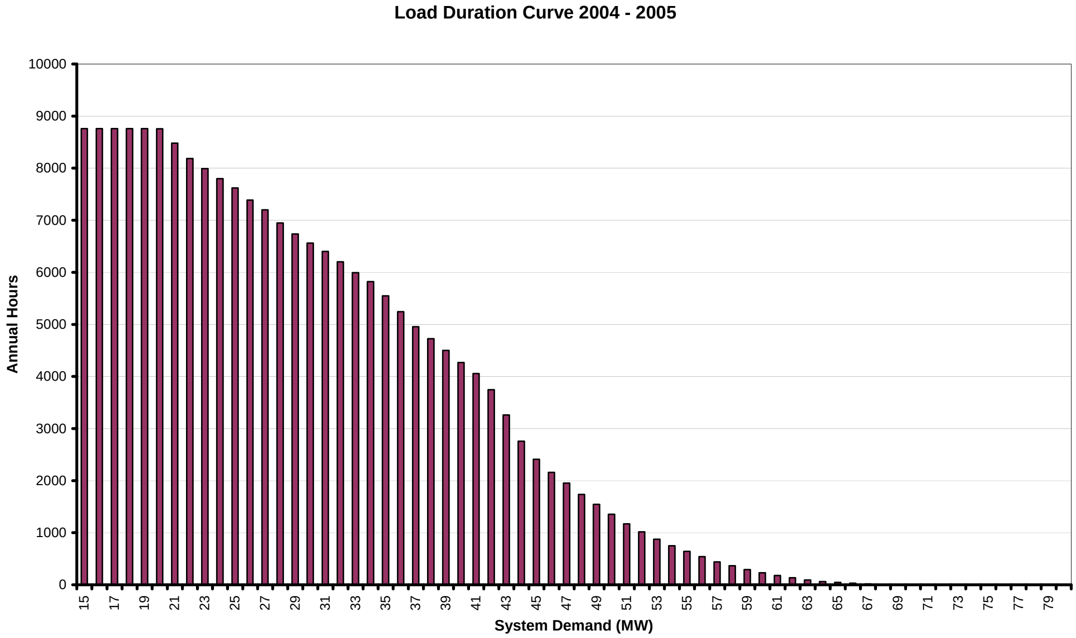

FIGURE 11 LOAD DURATION CURVE FOR THE GUERNSEY POWER SYSTEM

Using the example of Figures 10 and 11, for the costs presented the conclusion would be drawn that it most economic to plan to operate fast start plant for all loads greater than approximately 49MW.

2.5 OPERATIONAL ISSUES

A number of issues directly impact on the ability to operate plant in strict merit order and to maximum efficiency, as below.

2.5.1 Maintenance Requirements

The base load diesel generators require periodic maintenance. In particular, major engine overhauls are performed at 10,000 – 12,000 running hour intervals. These require strip-down of the engines and typically take 8 weeks to complete, during which time the engine is unavailable for normal merit order operation. Overhauls are usually scheduled in the summer months when demand is lower.

2.5.2 Operational Restrictions

Certain restrictions exist that prevent various running plant conditions or combinations of plant from being operated. These restrictions have a bearing on the ability to operate under strict merit order.

- The slow speed diesel engines should not be operated continuously at low load condition (manufacturer's recommendation). Specifically they should not be operated at below 50% of maximum rating for longer than one hour at a time.
- To maintain site steam heating availability from exhaust gas boilers on the diesel plant, the engine providing the on-line exhaust gas boiler typically needs to operate at above 75% of maximum rating. Failure to do so may require the use of more expensive diesel fired auxiliary boilers.
- Generators 2C and GT3 may not be operated together, due to electrical current restrictions on the 11kV busbars. This restriction will be removed when GT3 is moved onto the new 33kV busbar at the Vale site.
- There is a limit as to how quickly the slow speed diesel plant can be started and loaded, imposed largely to thermal considerations (manufacturer's recommendation). At times of rapid changes in system demand (e.g. early morning) additional plant is started in advance of actually being required, to reduce loading rates.

