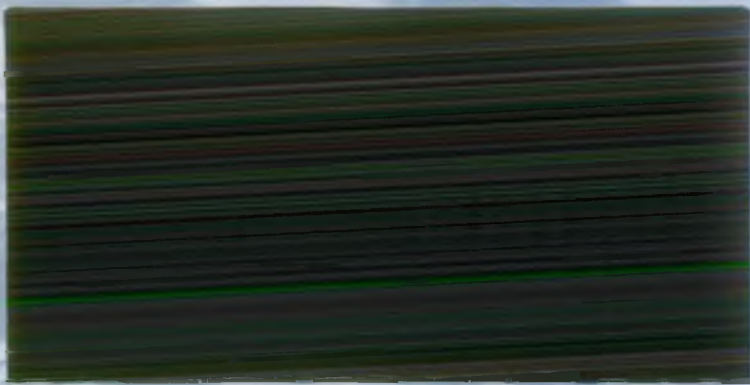


NRA - WATER RESOURCES 77

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Water NATURE'S PRECIOUS RESOURCE

*An Environmentally
Sustainable Water Resources
Development Strategy for
England and Wales*

SUPPLEMENTARY REPORT



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National Rivers Authority

METHODOLOGY AND ASSUMPTIONS
FOR DEMAND SCENARIOS
Supplementary Report No 1
March 1994

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NATIONAL RIVERS AUTHORITY

**WATER RESOURCES DEVELOPMENT STRATEGY
METHODOLOGY & ASSUMPTIONS FOR
PUBLIC WATER SUPPLY DEMAND SCENARIOS**

Supplementary Report No.1

March 1994 Version 3.1

Prepared by: M.H. Sitton

PREFACE

This report is the first in a series of nine supplementary reports which provide supporting information for the National Rivers Authority, Water Resources Development Strategy document.

"An Environmentally Sustainable Water Resources Development Strategy for England and Wales".

The other reports in the series are as follows:-

2. Review of Public Water Supply Yields
3. Marginal Demands
4. Other Options
5. Hydrological Modelling
6. Resource Scheme Costings
7. RESPLAN Modelling
8. Environmental Assessment of Strategic Options
9. National Strategic Overview

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METHODOLOGY & ASSUMPTIONS FOR PUBLIC WATER SUPPLY DEMAND SCENARIOS

1. INTRODUCTION

The following paper details the methodology and assumptions which are employed to produce a set of nationally consistent demand forecasts for each Water Service and Water Supply Company in England and Wales.

A multiple component technique is used for calculating current and forecast demand. Forecast scenarios are described by the combination of a suite of broad based assumptions about future demand. These forecast scenarios delimit the range of forecast between high and low and therefore indicate the predictive demand envelope. The base year has been taken as 1991 with the forecast horizon set at 2021.

Regional variations relating to metering and leakage are recognised with companies being placed into two groups relating to their inclusion in various metering and leakage assumptions. Table 1 shows these company groupings.

Only companies within Anglian, Southern, Severn Trent and Thames regions (areas with particular resource pressures and large demand) are considered for inclusion in metering assumptions.

2. 1991 DEMAND

2.1 Component Modelling and Data Provenance

Figure 1 shows the component build up of the 1991 base demand figure for any one company. For a more detailed description of the calculation of each component please refer to Annex 1. Figure 1 also identifies the data sources necessary for the calculation of each demand component. To summarise these are:-

- OFWAT July Returns to the Director General 1991 and 1993
- OFWAT Cost of Water Delivered Report 1991
- Water Company data supplied to NRA following first consultation on demand forecasts.

**TABLE 1 -
Company Groupings for Metering & Leakage Assumptions**

Company	Inclusion in Metering Assumptions	Inclusion in 1st Order Leakage Assumptions	Inclusion in 2nd Order Leakage Assumptions
Anglian Water	•	•	
Essex Water	•	•	
Cambridge Water	•	•	
Tendring Hundred Water	•	•	
Suffolk Water	•	•	
Southern Water	•	•	
Portsmouth Water	•	•	
South East Water	•	•	
Mid Kent Water	•	•	
Folkestone & District Water	•	•	
Thames Water	•	•	
Three Valleys Water Services	•	•	
North Surrey Water	•	•	
East Surrey Water	•	•	
Mid Southern Water	•	•	
Sutton & District Water	•	•	
Severn Trent Water	•	•	
South Staffs Water	•	•	
East Worcestershire Water	•	•	
Bournemouth & West Hants	•	•	
Bristol Water	•	•	
Cholderton Water	•	•	
Wessex Water	•	•	
South West Water			•
Northumbrian Water			•
North East Water			•
Hartpools Water			•
North West Water			•
Welsh Water			•

Company	Inclusion in Metering Assumptions	Inclusion in 1st Order Leakage Assumptions	Inclusion in 2nd Order Leakage Assumptions
Chester Water			●
Wrexham & East Denbigshire			●
Yorkshire Water			●
Yorks Water Works			●

NB. First order leakage assumptions are more challenging than those of second order. For description of leakage targets see Section 3.4.7.

2.2 Assumptions Underlying the Calculations of Components of 1991 Demand

Figure 1 identifies a number of principle assumptions about the nature of the data used to calculate the base demand. These assumptions can be addressed as follows:-

2.2.1 Company Per Capita Data

Following initial consultation on the demand forecasts it has become evident that the issue of accurate per capita data is as complex as ever and as yet unresolved. In recognition of this complexity, current company estimates of per capita consumption are taken as the basis for projection to 2021. In adopting these data the NRA notes the apparent and sometimes considerable disparity between figures for companies with a geographically and socioeconomically similar status. There is a clear need for companies to strive for the production of robust per capita data, and by adopting company data it is hoped that this process will be encouraged. It should however be noted that in using company per capita data the NRA is in no way endorsing or supporting the figures.

2.2.2 Per Capita Consumption Suppression Invoked by Metering

Metered household consumption is assumed to be 10% less than unmetered households in the existing metered properties identified in the base demand calculations. This assumption is consistent for all companies base forecast years.

Breakdown of Components for 1991 Demand Calculation

Figure 1

	COMPONENT	DATA SOURCES	COMPONENT CALCULATION	UNITS	NOTABLE ASSUMPTIONS MADE	
Distribution Input (MU/d) from Ofwat#2 Table 2 (see Appendix 2)	Unmetered Household	Population : Ofwat#1 or Company Occupancy Rate & Proportion of households metered : Ofwat#1 July Return 1993 PCC data for all companies (excluding SPL)	(Unmetered population * average weighted PCC) / 1,000,000	MU/d	1. July Returns data are accurate 2. Company data are accurate	
	Unmetered Non-household	Ofwat#2 Table 1 and 2	Unmeasured non-household = (iv) * (a) / 100 Refer to Annex 2	MU/d	1. Cost of Water Delivered data are accurate	
	Total Measured	Metered Household	Total Metered calculated from Ofwat#2	Total Metered = (a) * [1 - ((ii) + (iv))] / 100 Metered Household = (population * proportion of props metered) * av weighted PCC * PCC Suppression / 1,000,000 Refer to Annex 2 and 3	MU/d MU/d	1. Cost of Water Delivered data are accurate 2. Per capita consumption is suppressed by 10% upon installation of a domestic meter (factor 0.9)
		Metered Non-household	As above	Total Metered - Metered Household	MU/d	
		Total Treated Water Losses	Ofwat#2 and data calculated above	Distribution Input less components derived above	MU/d	1. Includes supply pipe losses and distribution losses 2. Ofwat#2 data for distribution input are accurate

Key : Ofwat#1 - July Return 1992 (see Annex 3)
Ofwat#2 - Cost of Water Delivered Report, 1992 (see Annex 2)

PCC - per capita consumption
SPL - supply pipe losses

Preliminary information from the metering trials in the Isle of Wight reported by the Parliamentary Office of Science and Technology, 1993, have indicated that the installation of meters in domestic properties results in an average reduction in household consumption of 20%, of which 10% can be attributed to lower customer demand, and the remainder to reduced supply pipe losses which are identified upon installation of meters.

In addition, further preliminary evidence from recent meter trials data analysis suggests that the reduction in household consumption caused by domestic metering may be as much as 20%. However, as a result of consultation and in recognition of the need to consider that this 10% reduction may not be a sustained effect, a 10% reduction in per capita upon metering is not invoked under the high forecast.

2.2.3 Suppression of Supply Pipe Losses Linked by Metering

For the base year, total treated water losses is derived as the residual of distribution input after other components have been accounted for. Thus, if total treated water losses is reported as a 'night flow' value in l/prop/hr it is an average value with metered properties being assumed to have a lower value commensurate with their reduction in supply pipe losses. In subsequent years total treated water loss is directly calculated on the basis of total treated water losses per property ('night flows'). A saving on the night flow figure is therefore assumed for existing and new domestic metered properties. The level of this saving is 1.5 l/prop/hr and reflects the comments received during consultation with companies.

3. FORECAST DEMAND

3.1 Timeframe

The timeframe for the demand scenarios are as follows:-

- Start date is 1991 with planning horizon of 2021
- Calculation intervals are 5 years ie, 1996, 2001, 2006, 2011, 2016 and 2021

3.2 Demand Assumptions

The demand assumptions which can be combined to produce the forecast scenarios are identified in Figure 2. The scenarios which are built up using these assumptions can be described as follows:-

**FIGURE 2 - ASSUMPTIONS AND COMBINATIONS
WITHIN EACH DEMAND SCENARIO**

No.	Assumptions	Assumptions for Each Scenario				Broad area of effect
		High	Medium	Low		
1.	Growth of per capita consumption by compound annual rate of 1%. Per capita figures are constrained to a maximum of 180 l/ld.	•				Per Capita Consumption Growth
2.	Growth of per capita consumption by compound annual percentage rates derived from Birnie & Herrington, 1992 Effects of Climate Change on Water Resources and Demands. Per capita figures are constrained to a maximum of 180 l/ld.		•	•		
3.	Growth in metered and unmetered non-household consumption by compound annual rate of 0.75% (for all companies).	•				Commercial Growth
4.	Growth in metered and unmetered non-household consumption by compound annual rate of 0.5% (for all companies).		•			
5.	No growth in metered and unmetered non-household consumption above 1991 levels.			•		
6.	No increase in the proportion of domestic metered properties subject to metering above 1991 levels (for all companies). Existing metered properties PCC not reduced by 10% in recognition of the uncertainty associated with such a reduction. Assumed leakage reductions of 1.5 l/prop/hr to account for decreased SPL in existing metered properties.	•				Metering
7.	For companies in Anglian, Severn Trent, Southern, Thames and Wessex regions 15% of domestic properties will have meters by 2021 (starting in 1996, with equal phasing each year) leading to a 10% reduction in per capita consumption and a reduction in total treated water losses of 1.5 l/prop/hr to account for reduced SPL in metered properties. Other regions Assumption No.6 applies.		•			
8.	For companies in Anglian, Severn Trent, Southern, Thames and Wessex regions 30% of domestic properties will have meters by 2006 (ongoing from 1996, with equal phasing each year) leading to a 10% reduction in per capita consumption and a reduction in total treated water losses of 1.5 l/prop/hr to account for reduced SPL in metered properties. Other regions Assumption No.6 applies.			•		
9.	Leakage levels per property held at 1991 levels to simulate the effects of no improvements being made to reduce leakage levels. If existing leakage is above 14.5 l/prop/hr then it is constrained to this figure at a rate of reduction of 0.5 l/prop/hr/yr.	•				Leakage
10.	Leakage reduction achieved affecting a reduction in total treated water losses to the following levels in the companies in the regions indicated:- (rate of reduction is 0.5 l/prop/hr/yr). 7 litres/property/hour (20 hour day) in Anglian, Severn Trent, Southern, Thames and Wessex; 11 litres/property/hour (20 hour day) in other regions.		•			
11.	Leakage targets achieved effecting a reduction in total treated water losses to the following levels in the companies in the regions indicated:- (rate of reduction is 1 l/prop/hr/yr). 6 litres/property/hour (20 hour day) in Anglian, Severn Trent, Southern, Thames and Wessex; 10 litres/property/hour (20 hour day) in other regions.			•		

Notes: PCC is Per Capita Consumption
SPL is Supply Pipe Leakage

3.2.1 High Demand Scenario

This scenario is defined as the line which describes the maximum feasible increase in demand. This line forms the upper boundary of the demand envelope and is based on the assumptions indicated in Figure 2.

3.2.2 Medium Demand Scenario

The medium scenario can be defined as the line which shows a modest set of assumptions on per capita growth, metering and leakage. It is important to note that this line is not regarded as a preferred or most likely line relative to the other two scenarios. The scenario comprises the assumptions indicated in Figure 2.

3.2.3 Low Demand Scenario

This can be defined as the line described by the set of assumptions which indicate the minimum increase (or even decrease) in demand to 2021. This scenario forms the lower boundary of the demand envelope as is based on the assumptions indicated in Figure 2.

3.3 **Methodology and Data Provenance for Demand Scenarios**

A detailed description of the methodology and data provenance for the calculation of each component of demand under each scenario is given in Annex 1.

3.4 **Assumptions Underlying Demand Scenarios**

Of key importance to the methodology outlined above are a variety of assumptions made about specific data inputs and the derivation of the demand scenarios noted in Figure 2. These assumptions are made as a result of consideration of the various forecast alternatives and the data which are currently available to model these alternatives. The assumptions also take account of the need to examine future demand scenarios on a nationally consistent basis and without bias towards one company or another.

3.4.1 Quality of Input Data Sources

A number of 'fixed' input data are used throughout the demand calculations, particularly in the base demand assessment for 1991. These fixed data sources are as follows:-

- OFWAT (1992) Cost of Water Delivered Report. (Annex 2)

- Per Capita Consumption Data and assumptions from July Returns 1993 & Binnie & Herrington, 1992. (Annex 3)
- OFWAT July Returns Data 1991. (Annex 3)
- Company Population Forecasts where available; CACI forecast where not. (Annex 4)
- Occupancy rates derived from data in DoE 'UK Strategy for Sustainable Development'. (Annex 5)

The assumption is made that these data represent the best, if not the only, available data on which to base nationally consistent assessment of demand.

3.4.2 Population Data

Population figures to 2021 are those given by companies. Where these were unavailable OFWAT July returns were used in conjunction with CACI forecasts for 2021 and a linear interpolation between these two dates. Where company data was incomplete gaps in the time series were filled by linear interpolation or extrapolation as appropriate. The company population data are shown in Annex 4.

Any population forecast data from whatever source can only represent a view of the most likely way forward at the time of preparation. It is not possible to make exact predictions of population growth and how this will affect future demography. Nevertheless the use of company data is believed to represent the best available data extending to 2021.

3.4.3 Occupancy Rate and Households

Occupancy rates for domestic properties in 1991 are derived from OFWAT July returns data, since this is the best data available to the NRA for 1991. The rate of change in occupancy between 1991 and 2021 is derived from an analysis of data presented in the Department of Environment document entitled UK Strategy for Sustainable Development. These data described a decline in occupancy rate over the planning period of approximately 7.6%. The assumed occupancy rates for each company are shown in Annex 5.

These calculated occupancy levels are then used in combination with the population estimates explained in 3.4.2 above, to derive the household numbers for future years. This was considered to be the best way to obtain household numbers since any discontinuities year on year are avoided. It is also important to use data explicitly related to assumptions on occupancy rate, since this is believed to be an important variable.

3.4.4 Per Capita Growth

The growth factors for per capita consumption used in all but the high demand scenario are derived from data presented in Binnie & Herrington (1992) which indicate how future per capita consumption may be assessed on an individual 'component of use' basis. The data for 1991, 2011 and 2021 given by Binnie & Herrington were described by a line, the equation of which was used to calculate the annual compound percentage growth factors shown in Annex 5. These rates are built into the calculation of metered and unmetered household demand.

The rate of 1% compound growth incorporated within the high demand scenario is intended to indicate the upper extent of per capita consumption growth suggested by the Binnie & Herrington data.

Under the low and medium demand scenarios the rate of per capita growth is constrained to a maximum of 180 l/h/d. This maximum reflects a proposed upper limit for consumption at 2021 based on a component of use analysis of households in the south and south east of England. It is recognised that this limit may be artificial, however given the uncertainty in initial per capita figures as the start of the planning period, this limit is believed to be appropriate. For similar reasons, under the high demand scenario per capita growth is constrained to 189 l/h/d. This figure is 5% higher to account for the unpredictability of the upper limit for per capita consumption.

3.4.5 Growth of Non-Household Demand

Under the high and medium demand scenarios unmetered non-household and metered non-household demand are considered to grow at an annual rate of 0.75% and 0.5% respectively. This is intended to indicate the upper extent of any growth in these components as well as the effect of modest growth. Zero growth under the low scenario is intended to show the effect of increased charges for discharges.

3.4.6 Domestic Metering Assumptions

Within the demand scenarios a number of assumptions have been made about future levels of domestic metering. The suppression of per capita and reduction in total treated water losses invoked by metering has already been discussed under 2.2.2. However, other assumptions about metering need to be considered.

In constructing the demand scenarios, three assumptions about meter penetration were made:

- 30% meter penetration within domestic properties by 2006 in Anglian, Severn Trent, Southern, Thames and Wessex regions.
- 15% meter penetration within domestic properties by 2021 in Anglian, Severn Trent, Southern, Thames and Wessex regions.
- No further metering of domestic properties.

The NRA believes that it may not be appropriate for companies in areas without resources pressures to seek to achieve these levels of domestic metering. Therefore companies in regions other than Anglian, Severn Trent, Southern, Thames and Wessex do not have the meter penetration assumptions applied.

(i) ***30% Metering***

The 30% meter penetration assumption outlined in the low forecast is intended to represent the effect of a modest level of metering in domestic properties.

(ii) ***15% Metering***

The 15% meter penetration assumption outlined in the medium scenario is intended to represent a slow increase in domestic meter penetration. In reality the extent of domestic metering will probably increase in the range of 15% to 30%. This will be due to company policy to meter new properties as well as other additional metering policies, although it is recognised that these may change in time.

(iii) ***No Additional Domestic Metering***

The 'no further metering' assumption used in the high demand scenario, shows the effect of low meter penetration as a result of a policy of not metering domestic properties. Although current policy is to meter all new properties it is felt necessary under the high forecast to embrace the possibility that this policy may change. Existing proportions of domestic metering are held constant throughout the forecast period leading to a small increase in metered properties relative to total properties.

3.4.7 Leakage Assumptions

Two alternatives regarding levels of leakage are incorporated within the demand scenarios, and these can be addressed as follows:-

(i) *Low Demand Scenario*

Within the low demand scenario leakage targets are set for companies in specific regions. These are:-

- 6 l/prop/hr for companies in Anglian, Severn Trent, Southern, Thames and Wessex regions.
- 10 l/prop/hr for companies in all other regions

The figure of 6 l/prop/hr is an NRA assumed figure based on information contained in WRC Report No. 26 (Leakage Control Policy & Practice) and is considered to be a reasonable target level for companies in areas with resource constraints.

The figure of 10 l/prop/hr is an NRA assumed figure. This more relaxed figure is intended to acknowledge and take account of the effect of lower levels of stress on resources and factors such as the length of rural mains and other pressure considerations in companies outside Anglian, Severn Trent, Southern, Thames and Wessex regions.

(ii) *Medium Demand Scenario*

Within the medium demand scenario leakage targets are relaxed further as follows:-

- 7 l/prop/hr for companies in Anglian, Severn Trent, Southern, Thames and Wessex regions.
- 11 l/prop/hr for companies in all other regions.

(iii) *High Demand Scenario*

An assumption of no decrease in 1991 levels of leakage is used for the high forecast. This is intended to model the effect of a policy of not increasing efforts to reduce leakage which, although unlikely, needs to be considered under a high scenario. However, an upper limit on leakage of 14.5 l/prop/hr is set.

Under all forecast scenarios any metered properties have their leakage target reduced by 1.5 l/prop/hr. (As described in 2.2.3).

4. SUMMARY

There are a number of key points which are critical to the *raison d'etre* for the above methodology. These have been noted in this report, however it is appropriate to reiterate them at this stage.

- A nationally consistent approach was required for the demand scenarios. Treating the scenarios for each company in a similar way, based on a set of common assumptions is essential in order to produce balanced results which are appropriate for a national water resources development strategy.
- The use of company forecasts (where available), produced using different assumptions would not have resulted in nationally consistent demand scenarios.
- The NRA have used information which is currently available in published documents, internal reports, company returns to the NRA or which are commercially available.
- Where necessary input data and assumptions on demand scenarios have been used and formulated pragmatically in order to overcome inconsistencies or a lack of appropriate data.
- The results produced using this methodology represent the most consistent set of nationally collated demand scenarios data to 2021.

5. DEMAND SCENARIO DATA

Data produced using the above methodology are detailed for each water company in annex 7. The data are in the form of basic model outputs and graphs of distribution input over time.

6. REFERENCES

BINNIE & HERRINGTON (1992) *Effect of Climate Change on Water Resources and Demands*

OFFICE OF WATER SERVICES (1992) *The Cost of Water Delivered to Customers 1991/92 (OFWAT Birmingham)*

DEPARTMENT OF ENVIRONMENT. (1993) *UK Strategy for Sustainable Development.*

PARLIAMENTARY OFFICE OF SCIENCE & TECHNOLOGY. (1993) *Dealing With Drought.* (HMSO)

NATIONAL WATER COUNCIL/DEPARTMENT OF ENVIRONMENT (1980) *Leakage Control Policy and Practice (Standing Technical Committee Report No. 26)*

ANNEX 1

DATA SOURCES AND CALCULATION OF DEMAND FORECASTS

1. POPULATION

- 1991 Actual population from OFWAT July Return (1991/92) by water company or from company returns (Annex 3) - this value is resident population supplied. Population is apportioned into metered and unmetered using data on proportion of properties metered from OFWAT July Return.
- 1996 - 2021 Where available, company data on population forecasts, interpolated and/or extrapolated to fill in missing data where necessary. Where company data is unavailable linear interpolation between OFWAT July Return 1991 values and CACI forecasts for 2020 population. Where necessary total population is assumed to be the same as total connected population.

2. OCCUPANCY RATES

- 1991 Computed from actual population and number of properties per company (See Annex 3).
- 1996 - 2021 Calculated from data on percentage drop in occupancy given in the DoE publication 'UK Strategy for Sustainable Development'. Time series based on 1991 data.

3. PER CAPITA CONSUMPTION

- 1991 Company reported data taken from OFWAT July return 1993 (based on 1992 information). These figures exclude companies own estimates of supply pipe leakage. The 1993 per capita consumption figures are assumed to be similar to 1991 levels.
- 1996 - 2021 Per capita increased by annual compound percentage rate of 1% or rate as specified by Binnie & Herrington (1992) (see Annex 6). Depending upon scenario the data are constrained to 180 l/h/d or 189 l/h/d.
-

4. UNMETERED HOUSEHOLD DEMAND

1991 - 2021 Product of per capita consumption and unmetered properties, given in MI/d. Unmetered population is computed by subtracting the product of metered properties and occupancy rate from total population.

5. METERED HOUSEHOLD DEMAND

1991 Computed from the proportion of actual properties metered in 1991 (see Annex 3) multiplied by per capita consumption, and a demand suppression factor (assumed to be 10%).

1996 - 2021 Depending on the forecasting scenario, a meter penetration ratio is assumed, this proportion includes properties already metered in 1991. The number of occupants in the metered properties is then computed using the appropriate occupancy rate and metered population is multiplied by per capita consumption and the suppression factor (except under the high scenario) to give a metered household demand in MI/d.

6. UNMETERED NON-HOUSEHOLD DEMAND

1991 Computed from OFWAT 'Cost of Water Delivered Report' (see Annex 2). Table 1 viz:

$$\frac{(\% \text{ unmetered non-household of water delivered} \times \text{water delivered})}{100}$$

1996 - 2021 Depending on the demand scenario, a compound growth rate, expressed as percentage per annum is applied. (High forecast = 0.75, Medium forecast = 0.5).

7. METERED NON-HOUSEHOLD DEMAND

1991 Computed by subtracting metered household demand from total metered demand. Total metered demand is computed from OFWAT, 'Cost of Water Delivered Report' Table 1, (see Annex 2), viz:

$$\text{Water delivered} \times 1 - \frac{(\% \text{ unmetered household and unmetered non-household})}{100}$$

1996 - 2021 Depending on the demand scenario, a compound growth rate, expressed as percentage per annum is applied. (High forecast = 0.75, Medium forecast = 0.5)

8. TOTAL TREATED WATER LOSSES

1991 Computed from OFWAT 'Cost of Water Delivered Report' Table 1, (see Annex 2) viz:

Total Treated Water Losses = Distribution input - (metered + unmetered components)

and converted to a rate per property ('night flow') assuming a 20 hour day and specified July return occupancy rate (see Annex 3).

1996 - 2021 Depending on the demand scenario, total treated water losses may be reduced by two methods. The first represents general leakage savings in the distribution system. This method allows a reduction in night flow at a rate of 1 l/prop/hr/year until a minimum lower limit (leakage target) is achieved. (The rate of reduction assumed to be 0.5 l/prop/hr/yr under medium scenario and under the High scenario where leakage levels are constrained to 14.5 l/prop/hr). The second saving, (invoked for metered properties), of 1.5 l/prop/hr from supply pipe leakage may result in night flow values falling below the specified leakage target. This saving is also related to existing metered properties.

A total treated water losses value, in Ml/d, is computed by multiplying the average night flow value (l/prop/hr) by the total number of domestic properties and twenty hours.

9. DISTRIBUTION INPUT LESS TOTAL TREATED WATER LOSSES

1996 - 2021 This is a key step in producing a figure for distribution input. It is the sum of:

Total household consumption + metered non-household and unmetered non-household consumption

10. DISTRIBUTION INPUT

1996 - 2021 This is the sum of 8 and 9 above.

ANNEX 2

Table 1

	(i)	(ii)	(iii)	(iv)				
	<i>Cost to customers</i>	<i>Cost of operations</i>	<i>Cost of capital maintenance</i>	<i>Return on capital</i>	<i>Unmeasured household water del per person l/d</i>	<i>Unmeasured household water del /wat del %</i>	<i>Unmeasured non-h. hold water del per property l/d</i>	<i>Unmeasured non h. hold water del /wat del %</i>
	<i>plm³</i>	<i>plm³</i>	<i>plm³</i>	<i>plm³</i>				
Northern region								
Hartlepoons	39	24	6	9	175	45	292	1
Northumbrian	42	26	10	6	200	58	429	2
York	48	26	11	11	152	65	387	2
North West	51	27	13	11	140	59	673	4
North East	52	29	10	14	160	66	575	3
Yorkshire	53	26	17	10	162	60	352	1
Regional average	51	27	14	11	154	60	558	3
Central/Eastern region								
South Staffs	39	24	8	7	179	69	971	4
Severn Trent	48	26	12	11	146	61	968	4
Essex	50	28	9	13	161	66	1042	4
Cambridge	53	29	9	14	152	62	1117	4
East Worcester	57	36	9	11	178	61	394	1
Anglian	59	30	15	14	169	65	523	2
Suffolk	61	35	15	11	153	52	444	1
Tendring Hundred	82	43	15	24	134	67	1060	6
Regional average	51	27	12	12	157	63	847	3
Wales/South West region								
Bournemouth and W Hants	36	22	5	10	173	47	1482	4
Bristol	42	27	8	6	185	62	1477	11
Wessex	55	33	14	8	152	54	1096	3
South West	56	34	10	12	169	62	1125	5
Chester	57	30	26	1	149	68	1000	3
Wrexham	63	34	21	8	177	63	1333	5
Welsh	65	34	11	19	170	61	1424	6
Regional average	56	32	11	13	169	59	1344	6
South East region								
Portsmouth	33	20	8	5	174	62	738	2
Thames	40	27	6	7	176	59	2243	15
Southern	43	28	12	4	168	60	1630	3
North Surrey	46	27	8	11	162	66	1266	3
Three Valleys	48	30	11	8	166	71	1036	3
Folkestone	52	37	9	5	183	62	1094	5
Mid Southern	52	29	7	16	180	69	619	1
Sutton District	53	35	11	7	168	83	429	2
Mid Kent	59	37	12	10	176	69	588	2
East Surrey	62	30	19	13	206	70	1429	5
South East	86	42	27	17	173	70	776	4
Regional average	45	29	9	8	173	63	1905	9
National average	50	28	11	10	163	61	1190	5

Notes

- 1 Cost to Customers is the cost of operations, plus the cost of capital maintenance, plus the return on capital.
- 2 Cost of Operations is total operating expenditure
- 3 Cost of Capital Maintenance is current cost depreciation plus the infrastructure renewal charge (the latter being the annualised cost of maintaining the condition of long lived assets)
- 4 The Return on Capital is current cost operating profit (before the working capital adjustment).
- 5 The unmeasured non-household per property water delivered figure is derived from company data in the 1992 July Return on water delivered and the number of such properties billed for water.
- 6 The unmeasured household per person water delivered figure includes an estimate of the leakage from customers' supply pipes. It is derived from company data in the 1992 July Return on water delivered and the population for unmeasured households
- 7 Averages are weighted by denominators

Table 2

	(a)	(b)	(c)	(d)	(e)	(f)
	<i>Water delivered</i>	<i>Distribution losses</i>	<i>Distribution input</i>	<i>Water del./ distribution input %</i>	<i>Dist. losses per length of main m³ld/km</i>	<i>Connect prop. per length of main prop/km</i>
	<i>Mll/d</i>	<i>Mll/d</i>	<i>Mll/d</i>			
Northern region						
Hartlepoons	35	4	39	90	7.6	78
Northumbrian	380	55	435	87	6.2	55
York	39	9	48	82	9.1	79
North West	1597	896	2495	64	23.7	74
North East	312	44	357	87	5.7	73
Yorkshire	1110	334	1458	76	10.7	58
Regional total/average	3473	1342	4831	72	15.4	66
Central/Eastern region						
South Staffs	313	43	358	87	7.8	94
Severn Trent	1603	373	1979	81	9.6	76
Essex	338	65	405	83	11.0	101
Cambridge	61	13	74	83	6.3	55
East Worcester	56	17	74	77	9.6	56
Anglian	986	149	1137	87	4.6	51
Suffolk	67	10	77	87	4.6	54
Tendring Hundred	27	5	32	85	5.1	68
Regional total/average	3450	675	4135	83	7.5	68
Wales/South West region						
Bournemouth and W Hants	144	9	154	94	3.5	64
Bristol	292	18	310	94	2.8	70
Wessex	305	96	403	76	9.3	44
South West	376	120	499	75	8.2	46
Chester	25	4	30	85	8.2	79
Wrexham	40	4	45	90	3.2	44
Welsh	743	303	1057	70	12.8	50
Regional total/average	1926	554	2497	77	9.4	51
South East region						
Portsmouth	175	27	202	86	8.1	84
Thames	2086	648	2738	76	21.0	109
Southern	532	117	650	82	9.6	77
North Surrey	110	29	139	79	12.3	74
Three Valleys	536	166	702	76	15.3	83
Folkestone	41	11	55	76	10.5	68
Mid Southern	172	50	222	77	11.3	58
Sutton District	57	9	66	86	8.8	117
Mid Kent	130	25	155	84	6.3	57
East Surrey	92	15	108	85	6.6	59
South East	135	23	158	85	4.8	55
Regional total/average	4065	1120	5194	78	14.6	87
National total/average	12913	3691	16658	77	11.8	69

Table 3

	Cost to customers	Cost of operations	Cost of capital maintenance	Return on capital	Unmeasured household water del per person lid	Unmeasured household water del lwat del %	Unmeasured non-h. hold water del per property lid	Unmeasured non h. hold water del %
	<i>plm</i> ¹	<i>plm</i> ¹	<i>plm</i> ¹	<i>plm</i> ¹				
Northern region								
Hartlepoons	42	26	6	10	142	40	292	1
Northumbrian	50	30	12	8	146	50	429	2
York	49	27	11	11	149	65	387	2
North West	50	26	13	11	146	60	673	4
North East	56	31	11	15	145	64	575	3
Yorkshire	57	28	18	10	146	58	352	1
Regional average	52	27	14	11	146	58	558	3
Central/Eastern region								
South Staffs	45	28	10	8	144	64	971	5
Severn Trent	48	26	12	11	146	61	968	4
Essex	53	29	9	14	147	63	1042	4
Cambridge	54	30	9	15	149	61	1117	4
East Worcester	63	41	10	13	146	57	394	1
Anglian	64	32	17	15	147	62	523	2
Suffolk	62	36	16	11	150	52	444	1
Tendring Hundred	74	39	13	22	155	70	1060	5
Regional average	53	29	13	12	147	61	847	3
Wales/South West region								
Bournemouth and W Hants	38	23	5	10	153	44	1482	5
Bristol	48	31	10	7	149	57	1477	12
Wessex	56	34	14	8	149	53	1096	3
South West	60	36	11	13	151	59	1125	5
Chester	58	30	26	1	147	68	1000	3
Wrexham	71	38	23	9	146	58	1333	6
Welsh	70	38	12	21	147	57	1424	7
Regional average	60	34	12	14	149	56	1344	7
South East region								
Portsmouth	36	22	8	6	151	58	738	2
Thames	44	30	6	8	148	55	2243	16
Southern	46	29	13	4	150	57	1630	3
North Surrey	49	29	9	11	149	64	1266	4
Three Valleys	52	32	12	8	148	68	1036	3
Folkestone	57	42	10	5	152	58	1094	5
Mid Southern	59	33	8	18	147	65	619	2
Sutton District	58	38	12	8	152	81	429	2
Mid Kent	66	42	13	11	149	66	588	2
East Surrey	77	37	24	16	151	64	1429	7
South East	93	46	29	18	155	67	776	4
Regional average	49	31	10	8	149	59	1905	10
National average	53	30	12	11	147	59	1190	6

Notes

- 1 Cost to Customers is the cost of operations, plus the cost of capital maintenance, plus the return on capital.
- 2 Cost of Operations is total operating expenditure
- 3 Cost of Capital Maintenance is current cost depreciation plus the infrastructure renewals charge (the latter being the annualised cost of maintaining the condition of long lived assets).
- 4 The Return on Capital is current cost operating profit (before the working capital adjustment)
- 5 The unmeasured non-household per property water delivered figure is derived from company data in the 1992 July Return on water delivered and the number of such properties billed for water
- 6 The unmeasured household per person water delivered figure includes an estimate of the leakage from customers' supply pipes. It is derived from ACORN adjusted data on water consumption
- 7 Averages are weighted by denominators

ANNEX 3

Annex 3: Water Company Comparisons (OFWAT July Return data 1991/92/93)

Water Company	Occupancy Level * (People)	Proportion of Households metered 1991 *	Total Connected Population (000's) [†]	Per Capita Consumption excluding Supply Pipe Leakage (l/h/d) **
Hartlepoons	2.50	0.0006	90.2	162
Northumbrian	2.46	0.0021	1184.8	146
York	2.54	0.0006	175.0	138
North West	2.52	0.0107	7162.3	127
North East	2.43	0.0055	1320.0	133
Yorkshire	2.44	0.0165	4189.0	126
South Staffs	2.54	0.0306	1221.0	153
Severn Trent	2.56	0.0342	6891.0	129
Essex	2.53	0.0054	1406.0	151
Cambridge	2.72	0.0334	273.2	142
East Worcester	2.55	0.1458	232.2	131
Anglian	2.60	0.0254	3898.0	149
Suffolk	2.45	0.0341	251.0	139
Tendring Hundred	2.22	0.0309	136.0	127
Bournemouth	2.67	0.0181	424.0	162
Bristol	2.57	0.0252	1010.5	157
Wessex	2.63	0.0370	1101.4	136
South West	2.50	0.0328	1435.8	142
Chester	2.75	0.0182	116.0	134
Wrexham	2.67	0.0348	146.7	144
Welsh	2.54	0.0276	2770.0	140
Portsmouth	2.51	0.0006	642.7	164
Thames	2.37	0.0237	7236.5	153
Southern	2.43	0.0952	2146.0	135
North Surrey	2.61	0.0397	466.6	151
Three Valleys	2.60	0.0174	2341.0	150
Folkestone	2.32	0.0158	146.5	144
Mid Southern	2.79	0.0309	709.0	156
Sutton District	2.50	0.0024	269.9	154
Mid Kent	2.64	0.0165	526.7	146
East Surrey	2.60	0.0154	326.4	173
South East	2.51	0.0331	618.8	143

* Based on data from OFWAT July return 1991/92 and Company returns to NRA.

† From OFWAT July returns 1993 (Based on 1992 data)

ANNEX 4

Annex 4 : Water Company Population Forecasts

COMPANY	1991	1996	2001	2006	2011	2016	2021
Anglian	3,898,000	4,040,000	4,187,000	4,303,500	4,420,000	4,513,000	4,606,000
Essex	1,406,000	1,427,000	1,446,000	1,465,000	1,484,000	1,501,000	1,518,000
Cambridge	273,210	288,300	305,300	322,415	339,530	357,554	376,534
Tendring	136,000	143,500	151,000	158,500	166,000	173,855	182,081
Suffolk	251,000	262,000	269,000	275,000	281,000	287,000	293,000
Northumbrian	1,184,800	1,170,000	1,155,392	1,140,962	1,126,713	1,112,642	1,098,746
North East	1,320,000	1,311,900	1,305,400	1,305,400	1,305,400	1,305,400	1,305,400
Hartlepoons	90,200	89,900	89,100	88,300	88,000	88,000	88,000
North West **	7,162,300	7,155,500	7,137,500	7,104,450	7,062,000	7,021,900	6,982,028
Severn Trent	6,891,000	6,992,000	7,105,000	7,140,500	7,176,000	7,202,500	7,229,000
South Staffs	1,221,000	1,219,000	1,219,000	1,218,000	1,218,000	1,218,000	1,218,000
East Worcs	232,300	240,000	246,800	254,300	262,000	269,750	277,500
Southern	2,146,000	2,213,700	2,255,600	2,287,300	2,317,950	2,348,600	2,379,200
Portsmouth	642,703	655,401	668,929	677,095	684,434	691,904	699,446
South East	618,891	642,388	660,653	677,335	694,438	711,974	729,952
Mid Kent							
Folkestone							
South West*	1,435,842	1,471,475	1,530,865	1,591,359	1,648,458	1,705,603	1,762,748
Thames	7,236,553	7,381,000	7,524,000	7,672,000	7,799,000	7,926,000	8,054,000
Three Valleys	2,341,000	2,381,000	2,410,000	2,435,000	2,456,000	2,477,000	2,498,000
North Surrey	466,600	471,900	477,700	483,400	489,200	494,900	500,600
East Surrey	326,450	334,160	337,887	340,572	343,541	346,600	350,080
Mid Southern	709,075	733,745	752,642	765,398	780,249	795,100	811,129
Sutton	269,934	270,759	274,013	276,252	278,080	280,000	280,000
Dwr Cymru	2,770,000	2,810,000	2,850,000	2,870,000	2,890,000	2,900,000	2,890,000
Wrexham	146,769	150,952	155,134	159,317	163,500	167,683	171,973
Chester	116,000	119,790	124,740	131,270	137,790	142,595	147,400
Wessex	1,101,400	1,137,700	1,177,400	1,215,800	1,255,600	1,298,850	1,342,100
Bournemouth							
Bristol	1,010,558	1,027,000	1,041,000	1,054,500	1,068,000	1,081,500	1,095,000
Yorkshire	4,189,000	4,189,000	4,189,000	4,189,000	4,189,000	4,189,000	4,189,000
York	175,000	179,500	184,000	188,500	193,000	197,500	202,000
* SWWL's 'likely' forecast, where 1993 figures used for 1991							
** Average of summer and winter forecasts used							

ANNEX 5

Annex 5 : Revised Occupancy Rates*

COMPANY	1991	1996	2001	2006	2011	2016	2021
Anglian	2.60	2.57	2.53	2.50	2.47	2.44	2.40
Essex	2.53	2.50	2.47	2.43	2.40	2.37	2.34
Cambridge	2.72	2.68	2.65	2.62	2.58	2.55	2.52
Tendring	2.22	2.19	2.16	2.14	2.11	2.08	2.05
Suffolk	2.45	2.42	2.39	2.36	2.33	2.30	2.27
Northumbrian	2.46	2.43	2.40	2.37	2.34	2.31	2.28
North East	2.43	2.40	2.37	2.34	2.31	2.28	2.25
Hartlepoons	2.50	2.47	2.44	2.40	2.37	2.34	2.31
North West	2.52	2.49	2.46	2.42	2.39	2.36	2.33
Severn Trent	2.56	2.53	2.49	2.46	2.43	2.40	2.37
South Staffs	2.54	2.51	2.47	2.44	2.41	2.38	2.35
East Worcs	2.55	2.52	2.48	2.45	2.42	2.39	2.36
Southern	2.43	2.40	2.37	2.34	2.31	2.28	2.25
Portsmouth	2.51	2.48	2.45	2.41	2.38	2.35	2.32
South East	2.51	2.48	2.45	2.41	2.38	2.35	2.32
Mid Kent	2.64	2.61	2.57	2.54	2.51	2.47	2.44
Folkestone	2.32	2.29	2.26	2.23	2.20	2.17	2.15
South West	2.50	2.47	2.44	2.40	2.37	2.34	2.31
Thames	2.37	2.34	2.31	2.28	2.25	2.22	2.19
Three Valleys	2.60	2.57	2.53	2.50	2.47	2.44	2.40
North Surrey	2.61	2.58	2.54	2.51	2.48	2.45	2.41
East Surrey	2.60	2.57	2.53	2.50	2.47	2.44	2.40
Mid Southern	2.79	2.75	2.72	2.68	2.65	2.61	2.58
Sutton	2.50	2.47	2.44	2.40	2.37	2.34	2.31
Dwr Cymru	2.54	2.51	2.47	2.44	2.41	2.38	2.35
Wrexham	2.67	2.64	2.60	2.57	2.53	2.50	2.47
Chester	2.75	2.71	2.68	2.64	2.61	2.58	2.54
Wessex	2.63	2.60	2.56	2.53	2.50	2.46	2.43
Bournemouth	2.67	2.64	2.60	2.57	2.53	2.50	2.47
Bristol	2.57	2.54	2.50	2.47	2.44	2.41	2.38
Yorkshire	2.44	2.41	2.38	2.35	2.32	2.29	2.26
York	2.54	2.51	2.47	2.44	2.41	2.38	2.35

ANNEX 6

Annex 6 : Interpolated per capita consumption data

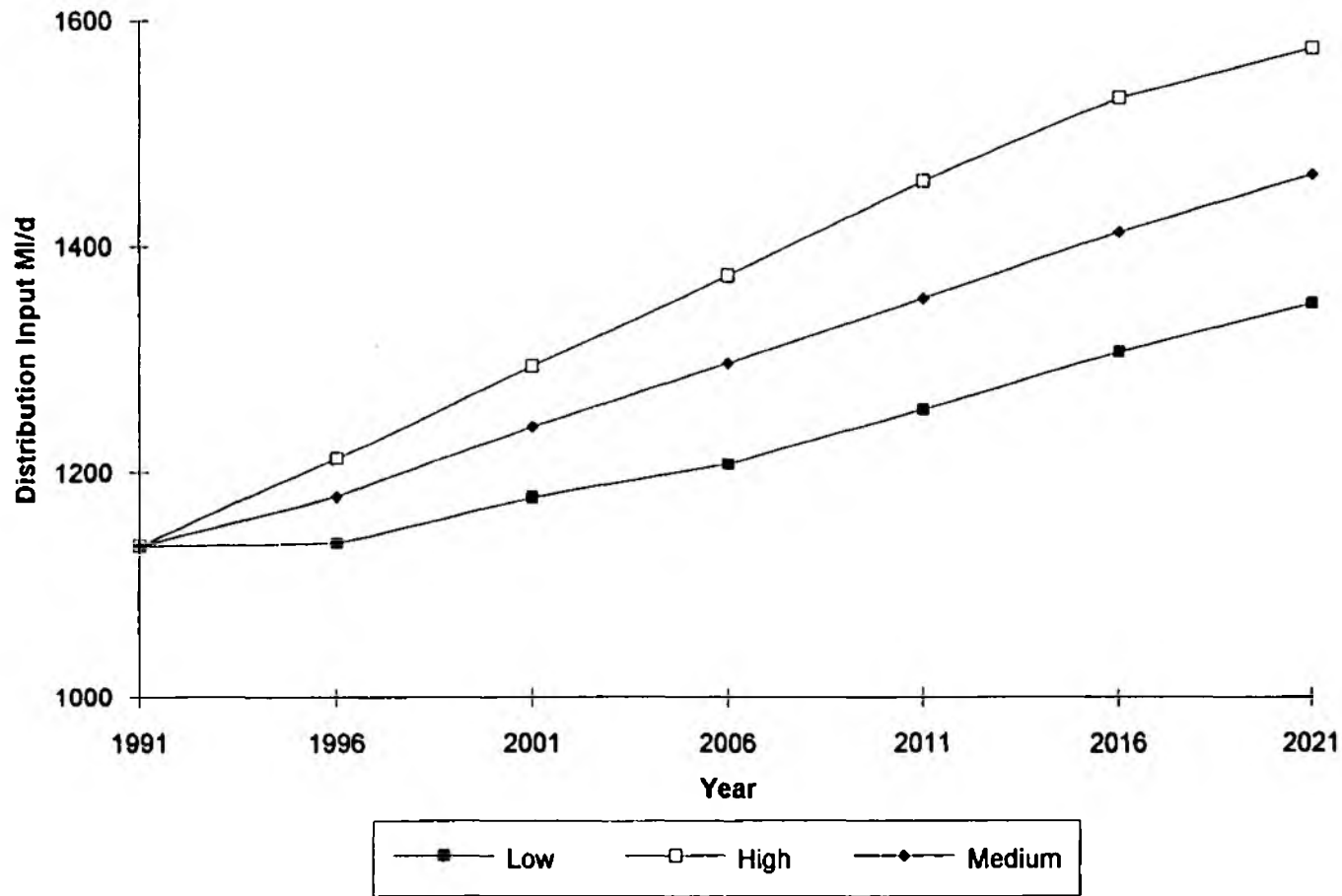
EXCLUDING CLIMATE CHANGE		
YEAR	Per capita consumption	% Growth Factor
1991	147	
1992	148	0.680
1993	149	0.676
1994	150	0.671
1995	151	0.667
1996	152	0.662
1997	153	0.658
1998	154	0.654
1999	155	0.649
2000	156	0.645
2001	157	0.641
2002	158	0.637
2003	159	0.633
2004	160	0.629
2005	161	0.625
2006	162	0.621
2007	163	0.617
2008	164	0.613
2009	165	0.610
2010	166	0.606
2011	167	0.602
2012	168.3	0.778
2013	169.6	0.772
2014	170.9	0.767
2015	172.2	0.761
2016	173.5	0.755
2017	174.8	0.749
2018	176.1	0.744
2019	177.4	0.738
2020	178.7	0.733
2021	180	0.727

Notes : 1 Actual Growth factors used are those calculated for each 5 tyear step used in the forecasts.

2 Figures based on linear interpolations between fixed data at 1991, 2011 and 2021.

ANNEX 7

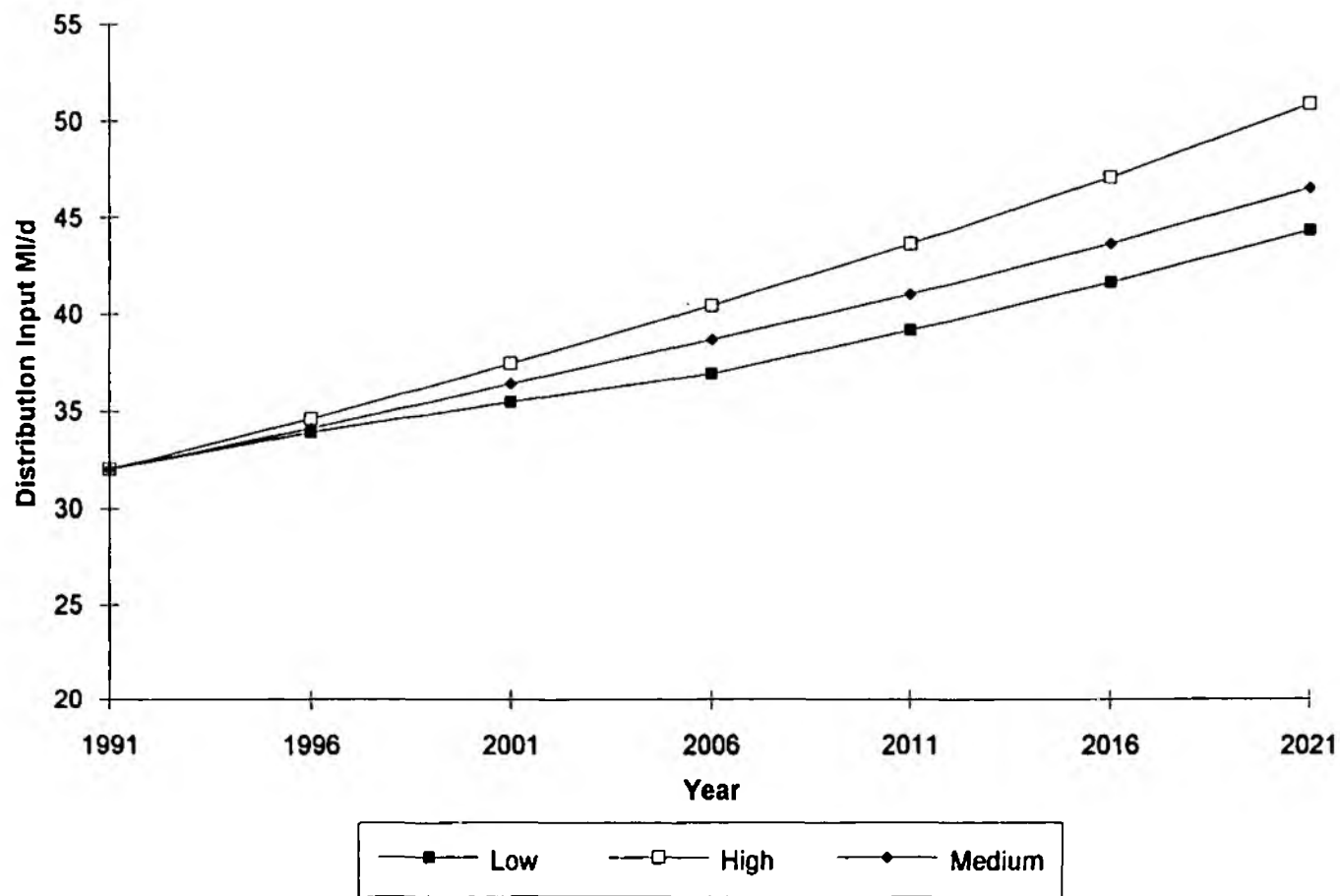
NRA demand forecast range for Anglian Water Services



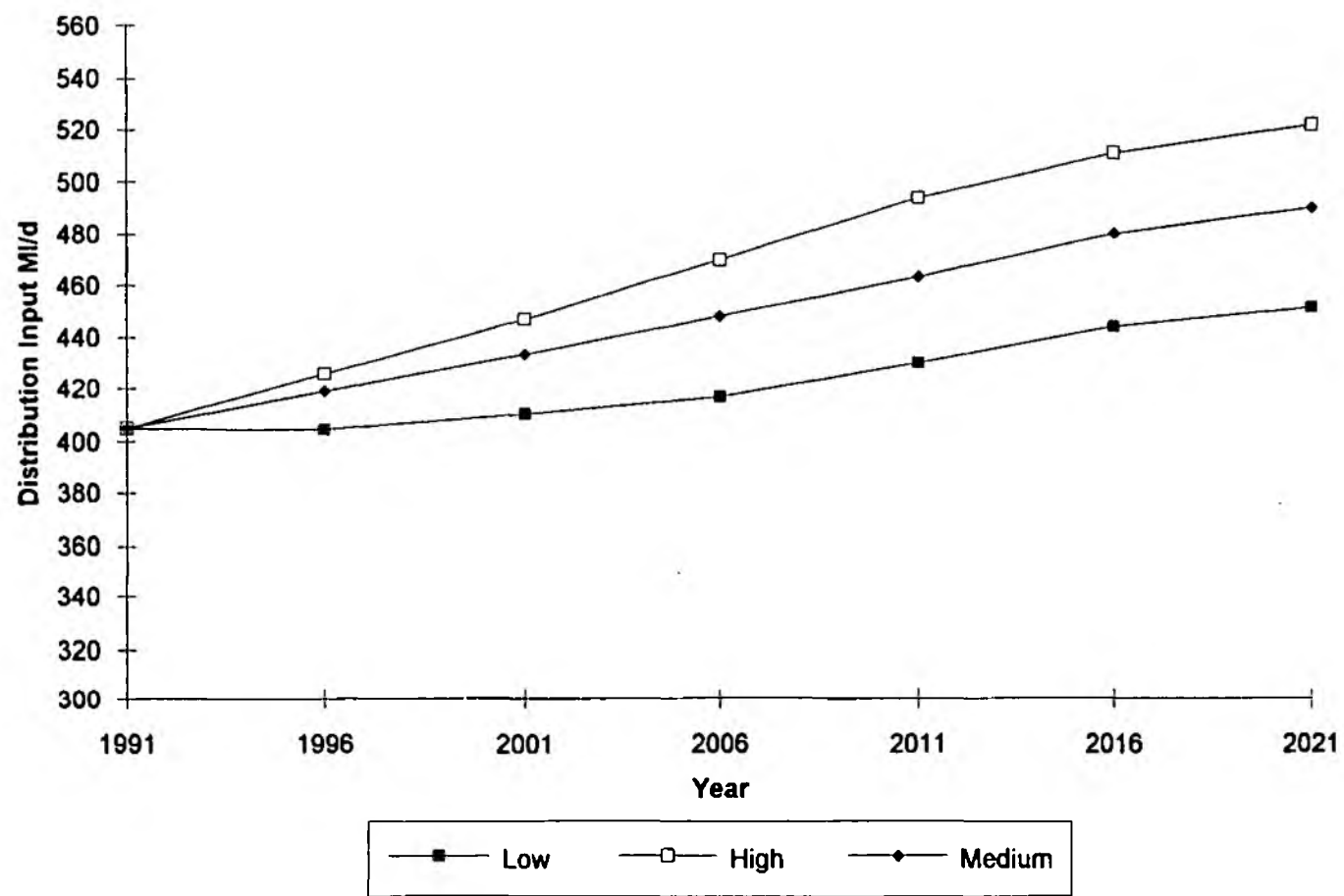
COMPANY DEMAND SCENARIOS

TENDING HUNDRED						
CORE DATA		SOURCE				
Distribution Input 1991 (Mld)	[a]	Input	12			
Total Metered (Mld)	[b]	Input	7.3			
Unm. Non household (Mld)	[c]	Input	1.6			
Proportion 1991 prop. meter	[d]	Input	0.0309			
Weighted ave PCC	[f]	Input	127			
LINKED DATA		SOURCE				
			1991	1996	2001	2006
Population	[e]	Input	136000	143500	151000	158500
PCC Suppression	[j]	Input	0.9	0.9	0.9	0.9
Occupancy rate	[f]	Input	2.23	2.19	2.16	2.14
PCC unun. growth (%) - Low	[r1]	Input	0	0.64	0.64	0.64
PCC unun. growth (%) - High	[r2]	Input	0	1	1	1
PCC unun. growth (%) - Med	[r3]	Input	0	0.64	0.64	0.64
Unun. non hh growth (%) - Low	[x1]	Input	0	0	0	0
Unun. non hh growth (%) - High	[x2]	Input	0	0.75	0.75	0.75
Unun. non hh growth (%) - Med	[x3]	Input	0	0.5	0.5	0.5
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75
M. non hh growth (%) - Med	[y3]	Input	0	0.5	0.5	0.5
Prop. properties meter - Low	[d1]	Input	0	0.0309	0.15	0.3
Prop. properties meter - High	[d2]	Input	0	0.0309	0.0309	0.0309
Prop. properties meter - Med	[d3]	Input	0	0.0309	0.0309	0.06
Unm. night flow (Upr/hr) - Low	[w1]	Input	5.19	5.19	5.19	5.19
Unm. night flow (Upr/hr) - High	[w2]	Input	5.19	5.19	5.19	5.19
Unm. night flow (Upr/hr) - Med	[w3]	Input	5.19	5.19	5.19	5.19
BASELINE 1991		SOURCE				
			1991			
Existing metered dom. props	[g]	(e/f)*d	1892.97297			
Unm. dom. props	[h]	(a/f) - g	59368.2883			
Metered households (Mld)	[k]	(g * f ** j) / 10^6	0.48			
Metered non h'hold (Mld)	[l]	b - k	6.82			
Unmetered h'hold (Mld)	[m]	(h * f ** j) / 10^6	16.74			
Distr. Input less UFW (Mld)	[n]	m + b + c	25.64			
UFW	[p]	a - n	6.36			
Night flow (Upr/hr)	[q]	((p * 10^6)/(g+h))/20	5.19			
LOW		SOURCE				
			1996	2001	2006	2011
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	63500.39	59421.30	51843.79	55071.09
Unmetered PCC (U/h/d)	[j]	j * ((1+(r1/100))^5)	131.12	135.37	139.75	144.28
Metered PCC (U/h/d)	[u]	i * i	118.00	121.83	125.78	129.86
Unm. non h'holds (Mld)	[c1]	c * ((1+(x1/100))^5)	1.60	1.60	1.60	1.60
Mt. non h'holds (Mld)	[l1]	l * ((1+(y1/100))^5)	6.82	6.82	6.82	6.82
Unmetered h'hold (Mld)	[m1]	(h1 * f ** i) / 10^6	18.23	17.37	15.51	16.77
Metered households (Mld)	[k1]	((g + ab) * f * u) / 10^6	0.52	2.76	5.98	6.47
Total household (Mld)	[v]	m1 + k1	18.76	20.13	21.49	23.23
Distr. Input less UFW (Mld)	[n1]	v + c1 + l1	27.18	28.53	29.91	31.63
New dom. met. props	[ab]	((e/f)*d1) - g [enter 'W' if -ve]	131.73	8393.14	20326.65	21708.92
Total domestic properties	[z]	e / f	65525.11	69907.41	74065.42	78672.99
Metered prop UFW redn. (Mld)	[am]	(1.5*20 * (g + ab)) / 10^6	0.06	0.31	0.67	0.71
UFW (Mld)	[p1]	((w1 * z * 20) / 10^6) - na	6.74	6.94	7.02	7.46
Distribution Input (Mld)	[ac]	p1 + n1	33.92	35.50	36.93	39.11
HIGH		SOURCE				
			1996	2001	2006	2011
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	63500.39	67747.27	71776.80	76241.99
Unmetered PCC (U/h/d)	[j]	j * ((1+(r2/100))^5)	133.48	140.29	147.44	154.96
Metered PCC (U/h/d)	[u]	i * i	133.48	140.29	147.44	154.96
Unm. non h'holds (Mld)	[c1]	c * ((1+(x2/100))^5)	1.66	1.72	1.79	1.86
Mt. non h'holds (Mld)	[l1]	l * ((1+(y2/100))^5)	7.08	7.35	7.63	7.92
Unmetered h'hold (Mld)	[m1]	(h1 * f ** i) / 10^6	18.56	20.53	22.65	24.93
Metered households (Mld)	[k1]	((g + ab) * f * u) / 10^6	0.59	0.63	0.72	0.79
Total household (Mld)	[v]	m1 + k1	19.15	21.18	23.37	25.72
Distr. Input less UFW (Mld)	[n1]	v + c1 + l1	27.89	30.26	32.79	35.30
New dom. met. props	[ab]	((e/f)*d2) - g [enter 'W' if -ve]	131.73	267.17	395.65	538.02
Total domestic properties	[z]	e / f	65525.11	69907.41	74065.42	78672.99
Metered prop UFW redn. (Mld)	[am]	(1.5*20 * (g + ab)) / 10^6	0.06	0.06	0.07	0.07
UFW (Mld)	[p1]	((w2 * z * 20) / 10^6) - na	6.74	7.19	7.62	8.09
Distribution Input (Mld)	[ac]	p1 + n1	34.64	37.45	40.41	43.39
MEDIUM		SOURCE				
			1996	2001	2006	2011
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	63500.39	67747.27	69621.50	71592.42
Unmetered PCC (U/h/d)	[j]	j * ((1+(r3/100))^5)	131.12	135.37	139.75	144.28
Metered PCC (U/h/d)	[u]	i * i	118.00	121.83	125.78	129.86
Unm. non h'holds (Mld)	[c1]	c * ((1+(x3/100))^5)	1.64	1.68	1.72	1.77
Mt. non h'holds (Mld)	[l1]	l * ((1+(y3/100))^5)	6.99	7.17	7.35	7.54
Unmetered h'hold (Mld)	[m1]	(h1 * f ** i) / 10^6	18.23	19.81	20.82	21.80
Metered households (Mld)	[k1]	((g + ab) * f * u) / 10^6	0.52	0.57	1.20	1.94
Total household (Mld)	[v]	m1 + k1	18.76	20.38	22.02	23.74
Distr. Input less UFW (Mld)	[n1]	v + c1 + l1	27.39	29.23	31.09	33.04
New dom. met. props	[ab]	((e/f)*d3) - g [enter 'W' if -ve]	131.73	267.17	2550.95	5187.60
Total domestic properties	[z]	e / f	65525.11	69907.41	74065.42	78672.99
Metered prop UFW redn. (Mld)	[am]	(1.5*20 * (g + ab)) / 10^6	0.06	0.06	0.13	0.21
UFW (Mld)	[p1]	((w3 * z * 20) / 10^6) - na	6.74	7.19	7.55	7.95
Distribution Input (Mld)	[ac]	p1 + n1	34.13	34.42	38.65	40.99

NRA demand forecast range for Tendring Hundred Water



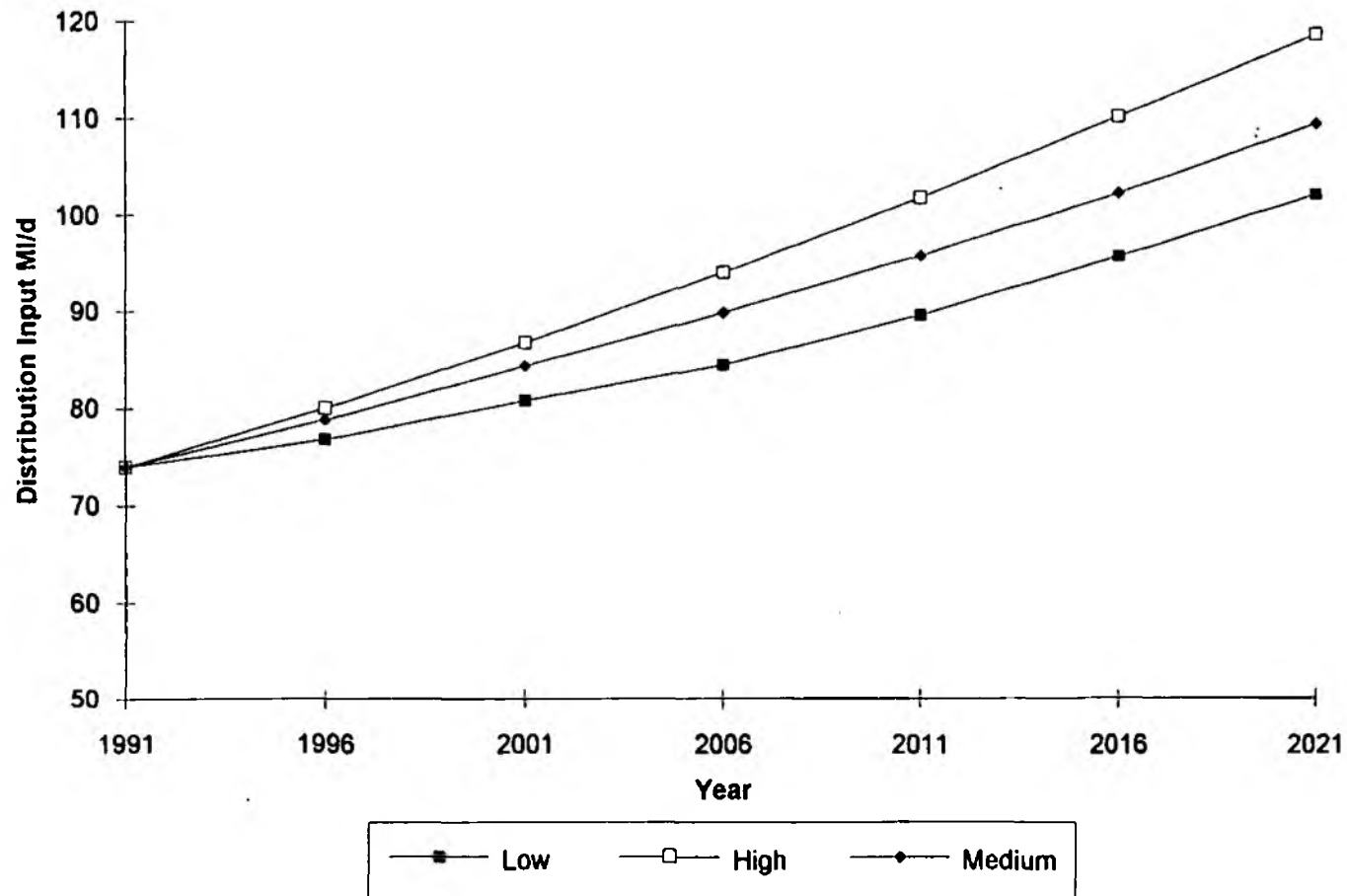
NRA demand forecast range for Essex Water Company