2.5.3 Import Power Limitations

Unlike most products which can be stored until needed, electricity is generally produced at the same time as it is used. There must, therefore, always be an exact balance between production and consumption. For an island system, such as Guernsey's before the interconnector was established, it is necessary to provide a system to reduce load quickly in the event of an unexpected generator failure.

Such a system, known as fast acting automatic load shedding, has been in service with Guernsey Electricity for some years, the current system having been designed and developed by the company's own staff. Although the system is very necessary to protect the bulk of customers from power failures, should a generator fail then some customers will lose power.

The interconnector to Europe provides the island with access to a very large pool of generators, so that any loss of a generator on the local system will have no effect so far as customers are concerned, the generator power lost being immediately made up by additional import.

For this reason alone it is prudent to keep the interconnector in service for as much time as normal maintenance will permit, and to keep it in service and stable it is necessary that some power is transferred through it all the time, regardless of the economics of power import at the time.

For technical reasons the minimum power transfer is approximately 5MW, contractual considerations require 16MW to be imported as a minimum for the majority of the time

2.5.4 Fuel Storage

Heavy Fuel Oil storage capacity is approximately 11,000 tonnes. Typically stock levels are maintained at 6,000 – 10,000 tonnes. When the total island demand is provided only by local generation, up to 1,600 tonnes of heavy fuel oil is consumed per week, giving a minimum normal fuel supply of about four weeks Heavy fuel oil is imported directly in bulk, shipments can only be delivered at high tide periods.

Gas Oil storage capacity will soon increase to 1,080 tonnes, replacement tanks are to be located in two locations within the Power Station site, creating diversity of supply and security through the ability to gravity feed the Gas Turbines. Typically stock levels are maintained at 500 –700 tonnes. The Gas Turbine generators consume gas oil at up to 17 tonnes per hour (GT2, GT3 and GT4 at full load). Gas oil is delivered by road tanker from local suppliers.

2.6 System Load Shedding Considerations

Given that there is only a single interconnector then status information from any large generating plant is required to be connected to the central load shedding system operated by Guernsey Electricity. In general, any plant subject to central dispatch will be required to be connected to the load shedding system.

3. THE CONVEYANCE AND SUPPLY NETWORK

3.1 THE STRUCTURE OF THE CONVEYANCE NETWORK

The structure of the network is determined by the centre of generation in the north of the island, and a load delivered to a densely populated island, similar to urban densities in the UK. Generation is at 11kV, with distribution at 33kV and 11kV.

The interconnector from Europe (via Jersey) lands at Havelet Bay, but the point of connection into the system is at Barkers Quarry, midway between Les Amballes and the Power Station. Here the 90kV supply is stepped down to 33kV, and the power transmitted back to the load through feeds to Les Amballes and the 33kV switchboard at the Power Station.

In order to deliver large loads over a distance, whilst minimising losses, there are three existing bulk supply points, 33kV at Kings Mills delivering load to the south and west coasts, Les Amballes, delivering load to St Peter Port and Bellegreve, delivering load to the North of St Peter Port. The island is sectorised, using an 11kV ring system for the primary system (14 off), and (6) individual 11kV radial secondary systems. This assists in load shedding duties.

3.2 ACTUAL AND FORECAST DEMANDS

The highest maximum demand to date was 70.4MW on 1st March 2005, and the network is modelled using this figure for maximum demand. Drawing T5122, given in Appendix 4, illustrates the percent loading of the primary cables running in a ring regime. The three phase fault level (assuming both link and on site generation) is also shown by each busbar.

3.2.1 Sectoral divisions

There are 14 Primary and 6 Secondary sectors on the network. Each has a particular make up of load types. Details of the existing and known future loads of each sector are presented in Appendix 2.

3.2.2 Total Island Analysis

Guernsey Electricity groups energy customers into the following types, the total annual consumption for each is also shown. Data taken from Guernsey Electricity account records for the year 01/04/04 to 31/03/05.