COMPANY DEMAND SCENARIOS

CAMBRIDGE									
CORE DATA			SOURCE						
Distribution Input 1991 (Mld)	(a)	Input	74						
Total Metered (Mld)	(b)	Input	20.7						
Unm. Non household (Mld)	(c)	Input	2.4						
Proportion 1991 prop meter		Input	0.0334						
Weighted ave PCC	(j)	Input	142						
LINKED DATA			SOURCE						
			1991	1996	2001	2006	2011	2016	2021
Population	(w)	Input	273210	283300	303300	322413	339530	357554	376334
PCC Suppression	(f)	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	(j)	Input	2.72	2.68	2.65	2.62	2.58	2.55	2.52
PCC unm. growth (%) - Low	(r1)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
PCC unm. growth (%) - High	(r2)	Input	0	1	1	1	1	1	1
PCC unm. growth (%) - Med	(r3)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	(x1)	Input	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	(x2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	(x3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	(y1)	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	(y2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	(y3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	(d1)	Input	0	0.0334	0.15	0.3	0.3	0.3	0.3
Prop. properties meter - High	(d2)	Input	0	0.0334	0.0334	0.0334	0.0334	0.0334	0.0334
Prop. properties meter - Med	(d3)	Input	0	0.0334	0.0334	0.06	0.09	0.12	0.15
Unm. night flow (Vpr/hr) - Low	(w1)	Input	6.67	6	6	6	6	6	6
Unm. night flow (Vpr/hr) - High	(w2)	Input	6.67	6.67	6.67	6.67	6.67	6.67	6.67
Unm. night flow (Vpr/hr) - Med	(w3)	Input	6.67	6.67	6.67	6.67	6.67	6.67	6.67
BASELINE 1991			SOURCE 1991						
Existing metered dom. props	(g)	(w/f)*d	3354.85809						
Unm. dom. props	(h)	(w/f) - g	97089.9949						
Metered households (Mld)	(k)	(g * f * j) / 10^6	1.17						
Metered non h'hold (Mld)	(l)	b - k	19.53						
Unmetered h'hold (Mld)	(m)	(h * f * j) / 10^6	37.50						
Distr. Input less UFW (Mld)	(n)	m + b + c	60.60						
UFW	(p)	a - n	13.40						
Night flow (Vpr/h)	(q)	((p * 10^6) / (g+h)) / 20	6.67						
LOW			SOURCE						
			1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	(a - ((g + ab) * f)) / f	103981.63	97926.42	86141.41	92120.54	98152.08	104592.78	
Unmetered PCC (Vh/d)	(i)	j * ((1+(r1/100))^5)	146.60	151.35	156.26	161.32	167.47	173.84	
Metered PCC (Vh/d)	(u)	t * i	131.94	136.22	140.63	145.19	150.72	156.46	
Unm. non h'holds (Mld)	(c1)	c * ((1+(x1/100))^5)	2.40	2.40	2.40	2.40	2.40	2.40	
Metered non h'holds (Mld)	(l1)	l * ((1+(y1/100))^5)	19.53	19.53	19.53	19.53	19.53	19.53	
Unmetered h'hold (Mld)	(m1)	(h1 * f * j) / 10^6	40.85	39.28	35.27	38.34	41.91	45.82	
Metered households (Mld)	(k1)	((g + ab) * f * u) / 10^6	1.27	1.27	1.30	1.34	1.40	1.47	
Total household (Mld)	(v)	m1 + k1	42.12	40.55	36.57	39.68	43.31	47.29	
Distr. Input less UFW (Mld)	(n1)	v + c1 + l1	64.06	62.45	56.97	61.83	66.64	71.46	
New dom. met. props	(ab)	((w/f)*d1) - g [enter 0 if -ve]	238.13	13926.27	33562.89	36125.37	38710.32	41470.62	
Total domestic properties	(z)	a / f	107574.63	115207.55	123059.16	131600.78	140217.25	149418.25	
Metered prop UFW redn. (Mld)	(aa)	(1.5 * 20 * (g + ab)) / 10^6	0.11	0.52	1.11	1.18	1.26	1.34	
UFW (Mld)	(p1)	((w1 * z * 20) / 10^6) - aa	12.80	13.31	13.66	14.61	15.56	16.59	
Distribution Input (Mld)	(ac)	p1 + n1	76.86	80.76	84.46	89.67	95.58	102.01	
HIGH			SOURCE						
			1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	(a - ((g + ab) * f)) / f	103981.63	111359.62	118948.98	127205.31	135534.00	144427.68	
Unmetered PCC (Vh/d)	(i)	j * ((1+(r2/100))^5)	149.24	156.86	164.86	173.27	182.11	189.00	
Metered PCC (Vh/d)	(u)	t * i	149.24	156.86	164.86	173.27	182.11	189.00	
Unm. non h'holds (Mld)	(c1)	c * ((1+(x2/100))^5)	2.49	2.59	2.68	2.79	2.89	3.00	
Metered non h'holds (Mld)	(l1)	l * ((1+(y2/100))^5)	20.28	21.05	21.85	22.68	23.55	24.44	
Unmetered h'hold (Mld)	(m1)	(h1 * f * j) / 10^6	41.59	46.29	51.38	56.86	62.94	68.79	
Metered households (Mld)	(k1)	((g + ab) * f * u) / 10^6	1.44	1.60	1.78	1.96	2.17	2.38	
Total household (Mld)	(v)	m1 + k1	43.03	47.89	53.15	58.83	65.11	71.16	
Distr. Input less UFW (Mld)	(n1)	v + c1 + l1	63.80	71.52	77.69	84.30	91.55	98.61	
New dom. met. props	(ab)	((w/f)*d2) - g [enter 0 if -ve]	238.13	493.07	755.32	1040.61	1328.40	1635.71	
Total domestic properties	(z)	a / f	107574.63	115207.55	123059.16	131600.78	140217.25	149418.25	
Metered prop UFW redn. (Mld)	(aa)	(1.5 * 20 * (g + ab)) / 10^6	0.11	0.12	0.12	0.13	0.14	0.15	
UFW (Mld)	(p1)	((w2 * z * 20) / 10^6) - aa	14.24	15.25	16.29	17.42	18.56	19.78	
Distribution Input (Mld)	(ac)	p1 + n1	80.04	86.78	93.98	101.72	110.12	118.39	
MEDIUM			SOURCE						
			1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	(a - ((g + ab) * f)) / f	103981.63	111359.62	115675.61	119756.71	123391.18	127005.52	
Unmetered PCC (Vh/d)	(i)	j * ((1+(r3/100))^5)	146.60	151.35	156.26	161.32	167.47	173.84	
Metered PCC (Vh/d)	(u)	t * i	131.94	136.22	140.63	145.19	150.72	156.46	
Unm. non h'holds (Mld)	(c1)	c * ((1+(x3/100))^5)	2.46	2.52	2.59	2.65	2.72	2.79	
Metered non h'holds (Mld)	(l1)	l * ((1+(y3/100))^5)	20.03	20.53	21.05	21.58	22.13	22.69	
Unmetered h'hold (Mld)	(m1)	(h1 * f * j) / 10^6	40.85	44.67	47.36	49.84	52.69	55.64	
Metered households (Mld)	(k1)	((g + ab) * f * u) / 10^6	1.27	1.39	1.52	1.64	1.77	1.90	
Total household (Mld)	(v)	m1 + k1	42.12	46.05	48.88	51.48	54.46	57.54	
Distr. Input less UFW (Mld)	(n1)	v + c1 + l1	64.61	69.11	73.72	78.52	84.01	89.93	
New dom. met. props	(ab)	((w/f)*d3) - g [enter 0 if -ve]	238.13	493.07	4028.69	8489.21	13471.21	19037.88	
Total domestic properties	(z)	a / f	107574.63	115207.55	123059.16	131600.78	140217.25	149418.25	
Metered prop UFW redn. (Mld)	(aa)	(1.5 * 20 * (g + ab)) / 10^6	0.11	0.12	0.22	0.36	0.50	0.67	
UFW (Mld)	(p1)	((w3 * z * 20) / 10^6) - aa	14.24	15.25	16.19	17.20	18.20	19.26	
Distribution Input (Mld)	(ac)	p1 + n1	78.85	84.36	89.91	95.72	102.21	109.21	

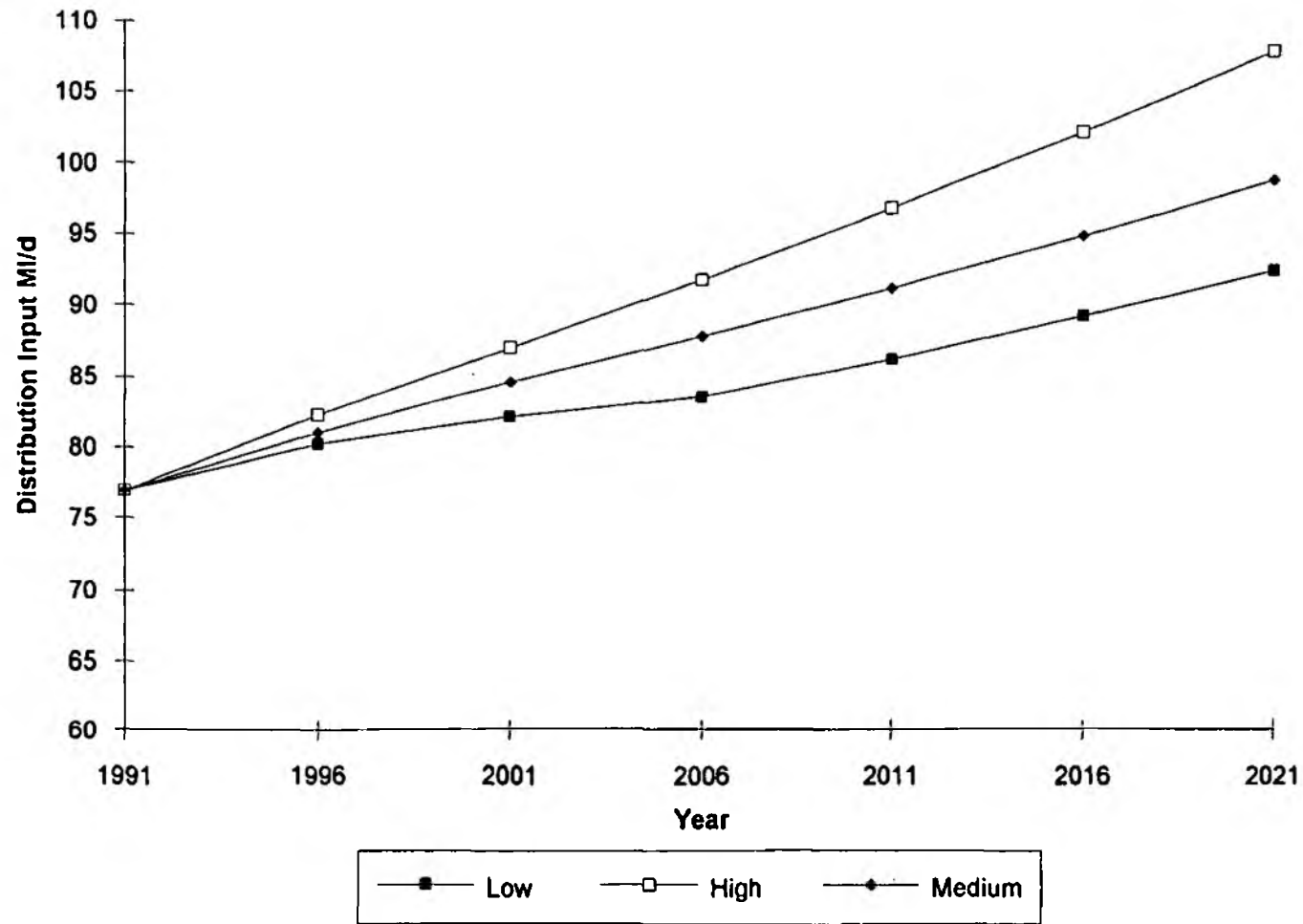
NRA demand forecast range for Cambridge Water Company



COMPANY DEMAND SCENARIOS

SUFFOLK								
CORE DATA		SOURCE						
Distribution Input 1991 (M/d)	[a]	Input	77					
Total Metered (M/d)	[b]	Input	31.5					
Unm Non household (M/d)	[c]	Input	0.7					
Proportion 1991 prop meter	[d]	Input	0.0341					
Weighted avgs PCC	[j]	Input	139					
LINKED DATA		SOURCE						
Population	[e]	Input	251000	262000	269000	275000	281000	287000
PCC Suppression	[i]	Input	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	[f]	Input	2.45	2.42	2.39	2.36	2.33	2.3
PCC unum. growth (%) - Low	[r1]	Input	0	0.64	0.64	0.64	0.64	0.75
PCC unum. growth (%) - High	[r2]	Input	0	1	1	1	1	1
PCC unum. growth (%) - Med	[r3]	Input	0	0.64	0.64	0.64	0.64	0.75
Unm. non hh growth (%) - Low	[x1]	Input	0	0	0	0	0	0
Unm. non hh growth (%) - High	[x2]	Input	0	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	[x3]	Input	0	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0	0	0
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	[y3]	Input	0	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	[d1]	Input	0	0.0341	0.13	0.3	0.3	0.3
Prop. properties meter - High	[d2]	Input	0	0.0341	0.0341	0.0341	0.0341	0.0341
Prop. properties meter - Med	[d3]	Input	0	0.0341	0.0341	0.06	0.09	0.12
Unm. night flow (Upr/hr) - Low	[w1]	Input	5.42	5.42	5.42	5.42	5.42	5.42
Unm. night flow (Upr/hr) - High	[w2]	Input	5.42	5.42	5.42	5.42	5.42	5.42
Unm. night flow (Upr/hr) - Med	[w3]	Input	5.42	5.42	5.42	5.42	5.42	5.42
BASELINE 1991		SOURCE						
Existing metered dom. props	[g]	(w/f)*d	3493.5102					
Unm. dom. props	[h]	(w/f) - g	98955.4694					
Metered households (M/d)	[k]	(g * f * j) / 10^6	1.07					
Metered non h'hold (M/d)	[l]	b - k	30.43					
Unmetered h'hold (M/d)	[m]	(h * f * j) / 10^6	33.70					
Distr. Input less UFW (M/d)	[n]	m + b + c	65.90					
UFW	[p]	a - n	11.10					
Night flow (Upr/h)	[q]	((p * 10^6) / (g+h)) / 20	5.42					
LOW		SOURCE						
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	104572.64	95669.46	81567.80	84420.60	87347.83	90352.42
Unmetered PCC (U/d)	[i]	j * ((1+(r1/100))^5)	143.51	148.16	152.96	157.92	163.93	170.17
Metered PCC (U/d)	[u]	t * i	129.15	133.34	137.66	142.12	147.54	153.15
Unm. non h'holds (M/d)	[c1]	c * ((1+(x1/100))^5)	0.70	0.70	0.70	0.70	0.70	0.70
Met. non h'holds (M/d)	[l1]	l * ((1+(y1/100))^5)	30.43	30.43	30.43	30.43	30.43	30.43
Unmetered h'hold (M/d)	[m1]	(h1 * f * i) / 10^6	36.32	33.88	29.44	31.06	32.93	34.90
Metered households (M/d)	[k1]	((g + ab) * f * u) / 10^6	1.15	5.38	11.36	11.98	12.70	13.46
Total household (M/d)	[v]	m1 + k1	37.47	39.26	40.80	43.04	45.64	48.36
Distr. Input less UFW (M/d)	[n1]	v + c1 + l1	68.60	70.39	71.93	74.17	76.77	79.49
New dom. mat. props	[ab]	((w/f)*d1) - g [enter 'v' if -ve]	198.31	13389.33	31464.12	32686.75	33941.27	35228.96
Total domestic properties	[z]	a / f	108264.46	112552.30	116525.42	120600.86	124782.61	129074.89
Metered prop UFW redn. (M/d)	[aa]	(1.5*20 * (g + ab)) / 10^6	0.11	0.51	1.05	1.09	1.12	1.16
UFW (M/d)	[p1]	((w1 * z * 20) / 10^6) - aa	11.63	11.69	11.58	11.99	12.40	12.83
Distribution Input (M/d)	[ac]	p1 + n1	80.22	82.08	83.51	84.16	89.17	92.32
HIGH		SOURCE						
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	104572.64	108714.27	112551.91	116488.37	120527.52	124673.44
Unmetered PCC (U/d)	[i]	j * ((1+(r2/100))^5)	146.09	153.54	161.37	169.61	178.26	187.35
Metered PCC (U/d)	[u]	t * i	146.09	153.54	161.37	169.61	178.26	187.35
Unm. non h'holds (M/d)	[c1]	c * ((1+(x2/100))^5)	0.73	0.75	0.78	0.81	0.84	0.88
Met. non h'holds (M/d)	[l1]	l * ((1+(y2/100))^5)	31.59	32.79	34.04	35.33	36.68	38.08
Unmetered h'hold (M/d)	[m1]	(h1 * f * i) / 10^6	36.97	39.89	42.86	46.03	49.42	53.02
Metered households (M/d)	[k1]	((g + ab) * f * u) / 10^6	1.31	1.41	1.51	1.63	1.74	1.87
Total household (M/d)	[v]	m1 + k1	38.28	41.30	44.38	47.66	51.16	54.89
Distr. Input less UFW (M/d)	[n1]	v + c1 + l1	70.59	74.85	79.20	83.81	88.68	93.85
New dom. mat. props	[ab]	((w/f)*d2) - g [enter 'v' if -ve]	198.31	344.52	480.01	618.98	761.58	907.94
Total domestic properties	[z]	a / f	108264.46	112552.30	116525.42	120600.86	124782.61	129074.89
Metered prop UFW redn. (M/d)	[aa]	(1.5*20 * (g + ab)) / 10^6	0.11	0.12	0.12	0.12	0.13	0.13
UFW (M/d)	[p1]	((w2 * z * 20) / 10^6) - aa	11.63	12.09	12.51	12.95	13.40	13.86
Distribution Input (M/d)	[ac]	p1 + n1	82.22	86.93	91.71	96.76	102.08	107.70
MEDIUM		SOURCE						
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	104572.64	108714.27	109333.90	109746.78	109808.70	109713.64
Unmetered PCC (U/d)	[i]	j * ((1+(r3/100))^5)	143.51	148.16	152.96	157.92	163.93	170.17
Metered PCC (U/d)	[u]	t * i	129.15	133.34	137.66	142.12	147.54	153.15
Unm. non h'holds (M/d)	[c1]	c * ((1+(x3/100))^5)	0.72	0.74	0.75	0.77	0.79	0.81
Met. non h'holds (M/d)	[l1]	l * ((1+(y3/100))^5)	31.20	31.99	32.79	33.62	34.47	35.34
Unmetered h'hold (M/d)	[m1]	(h1 * f * i) / 10^6	36.32	38.50	39.54	40.38	41.40	42.38
Metered households (M/d)	[k1]	((g + ab) * f * u) / 10^6	1.15	1.22	2.27	3.59	5.08	6.73
Total household (M/d)	[v]	m1 + k1	37.47	39.72	41.81	43.98	46.48	49.11
Distr. Input less UFW (M/d)	[n1]	v + c1 + l1	69.39	72.44	75.36	78.37	81.75	85.26
New dom. mat. props	[ab]	((w/f)*d3) - g [enter 'v' if -ve]	198.31	344.52	3498.02	7360.57	11480.40	15867.72
Total domestic properties	[z]	a / f	108264.46	112552.30	116525.42	120600.86	124782.61	129074.89
Metered prop UFW redn. (M/d)	[aa]	(1.5*20 * (g + ab)) / 10^6	0.11	0.12	0.21	0.33	0.45	0.58
UFW (M/d)	[p1]	((w3 * z * 20) / 10^6) - aa	11.63	12.09	12.42	12.75	13.08	13.41
Distribution Input (M/d)	[ac]	p1 + n1	81.01	84.52	87.78	91.12	94.82	98.68

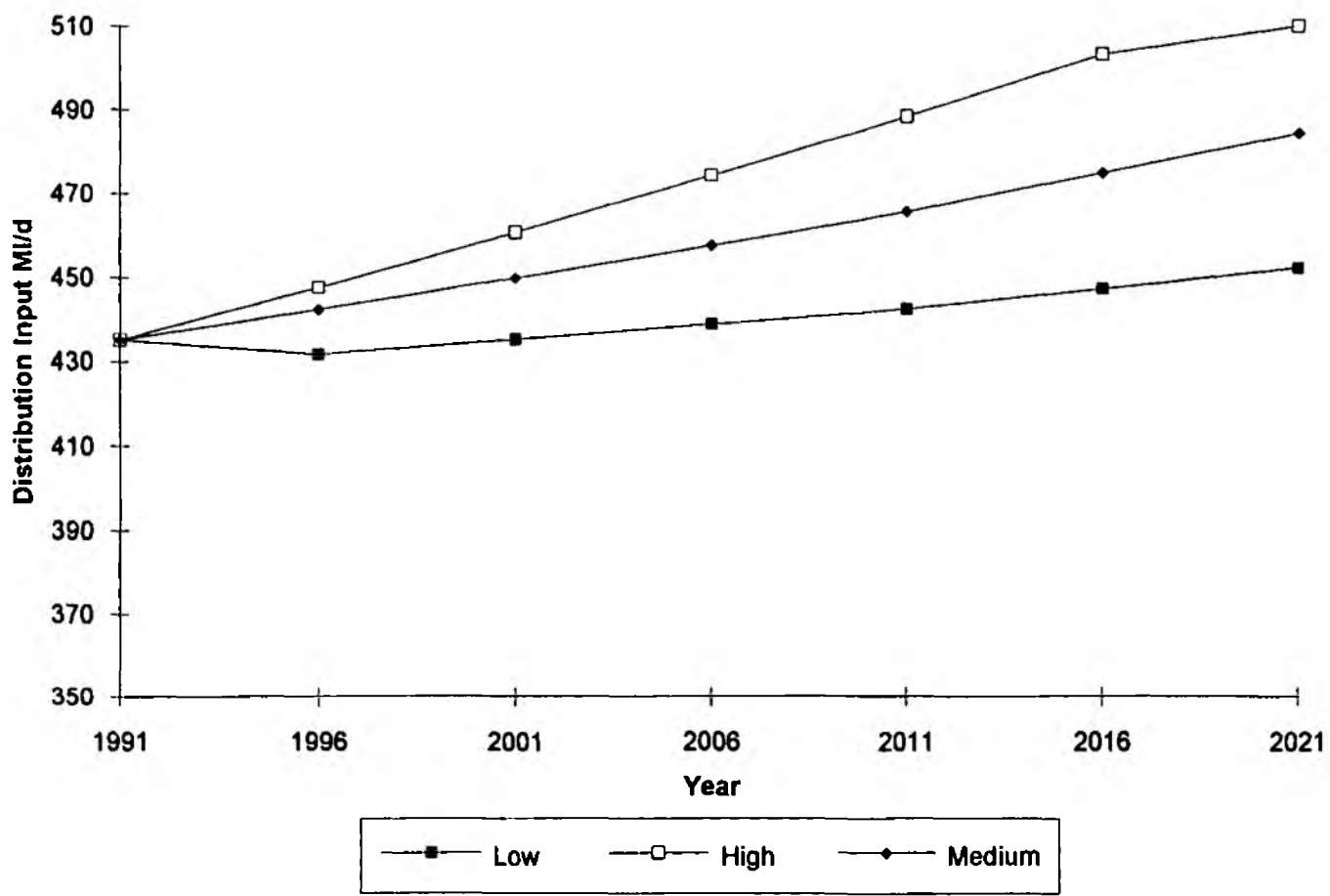
NRA demand forecast range for Suffolk Water



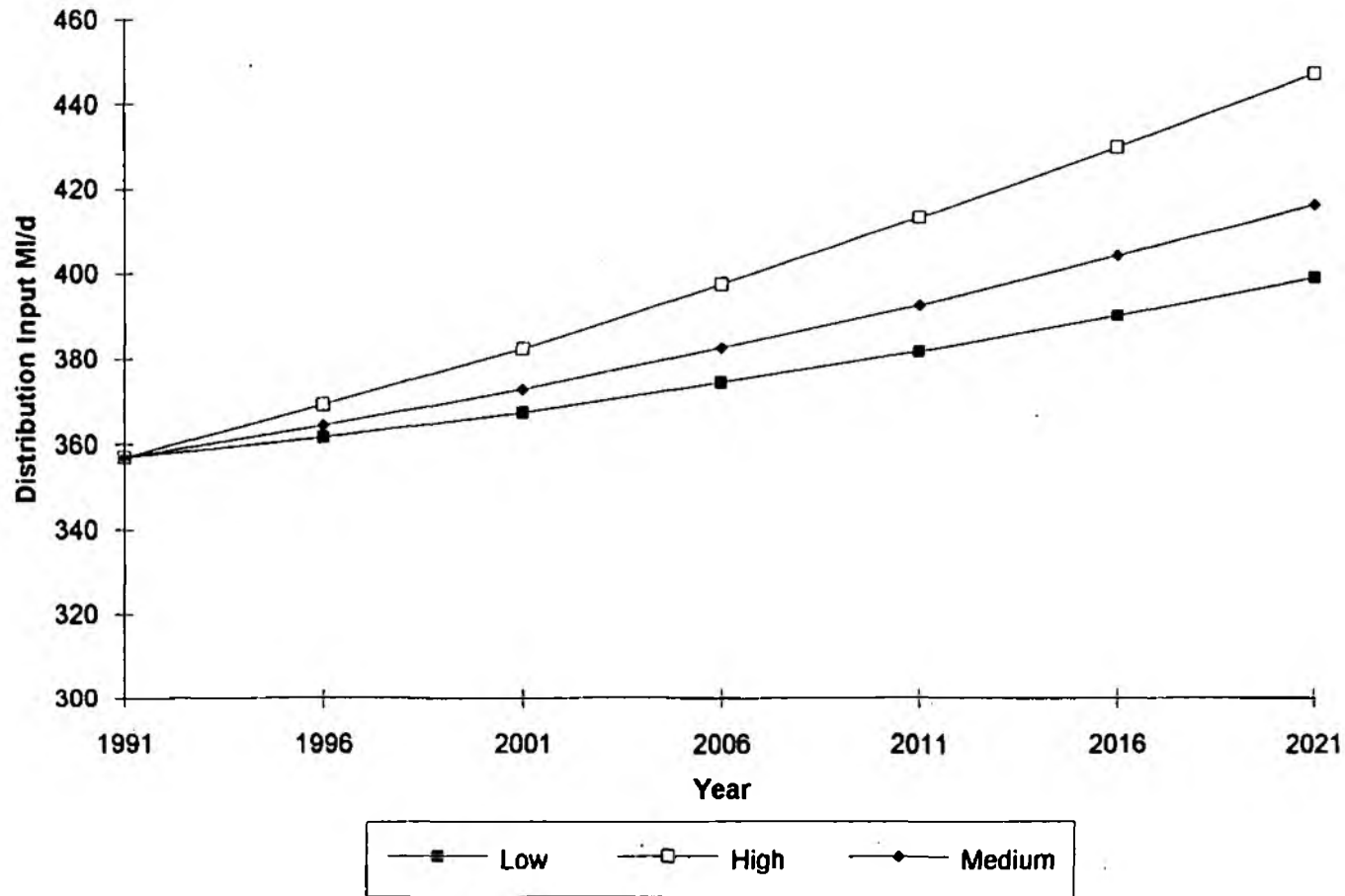
COMPANY DEMAND SCENARIOS

NORTHUMBRIAN WATER									
CORE DATA		SOURCE							
Distribution Input 1991 (Mld)	[a]	Input	435						
Total Meters (Mld)	[b]	Input	352						
Unm. Non household (Mld)	[c]	Input	7.6						
Proportion 1991 prop meter		Input	0.0021						
Weighted ave PCC	[j]	Input	146						
LINKED DATA		SOURCE							
Population	[e]	Input	1184800	1170003	1155392	1140962	1126713	1112642	1098746
PCC Sup. emision	[l]	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	[f]	Input	2.44	2.43	2.4	2.37	2.34	2.31	2.28
PCC un. growth (%) - Low	[r1]	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
PCC un. growth (%) - High	[r2]	Input	0	1	1	1	1	1	1
PCC un. growth (%) - Med	[r3]	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	[x1]	Input	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	[x2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	[x3]	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	[y3]	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	[d1]	Input	0	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Prop. properties meter - High	[d2]	Input	0	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Prop. properties meter - Med	[d3]	Input	0	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Unm. night flow (Upr/hr)-Low	[w1]	Input	10.67	10	10	10	10	10	10
Unm. night flow (Upr/hr)-High	[w2]	Input	10.67	10.67	10.67	10.67	10.67	10.67	10.67
Unm. night flow (Upr/hr)-Med	[w3]	Input	10.67	10.67	10.67	10.67	10.67	10.67	10.67
BASELINE 1991		SOURCE							
Existing metered dom. props	[g]	$(w/f) \cdot d$	1011.415						
Unm. dom. props	[h]	$(w/f) \cdot g$	480614.6						
Metered households (Mld)	[b]	$(g \cdot f \cdot i) / 10^6$	0.33						
Metered non h'hold (Mld)	[l]	$b - k$	151.67						
Unmetered h'hold (Mld)	[m]	$(h \cdot f \cdot j) / 10^6$	172.62						
Dist. Input less UFW (Mld)	[n]	$m + b + c$	332.22						
UFW	[p]	$s - n$	102.78						
Night flow (Upr/hr)	[q]	$((p \cdot 10^6) / (g + h)) / 20$	10.67						
LOW		SOURCE							
Unm. dom. props	[h1]	$(e \cdot ((g + ab) \cdot f)) / f$	480471.30	480401.92	480407.15	480489.87	480651.71	480894.14	
Unmetered PCC (U/d)	[l]	$j \cdot ((1 + (r1/100))^5)$	150.73	155.62	160.66	163.87	172.18	178.74	
Metered PCC (U/d)	[u]	$t \cdot i$	135.66	140.06	144.60	149.28	154.96	160.86	
Unm. non h'holds (Mld)	[c1]	$c \cdot ((1 + (x1/100))^5)$	7.60	7.60	7.60	7.60	7.60	7.60	
Mst. non h'holds (Mld)	[l1]	$l \cdot ((1 + (y1/100))^5)$	151.67	151.67	151.67	151.67	151.67	151.67	
Unmetered h'hold (Mld)	[m1]	$(h1 \cdot f \cdot s) / 10^6$	175.99	179.42	182.92	186.49	191.18	195.97	
Metered households (Mld)	[k1]	$((g + ab) \cdot f \cdot u) / 10^6$	0.33	0.34	0.35	0.35	0.36	0.37	
Total household (Mld)	[v]	$m1 + k1$	176.32	179.76	183.27	186.83	191.34	196.35	
Dist. Input less UFW (Mld)	[n1]	$v + c1 + l1$	335.59	339.03	342.54	346.12	350.81	355.62	
New dom. mat. props	[ab]	$((w/f) \cdot d) - g$ [enter 0 if -ve]	0.00	0.00	0.00	0.00	0.08	0.59	
Total domestic properties	[z]	a / f	481482.72	481413.33	481418.57	481501.28	481663.20	481906.14	
Metered prop UFW redn. (Mld)	[am]	$(1.5 \cdot 20 \cdot (g + ab)) / 10^6$	0.03	0.03	0.03	0.03	0.03	0.03	
UFW (Mld)	[p1]	$((w1 \cdot z \cdot 20) / 10^6) - am$	96.27	96.25	96.25	96.27	96.30	96.33	
Distribution Input (Mld)	[ac]	$p1 + n1$	431.86	435.29	438.80	442.39	447.11	451.97	
HIGH		SOURCE							
Unm. dom. props	[h1]	$(e \cdot ((g + ab) \cdot f)) / f$	480471.30	480401.92	480407.15	480489.87	480651.71	480894.14	
Unmetered PCC (U/d)	[l]	$j \cdot ((1 + (r2/100))^5)$	153.43	161.27	169.50	178.15	187.24	197.00	
Metered PCC (U/d)	[u]	$t \cdot i$	135.66	141.27	149.50	158.15	167.24	177.00	
Unm. non h'holds (Mld)	[c1]	$c \cdot ((1 + (x2/100))^5)$	7.89	8.19	8.50	8.82	9.16	9.51	
Mst. non h'holds (Mld)	[l1]	$l \cdot ((1 + (y2/100))^5)$	157.45	163.44	169.66	176.12	182.82	189.78	
Unmetered h'hold (Mld)	[m1]	$(h1 \cdot f \cdot s) / 10^6$	179.16	185.94	192.99	200.30	207.89	217.23	
Metered households (Mld)	[k1]	$((g + ab) \cdot f \cdot u) / 10^6$	0.38	0.39	0.41	0.42	0.44	0.44	
Total household (Mld)	[v]	$m1 + k1$	179.53	186.34	193.39	200.72	208.33	217.66	
Dist. Input less UFW (Mld)	[n1]	$v + c1 + l1$	344.87	357.97	371.56	385.67	400.31	406.96	
New dom. mat. props	[ab]	$((w/f) \cdot d) - g$ [enter 0 if -ve]	0.00	0.00	0.00	0.00	0.08	0.59	
Total domestic properties	[z]	a / f	481482.72	481413.33	481418.57	481501.28	481663.20	481906.14	
Metered prop UFW redn. (Mld)	[am]	$(1.5 \cdot 20 \cdot (g + ab)) / 10^6$	0.03	0.03	0.03	0.03	0.03	0.03	
UFW (Mld)	[p1]	$((w2 \cdot z \cdot 20) / 10^6) - am$	102.72	102.70	102.70	102.72	102.76	102.81	
Distribution Input (Mld)	[ac]	$p1 + n1$	447.59	460.67	474.26	488.39	503.07	509.77	
MEDIUM		SOURCE							
Unm. dom. props	[h1]	$(e \cdot ((g + ab) \cdot f)) / f$	480471.30	480401.92	480407.15	480489.87	480651.71	480894.14	
Unmetered PCC (U/d)	[l]	$j \cdot ((1 + (r3/100))^5)$	150.73	155.62	160.66	163.87	172.18	178.74	
Metered PCC (U/d)	[u]	$t \cdot i$	135.66	140.06	144.60	149.28	154.96	160.86	
Unm. non h'holds (Mld)	[c1]	$c \cdot ((1 + (x3/100))^5)$	7.79	7.99	8.19	8.40	8.61	8.83	
Mst. non h'holds (Mld)	[l1]	$l \cdot ((1 + (y3/100))^5)$	155.50	159.43	163.46	167.58	171.81	176.15	
Unmetered h'hold (Mld)	[m1]	$(h1 \cdot f \cdot s) / 10^6$	175.99	179.42	182.92	186.49	191.18	195.97	
Metered households (Mld)	[k1]	$((g + ab) \cdot f \cdot u) / 10^6$	0.33	0.34	0.35	0.35	0.36	0.37	
Total household (Mld)	[v]	$m1 + k1$	176.32	179.76	183.27	186.83	191.54	196.35	
Dist. Input less UFW (Mld)	[n1]	$v + c1 + l1$	339.61	347.18	354.92	362.83	371.96	381.33	
New dom. mat. props	[ab]	$((w/f) \cdot d) - g$ [enter 0 if -ve]	0.00	0.00	0.00	0.00	0.08	0.59	
Total domestic properties	[z]	a / f	481482.72	481413.33	481418.57	481501.28	481663.20	481906.14	
Metered prop UFW redn. (Mld)	[am]	$(1.5 \cdot 20 \cdot (g + ab)) / 10^6$	0.03	0.03	0.03	0.03	0.03	0.03	
UFW (Mld)	[p1]	$((w3 \cdot z \cdot 20) / 10^6) - am$	102.72	102.70	102.70	102.72	102.76	102.81	
Distribution Input (Mld)	[ac]	$p1 + n1$	442.33	449.88	457.62	465.55	474.72	484.13	

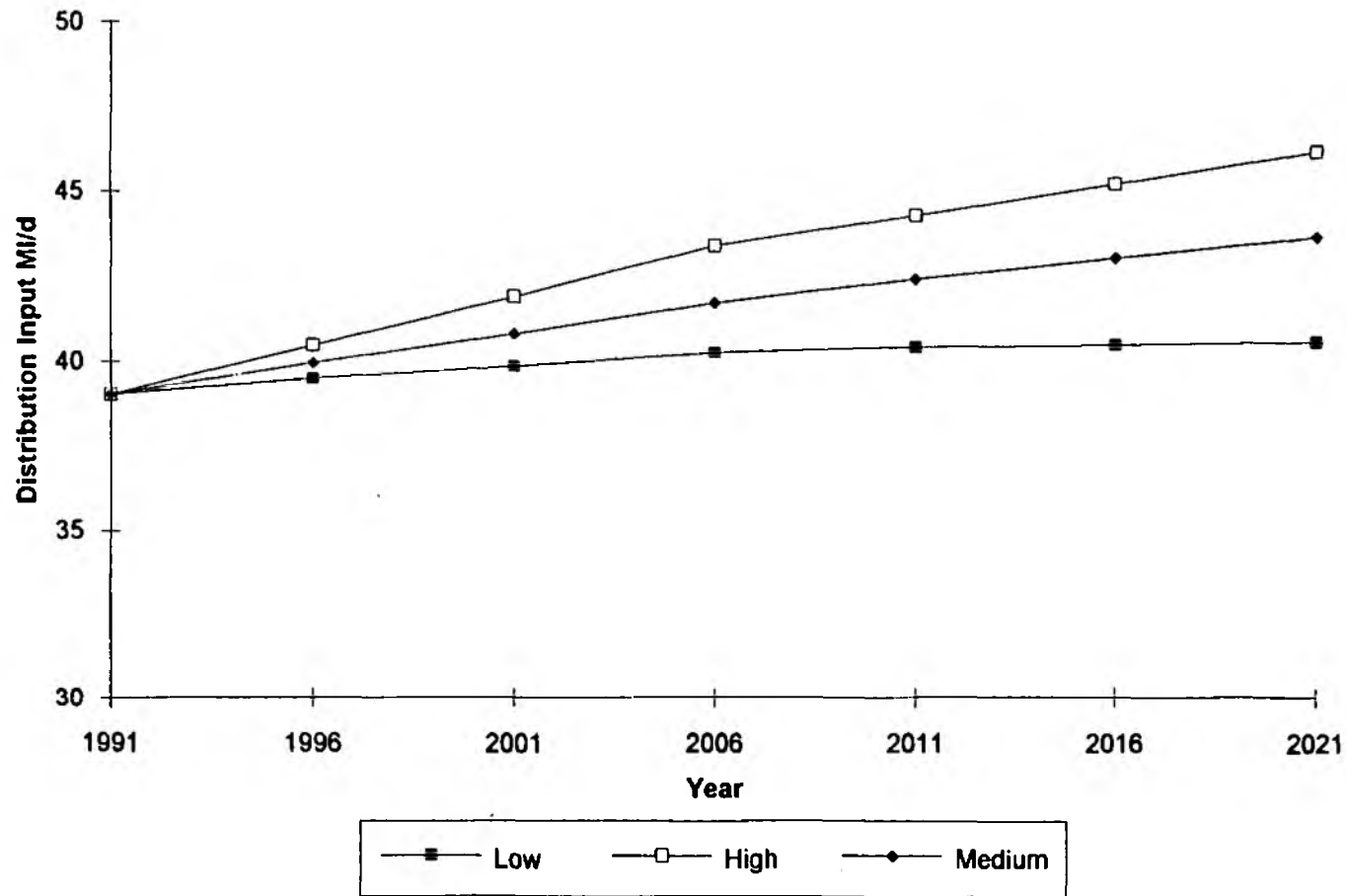
NRA demand forecast range for Northumbrian Water



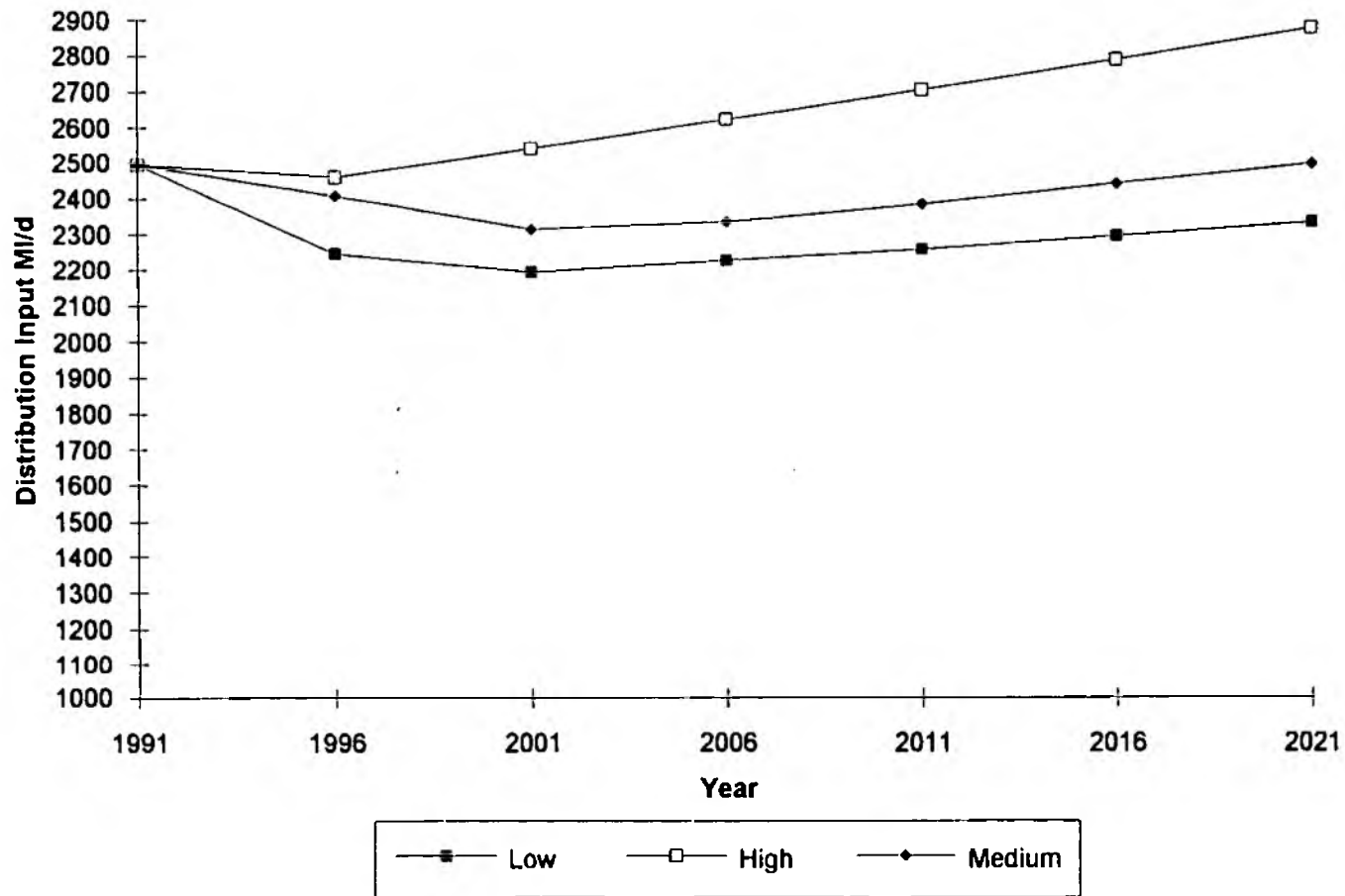
NRA demand forecast range for North East Water Company



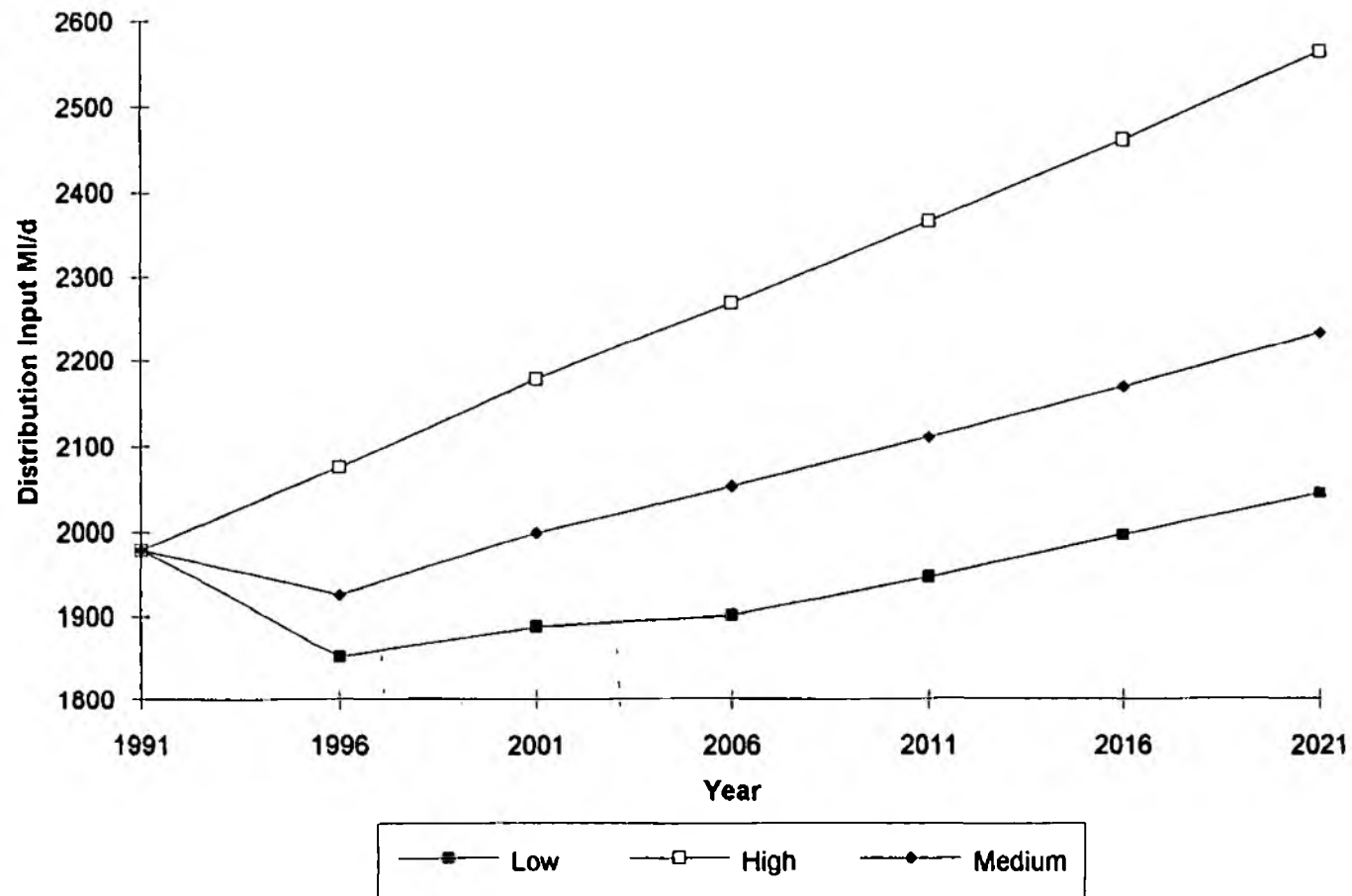
NRA demand forecast range for Hartlepoons Water Company



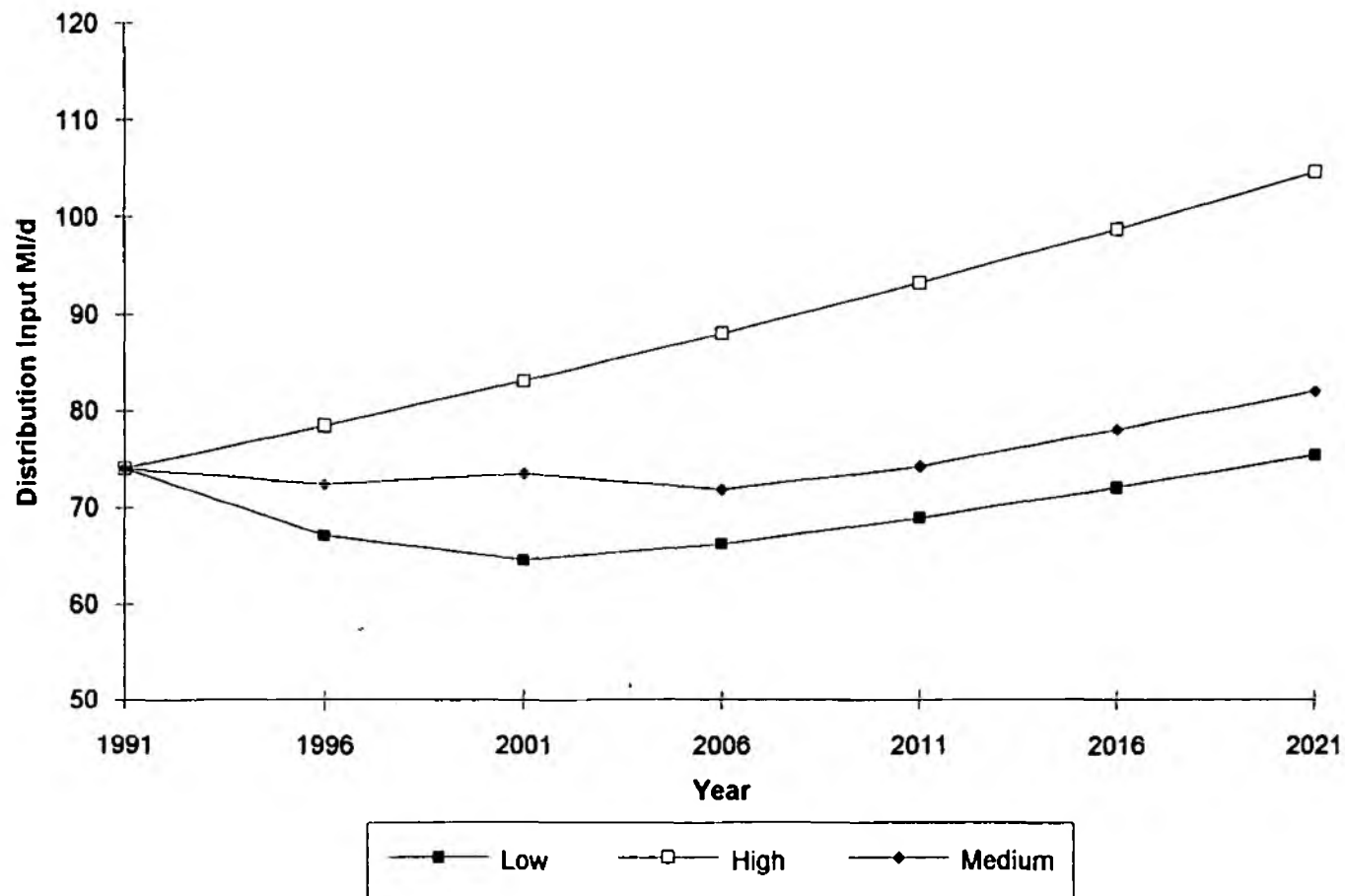
NRA demand forecast range for North West Water



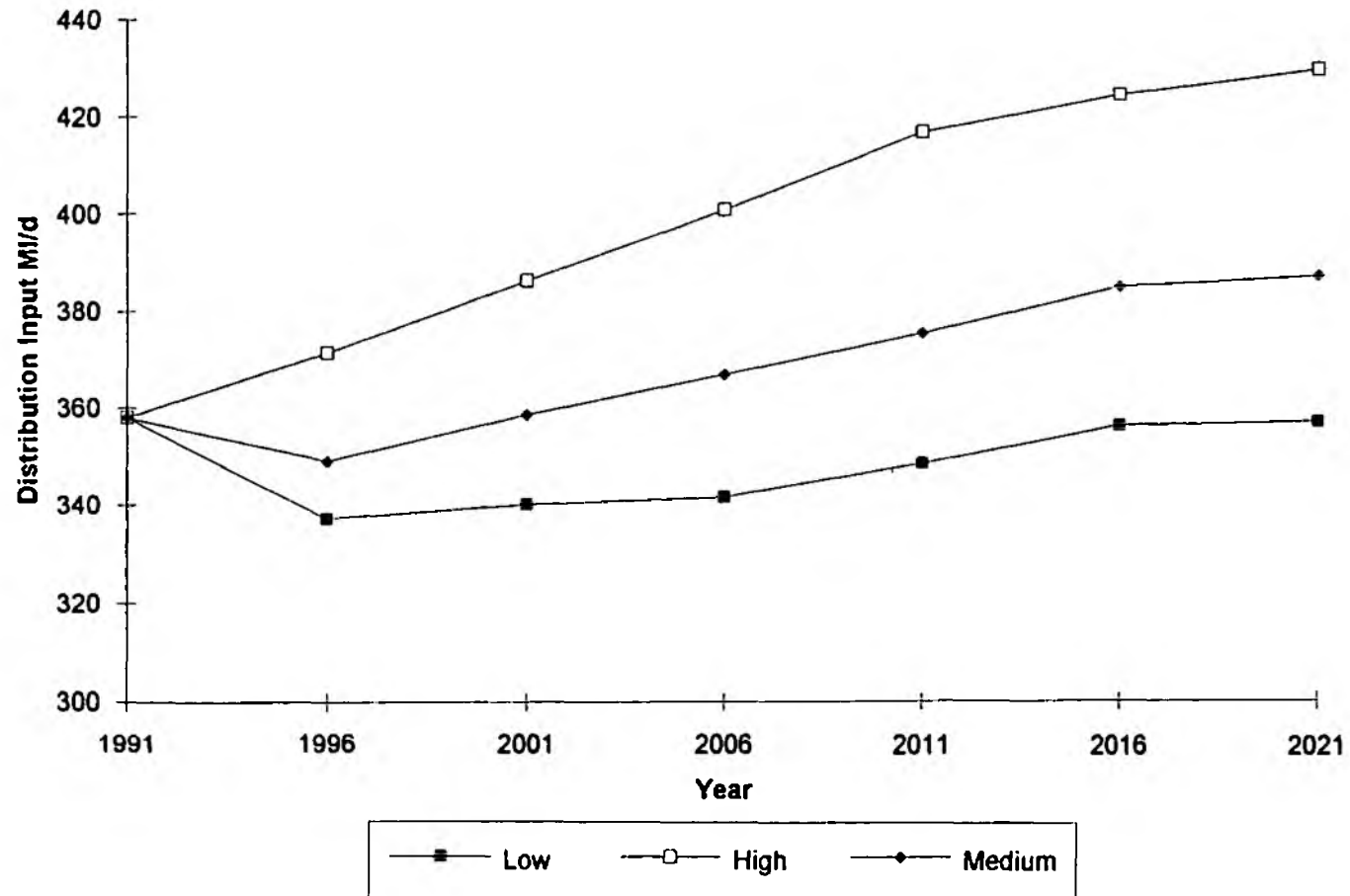
NRA demand forecast range for Severn Trent Water



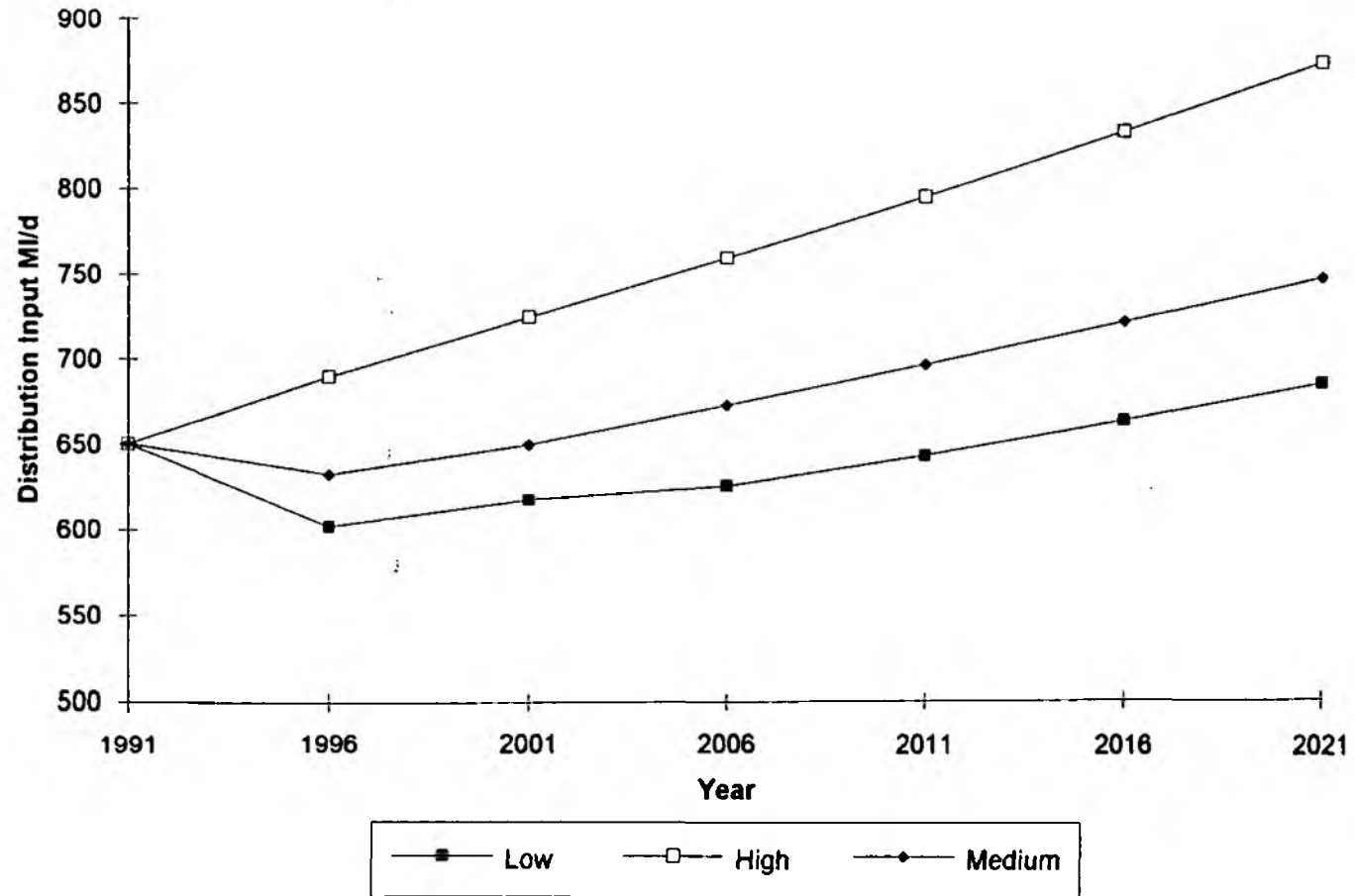
NRA demand forecast range for East Worcester Water Company



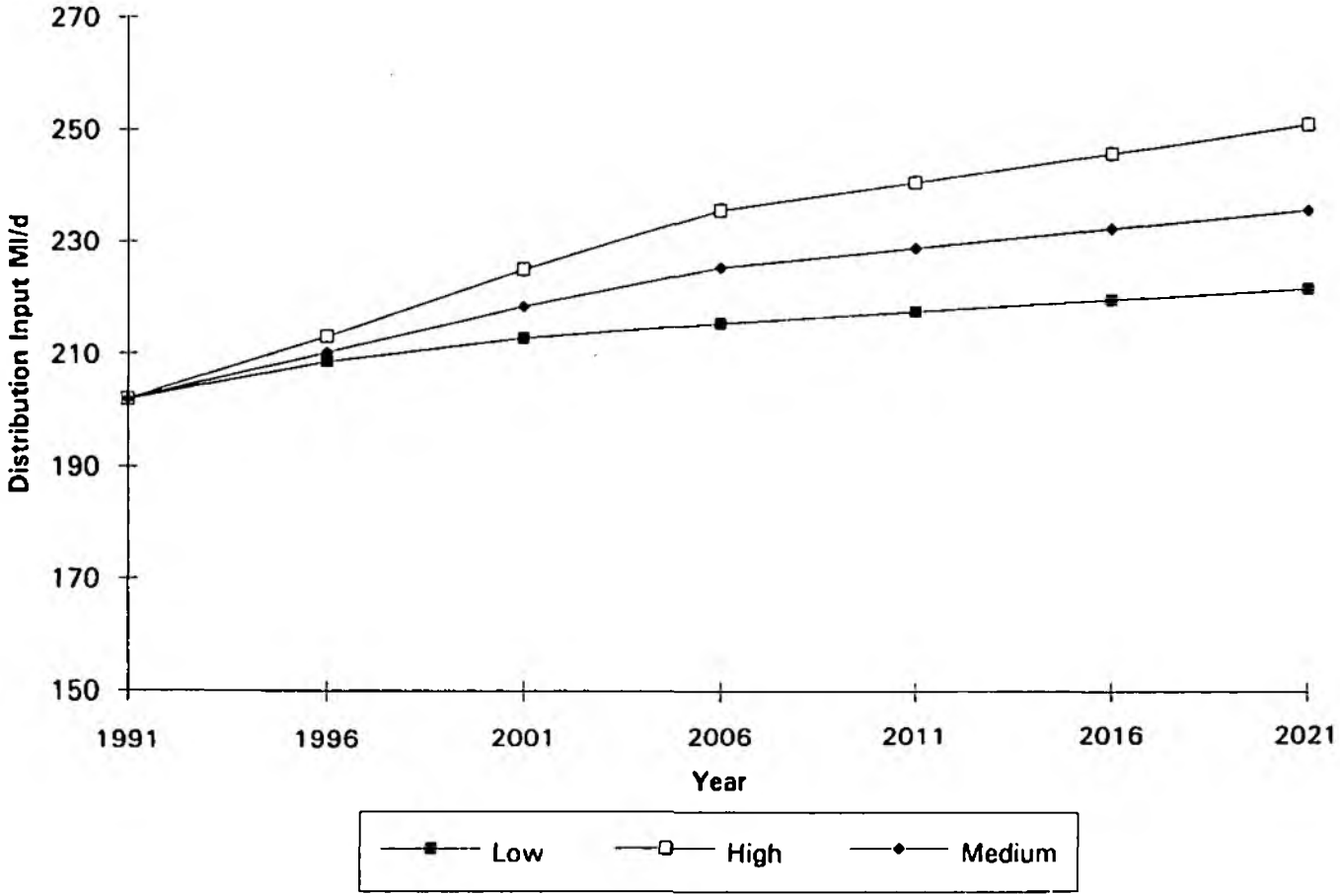
NRA demand forecast range for South Staffs Water