	Number of meters	**% of total**	**Annual load (GWh)**	**% of total**
Domestic	24123	83	148	47
Commercial	2334	7	67	21
Industrial	267	1	12	4
States	552	2	32	10
Finance	248	1	20	6
Tourist	486	2	25	8
Horticulture	967	3	8	3
Other	241	1	4	1
Total	29,218	100	316	100

	Number not metered	**% of total**	**Annual load (GWh)**	**% of total**
Public Lighting	2157	100	1	100
Total	2,157		1	

Social Factors - Population

There is a direct relationship between Maximum Demand, consumption and population. It can be seen from the graphs shown as Figures 12, 13 and 14 that the number of energy customers has levelled out over the past 20 years at 45% of the total population. The Strategic and Corporate Plan states that there will be no overall increase in population. However, there is a trend towards smaller family units for the same population figure, so the number of energy customers will continue to increase. This can be related to the expected release of property, set by IDC at 250 housing units per year. It can also be seen that consumption per customer, and hence per household is increasing.

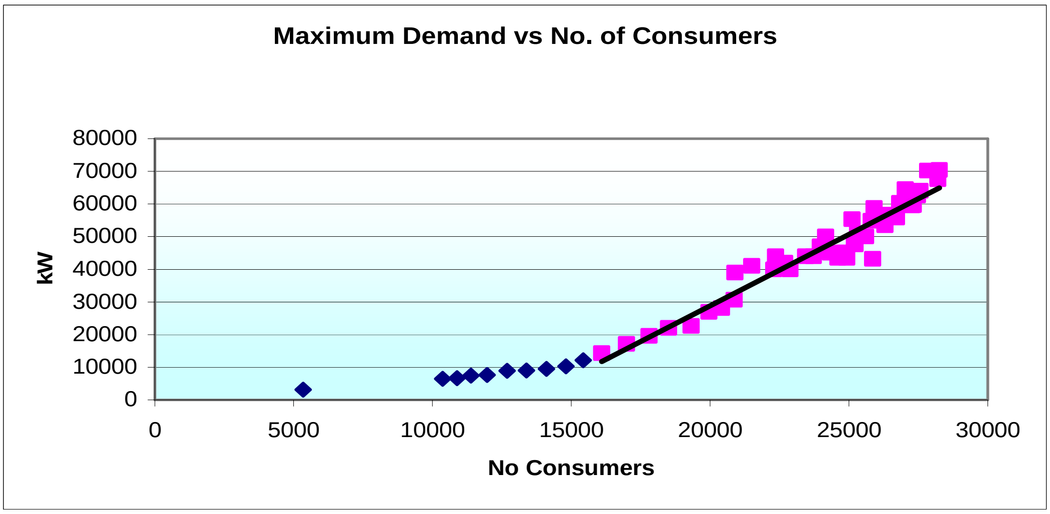

FIGURE 12

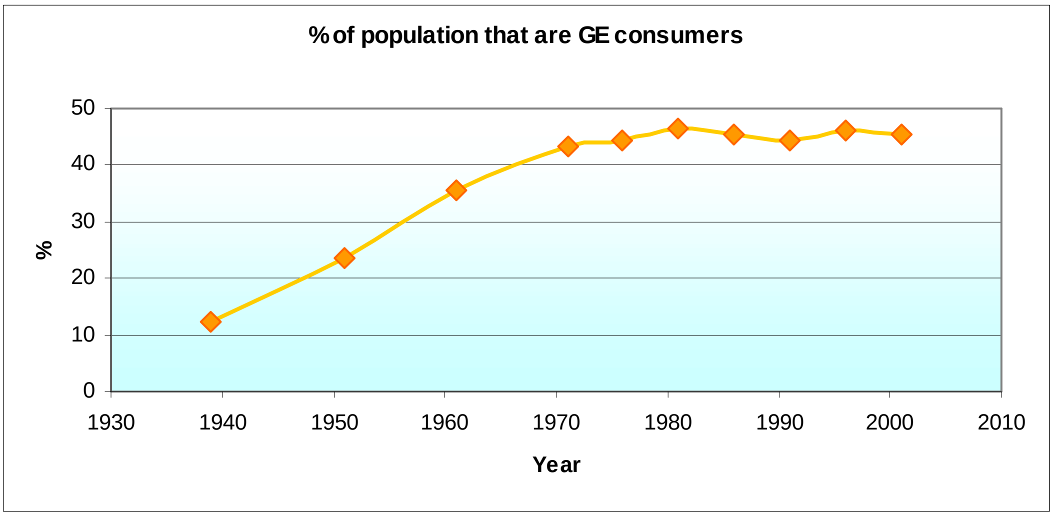

FIGURE 13

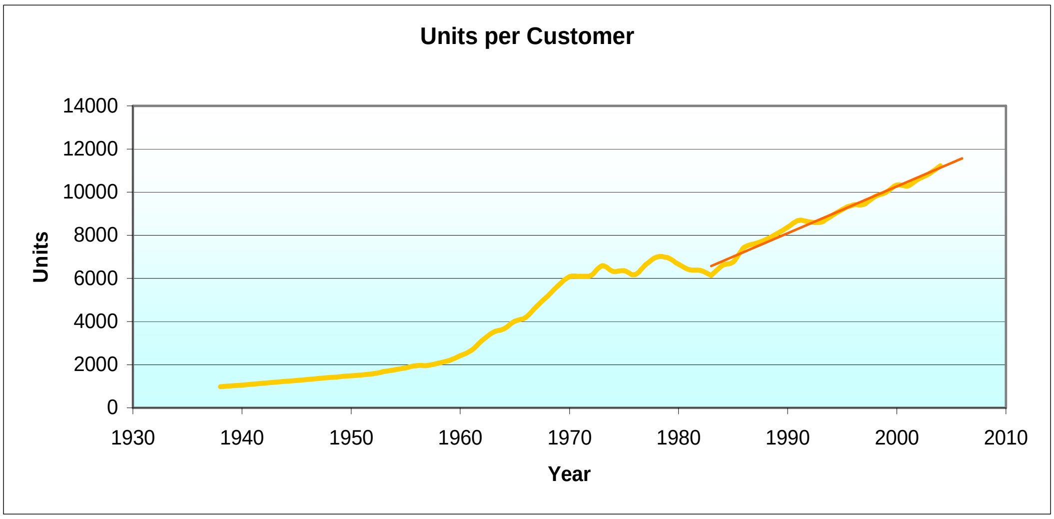

FIGURE 14

Environmental factors

The relationships between weather conditions and the maximum demand are reasonably understood. For Guernsey, the graph shown as Figure 15 shows daily average temperatures and maximum demand, and demonstrates the strong correlation. This correlation does not apply to Brown, Grey, Town B and Town C sectors due to their load types. Weather data supplied by the Guernsey Airport Meteorological Observatory.

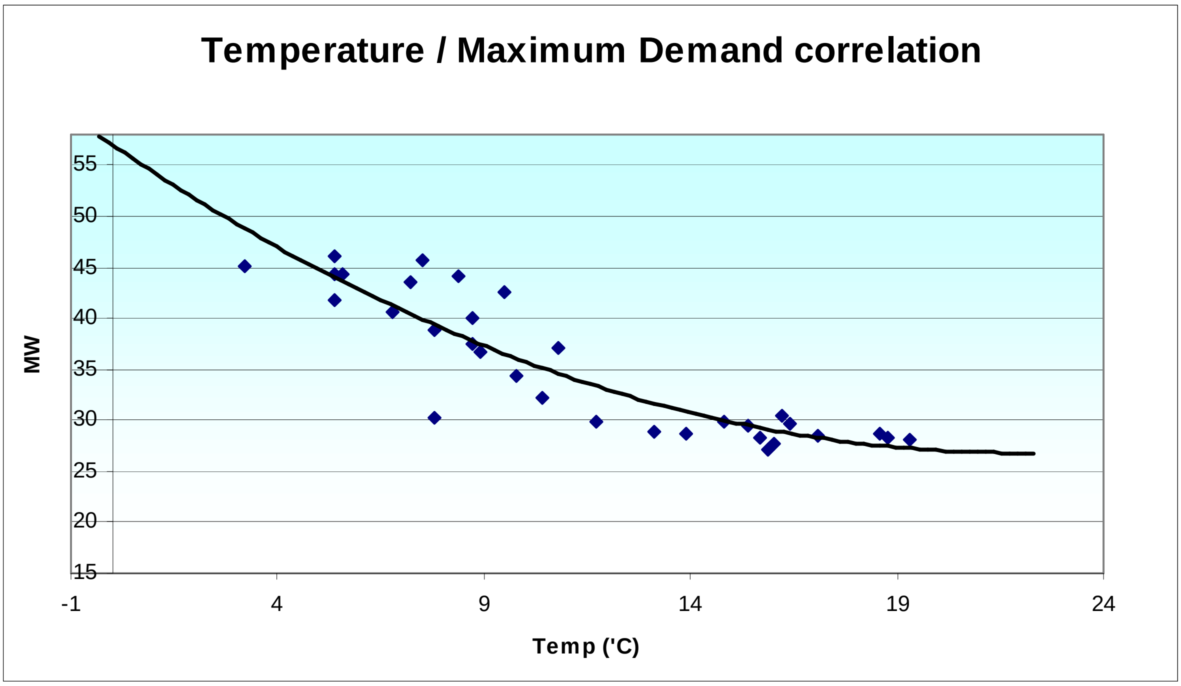

FIGURE 15

Policy factors affecting system load

- IDC development plans directly affect potential load type and consumption.
- The promotion of e-commerce centres and Waste to Energy plants could have significant potential impact.
- Recognition of the Kyoto Protocol, and the Strategic and Corporate plan will impact on energy efficiency targets.

Technological factors

The size and number of sectors is reviewed regularly to maintain effective delivery of energy to customers, as is the position and number of bulk supply points.

3.3 KNOWN POTENTIAL ADDITIONAL LOADS

Using the Environment Department's Urban Area Plan, Rural Area Plans and regular discussions it is possible to predict some of the possible network developments. When the land release translates into a developer making an application for additional load depends upon market forces.

There is also considerable uncertainty about the load that any development will apply to the power system, since the area, type and equipment levels within building developments change regularly and repeatedly to suit market demand. Any predictions made about the loadings of new developments must, therefore, be treated with appropriate caution.

In addition to new build, there are often substantial refurbishments carried out to existing building stock which usually increases the demand on the power system. Some of the natural growth in energy demand stems from such development.

3.4 NETWORK STRENGTHS AND WEAKNESSES

3.4.1 Strengths

- Primary ring system provides reliability of supply to the backbone of the network.
- Potential to accept organic growth for the next five years, and for longer in many locations.
- Underground cables provide reliability.
- Network developments already underway to provide for identified new load and to reduce risk from older primary cables.
- Partial discharge and insulating oil analysis techniques in use to reduce likelihood of faults.
- Fast acting load shedding in use to reduce chance of network collapse.
- Interconnected supply network improves reliability and assists in voltage control.
- Modern diagnostic tools assist rapid fault detection and clearance.

3.4.2 Weaknesses

- Park St to Fort Road- reinforcement plans have been made and the currents on the cable are being monitored.
- Many primary cables and some switchgear are in the region of forty years old, but risk reduction and replacement programmes are in place.

3.4.3 Locations for new load

Although the network is generally perfectly capable of accepting normal domestic and commercial loads anywhere in the island, subject to local reinforcement, developers considering projects with potential power demands in excess of 1MW would be well advised to make early contact with Guernsey Electricity to establish the availability of power in their particular circumstances.

In general terms such developments will be most economic to service if they are located to the north and east of the island, where the physical distance from principal power system assets is minimised.

3.5 NETWORK PLANNING

The planning drivers for network development/reinforcement/replacement are as follows:

- age of cables/plant
- condition of cables/plant
- results from diagnostics (such as partial discharge tests)
- loading and load cycle of cables and plant

Over the last 30 years there has been a deliberate policy of removing overhead mains and services. There now exists only 11 km of overhead mains and services on the network, and these are expected to be removed, where economically and technically feasible.