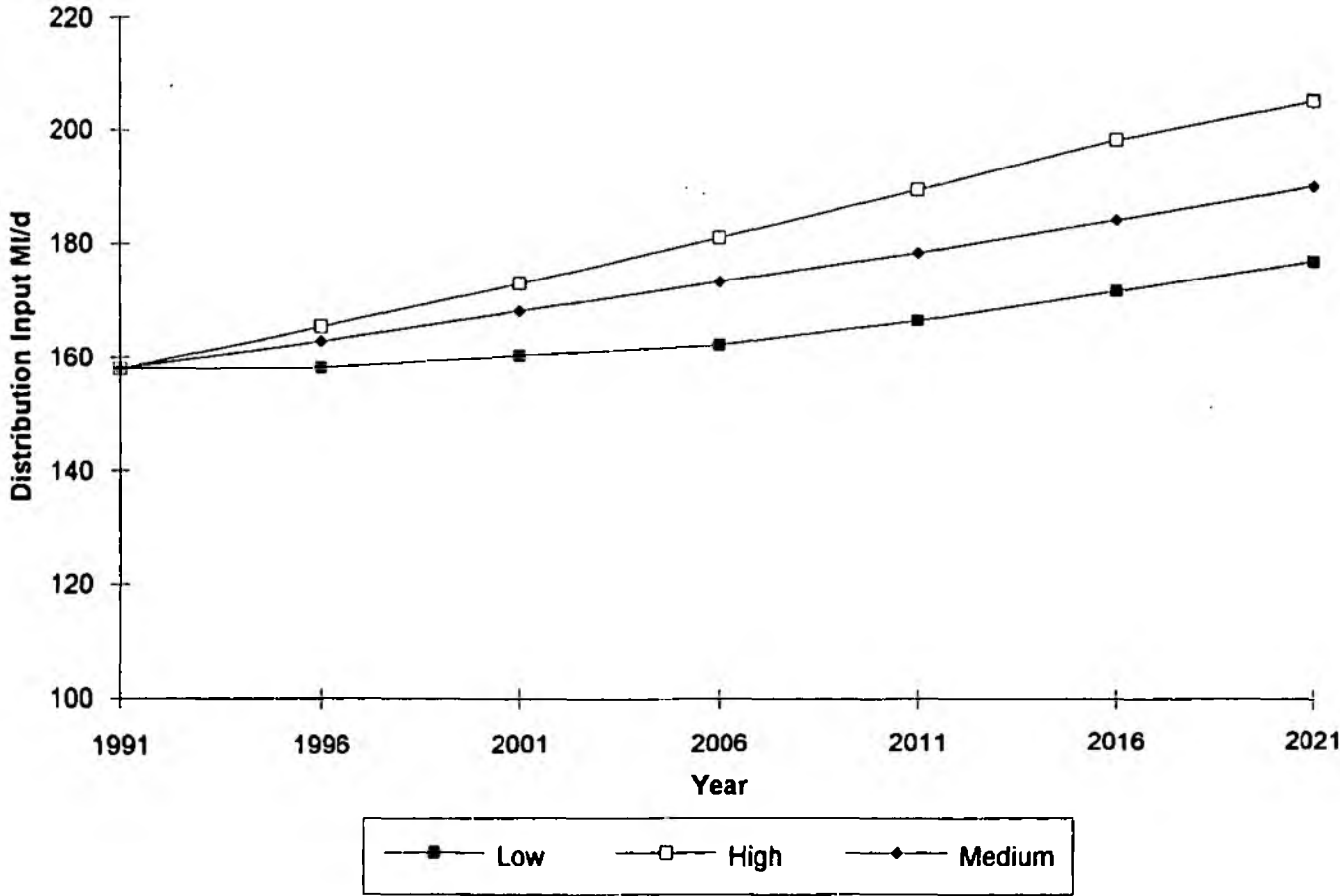
NRA demand forecast range for Southern Water Services



Demand forecast range for Portsmouth Water Company



NRA demand forecast range for South East Water



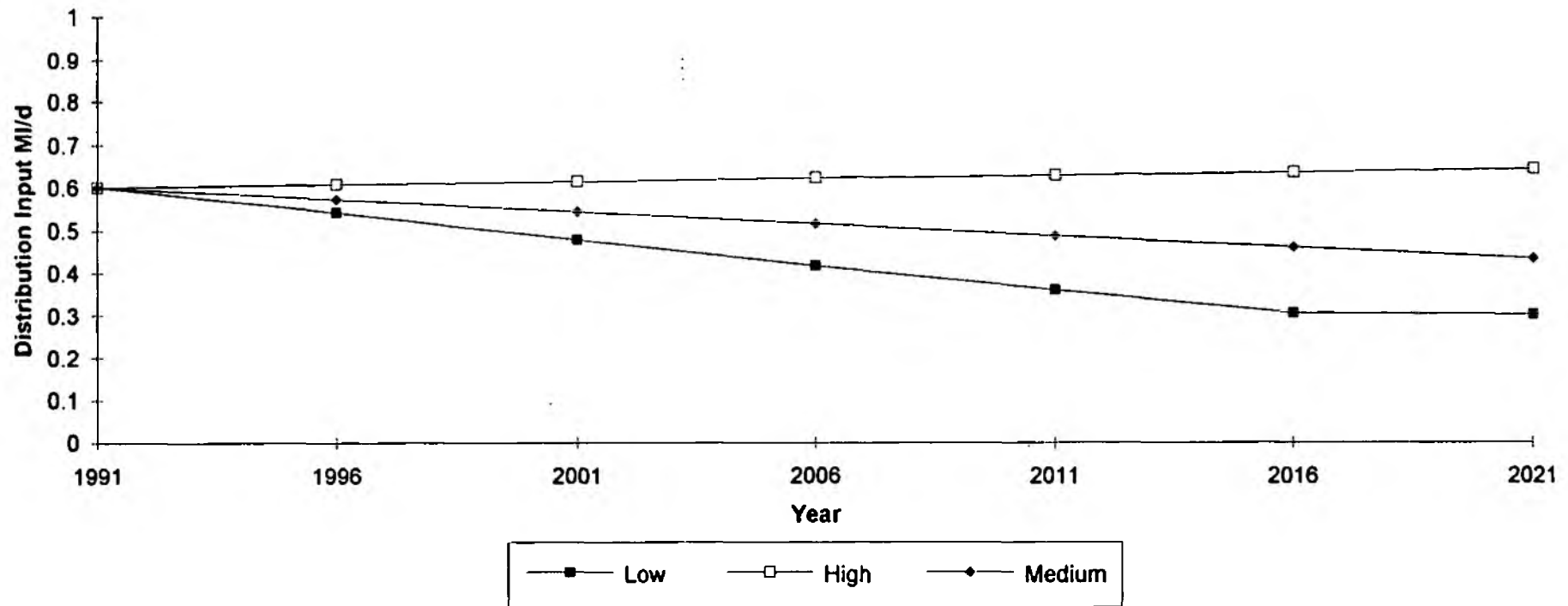
COMPANY DEMAND SCENARIOS

MID KENT									
CORE DATA		SOURCE							
Distribution Input 1991 (Mdd)	(a)	Input	155						
Total Metered (Mdd)	(b)	Input	37.7						
Unm Non household (Mdd)	(c)	Input	2.6						
Proportion 1991 prop meter	(d)	Input	0.0163						
Weighted ave PCC	(j)	Input	146						
LINKED DATA		SOURCE							
Population	(e)	Input	526700	530442	534184	537926	541669	545411	549153
PCC Suppression	(i)	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	(f)	Input	2.64	2.61	2.57	2.54	2.51	2.47	2.44
PCC unzm. growth (%) - Low	(r1)	Input	0	0.64	0.64	0.64	0.64	0.73	0.75
PCC unzm. growth (%) - High	(r2)	Input	0	1	1	1	1	1	1
PCC unzm. growth (%) - Med	(r3)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	(x1)	Input	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	(x2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	(x3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	(y1)	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	(y2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	(y3)	Input	0	0.3	0.3	0.3	0.3	0.3	0.3
Prop. properties meter - Low	(d1)	Input	0	0.0165	0.15	0.3	0.3	0.3	0.3
Prop. properties meter - High	(d2)	Input	0	0.0165	0.0165	0.0165	0.0165	0.0165	0.0165
Prop. properties meter - Med	(d3)	Input	0	0.0165	0.03	0.06	0.09	0.12	0.15
Unm. night flow (l/yr/hr) - Low	(w1)	Input	9.79	6	4	6	6	6	6
Unm. night flow (l/yr/hr) - High	(w2)	Input	9.79	9.79	9.79	9.79	9.79	9.79	9.79
Unm. night flow (l/yr/hr) - Med	(w3)	Input	9.79	7.29	7	7	7	7	7
BASELINE 1991		SOURCE							
Existing metered dom. propa	(g)	(wf)*d	3291.875						
Unm. dom. propa	(h)	(w/1) - g	196215.701						
Metered households (Mdd)	(k)	(g * f * j) * i / 10^6	1.14						
Metered non h'holds (Mdd)	(l)	b - k	36.56						
Unmetered h'hold (Mdd)	(m)	(h * f * j) / 10^6	75.63						
Distr. Input less UFW (Mdd)	(n)	m + b + c	115.93						
UFW	(p)	a - n	39.07						
Night flow (l/yr/h)	(q)	((p * 10^6) * (g+h)) / 20	9.79						
LOW		SOURCE							
Unm. dom. propa	(h1)	(e - ((g + ab) * f)) / f	199881.11	176675.64	148247.32	151063.07	154569.92	157543.89	
Unmetered PCC (l/h/d)	(i1)	j * ((1+(r1/100))^5)	150.73	155.62	160.66	165.87	172.18	178.74	
Metered PCC (l/h/d)	(u)	t * i	135.66	140.06	144.60	149.28	154.96	160.86	
Unm. non h'holds (Mdd)	(c1)	e * ((1+(x1/100))^5)	2.60	2.60	2.60	2.60	2.60	2.60	
Mst. non h'holds (Mdd)	(l1)	1 * ((1+(y1/100))^5)	36.56	36.56	36.56	36.56	36.56	36.56	
Unmetered h'hold (Mdd)	(m1)	(h1 * f * j) / 10^6	78.64	70.66	60.50	62.89	63.74	68.71	
Metered households (Mdd)	(k1)	((g + ab) * f * u) / 10^6	1.19	11.22	23.33	24.26	25.36	26.50	
Total household (Mdd)	(v)	m1 + k1	79.82	81.88	83.83	87.15	91.09	95.21	
Distr. Input less UFW (Mdd)	(n1)	v + c1 + l1	118.98	121.04	122.99	126.31	130.25	134.37	
New dom. mat. propa	(ab)	((wf)*d1) - g [enter W if -ve]	61.49	27886.18	60242.69	61449.44	62952.38	64226.94	
Total domestic properties	(z)	a / f	203234.48	207853.70	211781.89	215804.38	220814.17	225062.70	
Metered prop UFW redn (Mdd)	(am)	(1.5 * 20 * (g + ab)) / 10^6	0.10	0.94	1.91	1.94	1.99	2.03	
UFW (Mdd)	(p1)	((w2 * z * 20) / 10^6) - m	24.29	24.01	23.51	23.95	24.51	24.98	
Distribution Input (Mdd)	(ac)	p1 + n1	143.27	145.05	146.50	150.26	154.76	159.35	
HIGH		SOURCE							
Unm. dom. propa	(h1)	(e - ((g + ab) * f)) / f	199881.11	204424.11	208287.49	212243.61	217170.74	221349.17	
Unmetered PCC (l/h/d)	(i1)	j * ((1+(r2/100))^5)	153.45	161.27	169.50	178.15	187.24	189.00	
Metered PCC (l/h/d)	(u)	t * i	153.45	161.27	169.50	178.15	187.24	189.00	
Unm. non h'holds (Mdd)	(c1)	e * ((1+(x2/100))^5)	2.70	2.80	2.91	3.02	3.13	3.25	
Mst. non h'holds (Mdd)	(l1)	1 * ((1+(y2/100))^5)	37.95	39.39	40.89	42.45	44.07	45.74	
Unmetered h'hold (Mdd)	(m1)	(h1 * f * j) / 10^6	80.05	84.73	89.67	94.90	100.44	102.08	
Metered households (Mdd)	(k1)	((g + ab) * f * u) / 10^6	1.34	1.42	1.50	1.59	1.68	1.71	
Total household (Mdd)	(v)	m1 + k1	81.39	86.15	91.18	96.50	102.12	103.79	
Distr. Input less UFW (Mdd)	(n1)	v + c1 + l1	122.04	128.35	134.98	141.97	149.32	152.79	
New dom. mat. propa	(ab)	((wf)*d2) - g [enter W if -ve]	61.49	137.71	202.53	268.90	331.56	421.66	
Total domestic properties	(z)	a / f	203234.48	207853.70	211781.89	215804.38	220814.17	225062.70	
Metered prop UFW redn (Mdd)	(am)	(1.5 * 20 * (g + ab)) / 10^6	0.10	0.10	0.10	0.11	0.11	0.11	
UFW (Mdd)	(p1)	((w2 * z * 20) / 10^6) - m	39.69	40.39	41.36	42.15	43.13	43.96	
Distribution Input (Mdd)	(ac)	p1 + n1	161.74	168.94	176.34	184.11	192.45	196.74	
MEDIUM		SOURCE							
Unm. dom. propa	(h1)	(e - ((g + ab) * f)) / f	199881.11	201618.09	199074.98	196381.99	194316.47	191303.30	
Unmetered PCC (l/h/d)	(i1)	j * ((1+(r3/100))^5)	150.73	155.62	160.66	165.87	172.18	178.74	
Metered PCC (l/h/d)	(u)	t * i	135.66	140.06	144.60	149.28	154.96	160.86	
Unm. non h'holds (Mdd)	(c1)	e * ((1+(x3/100))^5)	2.67	2.73	2.80	2.87	2.95	3.02	
Mst. non h'holds (Mdd)	(l1)	1 * ((1+(y3/100))^5)	37.48	38.43	39.40	40.39	41.41	42.46	
Unmetered h'hold (Mdd)	(m1)	(h1 * f * j) / 10^6	78.64	80.63	81.24	81.76	82.64	83.43	
Metered households (Mdd)	(k1)	((g + ab) * f * u) / 10^6	1.19	2.24	4.67	7.28	10.14	13.25	
Total household (Mdd)	(v)	m1 + k1	79.82	82.88	85.91	89.04	92.78	96.68	
Distr. Input less UFW (Mdd)	(n1)	v + c1 + l1	119.97	124.04	128.11	132.30	137.14	142.16	
New dom. mat. propa	(ab)	((wf)*d3) - g [enter W if -ve]	61.49	2943.74	9415.04	16130.52	23205.82	30467.53	
Total domestic properties	(z)	a / f	203234.48	207853.70	211781.89	215804.38	220814.17	225062.70	
Metered prop UFW redn (Mdd)	(am)	(1.5 * 20 * (g + ab)) / 10^6	0.10	0.19	0.38	0.58	0.79	1.01	
UFW (Mdd)	(p1)	((w3 * z * 20) / 10^6) - m	29.53	28.91	29.27	29.63	30.12	30.50	
Distribution Input (Mdd)	(ac)	p1 + n1	149.50	152.95	157.37	161.93	167.26	172.66	

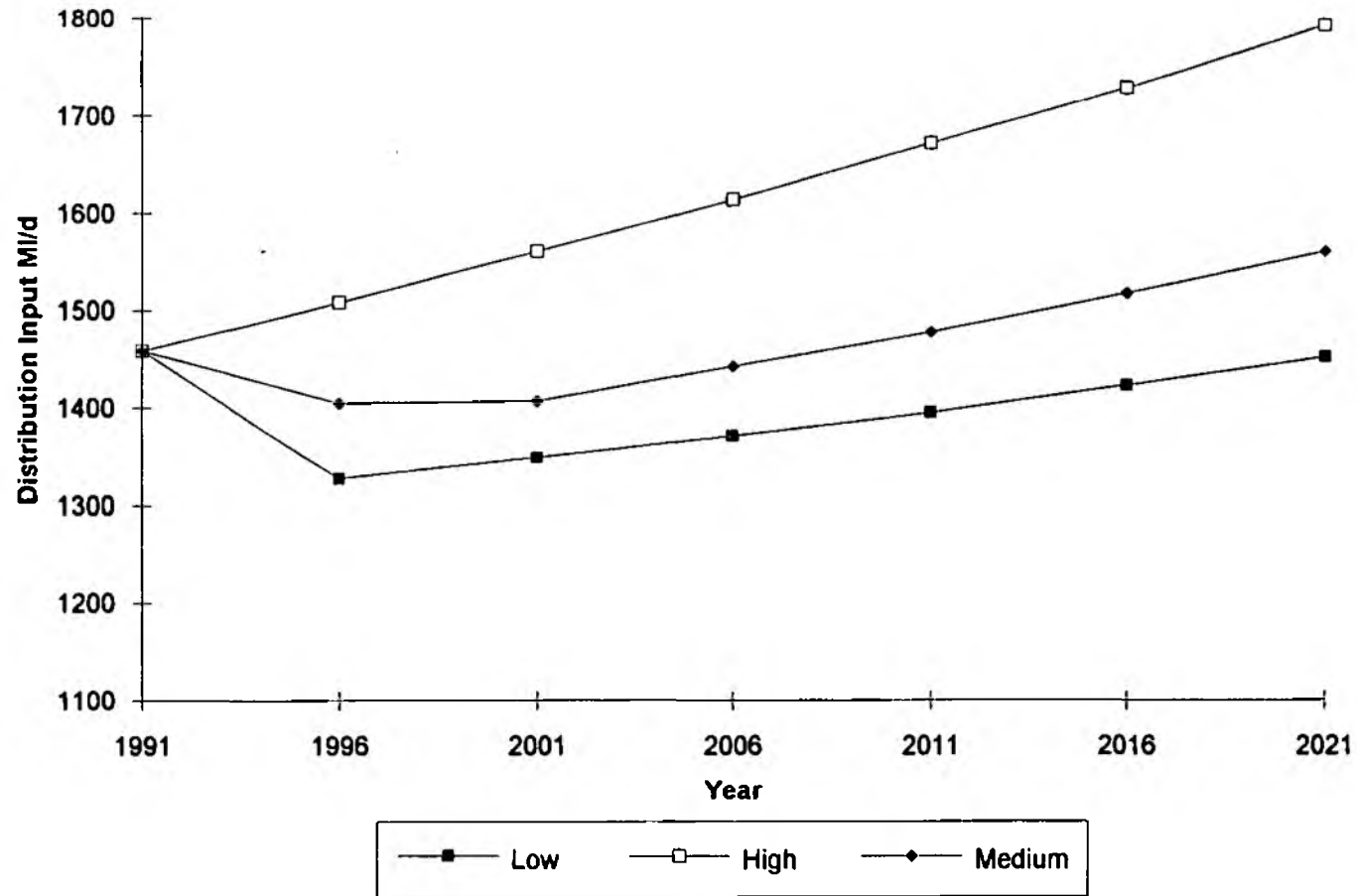
COMPANY DEMAND SCENARIOS

SOURCE									
1991 (Mtd)	(a)	Input	0.6						
(Mtd)	(b)	Input	0						
household (Mtd)	(c)	Input	0						
1991 prop meter		Input	0.0255						
Weighted ave PCC	(j)	Input	140						
LINKED DATA									
		SOURCE	1991	1996	2001	2006	2011	2016	2021
Population	(e)	Input	1556	1539	1523	1506	1489	1473	1456
PCC Suppression	(i)	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	(f)	Input	2.55	2.53	2.52	2.5	2.49	2.47	2.46
PCC unm. growth (%) - Low	(r1)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
PCC unm. growth (%) - High	(r2)	Input	0	1	1	1	1	1	1
PCC unm. growth (%) - Med	(r3)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	(x1)	Input	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	(x2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	(x3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	(y1)	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	(y2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	(y3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	(d1)	Input	0	0.0255	0.15	0.3	0.3	0.3	0.3
Prop. properties meter - High	(d2)	Input	0	0.0255	0.0255	0.0255	0.0255	0.0255	0.0255
Prop. properties meter - Med	(d3)	Input	0	0.0255	0.03	0.06	0.09	0.12	0.15
Unm. night flow (Vpr/h) - Low	(w1)	Input	31.77	26.77	21.77	16.77	11.77	6.77	6
Unm. night flow (Vpr/h) - High	(w2)	Input	31.77	31.77	31.77	31.77	31.77	31.77	31.77
Unm. night flow (Vpr/h) - Med	(w3)	Input	31.77	29.27	26.77	24.27	21.77	19.27	16.77
BASELINE 1991									
		SOURCE	1991						
Existing metered dom. props	(g)	(a/f)*d	15.56						
Unm. dom. props	(h)	(w/f) - g	594.636078						
Metered households (Mtd)	(k)	(g * f * j) / 10 ⁶	0.00						
Metered non h'hold (Mtd)	(l)	b - k	0.00						
Unmetered h'hold (Mtd)	(m)	(h * f * j) / 10 ⁶	0.21						
Distr. Input less UFW (Mtd)	(n)	m + b + c	0.21						
UFW	(p)	a - n	0.39						
Night flow (Vpr/h)	(q)	((p * 10 ⁶ * (g+h)) / 20	31.77						
LOW									
		SOURCE	1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	592.74	513.71	421.68	418.59	417.45	414.31	
Unmetered PCC (Vh/d)	(l)	j * ((1+(r1/100)) ⁵)	144.54	149.22	154.06	159.05	165.11	171.39	
Metered PCC (Vh/d)	(u)	t * i	130.08	134.30	138.65	143.15	148.60	154.25	
Unm. non h'holds (Mtd)	(c1)	c * ((1+(x1/100)) ⁵)	0.00	0.00	0.00	0.00	0.00	0.00	
Med. non h'holds (Mtd)	(l1)	l * ((1+(y1/100)) ⁵)	0.00	0.00	0.00	0.00	0.00	0.00	
Unmetered h'hold (Mtd)	(m1)	(h1 * f * j) / 10 ⁶	0.22	0.19	0.16	0.17	0.17	0.17	
Metered households (Mtd)	(k1)	((g + ab) * f * u) / 10 ⁶	0.01	0.03	0.06	0.06	0.07	0.07	
Total household (Mtd)	(v)	m1 + k1	0.22	0.22	0.23	0.23	0.24	0.24	
Distr. Input less UFW (Mtd)	(n1)	v + c1 + l1	0.22	0.22	0.22	0.22	0.23	0.24	
New dom. mat. props	(ab)	((w/f)*d1) - g [enter 0 if -ve]	0.00	75.09	165.16	163.84	163.35	162.00	
Total domestic properties	(z)	a / f	608.30	604.37	602.40	597.99	596.36	591.87	
Metered prop UFW redn (Mtd)	(as)	(1.5*20 * (g + ab)) / 10 ⁶	0.00	0.00	0.01	0.01	0.01	0.01	
UFW (Mtd)	(p1)	((w1 * z * 20) / 10 ⁶) - am	0.33	0.26	0.20	0.14	0.08	0.07	
Distribution Input (Mtd)	(ac)	p1 + n1	0.54	0.48	0.42	0.36	0.31	0.30	
HIGH									
		SOURCE	1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	592.74	588.81	586.84	582.43	580.80	576.31	
Unmetered PCC (Vh/d)	(l)	j * ((1+(r2/100)) ⁵)	147.14	154.65	162.54	170.83	179.54	188.70	
Metered PCC (Vh/d)	(u)	t * i	147.14	154.65	162.54	170.83	179.54	188.70	
Unm. non h'holds (Mtd)	(c1)	c * ((1+(x2/100)) ⁵)	0.00	0.00	0.00	0.00	0.00	0.00	
Med. non h'holds (Mtd)	(l1)	l * ((1+(y2/100)) ⁵)	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	
Unmetered h'hold (Mtd)	(m1)	(h1 * f * j) / 10 ⁶	0.22	0.23	0.24	0.25	0.26	0.27	
Metered households (Mtd)	(k1)	((g + ab) * f * u) / 10 ⁶	0.01	0.01	0.01	0.01	0.01	0.01	
Total household (Mtd)	(v)	m1 + k1	0.23	0.24	0.24	0.25	0.26	0.27	
Distr. Input less UFW (Mtd)	(n1)	v + c1 + l1	0.22	0.23	0.24	0.25	0.26	0.27	
New dom. mat. props	(ab)	((w/f)*d2) - g [enter 0 if -ve]	0.00	0.00	0.00	0.00	0.00	0.00	
Total domestic properties	(z)	a / f	608.30	604.37	602.40	597.99	596.36	591.87	
Metered prop UFW redn (Mtd)	(as)	(1.5*20 * (g + ab)) / 10 ⁶	0.00	0.00	0.00	0.00	0.00	0.00	
UFW (Mtd)	(p1)	((w2 * z * 20) / 10 ⁶) - am	0.39	0.38	0.38	0.38	0.38	0.38	
Distribution Input (Mtd)	(ac)	p1 + n1	0.61	0.61	0.62	0.63	0.64	0.64	
MEDIUM									
		SOURCE	1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	592.74	586.23	586.26	584.17	584.79	583.09	
Unmetered PCC (Vh/d)	(l)	j * ((1+(r3/100)) ⁵)	144.54	149.22	154.06	159.05	165.11	171.39	
Metered PCC (Vh/d)	(u)	t * i	130.08	134.30	138.65	143.15	148.60	154.25	
Unm. non h'holds (Mtd)	(c1)	c * ((1+(x3/100)) ⁵)	0.00	0.00	0.00	0.00	0.00	0.00	
Med. non h'holds (Mtd)	(l1)	l * ((1+(y3/100)) ⁵)	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	
Unmetered h'hold (Mtd)	(m1)	(h1 * f * j) / 10 ⁶	0.22	0.22	0.22	0.22	0.21	0.21	
Metered households (Mtd)	(k1)	((g + ab) * f * u) / 10 ⁶	0.01	0.01	0.01	0.02	0.03	0.03	
Total household (Mtd)	(v)	m1 + k1	0.22	0.23	0.23	0.23	0.24	0.25	
Distr. Input less UFW (Mtd)	(n1)	v + c1 + l1	0.22	0.22	0.23	0.23	0.23	0.24	
New dom. mat. props	(ab)	((w/f)*d3) - g [enter 0 if -ve]	0.00	2.57	20.58	38.26	56.00	73.22	
Total domestic properties	(z)	a / f	608.30	604.37	602.40	597.99	596.36	591.87	
Metered prop UFW redn (Mtd)	(as)	(1.5*20 * (g + ab)) / 10 ⁶	0.00	0.00	0.00	0.00	0.00	0.00	
UFW (Mtd)	(p1)	((w3 * z * 20) / 10 ⁶) - am	0.36	0.32	0.29	0.26	0.23	0.20	
Distribution Input (Mtd)	(ac)	p1 + n1	0.57	0.54	0.52	0.49	0.46	0.44	

NRA demand forecast range for Cholderton Water Company



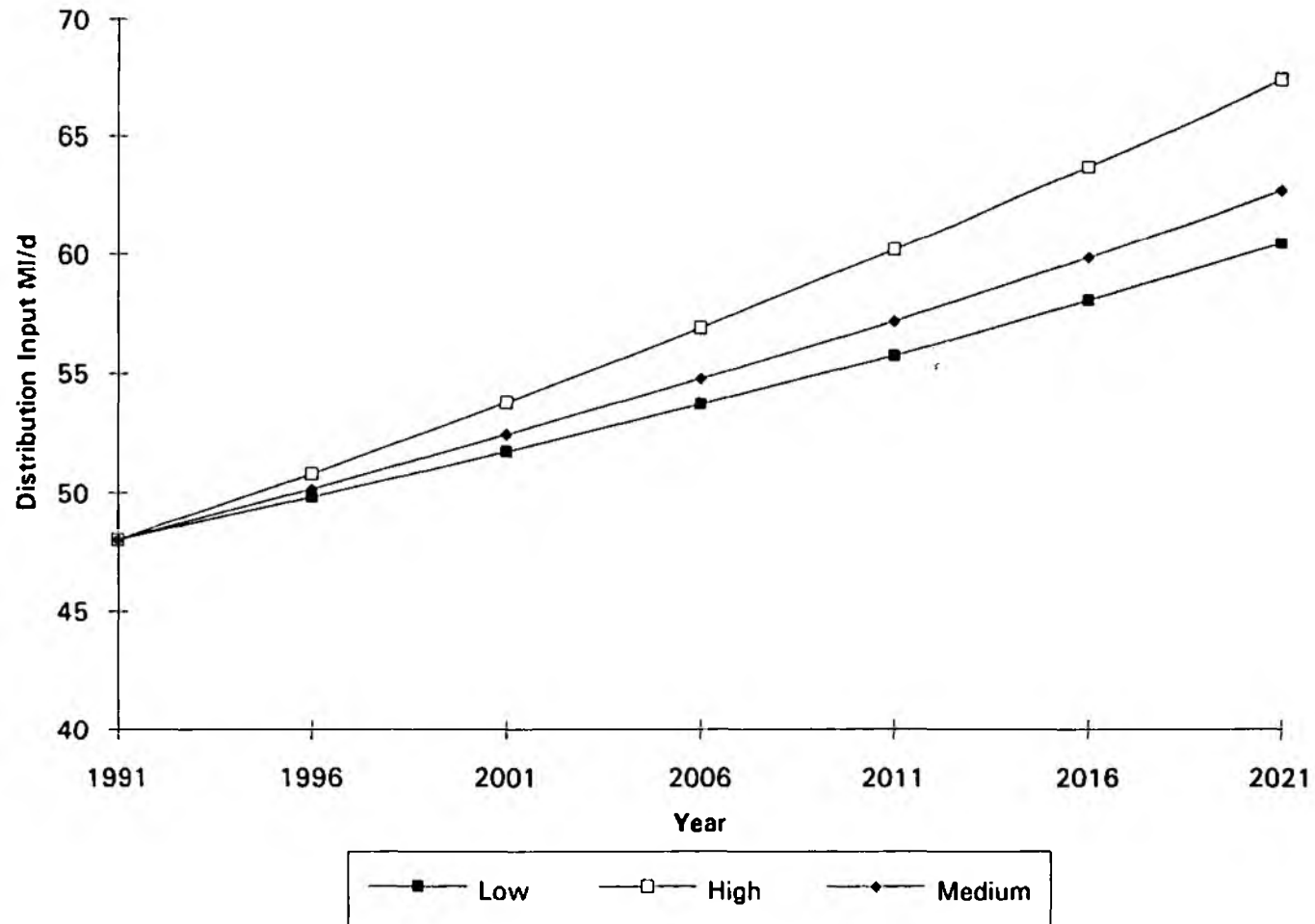
NRA demand forecast range for Yorkshire Water



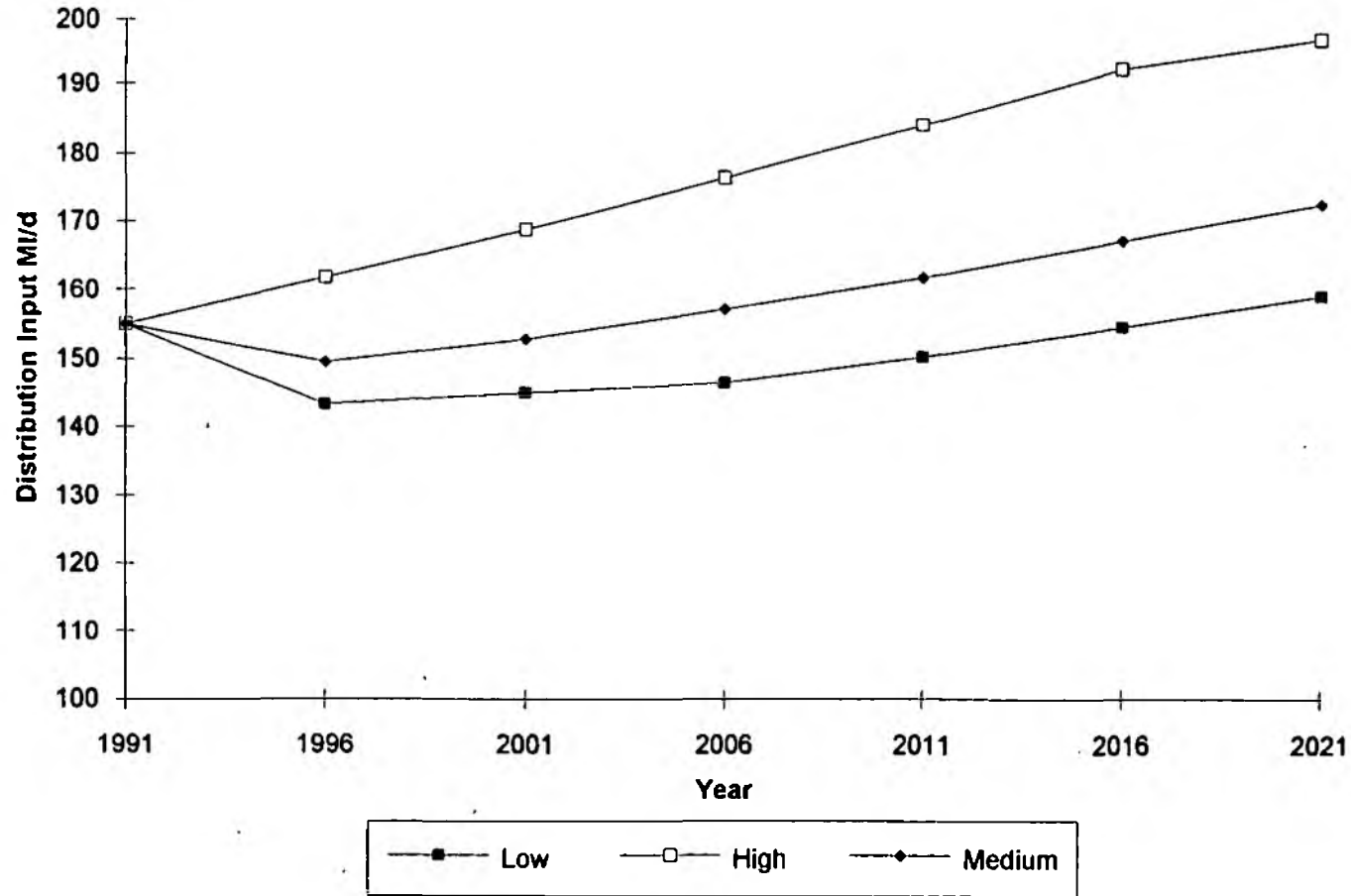
COMPANY DEMAND SCENARIOS

YORK WATER									
CORE DATA				SOURCE					
Distribution Input 1991 (Mhd)	(a)	Input	48						
Total Metered (Mhd)	(b)	Input	12.9						
Unm Non household (Mhd)	(c)	Input	0.8						
Proportion 1991 prop meter	(d)	Input	0.0006						
Weighted ave PCC	(j)	Input	138						
LINKED DATA				SOURCE					
Population	(e)	Input	175000	179500	184000	188500	193000	197500	202000
PCC Suppression	(f)	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	(7)	Input	2.54	2.51	2.47	2.44	2.41	2.38	2.35
PCC un. growth (%) - Low	(r1)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
PCC un. growth (%) - High	(r2)	Input	0	1	1	1	1	1	1
PCC un. growth (%) - Med	(r3)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	(x1)	Input	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	(x2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	(x3)	Input	0	0.3	0.3	0.3	0.3	0.3	0.3
M. non hh growth (%) - Low	(y1)	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	(y2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	(y3)	Input	0	0.3	0.3	0.3	0.3	0.3	0.3
Prop. properties meter - Low	(d1)	Input	0	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Prop. properties meter - High	(d2)	Input	0	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Prop. properties meter - Med	(d3)	Input	0	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Unm. night flow (l/yr/h) - Low	(w1)	Input	7.38	7.38	7.38	7.38	7.38	7.38	7.38
Unm. night flow (l/yr/h) - High	(w2)	Input	7.38	7.38	7.38	7.38	7.38	7.38	7.38
Unm. night flow (l/yr/h) - Med	(w3)	Input	7.38	7.38	7.38	7.38	7.38	7.38	7.38
BASELINE 1991				SOURCE					
Existing metered dom. props	(g)	(e/f)*d	41338.58						
Unm. dom. props	(h)	(e/f) - g	68856.3						
Metered households (Mhd)	(k)	(g * f * j) / 10^6	0.01						
Metered non h'hold (Mhd)	(l)	b - k	12.89						
Unmetered h'hold (Mhd)	(m)	(h * f * j) / 10^6	24.14						
Dist. input less UFW (Mhd)	(n)	m + b + c	37.84						
UFW	(p)	a - n	10.16						
Night flow (l/yr/h)	(q)	((p * 10^6) / (g+h)) / 20	7.38						
LOW				SOURCE					
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	71471.04	74449.23	77207.75	80034.94	82933.40	85905.87	
Unmetered PCC (l/h/d)	(j)	j * ((1 + (r1/100))^5)	142.47	147.09	151.86	156.78	162.75	168.94	
Metered PCC (l/h/d)	(u)	i * i	128.23	132.38	136.67	141.10	146.47	152.05	
Unm. non h'holds (Mhd)	(c1)	c * ((1 + (x1/100))^5)	0.80	0.80	0.80	0.80	0.80	0.80	
Met. non h'holds (Mhd)	(l1)	l * ((1 + (y1/100))^5)	12.89	12.89	12.89	12.89	12.89	12.89	
Unmetered h'hold (Mhd)	(m1)	(h1 * f * j) / 10^6	25.56	27.05	28.61	30.24	32.12	34.11	
Metered households (Mhd)	(k1)	((g + ab) * f * u) / 10^6	0.01	0.01	0.02	0.02	0.02	0.02	
Total household (Mhd)	(v)	m1 + k1	25.57	27.06	28.62	30.26	32.14	34.12	
Dist. input less UFW (Mhd)	(n1)	v + c1 + l1	39.26	40.75	42.31	43.94	45.83	47.81	
New dom. met. props	(ab)	((e/f)*d1) - g [enter 0 if -ve]	1.57	3.36	5.01	6.71	8.45	10.24	
Total domestic properties	(z)	e / f	71513.94	74493.93	77254.10	80082.99	82983.19	85957.45	
Metered prop UFW radn. (Mhd)	(a1)	(1.5 * 20 * (g + ab)) / 10^6	0.00	0.00	0.00	0.00	0.00	0.00	
UFW (Mhd)	(p1)	((w1 * z * 20) / 10^6) - m	10.55	10.99	11.40	11.82	12.25	12.69	
Distribution Input (Mhd)	(ac)	p1 + n1	49.81	51.74	53.71	55.76	57.97	60.50	
HIGH				SOURCE					
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	71471.04	74449.23	77207.75	80034.94	82933.40	85905.87	
Unmetered PCC (l/h/d)	(j)	j * ((1 + (r2/100))^5)	145.04	152.44	160.21	168.39	176.98	186.00	
Metered PCC (l/h/d)	(u)	i * i	145.04	152.44	160.21	168.39	176.98	186.00	
Unm. non h'holds (Mhd)	(c1)	c * ((1 + (x2/100))^5)	0.83	0.86	0.89	0.93	0.96	1.00	
Met. non h'holds (Mhd)	(l1)	l * ((1 + (y2/100))^5)	13.38	13.89	14.42	14.96	15.53	16.13	
Unmetered h'hold (Mhd)	(m1)	(h1 * f * j) / 10^6	26.02	28.03	30.18	32.48	34.93	37.55	
Metered households (Mhd)	(k1)	((g + ab) * f * u) / 10^6	0.02	0.02	0.02	0.02	0.02	0.02	
Total household (Mhd)	(v)	m1 + k1	26.03	28.05	30.20	32.50	34.95	37.57	
Dist. input less UFW (Mhd)	(n1)	v + c1 + l1	40.24	42.80	45.51	48.39	51.45	54.70	
New dom. met. props	(ab)	((e/f)*d2) - g [enter 0 if -ve]	1.57	3.36	5.01	6.71	8.45	10.24	
Total domestic properties	(z)	e / f	71513.94	74493.93	77254.10	80082.99	82983.19	85957.45	
Metered prop UFW radn. (Mhd)	(a1)	(1.5 * 20 * (g + ab)) / 10^6	0.00	0.00	0.00	0.00	0.00	0.00	
UFW (Mhd)	(p1)	((w2 * z * 20) / 10^6) - m	10.55	10.99	11.40	11.82	12.25	12.69	
Distribution Input (Mhd)	(ac)	p1 + n1	50.80	53.79	56.91	60.21	63.70	67.38	
MEDIUM				SOURCE					
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	71471.04	74449.23	77207.75	80034.94	82933.40	85905.87	
Unmetered PCC (l/h/d)	(j)	j * ((1 + (r3/100))^5)	142.47	147.09	151.86	156.78	162.75	168.94	
Metered PCC (l/h/d)	(u)	i * i	128.23	132.38	136.67	141.10	146.47	152.05	
Unm. non h'holds (Mhd)	(c1)	c * ((1 + (x3/100))^5)	0.82	0.84	0.86	0.88	0.91	0.93	
Met. non h'holds (Mhd)	(l1)	l * ((1 + (y3/100))^5)	13.21	13.55	13.89	14.24	14.60	14.97	
Unmetered h'hold (Mhd)	(m1)	(h1 * f * j) / 10^6	25.56	27.05	28.61	30.24	32.12	34.11	
Metered households (Mhd)	(k1)	((g + ab) * f * u) / 10^6	0.01	0.01	0.02	0.02	0.02	0.02	
Total household (Mhd)	(v)	m1 + k1	25.57	27.06	28.62	30.26	32.14	34.12	
Dist. input less UFW (Mhd)	(n1)	v + c1 + l1	39.60	41.45	43.37	45.38	47.65	50.02	
New dom. met. props	(ab)	((e/f)*d3) - g [enter 0 if -ve]	1.57	3.36	5.01	6.71	8.45	10.24	
Total domestic properties	(z)	e / f	71513.94	74493.93	77254.10	80082.99	82983.19	85957.45	
Metered prop UFW radn. (Mhd)	(a1)	(1.5 * 20 * (g + ab)) / 10^6	0.00	0.00	0.00	0.00	0.00	0.00	
UFW (Mhd)	(p1)	((w3 * z * 20) / 10^6) - m	10.55	10.99	11.40	11.82	12.25	12.69	
Distribution Input (Mhd)	(ac)	p1 + n1	50.16	52.44	54.78	57.20	59.89	62.71	

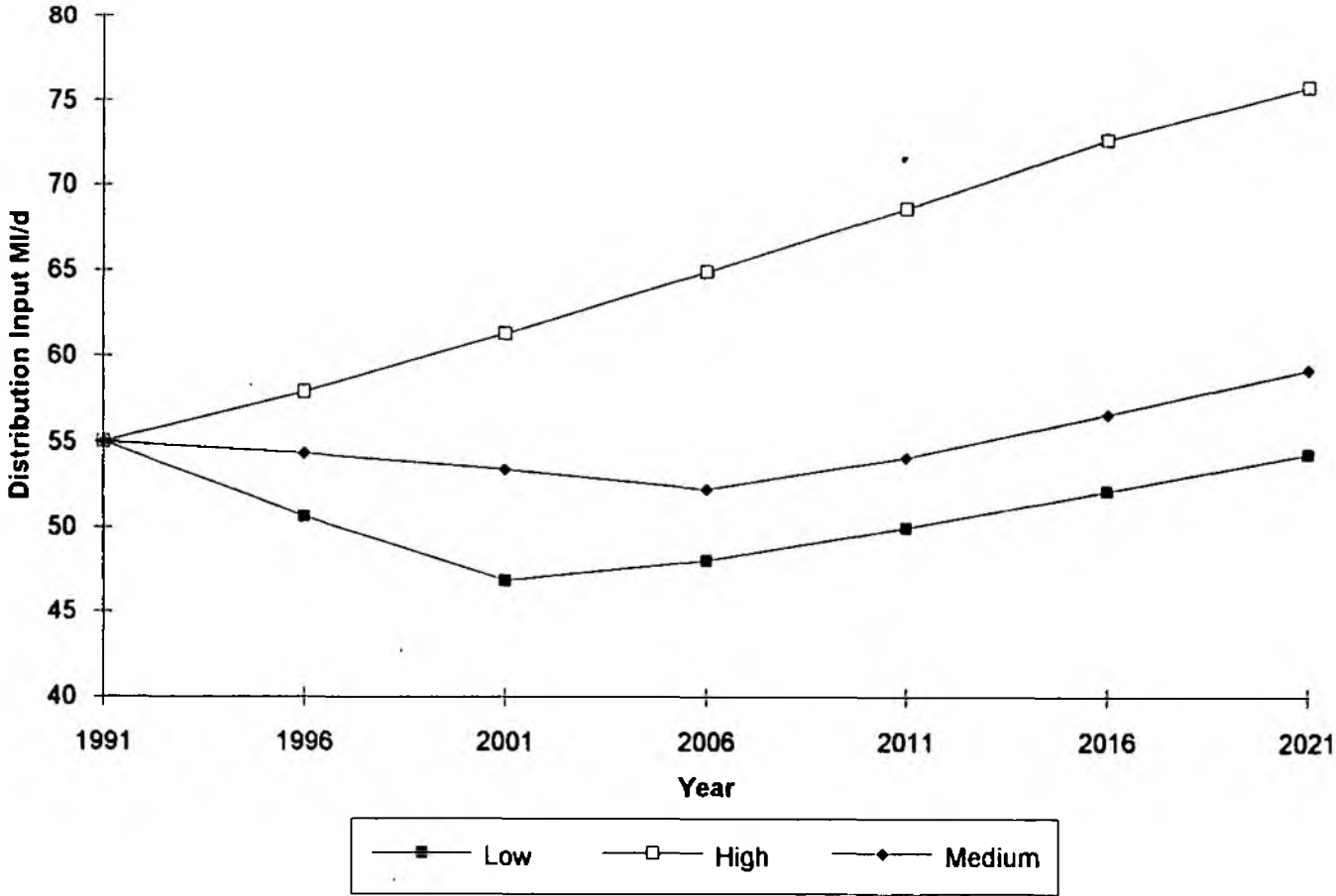
NRA demand forecast range for York Water



NRA demand forecast range for Mid Kent Water Company



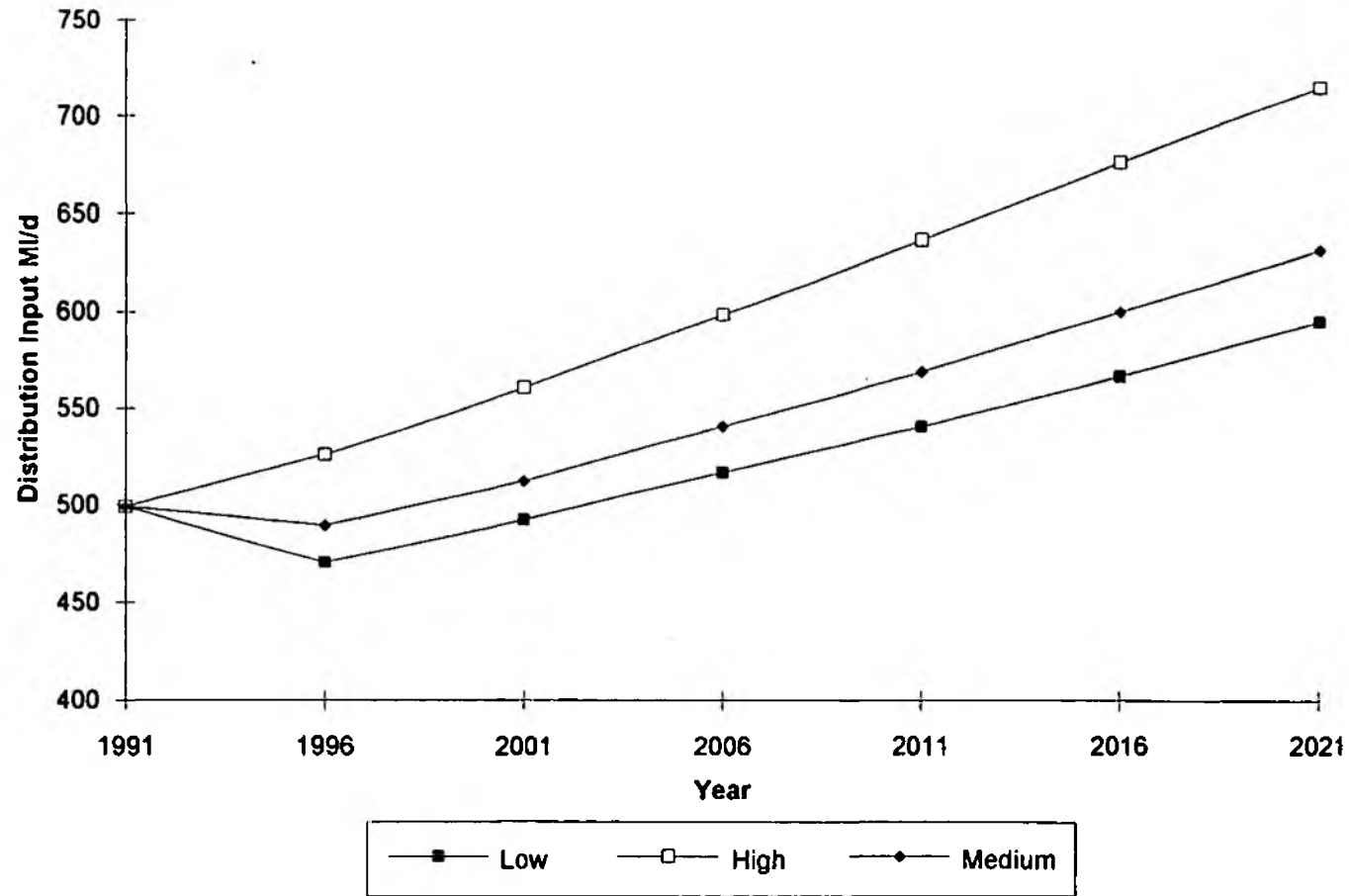
NRA demand forecast range for Folkestone & District Water Company



COMPANY DEMAND SCENARIOS

SOUTH WEST										
CORE DATA			SOURCE							
Distribution Input 1991 (M/d)	[a]	Input	499							
Total Metered (M/d)	[b]	Input	124.1							
Unm Non household (M/d)	[c]	Input	18.8							
Proportion 1991 prop meter	[d]	Input	0.0328							
Weighted ave PCC	[j]	Input	142							
LINKED DATA			SOURCE	1991	1996	2001	2006	2011	2016	2021
Population	[e]	Input	1435842	1471473	1530863	1591359	1648458	1705603	1762748	
PCC Suppression	[i]	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
Occupancy rate	[f]	Input	2.5	2.47	2.44	2.4	2.37	2.34	2.31	
PCC unm. growth (%) - Low	[r1]	Input	0	0.64	0.64	0.64	0.64	0.64	0.75	0.75
PCC unm. growth (%) - High	[r2]	Input	0	1	1	1	1	1	1	1
PCC unm. growth (%) - Med	[r3]	Input	0	0.64	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	[x11]	Input	0	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	[x2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	[x3]	Input	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0	0	0	0	0
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	[y3]	Input	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	[d11]	Input	0	0.0328	0.0328	0.0328	0.0328	0.0328	0.0328	0.0328
Prop. properties meter - High	[d2]	Input	0	0.0328	0.0328	0.0328	0.0328	0.0328	0.0328	0.0328
Prop. properties meter - Med	[d3]	Input	0	0.0328	0.0328	0.0328	0.0328	0.0328	0.0328	0.0328
Unm. night flow (Vp/yr) - Low	[w1]	Input	13.83	10	10	10	10	10	10	10
Unm. night flow (Vp/yr) - High	[w2]	Input	13.83	13.83	13.83	13.83	13.83	13.83	13.83	13.83
Unm. night flow (Vp/yr) - Med	[w3]	Input	13.83	11.33	11	11	11	11	11	11
BASELINE 1991			SOURCE	1991						
Existing metered dom. props	[g]	(e/f)*d	18838.247							
Unm. dom. props	[h]	(e/f) - g	553498.333							
Metered households (M/d)	[k]	(g * f * j * i) / 10^6	6.02							
Metered non h'hold (M/d)	[l]	b - k	118.08							
Unmetered h'hold (M/d)	[m]	(h * f * j) / 10^6	197.20							
Distr. Input less UFW (M/d)	[n]	m + b + c	340.10							
UFW	[p]	a - n	158.90							
Night flow (Vp/yr)	[q]	((p * 10^6) / (k+h)) / 20	13.83							
LOW			SOURCE	1996	2001	2006	2011	2016	2021	
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	576198.63	606824.85	641317.68	672737.80	704982.57	738064.88		
Unmetered PCC (Vh/d)	[i]	j * ((1 + (r/100))^5)	146.60	151.35	156.26	161.32	167.47	173.84		
Metered PCC (Vh/d)	[u]	t * i	131.94	136.22	140.63	145.19	150.72	156.46		
Unm. non h'holds (M/d)	[c1]	c * ((1 + (x1/100))^5)	18.80	18.80	18.80	18.80	18.80	18.80		
Mtr. non h'holds (M/d)	[l1]	l * ((1 + (y/100))^5)	118.08	118.08	118.08	118.08	118.08	118.08		
Unmetered h'hold (M/d)	[m1]	(h1 * f * j) / 10^6	208.65	224.10	240.51	257.21	276.26	296.39		
Metered households (M/d)	[k1]	((g + ab) * f * u) / 10^6	6.37	6.84	7.34	7.85	8.43	9.05		
Total household (M/d)	[v]	m1 + k1	215.01	230.94	247.85	265.06	284.69	305.43		
Distr. Input less UFW (M/d)	[n1]	v + c1 + l1	351.90	367.82	384.73	401.95	421.57	442.31		
New dom. met. props	[ab]	((e/f)*d2) - g (enter 0 if -ve)	701.99	1740.59	2910.33	3975.86	5069.35	6191.25		
Total domestic properties	[z]	e / f	595738.87	627403.69	663066.25	695551.90	728890.17	763094.37		
Metered prop UFW redn (M/d)	[m]	(1.5 * 20 * (g + ab)) / 10^6	0.59	0.62	0.65	0.68	0.72	0.75		
UFW (M/d)	[p1]	((w1 * 2 * 20) / 10^6) - m	118.56	124.86	131.96	138.43	145.06	151.87		
Distribution Input (M/d)	[ac]	p1 + n1	470.46	492.69	516.69	540.37	566.64	594.18		
HIGH			SOURCE	1996	2001	2006	2011	2016	2021	
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	576198.63	606824.85	641317.68	672737.80	704982.57	738064.88		
Unmetered PCC (Vh/d)	[i]	j * ((1 + (r/100))^5)	149.24	156.86	164.86	173.27	182.11	189.00		
Metered PCC (Vh/d)	[u]	t * i	149.24	156.86	164.86	173.27	182.11	189.00		
Unm. non h'holds (M/d)	[c1]	c * ((1 + (x2/100))^5)	19.52	20.26	21.03	21.83	22.66	23.52		
Mtr. non h'holds (M/d)	[l1]	l * ((1 + (y/100))^5)	122.58	127.24	132.09	137.11	142.33	147.73		
Unmetered h'hold (M/d)	[m1]	(h1 * f * j) / 10^6	212.40	232.25	253.74	276.25	300.41	322.23		
Metered households (M/d)	[k1]	((g + ab) * f * u) / 10^6	7.20	7.88	8.61	9.37	10.19	10.93		
Total household (M/d)	[v]	m1 + k1	219.61	240.13	262.35	285.62	310.60	333.16		
Distr. Input less UFW (M/d)	[n1]	v + c1 + l1	361.70	387.63	415.46	444.57	475.59	504.43		
New dom. met. props	[ab]	((e/f)*d2) - g (enter 0 if -ve)	701.99	1740.59	2910.33	3975.86	5069.35	6191.25		
Total domestic properties	[z]	e / f	595738.87	627403.69	663066.25	695551.90	728890.17	763094.37		
Metered prop UFW redn (M/d)	[m]	(1.5 * 20 * (g + ab)) / 10^6	0.59	0.62	0.65	0.68	0.72	0.75		
UFW (M/d)	[p1]	((w2 * 2 * 20) / 10^6) - m	164.20	172.92	182.75	191.71	200.89	210.32		
Distribution Input (M/d)	[ac]	p1 + n1	525.89	560.55	598.21	636.27	676.49	714.76		
MEDIUM			SOURCE	1996	2001	2006	2011	2016	2021	
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	576198.63	606824.85	641317.68	672737.80	704982.57	738064.88		
Unmetered PCC (Vh/d)	[i]	j * ((1 + (r/100))^5)	146.60	151.35	156.26	161.32	167.47	173.84		
Metered PCC (Vh/d)	[u]	t * i	131.94	136.22	140.63	145.19	150.72	156.46		
Unm. non h'holds (M/d)	[c1]	c * ((1 + (x3/100))^5)	19.77	19.76	20.26	20.77	21.30	21.83		
Mtr. non h'holds (M/d)	[l1]	l * ((1 + (y/100))^5)	121.06	124.12	127.25	130.47	133.76	137.14		
Unmetered h'hold (M/d)	[m1]	(h1 * f * j) / 10^6	208.65	224.10	240.51	257.21	276.26	296.39		
Metered households (M/d)	[k1]	((g + ab) * f * u) / 10^6	6.37	6.84	7.34	7.85	8.43	9.05		
Total household (M/d)	[v]	m1 + k1	215.01	230.94	247.85	265.06	284.69	305.43		
Distr. Input less UFW (M/d)	[n1]	v + c1 + l1	353.35	374.82	395.36	416.30	439.73	464.41		
New dom. met. props	[ab]	((e/f)*d2) - g (enter 0 if -ve)	701.99	1740.59	2910.33	3975.86	5069.35	6191.25		
Total domestic properties	[z]	e / f	595738.87	627403.69	663066.25	695551.90	728890.17	763094.37		
Metered prop UFW redn (M/d)	[m]	(1.5 * 20 * (g + ab)) / 10^6	0.59	0.62	0.65	0.68	0.72	0.75		
UFW (M/d)	[p1]	((w3 * 2 * 20) / 10^6) - m	134.41	137.41	145.22	152.34	159.64	167.13		
Distribution Input (M/d)	[ac]	p1 + n1	489.76	512.24	540.58	568.64	599.39	631.54		

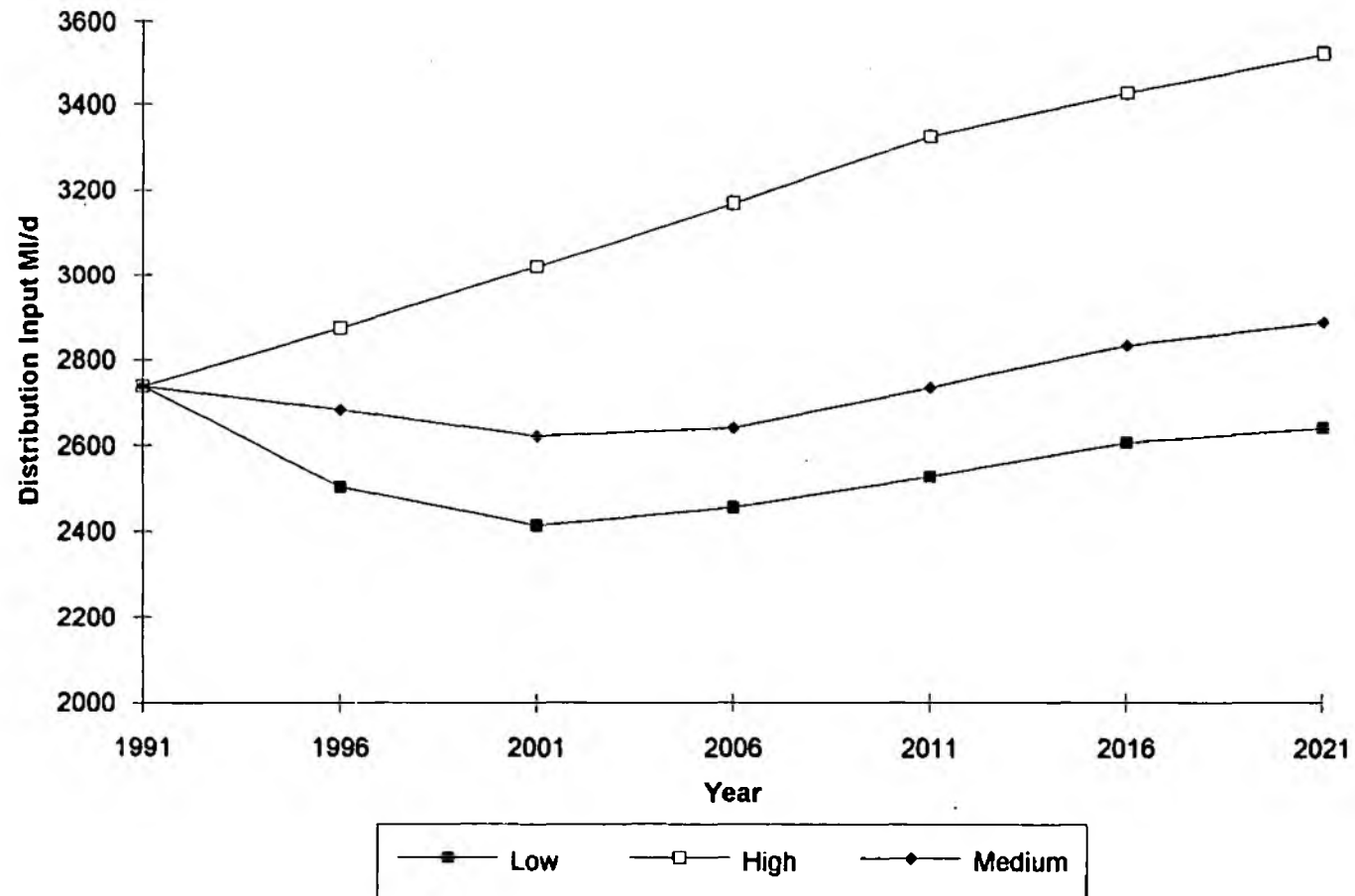
NRA demand forecast range for South West Water



COMPANY DEMAND SCENARIOS

THAMES WATER UTILITIES							
CORE DATA		SOURCE					
Distribution Input 1991 (Mld)	[a]	Input	2738				
Total Metered (Mld)	[b]	Input	542.4				
Units Non household (Mld)	[c]	Input	312.9				
Proportion 1991 prop meter	[d]	Input	0.0237				
Weighted ave PCC	[j]	Input	1.53				
LINKED DATA		SOURCE					
			1991	1996	2001	2006	2011
Population	[e]	Input	7236533	7381000	7524000	7672000	7799000
PCC Suppression	[i]	Input	0.9	0.9	0.9	0.9	0.9
Occupancy rate	[f]	Input	2.37	2.34	2.31	2.28	2.25
PCC cum. growth (%) - Low	[r1]	Input	0	0.64	0.64	0.64	0.64
PCC cum. growth (%) - High	[r2]	Input	0	1	1	1	1
PCC cum. growth (%) - Med	[r3]	Input	0	0.64	0.64	0.64	0.64
Units non hh growth (%) - Low	[x1]	Input	0	0	0	0	0
Units non hh growth (%) - High	[x2]	Input	0	0.75	0.75	0.75	0.75
Units non hh growth (%) - Med	[x3]	Input	0	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0	0
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	[y3]	Input	0	0.5	0.5	0.5	0.5
Prop. properties meter - Low	[d1]	Input	0	0.0237	0.15	0.3	0.3
Prop. properties meter - High	[d2]	Input	0	0.0237	0.0237	0.0237	0.0237
Prop. properties meter - Med	[d3]	Input	0	0.0237	0.03	0.06	0.09
Units night flow (lph/rh) - Low	[w1]	Input	13.13	8.13	6	6	6
Units night flow (lph/rh) - High	[w2]	Input	13.13	13.13	13.13	13.13	13.13
Units night flow (lph/rh) - Med	[w3]	Input	13.13	10.63	8.13	7	7
BASELINE 1991		SOURCE					
			1991				
Existing metered dom. props	[g]	(e/f)*d	7236.53				
Units dom. props	[h]	(w/f) - g	2981032				
Metered households (Mld)	[k]	(g * f * j) / 10 ⁶	23.62				
Metered non h'hold (Mld)	[l]	b - k	518.78				
Unmetered h'hold (Mld)	[m]	(h * f * j) / 10 ⁶	1080.95				
Distr. Input less UFW (Mld)	[n]	m + b + c	1936.25				
UFW	[p]	a - n	801.75				
Night flow (lph/rh)	[q]	((p * 10 ⁶) / (g + h)) / 20	13.13				
LOW		SOURCE					
			1996	2001	2006	2011	2016
Units dom. props	[h1]	(e - ((g + ab) * f)) / f	3079517.22	2768571.43	2355438.60	2426355.56	2499189.19
Unmetered PCC (lph/d)	[l]	j * ((1 + (r1/100)) ^{r1})	157.96	163.08	168.36	173.82	180.00
Metered PCC (lph/d)	[u]	i * i	142.16	146.77	151.53	156.44	162.00
Units non h'holds (Mld)	[c1]	c * ((1 + (x1/100)) ^{x1})	312.90	312.90	312.90	312.90	312.90
Met. non h'holds (Mld)	[l1]	l * ((1 + (y1/100)) ^{y1})	518.78	518.78	518.78	518.78	518.78
Unmetered h'hold (Mld)	[m1]	(h1 * f * j) / 10 ⁶	1138.26	1042.95	904.19	948.94	998.68
Metered households (Mld)	[k1]	((g + ab) * f * u) / 10 ⁶	24.87	165.65	348.76	366.02	385.20
Total household (Mld)	[v]	m1 + k1	1163.13	1208.60	1252.94	1314.97	1383.88
Distr. Input less UFW (Mld)	[n1]	v + c1 + l1	1994.82	2040.28	2084.63	2146.65	2215.56
New dom. mat. props	[ab]	(w/f)*d1 - g [enter 'v' if -ve]	2390.75	416205.90	937108.15	967501.14	998715.55
Total domestic properties	[z]	e / f	3154273.50	3257142.86	3364912.28	3466222.22	3570270.27
Metered prop UFW redn. (Mld)	[m]	((1.5 ^z * 20 * (g + ab)) / 10 ⁶)	2.24	14.66	30.28	31.20	32.13
UFW (Mld)	[p1]	((w1 * z * 20) / 10 ⁶) - m	510.64	376.20	373.51	384.75	396.30
Distribution Input (Mld)	[ac]	p1 + n1	2505.46	2416.48	2458.13	2531.40	2611.86
HIGH		SOURCE					
			1996	2001	2006	2011	2016
Units dom. props	[h1]	(e - ((g + ab) * f)) / f	3079517.22	3179948.57	3285163.86	3384072.76	3483654.86
Unmetered PCC (lph/d)	[l]	j * ((1 + (r2/100)) ^{r2})	160.80	169.01	177.63	186.69	199.00
Metered PCC (lph/d)	[u]	i * i	142.16	169.01	177.63	186.69	199.00
Units non h'holds (Mld)	[c1]	c * ((1 + (x2/100)) ^{x2})	324.81	337.18	350.01	363.33	377.17
Met. non h'holds (Mld)	[l1]	l * ((1 + (y2/100)) ^{y2})	538.53	559.03	580.31	602.40	625.33
Unmetered h'hold (Mld)	[m1]	(h1 * f * j) / 10 ⁶	1158.77	1241.47	1330.47	1421.48	1462.51
Metered households (Mld)	[k1]	((g + ab) * f * u) / 10 ⁶	28.13	30.14	32.30	34.51	35.50
Total household (Mld)	[v]	m1 + k1	1186.90	1271.61	1362.76	1455.99	1498.01
Distr. Input less UFW (Mld)	[n1]	v + c1 + l1	2050.24	2167.82	2293.09	2421.73	2500.51
New dom. mat. props	[ab]	(w/f)*d2 - g [enter 'v' if -ve]	2390.75	4828.76	7382.89	9783.94	12249.88
Total domestic properties	[z]	e / f	3154273.50	3257142.86	3364912.28	3466222.22	3570270.27
Metered prop UFW redn. (Mld)	[m]	((1.5 ^z * 20 * (g + ab)) / 10 ⁶)	2.24	2.32	2.39	2.46	2.54
UFW (Mld)	[p1]	((w2 * z * 20) / 10 ⁶) - m	826.07	853.01	881.23	907.77	935.01
Distribution Input (Mld)	[ac]	p1 + n1	2876.31	3020.83	3174.32	3329.49	3435.53
MEDIUM		SOURCE					
			1996	2001	2006	2011	2016
Units dom. props	[h1]	(e - ((g + ab) * f)) / f	3079517.22	3159428.37	3163017.54	3154282.22	3141837.84
Unmetered PCC (lph/d)	[l]	j * ((1 + (r3/100)) ^{r3})	157.96	163.08	168.36	173.82	180.00
Metered PCC (lph/d)	[u]	i * i	142.16	146.77	151.53	156.44	162.00
Units non h'holds (Mld)	[c1]	c * ((1 + (x3/100)) ^{x3})	320.80	328.90	337.21	345.72	354.45
Met. non h'holds (Mld)	[l1]	l * ((1 + (y3/100)) ^{y3})	531.88	545.31	559.08	573.20	587.68
Unmetered h'hold (Mld)	[m1]	(h1 * f * j) / 10 ⁶	1138.26	1190.20	1214.19	1233.63	1255.48
Metered households (Mld)	[k1]	((g + ab) * f * u) / 10 ⁶	24.87	33.13	69.75	109.81	154.08
Total household (Mld)	[v]	m1 + k1	1163.13	1223.32	1283.94	1343.43	1409.56
Distr. Input less UFW (Mld)	[n1]	v + c1 + l1	2015.82	2097.54	2180.23	2262.36	2351.69
New dom. mat. props	[ab]	(w/f)*d3 - g [enter 'v' if -ve]	2390.75	25348.76	129529.21	239594.47	356066.90
Total domestic properties	[z]	e / f	3154273.50	3257142.86	3364912.28	3466222.22	3570270.27
Metered prop UFW redn. (Mld)	[m]	((1.5 ^z * 20 * (g + ab)) / 10 ⁶)	2.24	2.93	6.06	9.36	12.85
UFW (Mld)	[p1]	((w3 * z * 20) / 10 ⁶) - m	668.36	526.68	465.03	475.91	486.98
Distribution Input (Mld)	[ac]	p1 + n1	2684.17	2624.22	2645.27	2758.27	2838.67