The development plan of the 33kV system, with additional Bulk Supply Points at the following sites has been drawn up. Expected sites are:

- Formation of 33 kV ring between Bellegreve, and Kings Mills (2004), was part of e-commerce development, but has now been included within strategic review of network.
- Upgrading cable capacity between Barker’s Quarry and Power Station, again part of strategic review.
- Ville au Roi / Vauquiedor area, depending on load growth.

In addition to these major developments a number of other network developments are planned to maintain network availability and remove known weaknesses. The nature of these developments means that they are not usually planned more than two years ahead. Given the increasing difficulty faced in gaining access to roadways it is likely that this planning time will have to be increased.

Significant network developments planned for the financial year 2005/6 include:

1. Additional earthing transformers and resistors at Vale
2. Refurbishment of Braye Industrial primary substation
3. Replacement secondary 11kV switchgear at St. Peters
4. Royal Hotel and Glategny Esplanade developments
5. Admiral Park Phase Three development

The network development spreadsheet given in Appendix 5 illustrates the building developments which can be deduced from the IDC plans or which Guernsey Electricity has been otherwise informed of. Network loadings are estimated from standard consumption data and may not reflect the consumption of the finished developments.

REFERENCES

1. IDC Draft Urban Development Plan

2. 2001 Bailiwick of Guernsey Census Results

3. States of Guernsey Advisory & Finance Committee - 2003 Policy & Resource Planning Report

4. States of Guernsey Advisory & Finance Committee – 2003 Social Economic, Environmental Trends & Statistics Review

5. GEE Energy Saver Guide

4. LOAD AND GENERATION GROWTH

4.1 NATURAL DEMAND GROWTH

Since 1990 the trend in energy demand shows an average annual increase in the order of 3%. Clearly this increase in demand reflects the relative prosperity of the population and the continuing advance of island businesses. The present activity in the building industry for the construction of all manner of new developments does not suggest any significant downturn in this rate of growth over the period to 2007.

Whilst the levels of energy sales have been growing annually, the actual maximum demand on the network has not significantly increased beyond February 2003 levels. The system maximum demand is influenced by many things, but the weather is extremely important. The relatively mild winter weather of recent years has undoubtedly been a major factor in the flat levels of maximum demand of the last five years. Other factors are the increased penetration of the Economy 12 tariff to domestic and commercial customers, which encourages off-peak demand.

In assessing the need for new plant and network capacity maximum demand is assumed to grow by 2% annually, and sensitivity analyses conducted around this figure, see Figure 8.

4.2 ABILITY OF THE NETWORK TO ACCEPT INCREASED LOAD

The power system's ability to accept new loads should be considered under two headings:

1. Conveyance and supply network ability.
2. Generation and importation plant ability.

In section 3 and Appendices 2 to 5 the basic capacity, loading and forecast loads, of each sector of the conveyance network is explained, along with known weaknesses.

In considering the ability of the system to accept new load, the following guidance is offered.

Loads of up to 10kW, such as a single domestic property, can normally be accommodated with a simple connection to the existing supply network.

Loads in the range 10 – 100kW, such as a commercial property or a number of domestic properties, may require a new supply cable to be laid from the nearest conveyance network substation, a plant upgrade at that substation or a new substation.

In both the above cases the critical factor in determining the lead time will probably be obtaining permission for any necessary roadworks. In roads that have recently been resurfaced, the Public Services Department Code of Practice prevents excavation for a period of three years other than in exceptional circumstances. In other roadways a shorter lead time of three to six months is more normal.

Where it is necessary to construct a new substation, obtaining the necessary legal documentation and planning permission can be expected to take six months, or longer where there are specific legal issues such as boundary or access disputes.

Loads in the range 100kW to 1MW, such as a new housing estate, a hotel or significant commercial development, will normally require the construction of a secondary substation with a lead time as above. In addition it may be necessary to consider reinforcement of the conveyance network in the area.

Loads in the range 1 to 10MW will require detailed individual consideration as it may be necessary to reinforce significant parts of the conveyance system. At the top of this range it is likely that major cable laying will be necessary, possibly over a significant distance. Loads in this range are likely to be achieved in one to two years.

Loads above 10MW will require the most detailed individual consideration as they will have a significant impact not just on the conveyance network but also on the importation and generation infrastructure. The lead time for such a development could be over two years.