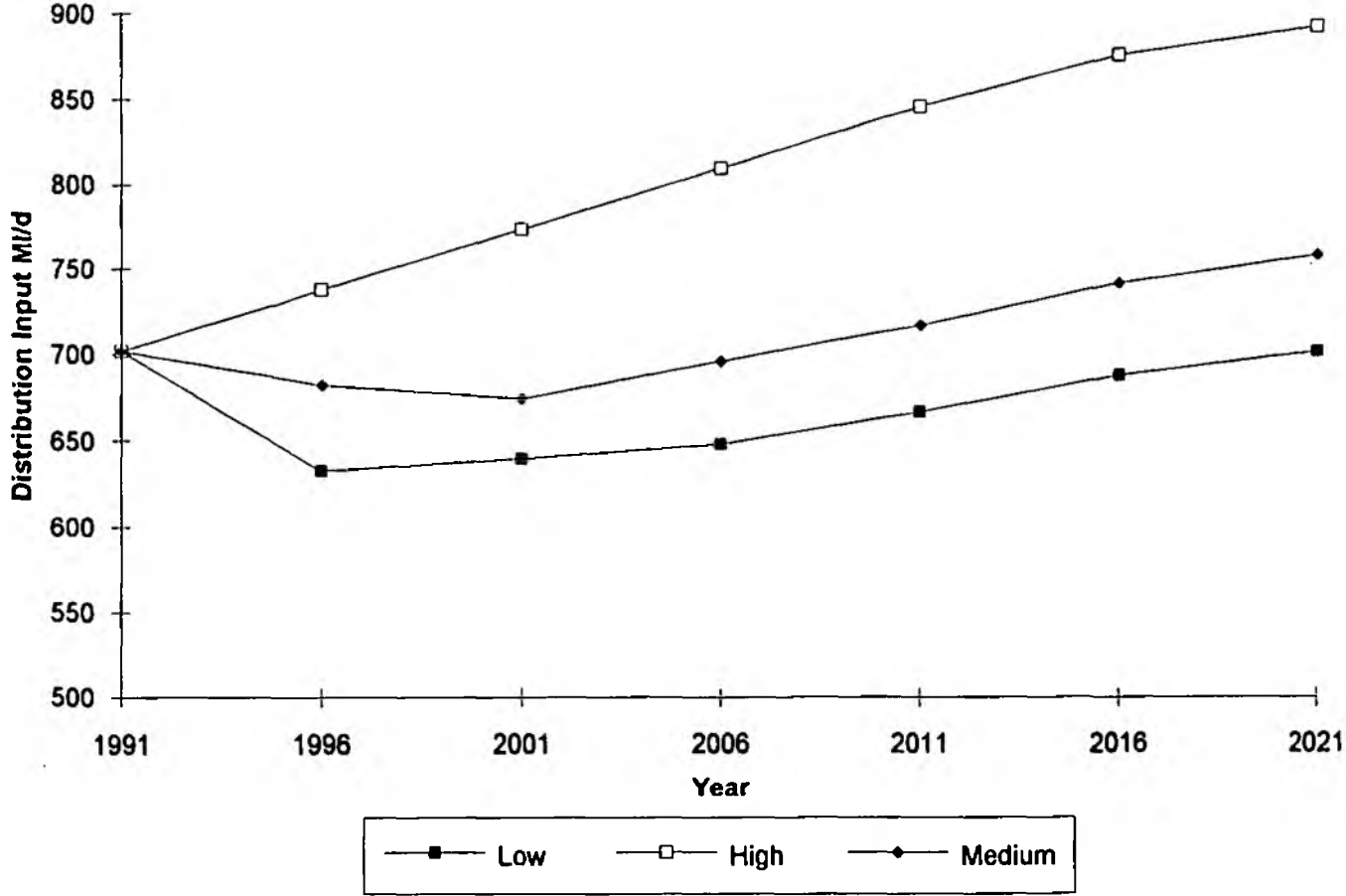
NRA demand forecast range for Thames Water Utilities



COMPANY DEMAND SCENARIOS

THREE VALLEYS									
CORE DATA									
SOURCE									
Distribution Input 1991 (Mld)	[a]	Input	702						
Total Metered (Mld)	[b]	Input	139.4						
Urm Non household (Mld)	[c]	Input	16.1						
Proportion 1991 prop meter	[d]	Input	0.0174						
Weighted use PCC	[u]	Input	150						
LINKED DATA									
SOURCE									
			1991	1996	2001	2006	2011	2016	2021
Population	[e]	Input	2341000	2381000	2410000	2435000	2456000	2477000	2498000
PCC Suppression	[f]	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	[g]	Input	2.6	2.37	2.33	2.3	2.47	2.44	2.4
PCC urm. growth (%) - Low	[r1]	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
PCC urm. growth (%) - High	[r2]	Input	0	1	1	1	1	1	1
PCC urm. growth (%) - Med	[r3]	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Urm. non hh growth (%) - Low	[x1]	Input	0	0	0	0	0	0	0
Urm. non hh growth (%) - High	[x2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Urm. non hh growth (%) - Med	[x3]	Input	0	0.3	0.3	0.3	0.3	0.3	0.3
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	[y3]	Input	0	0.3	0.3	0.3	0.3	0.3	0.3
Prop. properties meter - Low	[d1]	Input	0	0.0174	0.15	0.3	0.3	0.3	0.5
Prop. properties meter - High	[d2]	Input	0	0.0174	0.0174	0.0174	0.0174	0.0174	0.0174
Prop. properties meter - Med	[d3]	Input	0	0.0174	0.03	0.06	0.09	0.12	0.15
Urm. night flow (lpr/h) - Low	[w1]	Input	11.19	6.19	6	6	6	6	6
Urm. night flow (lpr/h) - High	[w2]	Input	11.19	11.19	11.19	11.19	11.19	11.19	11.19
Urm. night flow (lpr/h) - Med	[w3]	Input	11.19	8.69	7	7	7	7	7
BASELINE 1991									
SOURCE									
			1991						
Existing metered dom. props	[a]	$(oT)*d$	15666.69						
Urm. dom. props	[b]	$(oT) - g$	884717.9						
Metered households (Mld)	[k]	$(g * f * j) / 10^6$	5.50						
Metered non hhoid (Mld)	[l]	$b - k$	133.90						
Unmetered hhoid (Mld)	[m]	$(h * f * j) / 10^6$	345.04						
Distr. input less UFW (Mld)	[n]	$m + b + c$	500.54						
UFW	[p]	$a - m$	201.46						
Night flow (lpr/h)	[q]	$((p * 10^6)(g+h)/20)$	11.19						
LOW									
SOURCE									
			1996	2001	2006	2011	2016	2021	
Urm. dom. props	[b1]	$(e - ((g + ab) * f)) / f$	910338.75	809683.79	681800.00	696032.39	710614.75	728583.33	
Unmetered PCC (l/h/d)	[t]	$j * ((1 + (r1/100))^S)$	154.86	159.88	165.06	170.41	176.90	180.00	
Metered PCC (l/h/d)	[u]	$i * i$	139.38	143.89	148.56	153.37	159.21	162.00	
Urm. non hhoids (Mld)	[c1]	$c * ((1 + (x1/100))^S)$	16.10	16.10	16.10	16.10	16.10	16.10	
Md. non hhoids (Mld)	[i1]	$I * ((1 + (y1/100))^S)$	133.90	133.90	133.90	133.90	133.90	133.90	
Unmetered hhoid (Mld)	[m1]	$(h * f * j) / 10^6$	362.31	327.52	281.35	292.97	306.73	314.75	
Metered households (Mld)	[k1]	$(g + ab) * f * j / 10^6$	5.77	52.02	108.52	113.00	118.31	121.40	
Total household (Mld)	[v]	$m1 + k1$	368.08	379.33	389.87	403.98	425.04	436.15	
Distr. input less UFW (Mld)	[n1]	$v + c1 + l1$	518.09	529.54	539.87	555.98	573.04	586.15	
New dom. met. props	[ab]	$((oT)*d1) - g$ [enter 'v' if -ve]	453.70	127218.68	276533.33	282652.90	288872.49	296583.33	
Total domestic properties	[z]	e / f	926459.14	952569.17	974000.00	994331.98	1015163.93	1040833.33	
Metered prop UFW reids (Mld)	[am]	$(1.5 * 20 * (g + ab)) / 10^6$	0.48	4.29	8.77	8.93	9.14	9.37	
UFW (Mld)	[p1]	$((w1 * z * 20) / 10^6) - m$	114.31	110.02	108.11	110.37	112.68	115.33	
Distribution Input (Mld)	[ac]	$p1 + n1$	632.30	639.56	647.99	666.35	687.72	701.68	
HIGH									
SOURCE									
			1996	2001	2006	2011	2016	2021	
Urm. dom. props	[b1]	$(e - ((g + ab) * f)) / f$	910338.75	935994.47	957052.40	977030.61	997508.08	1022722.83	
Unmetered PCC (l/h/d)	[t]	$j * ((1 + (r2/100))^S)$	157.65	165.69	174.15	183.03	189.00	189.00	
Metered PCC (l/h/d)	[u]	$i * i$	137.65	145.69	154.15	163.03	169.00	169.00	
Urm. non hhoids (Mld)	[c1]	$c * ((1 + (x2/100))^S)$	16.71	17.35	18.01	18.70	19.41	20.15	
Md. non hhoids (Mld)	[i1]	$I * ((1 + (y2/100))^S)$	139.00	144.29	149.78	155.48	161.40	167.55	
Unmetered hhoid (Mld)	[m1]	$(h * f * j) / 10^6$	368.84	392.37	416.67	441.70	460.01	463.91	
Metered households (Mld)	[k1]	$(g + ab) * f * j / 10^6$	6.53	6.95	7.38	7.82	8.13	8.21	
Total household (Mld)	[v]	$m1 + k1$	375.37	399.32	424.04	449.52	468.15	472.12	
Distr. input less UFW (Mld)	[n1]	$v + c1 + l1$	531.08	560.96	591.84	623.70	648.96	659.81	
New dom. met. props	[ab]	$((oT)*d2) - g$ [enter 'v' if -ve]	453.70	1280.01	1280.91	1634.68	1997.16	2443.81	
Total domestic properties	[z]	e / f	926459.14	952569.17	974000.00	994331.98	1015163.93	1040833.33	
Metered prop UFW reids (Mld)	[am]	$(1.5 * 20 * (g + ab)) / 10^6$	0.48	0.50	0.51	0.52	0.53	0.54	
UFW (Mld)	[p1]	$((w2 * z * 20) / 10^6) - m$	206.86	212.69	217.47	222.01	226.66	232.40	
Distribution Input (Mld)	[ac]	$p1 + n1$	737.94	773.65	809.31	845.71	875.63	892.21	
MEDIUM									
SOURCE									
			1996	2001	2006	2011	2016	2021	
Urm. dom. props	[b1]	$(e - ((g + ab) * f)) / f$	910338.75	923992.09	935560.00	904842.11	893344.26	884708.33	
Unmetered PCC (l/h/d)	[t]	$j * ((1 + (r3/100))^S)$	154.86	159.88	165.06	170.41	176.90	180.00	
Metered PCC (l/h/d)	[u]	$i * i$	139.38	143.89	148.56	153.37	159.21	162.00	
Urm. non hhoids (Mld)	[c1]	$c * ((1 + (x3/100))^S)$	16.51	16.92	17.33	17.79	18.24	18.70	
Md. non hhoids (Mld)	[i1]	$I * ((1 + (y3/100))^S)$	137.28	140.75	144.30	147.95	151.68	155.51	
Unmetered hhoid (Mld)	[m1]	$(h * f * j) / 10^6$	362.31	373.75	377.81	380.87	385.60	382.19	
Metered households (Mld)	[k1]	$(g + ab) * f * j / 10^6$	5.77	10.40	21.70	33.90	47.32	60.70	
Total household (Mld)	[v]	$m1 + k1$	368.08	384.16	399.52	414.77	432.92	442.90	
Distr. input less UFW (Mld)	[n1]	$v + c1 + l1$	521.87	541.83	561.17	580.50	602.84	617.11	
New dom. met. props	[ab]	$((oT)*d3) - g$ [enter 'v' if -ve]	453.70	1291.08	42773.33	73823.19	106152.98	140458.31	
Total domestic properties	[z]	e / f	926459.14	952569.17	974000.00	994331.98	1015163.93	1040833.33	
Metered prop UFW reids (Mld)	[am]	$(1.5 * 20 * (g + ab)) / 10^6$	0.48	0.86	1.75	2.68	3.65	4.68	
UFW (Mld)	[p1]	$((w3 * z * 20) / 10^6) - m$	160.53	132.50	134.61	136.52	138.47	141.03	
Distribution Input (Mld)	[ac]	$p1 + n1$	682.41	674.33	695.78	717.03	741.31	758.14	
			1992	1994	1999	2004	2009	2014	
			670.2	636.93	628.9	634.26	643.24	650.08	

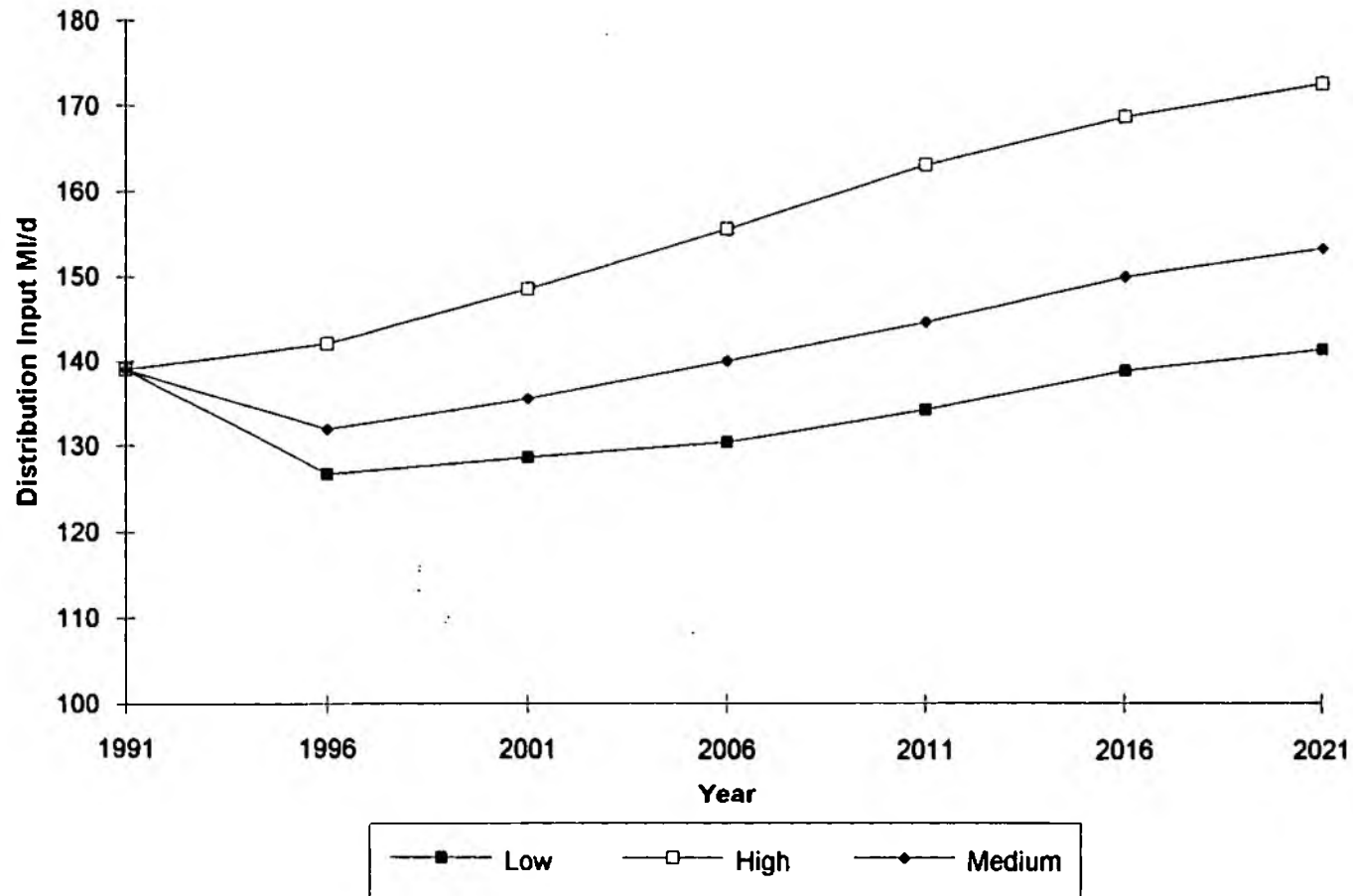
NRA demand forecast range for Three Valleys Water



COMPANY DEMAND SCENARIOS

NORTH SURREY									
CORE DATA		SOURCE							
Distribution Input 1991 (M/d)	(a)	Input	139						
Total Metered (M/d)	(b)	Input	34.1						
Unm Non household (M/d)	(c)	Input	3.3						
Proportion 1991 prop meter		Input	0.0397						
Weighted ave PCC	(j)	Input	151						
LINKED DATA		SOURCE							
			1991	1996	2001	2006	2011	2016	2021
Population	(a)	Input	463253	456397	459940	465272	470679	476313	482243
PCC Suppression	(i)	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	(f)	Input	2.61	2.58	2.54	2.51	2.48	2.45	2.41
PCC unstr. growth (%) - Low	(r1)	Input	0	0.64	0.64	0.64	0.64	0.64	0.75
PCC unstr. growth (%) - High	(r2)	Input	0	1	1	1	1	1	1
PCC unstr. growth (%) - Med	(r3)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	(x1)	Input	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	(x2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	(x3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	(y1)	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	(y2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	(y3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	(d1)	Input	0	0.0397	0.13	0.3	0.3	0.3	0.3
Prop. properties meter - High	(d2)	Input	0	0.0397	0.0397	0.0397	0.0397	0.0397	0.0397
Prop. properties meter - Med	(d3)	Input	0	0.0397	0.0397	0.08	0.09	0.12	0.15
Unm. night flow (lps/hr) - Low	(w1)	Input	9.70	6	6	6	6	6	6
Unm. night flow (lps/hr) - High	(w2)	Input	9.70	9.49	9.49	9.49	9.49	9.49	9.49
Unm. night flow (lps/hr) - Med	(w3)	Input	9.70	7.2	7	7	7	7	7
BASELINE 1991		SOURCE							
			1991						
Existing metered dom. props	(g)	(w/f)*d	7046.41536						
Unm. dom. props	(h)	(w/f) - g	170445.156						
Metered households (M/d)	(k)	(g * f * i) / 10^6	2.50						
Metered non h'hold (M/d)	(l)	b - k	31.60						
Unmetered h'hold (M/d)	(m)	(h * f * j) / 10^6	67.17						
Distr. Input less UFW (M/d)	(n)	m + b + c	104.57						
UFW	(p)	b - n	34.43						
Night flow (lps/h)	(q)	((p * 10^6)/(g+h))/20	9.70						
LOW		SOURCE							
			1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	169851.65	153916.93	129757.13	132852.94	136090.00	140070.58	
Unmetered PCC (lps/d)	(i)	j * ((1+(r1/100))^5)	155.89	160.95	166.16	171.55	178.08	180.00	
Metered PCC (lps/d)	(u)	t * i	140.30	144.85	149.55	154.39	160.27	162.00	
Unm. non h'holds (M/d)	(c1)	c * ((1+(x1/100))^5)	3.30	3.30	3.30	3.30	3.30	3.30	
Mtr. non h'holds (M/d)	(l1)	l * ((1+(y1/100))^5)	31.60	31.60	31.60	31.60	31.60	31.60	
Unmetered h'hold (M/d)	(m1)	(h1 * f * i) / 10^6	68.32	62.92	54.12	56.52	59.38	60.76	
Metered households (M/d)	(k1)	((g + ab) * f * i) / 10^6	2.55	9.99	20.87	21.80	22.90	23.44	
Total household (M/d)	(v)	m1 + k1	70.87	72.92	74.99	78.32	82.28	84.20	
Distr. Input less UFW (M/d)	(n1)	v + c1 + l1	105.77	107.82	109.89	113.22	117.18	119.10	
New dom. met. props	(ab)	((w/f)*d1) - g [enter 0 if -ve]	0.00	20115.40	48563.78	49890.56	51277.87	52983.83	
Total domestic properties	(z)	a / f	176898.06	181078.74	185367.33	189789.92	194414.29	200100.83	
Metered prop UFW redn. (M/d)	(am)	(1.5*20 * (g + ab)) / 10^6	0.21	0.81	1.67	1.71	1.75	1.80	
UFW (M/d)	(p1)	((w1 * z * 20) / 10^6) - am	21.02	20.91	20.58	21.07	21.58	22.21	
Distribution Input (M/d)	(ac)	p1 + n1	126.78	128.73	130.47	134.29	138.76	141.31	
HIGH		SOURCE							
			1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	169851.65	173889.91	178008.25	182255.26	186696.04	192156.83	
Unmetered PCC (lps/d)	(i)	j * ((1+(r2/100))^5)	158.70	166.80	175.31	184.25	189.00	189.00	
Metered PCC (lps/d)	(u)	t * i	158.70	166.80	175.31	184.25	189.00	189.00	
Unm. non h'holds (M/d)	(c1)	c * ((1+(x2/100))^5)	3.43	3.56	3.69	3.83	3.98	4.13	
Mtr. non h'holds (M/d)	(l1)	l * ((1+(y2/100))^5)	32.80	34.05	35.35	36.69	38.09	39.54	
Unmetered h'hold (M/d)	(m1)	(h1 * f * i) / 10^6	69.55	73.67	78.33	83.28	86.45	87.53	
Metered households (M/d)	(k1)	((g + ab) * f * i) / 10^6	2.89	3.05	3.24	3.44	3.57	3.62	
Total household (M/d)	(v)	m1 + k1	72.43	76.72	81.57	86.72	90.02	91.14	
Distr. Input less UFW (M/d)	(n1)	v + c1 + l1	108.66	114.33	120.61	127.25	132.09	134.81	
New dom. met. props	(ab)	((w/f)*d2) - g [enter 0 if -ve]	0.00	142.41	312.67	488.24	671.83	897.59	
Total domestic properties	(z)	a / f	176898.06	181078.74	185367.33	189789.92	194414.29	200100.83	
Metered prop UFW redn. (M/d)	(am)	(1.5*20 * (g + ab)) / 10^6	0.21	0.22	0.22	0.23	0.23	0.24	
UFW (M/d)	(p1)	((w2 * z * 20) / 10^6) - am	33.36	34.15	34.96	35.80	36.67	37.74	
Distribution Input (M/d)	(ac)	p1 + n1	142.02	148.48	155.57	163.04	168.76	172.55	
MEDIUM		SOURCE							
			1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	169851.65	173889.91	174243.29	172708.83	171084.57	170085.71	
Unmetered PCC (lps/d)	(i)	j * ((1+(r3/100))^5)	155.89	160.95	166.16	171.55	178.08	180.00	
Metered PCC (lps/d)	(u)	t * i	140.30	144.85	149.55	154.39	160.27	162.00	
Unm. non h'holds (M/d)	(c1)	c * ((1+(x3/100))^5)	3.38	3.47	3.56	3.65	3.74	3.83	
Mtr. non h'holds (M/d)	(l1)	l * ((1+(y3/100))^5)	32.40	33.22	34.06	34.92	35.80	36.70	
Unmetered h'hold (M/d)	(m1)	(h1 * f * i) / 10^6	68.32	71.09	72.67	73.48	74.64	73.78	
Metered households (M/d)	(k1)	((g + ab) * f * i) / 10^6	2.55	2.64	4.17	6.34	9.16	11.72	
Total household (M/d)	(v)	m1 + k1	70.87	73.73	76.85	80.02	83.80	85.50	
Distr. Input less UFW (M/d)	(n1)	v + c1 + l1	106.65	110.42	114.46	118.58	123.34	126.04	
New dom. met. props	(ab)	((w/f)*d3) - g [enter 0 if -ve]	0.00	142.41	4075.62	10034.68	16283.30	22968.71	
Total domestic properties	(z)	a / f	176898.06	181078.74	185367.33	189789.92	194414.29	200100.83	
Metered prop UFW redn. (M/d)	(am)	(1.5*20 * (g + ab)) / 10^6	0.21	0.22	0.33	0.51	0.70	0.90	
UFW (M/d)	(p1)	((w3 * z * 20) / 10^6) - am	25.26	25.14	25.62	26.06	26.52	27.11	
Distribution Input (M/d)	(ac)	p1 + n1	131.91	135.55	140.08	144.64	149.86	153.15	

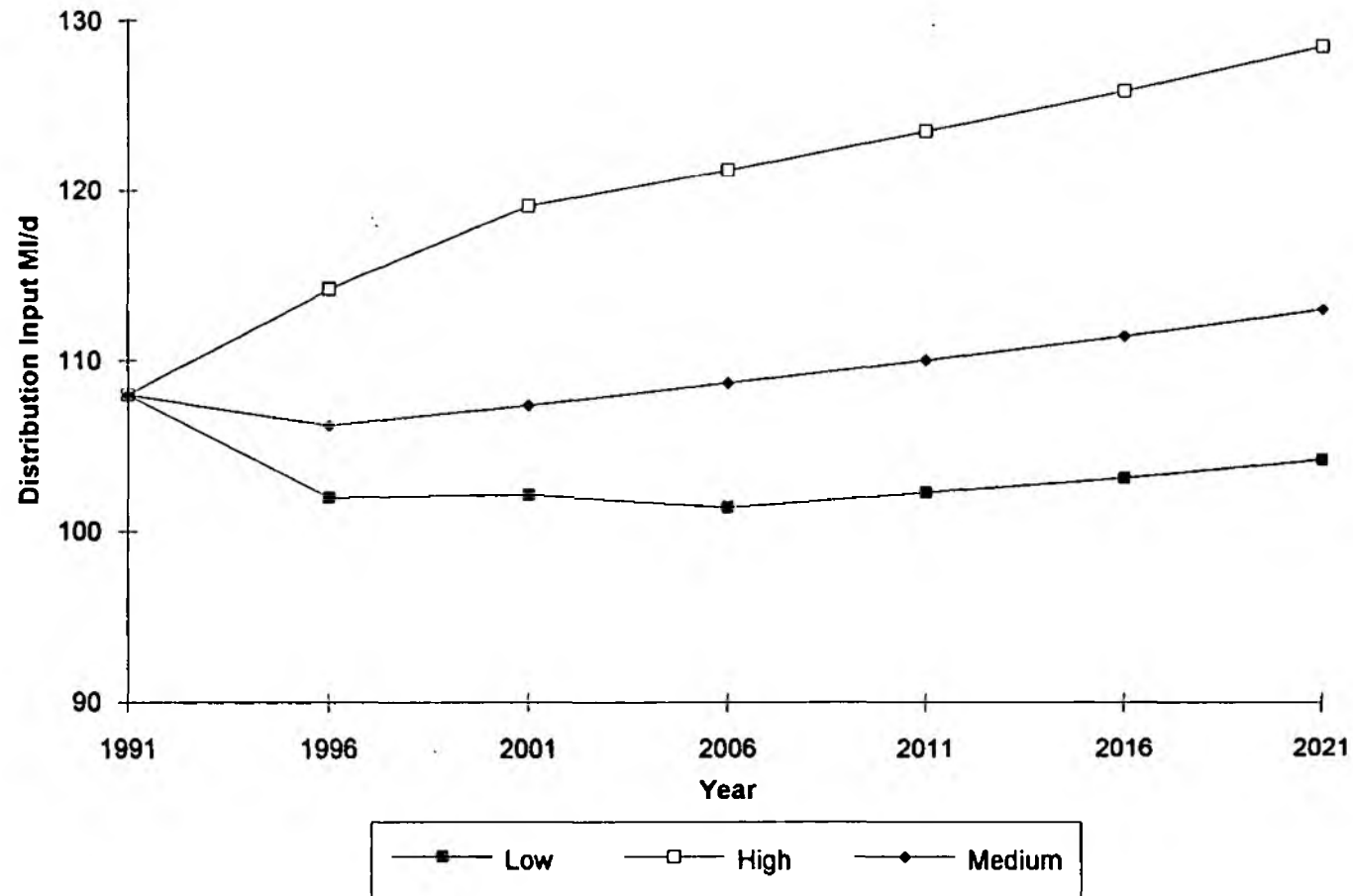
NRA demand forecast range for North Surrey Water Company