In all cases potential users should be aware that the costs of network development to meet their specific requirements will be chargeable to them, less any contribution that Guernsey Electricity may make where the development is of value to other users. The wide variety of such costs prevents the provision of general advice.

The ability of the network to accept new load has been of particular interest to promoters of e-commerce developments. From the foregoing it will be seen that the conveyance network will certainly need significant reinforcement for loads in the order of 10 to 15MW as predicted for some of the major e-commerce developments.

4.3 NEW GENERATION OPPORTUNITIES

In section 2 the generating plant presently available to the system is described and the process for generation planning discussed. It can be seen that opportunities for new generation will occur in the following circumstances:

1. Where demand has risen to a point that quick start plant is being used excessively to support base load capacity.

2. Where new plant can offer significant cost savings over established plant.

3. Where the geographical position of a new load makes the installation of generating plant a more cost effective solution than the installation of network reinforcements.

4. Where existing plant (either base load or quick start) is reaching the end of its life.

In connection with 3 above, it should be pointed out that if network capacity is inadequate, local generation can only be a solution if it is continuously available or if the load it is required to support is non-essential. Such circumstances do occur but are not common. Network capacities are shown in section 3 and associated Appendices.

Local generation is a potential solution to the question of power supply to a major e-commerce development, but could only be practical if issues such as fuel supply, emissions and noise production can be satisfactorily resolved. Given the developed nature of much of the island's land and the limited fuel importation facilities these issues are far from simple to resolve.

4.4 GENERATING PLANT AND IMPORT CAPACITY SUFFICIENCY

Total plant presently available has a nominal capacity of 115.3MW. Importation capacity varies between 16MW and 50MW depending on the time of year and the technical and commercial agreements between GEL, JEC and their energy supplier, currently EdF.

Figure 9 (page 11) illustrates the projected growth of maximum demand against the availability of plant. "Firm" capacity is defined as the capacity of all available generators less the capacity of the two largest machines.

It will be seen that for the base case, with only natural growth in maximum demand, without allowing for the Energy from Waste plant and assuming that 16MW of the cable import capacity can be treated as firm, then the expected maximum demand does not exceed firm capacity until 2014, when the two oldest base load generators are scheduled to be retired.

If the cable capacity cannot be regarded as firm then maximum demand will exceed firm capacity in 2008, and an increase of approximately 8MW above normal growth, as a result of development, would trigger the need for additional generation plant.

There is ample statistical evidence that the cable capacity can be expected to be more reliable than local generation and it has, therefore, been treated as firm at its minimum contractual import level for planning purposes

On this basis, and allowing a four-year build programme for future generation, the system is resilient to an increase in total demand of approximately 16MW.

5. FUTURE MARKET DEVELOPMENTS

5.1 NEW SOURCES OF LOCAL GENERATION

Decision of the States of Deliberation render the future of the Energy from Waste plant difficult to predict, therefore the expected 7MW of local generation has been removed from the Statement of Opportunity until further notice.

It is also anticipated that there will be a number of combined heat and power installations for large commercial premises over the period to 2007. It is unlikely that the aggregate output of such installations will exceed 1MW.

5.2 ADDITIONAL IMPORT CAPACITY

Guernsey Electricity continues to work both individually and with its partner Jersey Electricity on the forward planning of additional import capacity. There are no firm plans yet on this issue and because of the lead times involved, no additional capacity would be available within the five year horizon of this statement.

5.3 RENEWABLE ENERGY

Guernsey Electricity continues to research the techniques available for local production of renewable energy. To date no technology has been identified which will not have production costs in excess of present costs. Notwithstanding the above economic situation, Guernsey Electricity has potentially identified a technically feasible renewable energy solution in Marine Current Turbines and is monitoring closely the prototypes development.

5.4 MARKET DEVELOPMENTS IN EUROPE

Liberalisation of the market for electricity in Europe continues with emissions trading and the general oil market showing strong and significant upward trends. This is expected to impact on the wholesale market price offered. Guernsey Electricity will continue to be cautious in its exposure to the risks in this market place and to place a high priority on continuity and quality of supply.