COMPANY DEMAND SCENARIOS

EAST SURREY									
CORE DATA:		SOURCE							
Distribution Input 1991 (Mtd)	(a)	Input	108						
Total Metered (Mtd)	(b)	Input	23						
Unm Non household (Mtd)	(c)	Input	4.6						
Proportion 1991 prop meter	(d)	Input	0.0154						
Weighted ave POC	(h)	Input	173						
LINKED DATA		SOURCE							
Population	(e)	Input	328450	334160	337887	340572	343541	346600	350080
PCC Suppression	(i)	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	(f)	Input	2.6	2.57	2.53	2.5	2.47	2.44	2.4
PCC unun. growth (%) - Low	(r1)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
PCC unun. growth (%) - High	(r2)	Input	0	1	1	1	1	1	1
PCC unun. growth (%) - Med	(r3)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	(x1)	Input	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	(x2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	(x3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	(y1)	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	(y2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	(y3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	(d1)	Input	0	0.0154	0.15	0.3	0.3	0.3	0.3
Prop. properties meter - High	(d2)	Input	0	0.0154	0.0154	0.0154	0.0154	0.0154	0.0154
Prop. properties meter - Med	(d3)	Input	0	0.0154	0.03	0.06	0.09	0.12	0.15
Unm. night flow (Upr/hr) - Low	(w1)	Input	9.87	6	6	6	6	6	6
Unm. night flow (Upr/hr) - High	(w2)	Input	9.87	9.87	9.87	9.87	9.87	9.87	9.87
Unm. night flow (Upr/hr) - Med	(w3)	Input	9.87	7.37	7	7	7	7	7
BASELINE 1991		SOURCE							
Existing metered dom. props	(g)	(e/f)*d	1933.58846						
Unm. dom. props	(h)	(e/f) - g	123624.104						
Metered households (Mtd)	(k)	(g * f * j * i) / 10^6	0.78						
Metered non h'hold (Mtd)	(l)	b - k	22.22						
Unmetered h'hold (Mtd)	(m)	(b * f * j) / 10^6	55.61						
Distr. Input less UFW (Mtd)	(n)	m + b + c	83.21						
UFW	(p)	e - n	24.79						
Night flow (Upr/hr)	(q)	((p * 10^6) * (g+h)) / 20	9.87						
LOW		SOURCE							
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	128020.99	113519.35	93360.16	97359.80	99434.43	102106.67	
Unmetered PCC (Uv/d)	(i)	j * ((1 + (r1/100))^5)	178.61	180.00	180.00	180.00	180.00	180.00	
Metered PCC (Uv/d)	(j)	t * i	160.75	162.00	162.00	162.00	162.00	162.00	
Unm. non h'holds (Mtd)	(c1)	c * ((1 + (x1/100))^5)	4.60	4.60	4.60	4.60	4.60	4.60	
Met. non h'holds (Mtd)	(l1)	l * ((1 + (y1/100))^5)	22.22	22.22	22.22	22.22	22.22	22.22	
Unmetered h'hold (Mtd)	(m1)	(h1 * f * i) / 10^6	58.76	51.70	42.91	43.29	43.67	44.11	
Metered households (Mtd)	(k1)	((g + ab) * f * u) / 10^6	0.83	0.21	16.55	16.70	16.84	17.01	
Total household (Mtd)	(v)	m1 + k1	59.59	59.91	59.46	59.98	60.52	61.12	
Distr. Input less UFW (Mtd)	(n1)	v + c1 + l1	86.41	86.72	86.28	86.80	87.33	87.94	
New dom. met. props	(ab)	((e/f)*d1) - g (enter 0 if -ve)	68.77	18099.24	38933.05	39792.04	40681.17	41826.41	
Total domestic properties	(z)	e / f	130023.35	133552.17	136228.80	139085.43	142049.18	145866.67	
Metered prop UFW redn (Mtd)	(am)	(1.5 * 20 * (g + ab)) / 10^6	0.06	0.60	1.23	1.25	1.28	1.31	
UFW (Mtd)	(p1)	((w1 * z * 20) / 10^6) - am	15.54	15.43	15.12	15.44	15.77	16.19	
Distribution Input (Mtd)	(ac)	p1 + n1	101.95	102.15	101.40	102.24	103.10	104.13	
HIGH		SOURCE							
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	128020.99	131495.47	134130.88	136943.51	139861.62	143620.32	
Unmetered PCC (Uv/d)	(i)	j * ((1 + (r2/100))^5)	181.82	189.00	189.00	189.00	189.00	189.00	
Metered PCC (Uv/d)	(j)	t * i	181.82	189.00	189.00	189.00	189.00	189.00	
Unm. non h'holds (Mtd)	(c1)	c * ((1 + (x2/100))^5)	4.78	4.96	5.15	5.34	5.54	5.76	
Met. non h'holds (Mtd)	(l1)	l * ((1 + (y2/100))^5)	23.06	23.94	24.85	25.80	26.78	27.80	
Unmetered h'hold (Mtd)	(m1)	(h1 * f * i) / 10^6	59.82	62.88	63.38	63.93	64.50	65.15	
Metered households (Mtd)	(k1)	((g + ab) * f * u) / 10^6	0.94	0.98	0.99	1.00	1.01	1.02	
Total household (Mtd)	(v)	m1 + k1	60.76	63.86	64.37	64.93	65.51	66.17	
Distr. Input less UFW (Mtd)	(n1)	v + c1 + l1	88.60	92.76	94.37	96.07	97.83	99.72	
New dom. met. props	(ab)	((e/f)*d2) - g (enter 0 if -ve)	68.77	123.12	164.34	208.33	253.97	312.76	
Total domestic properties	(z)	e / f	130023.35	133552.17	136228.80	139085.43	142049.18	145866.67	
Metered prop UFW redn (Mtd)	(am)	(1.5 * 20 * (g + ab)) / 10^6	0.06	0.06	0.06	0.06	0.07	0.07	
UFW (Mtd)	(p1)	((w2 * z * 20) / 10^6) - am	25.61	26.30	26.83	27.39	27.97	28.73	
Distribution Input (Mtd)	(ac)	p1 + n1	114.20	119.06	121.19	123.46	125.81	128.45	
MEDIUM		SOURCE							
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	128020.99	129348.61	128055.07	126567.74	125003.28	123986.67	
Unmetered PCC (Uv/d)	(i)	j * ((1 + (r3/100))^5)	178.61	180.00	180.00	180.00	180.00	180.00	
Metered PCC (Uv/d)	(j)	t * i	160.75	162.00	162.00	162.00	162.00	162.00	
Unm. non h'holds (Mtd)	(c1)	c * ((1 + (x3/100))^5)	4.72	4.84	4.96	5.08	5.21	5.34	
Met. non h'holds (Mtd)	(l1)	l * ((1 + (y3/100))^5)	22.78	23.35	23.94	24.55	25.17	25.80	
Unmetered h'hold (Mtd)	(m1)	(h1 * f * i) / 10^6	58.76	59.00	57.62	56.27	54.90	53.56	
Metered households (Mtd)	(k1)	((g + ab) * f * u) / 10^6	0.83	1.64	3.31	5.01	6.74	8.51	
Total household (Mtd)	(v)	m1 + k1	59.59	60.64	60.94	61.28	61.64	62.07	
Distr. Input less UFW (Mtd)	(n1)	v + c1 + l1	87.09	88.83	89.84	90.91	92.02	93.21	
New dom. met. props	(ab)	((e/f)*d3) - g (enter 0 if -ve)	68.77	2072.98	6240.14	10584.10	15112.31	19946.41	
Total domestic properties	(z)	e / f	130023.35	133552.17	136228.80	139085.43	142049.18	145866.67	
Metered prop UFW redn (Mtd)	(am)	(1.5 * 20 * (g + ab)) / 10^6	0.06	0.12	0.25	0.38	0.51	0.66	
UFW (Mtd)	(p1)	((w3 * z * 20) / 10^6) - am	19.11	18.58	18.83	19.10	19.38	19.76	
Distribution Input (Mtd)	(ac)	p1 + n1	106.19	107.40	108.66	110.01	111.39	112.98	

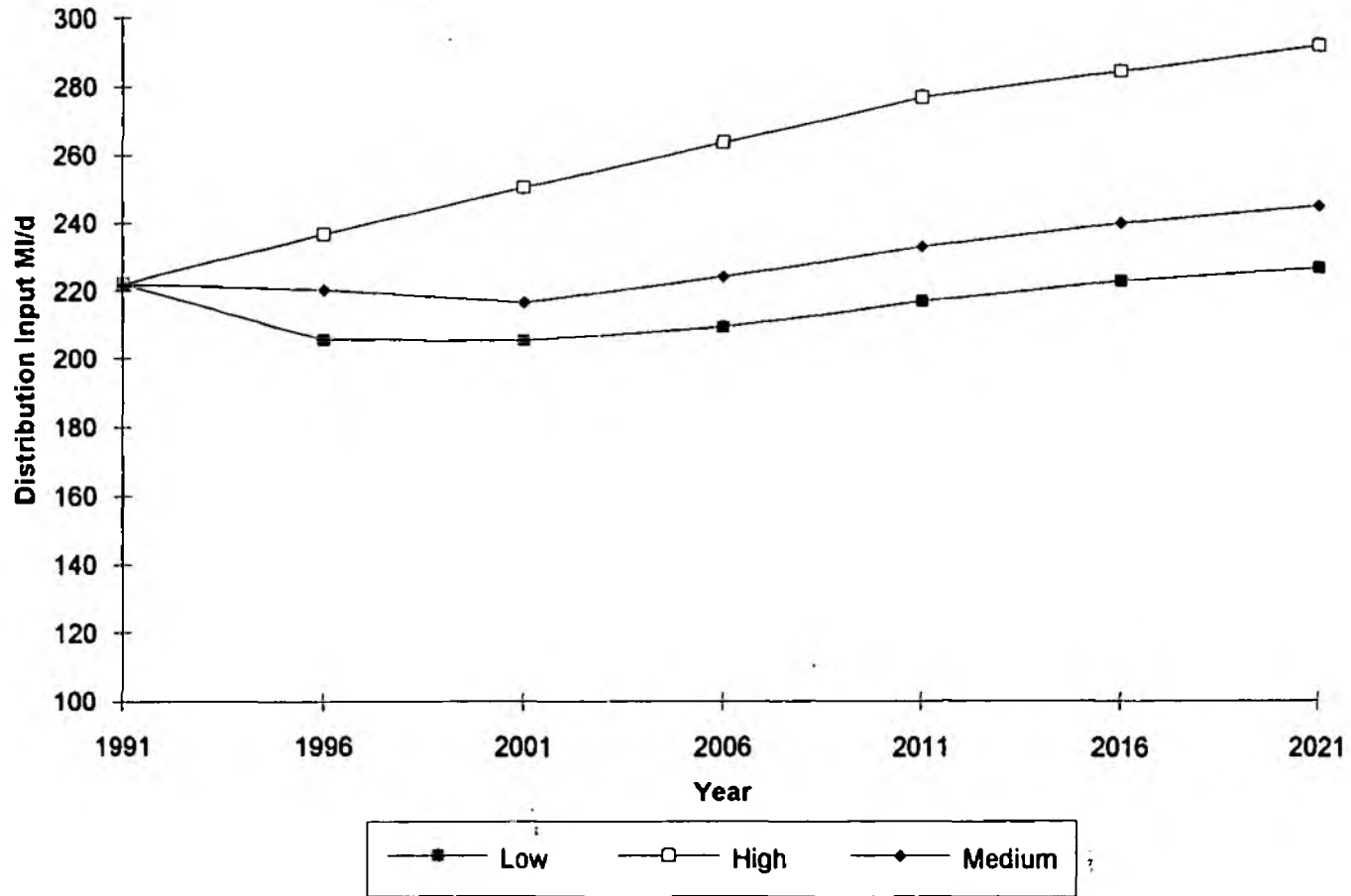
NRA demand forecast range for East Surrey Water Company



COMPANY DEMAND SCENARIOS

MID SOUTHERN									
CORE DATA		SOURCE							
Distribution Input 1991 (Mdd)	(a)	Input	222						
Total Metered (Mdd)	(b)	Input	51.6						
Unm Non household (Mdd)	(c)	Input	1.7						
Proportion 1991 prop meter		Input	0.0309						
Weighted avn PCC	(j)	Input	156						
LINKED DATA		SOURCE							
Population	(e)	Input	709073	733743	752642	763398	780249	795100	811129
PCC Suppression	(f)	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	(7)	Input	2.79	2.73	2.72	2.68	2.65	2.61	2.58
PCC ann. growth (%) - Low	(r1)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
PCC ann. growth (%) - High	(r2)	Input	0	1	1	1	1	1	1
PCC ann. growth (%) - Med	(r3)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	(s1)	Input	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	(s2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	(s3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	(y1)	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	(y2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	(y3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	(d1)	Input	0	0.0309	0.13	0.3	0.3	0.3	0.3
Prop. properties meter - High	(d2)	Input	0	0.0309	0.0309	0.0309	0.0309	0.0309	0.0309
Prop. properties meter - Med	(d3)	Input	0	0.0309	0.0309	0.06	0.09	0.12	0.13
Unm. night flow (Vp/hr) - Low	(w1)	Input	12.10	7.1	6	6	6	6	6
Unm. night flow (Vp/hr) - High	(w2)	Input	12.10	12.1	12.1	12.1	12.1	12.1	12.1
Unm. night flow (Vp/hr) - Med	(w3)	Input	12.10	9.6	7.1	7	7	7	7
BASELINE 1991		SOURCE							
Existing metered dom. props	(g)	(w1)*d	7833.19624						
Unm. dom. props	(h)	(w1) - g	246295.549						
Metered households (Mdd)	(k)	(g * f * i) / 10^6	3.08						
Metered non h'hold (Mdd)	(l)	b - k	48.52						
Unmetered h'hold (Mdd)	(m)	(h * f * i) / 10^6	107.20						
Distr. Input less UFW (Mdd)	(n)	m + b + c	160.50						
UFW	(p)	a - n	61.50						
Night flow (Vp/hr)	(q)	((p * 10^6) / (g+h)) / 20	12.10						
LOW		SOURCE							
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	258571.74	235200.63	199917.39	206103.31	213243.21	220073.76	
Unmetered PCC (1/h/d)	(i1)	j * ((1 + (r1/100))^5)	161.06	166.28	171.67	177.23	180.00	180.00	
Metered PCC (1/h/d)	(u)	t * i	144.95	149.65	154.50	159.51	162.00	162.00	
Unm. non h'holds (Mdd)	(c1)	c * ((1 + (x1/100))^5)	1.70	1.70	1.70	1.70	1.70	1.70	
Metered non h'holds (Mdd)	(l1)	1 * ((1 + (y1/100))^5)	48.52	48.52	48.52	48.52	48.52	48.52	
Unmetered h'hold (Mdd)	(m1)	(h1 * f * i) / 10^6	114.52	106.37	91.97	96.80	100.18	102.20	
Metered households (Mdd)	(k1)	((g + ab) * f * i) / 10^6	3.29	16.89	35.48	37.34	38.64	39.42	
Total household (Mdd)	(v)	m1 + k1	117.81	123.27	127.45	134.14	138.82	141.62	
Distr. Input less UFW (Mdd)	(n1)	v + c1 + l1	168.03	173.49	177.67	184.36	189.05	191.83	
New dom. met. props	(ab)	((w1) / d1) - g [enter v if -ve]	391.43	33632.80	77825.68	80476.88	83537.61	86444.13	
Total domestic properties	(z)	a / f	266816.36	276706.62	285596.27	294433.58	304636.02	314391.09	
Metered prop UFW radn (Mdd)	(aa)	(1.5 * 20 * (g + ab)) / 10^6	0.25	1.25	2.57	2.65	2.74	2.83	
UFW (Mdd)	(p1)	((w1 * z * 20) / 10^6) - aa	37.64	31.96	31.70	32.68	33.81	34.90	
Distribution Input (Mdd)	(ac)	p1 + n1	205.67	205.43	209.38	217.04	222.86	226.74	
HIGH		SOURCE							
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	258571.74	268156.38	276771.34	285335.59	293222.76	304476.40	
Unmetered PCC (1/h/d)	(i1)	j * ((1 + (r2/100))^5)	163.96	172.32	181.11	189.00	189.00	189.00	
Metered PCC (1/h/d)	(u)	t * i	163.96	172.32	181.11	189.00	189.00	189.00	
Unm. non h'holds (Mdd)	(c1)	c * ((1 + (x2/100))^5)	1.76	1.83	1.90	1.97	2.03	2.13	
Metered non h'holds (Mdd)	(l1)	1 * ((1 + (y2/100))^5)	50.37	52.29	54.28	56.35	58.49	60.72	
Unmetered h'hold (Mdd)	(m1)	(h1 * f * i) / 10^6	116.59	125.69	134.34	142.91	145.63	148.57	
Metered households (Mdd)	(k1)	((g + ab) * f * i) / 10^6	3.72	4.01	4.28	4.56	4.64	4.74	
Total household (Mdd)	(v)	m1 + k1	120.30	129.70	138.62	147.47	150.27	153.30	
Distr. Input less UFW (Mdd)	(n1)	v + c1 + l1	172.44	183.82	194.80	205.79	210.81	216.15	
New dom. met. props	(ab)	((w1) / d2) - g [enter v if -ve]	391.43	697.04	971.73	1244.80	1560.06	1861.49	
Total domestic properties	(z)	a / f	266816.36	276706.62	285596.27	294433.58	304636.02	314391.09	
Metered prop UFW radn (Mdd)	(aa)	(1.5 * 20 * (g + ab)) / 10^6	0.25	0.26	0.26	0.27	0.28	0.29	
UFW (Mdd)	(p1)	((w2 * z * 20) / 10^6) - aa	64.32	66.71	68.85	70.98	73.44	75.79	
Distribution Input (Mdd)	(ac)	p1 + n1	236.76	250.52	263.63	276.77	284.25	291.94	
MEDIUM		SOURCE							
Unm. dom. props	(h1)	(e - ((g + ab) * f)) / f	258571.74	268156.38	268460.49	267934.56	268079.69	267232.42	
Unmetered PCC (1/h/d)	(i1)	j * ((1 + (r3/100))^5)	161.06	166.28	171.67	177.23	180.00	180.00	
Metered PCC (1/h/d)	(u)	t * i	144.95	149.65	154.50	159.51	162.00	162.00	
Unm. non h'holds (Mdd)	(c1)	c * ((1 + (x3/100))^5)	1.74	1.79	1.83	1.88	1.93	1.97	
Metered non h'holds (Mdd)	(l1)	1 * ((1 + (y3/100))^5)	49.75	51.01	52.29	53.61	54.97	56.36	
Unmetered h'hold (Mdd)	(m1)	(h1 * f * i) / 10^6	114.52	121.28	123.51	125.84	125.94	124.10	
Metered households (Mdd)	(k1)	((g + ab) * f * i) / 10^6	3.29	3.48	3.70	3.82	3.86	3.89	
Total household (Mdd)	(v)	m1 + k1	117.81	124.76	130.60	137.04	141.40	143.81	
Distr. Input less UFW (Mdd)	(n1)	v + c1 + l1	169.30	177.55	184.73	192.53	198.29	202.14	
New dom. met. props	(ab)	((w1) / d3) - g [enter v if -ve]	391.43	697.04	9282.58	18643.83	28703.13	39303.47	
Total domestic properties	(z)	a / f	266816.36	276706.62	285596.27	294433.58	304636.02	314391.09	
Metered prop UFW radn (Mdd)	(aa)	(1.5 * 20 * (g + ab)) / 10^6	0.25	0.26	0.31	0.39	1.10	1.41	
UFW (Mdd)	(p1)	((w3 * z * 20) / 10^6) - aa	50.98	39.04	39.47	40.43	41.55	42.60	
Distribution Input (Mdd)	(ac)	p1 + n1	220.28	216.59	224.20	232.96	239.85	244.74	

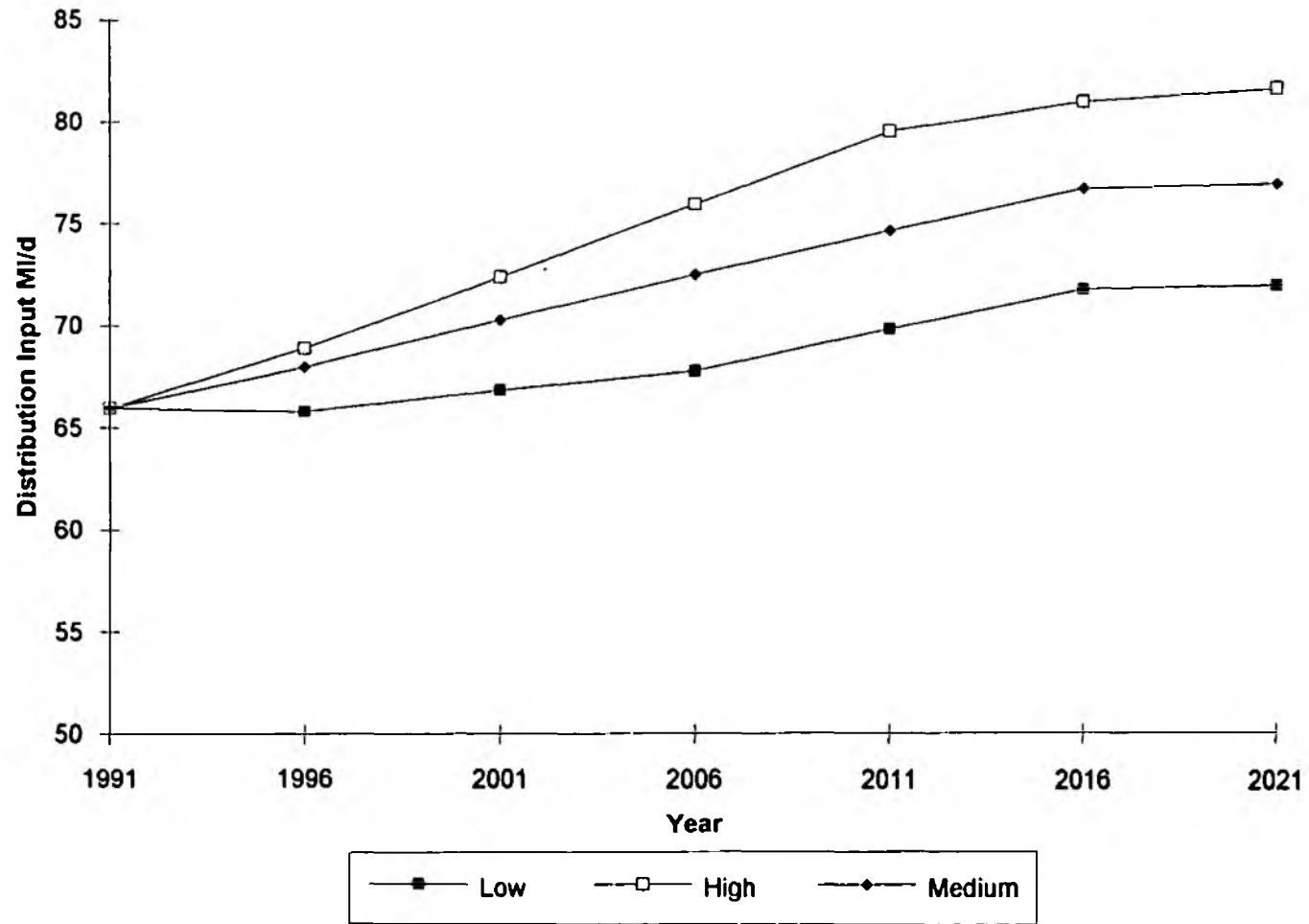
NRA demand forecast range for Mid Southern Water Company



COMPANY DEMAND SCENARIOS

SUTTON									
CORE DATA			SOURCE						
Distribution Input 1991 (Mdd)	[a]	Input	66						
Total Metered (Mdd)	[b]	Input	8.6						
Unm. Non household (Mdd)	[c]	Input	2.1						
Proportion 1991 prop meter	[d]	Input	0.0024						
Weighted av. PCC	[i]	Input	154						
LINKED DATA			SOURCE						
Population	[e]	Input	269934	270799	274013	276252	278080	280000	280000
PCC Suppression	[f]	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	[g]	Input	2.3	2.47	2.44	2.4	2.37	2.34	2.31
PCC unsm. growth (%) - Low	[1]	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
PCC unsm. growth (%) - High	[2]	Input	0	1	1	1	1	1	1
PCC unsm. growth (%) - Med	[3]	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Unsm. non hh growth (%) - Low	[x1]	Input	0	0	0	0	0	0	0
Unsm. non hh growth (%) - High	[x2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Unsm. non hh growth (%) - Med	[x3]	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	[y3]	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	[4]	Input	0	0.0024	0.15	0.3	0.3	0.3	0.3
Prop. properties meter - High	[5]	Input	0	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
Prop. properties meter - Med	[6]	Input	0	0.0024	0.03	0.06	0.09	0.12	0.15
Unsm. night flow (Vpr/hr) - Low	[w1]	Input	6.87	6	6	6	6	6	6
Unsm. night flow (Vpr/hr) - High	[w2]	Input	6.87	6.87	6.87	6.87	6.87	6.87	6.87
Unsm. night flow (Vpr/hr) - Med	[w3]	Input	6.87	6.87	6.87	6.87	6.87	6.87	6.87
BASELINE 1991			SOURCE						
Existing metered dom. props	[g]	$(w7) \cdot d$	259.13664						
Unm. dom. props	[h]	$(w7) - g$	107714.463						
Metered households (Mdd)	[k]	$(g \cdot f \cdot j \cdot i) / 10^6$	0.09						
Metered non h'hold (Mdd)	[l]	$b - k$	8.51						
Unmetered h'hold (Mdd)	[m]	$(h \cdot f \cdot j) / 10^6$	41.47						
Distr. Input less UFW (Mdd)	[n]	$m + b + c$	51.17						
UFW	[p]	$a - n$	14.83						
Night flow (Vpr/h)	[q]	$((p \cdot 10^6)(g+h))/20$	6.87						
LOW			SOURCE						
Unsm. dom. props	[h1]	$(a - ((g + ab) \cdot f)) / f$	109355.94	95455.33	80573.50	82133.33	83760.68	84848.48	
Unmetered PCC (V/h/d)	[j]	$j \cdot ((1 + (x1/100))^5)$	158.99	164.14	169.47	174.96	180.00	180.00	
Metered PCC (V/h/d)	[u]	$i \cdot i$	143.09	147.73	152.52	157.46	162.00	162.00	
Unsm. non h'holds (Mdd)	[c1]	$c \cdot ((1 + (x1/100))^5)$	1.10	1.10	1.10	1.10	1.10	1.10	
Met. non h'holds (Mdd)	[l1]	$l \cdot ((1 + (y1/100))^5)$	8.51	8.51	8.51	8.51	8.51	8.51	
Unmetered h'hold (Mdd)	[m1]	$(h1 \cdot f \cdot t) / 10^6$	42.95	38.23	32.77	34.06	35.28	35.28	
Metered households (Mdd)	[k1]	$((g + ab) \cdot f \cdot u) / 10^6$	0.09	6.07	12.64	13.14	13.61	13.61	
Total household (Mdd)	[v]	$m1 + k1$	43.04	44.30	45.41	47.19	48.89	48.89	
Distr. Input less UFW (Mdd)	[n1]	$v + c1 + l1$	52.63	53.91	55.02	56.80	58.50	58.50	
New dom. met. props	[ab]	$((w7) \cdot d2) - g$ [enter ∇ if -ve]	3.95	16585.92	34272.36	34940.86	35438.30	36104.50	
Total domestic properties	[z]	a / f	109619.03	112300.41	115105.00	117333.33	119658.12	121212.12	
Metered prop UFW redn. (Mdd)	[m]	$(1.5 \cdot 20 \cdot (g + ab)) / 10^6$	0.01	0.51	1.04	1.06	1.08	1.09	
UFW (Mdd)	[p1]	$((w1 \cdot z \cdot 20) / 10^6) - m$	13.15	12.97	12.78	13.02	13.28	13.45	
Distribution Input (Mdd)	[ac]	$p1 + n1$	65.79	66.88	67.80	69.83	71.78	71.95	
HIGH			SOURCE						
Unsm. dom. props	[h1]	$(a - ((g + ab) \cdot f)) / f$	109355.94	112030.89	114828.75	117051.73	119170.94	120921.21	
Unmetered PCC (V/h/d)	[j]	$j \cdot ((1 + (x2/100))^5)$	161.86	170.11	178.79	187.91	189.00	189.00	
Metered PCC (V/h/d)	[u]	$i \cdot i$	161.86	170.11	178.79	187.91	189.00	189.00	
Unsm. non h'holds (Mdd)	[c1]	$c \cdot ((1 + (x2/100))^5)$	1.14	1.19	1.23	1.28	1.33	1.38	
Met. non h'holds (Mdd)	[l1]	$l \cdot ((1 + (y2/100))^5)$	8.83	9.17	9.52	9.88	10.26	10.65	
Unmetered h'hold (Mdd)	[m1]	$(h1 \cdot f \cdot t) / 10^6$	43.72	46.50	49.27	52.13	52.79	52.79	
Metered households (Mdd)	[k1]	$((g + ab) \cdot f \cdot u) / 10^6$	0.11	0.11	0.12	0.13	0.13	0.13	
Total household (Mdd)	[v]	$m1 + k1$	43.82	46.61	49.39	52.25	52.92	52.92	
Distr. Input less UFW (Mdd)	[n1]	$v + c1 + l1$	53.80	56.97	60.14	63.41	64.50	64.94	
New dom. met. props	[ab]	$((w7) \cdot d2) - g$ [enter ∇ if -ve]	3.95	10.38	17.12	22.46	28.04	31.77	
Total domestic properties	[z]	a / f	109619.03	112300.41	115105.00	117333.33	119658.12	121212.12	
Metered prop UFW redn. (Mdd)	[m]	$(1.5 \cdot 20 \cdot (g + ab)) / 10^6$	0.01	0.01	0.01	0.01	0.01	0.01	
UFW (Mdd)	[p1]	$((w2 \cdot z \cdot 20) / 10^6) - m$	15.05	15.42	15.81	16.11	16.43	16.63	
Distribution Input (Mdd)	[ac]	$p1 + n1$	68.85	72.39	75.95	79.53	80.94	81.59	
MEDIUM			SOURCE						
Unsm. dom. props	[h1]	$(a - ((g + ab) \cdot f)) / f$	109355.94	108931.40	108198.70	106773.33	105299.15	103030.30	
Unmetered PCC (V/h/d)	[j]	$j \cdot ((1 + (x3/100))^5)$	158.99	164.14	169.47	174.96	180.00	180.00	
Metered PCC (V/h/d)	[u]	$i \cdot i$	143.09	147.73	152.52	157.46	162.00	162.00	
Unsm. non h'holds (Mdd)	[c1]	$c \cdot ((1 + (x3/100))^5)$	1.13	1.16	1.19	1.22	1.25	1.28	
Met. non h'holds (Mdd)	[l1]	$l \cdot ((1 + (y3/100))^5)$	8.73	8.93	9.17	9.40	9.64	9.88	
Unmetered h'hold (Mdd)	[m1]	$(h1 \cdot f \cdot t) / 10^6$	42.95	43.63	44.01	44.27	44.35	42.84	
Metered households (Mdd)	[k1]	$((g + ab) \cdot f \cdot u) / 10^6$	0.09	1.21	2.33	3.94	5.44	6.80	
Total household (Mdd)	[v]	$m1 + k1$	43.04	44.84	46.53	48.21	49.80	49.64	
Distr. Input less UFW (Mdd)	[n1]	$v + c1 + l1$	52.89	54.94	56.89	58.83	60.68	60.81	
New dom. met. props	[ab]	$((w7) \cdot d2) - g$ [enter ∇ if -ve]	3.95	3109.88	6647.16	10300.86	14999.84	17922.68	
Total domestic properties	[z]	a / f	109619.03	112300.41	115105.00	117333.33	119658.12	121212.12	
Metered prop UFW redn. (Mdd)	[m]	$(1.5 \cdot 20 \cdot (g + ab)) / 10^6$	0.01	0.10	0.21	0.32	0.43	0.53	
UFW (Mdd)	[p1]	$((w3 \cdot z \cdot 20) / 10^6) - m$	15.05	15.33	15.61	15.80	16.01	16.11	
Distribution Input (Mdd)	[ac]	$p1 + n1$	67.94	70.27	72.50	74.64	76.69	76.91	

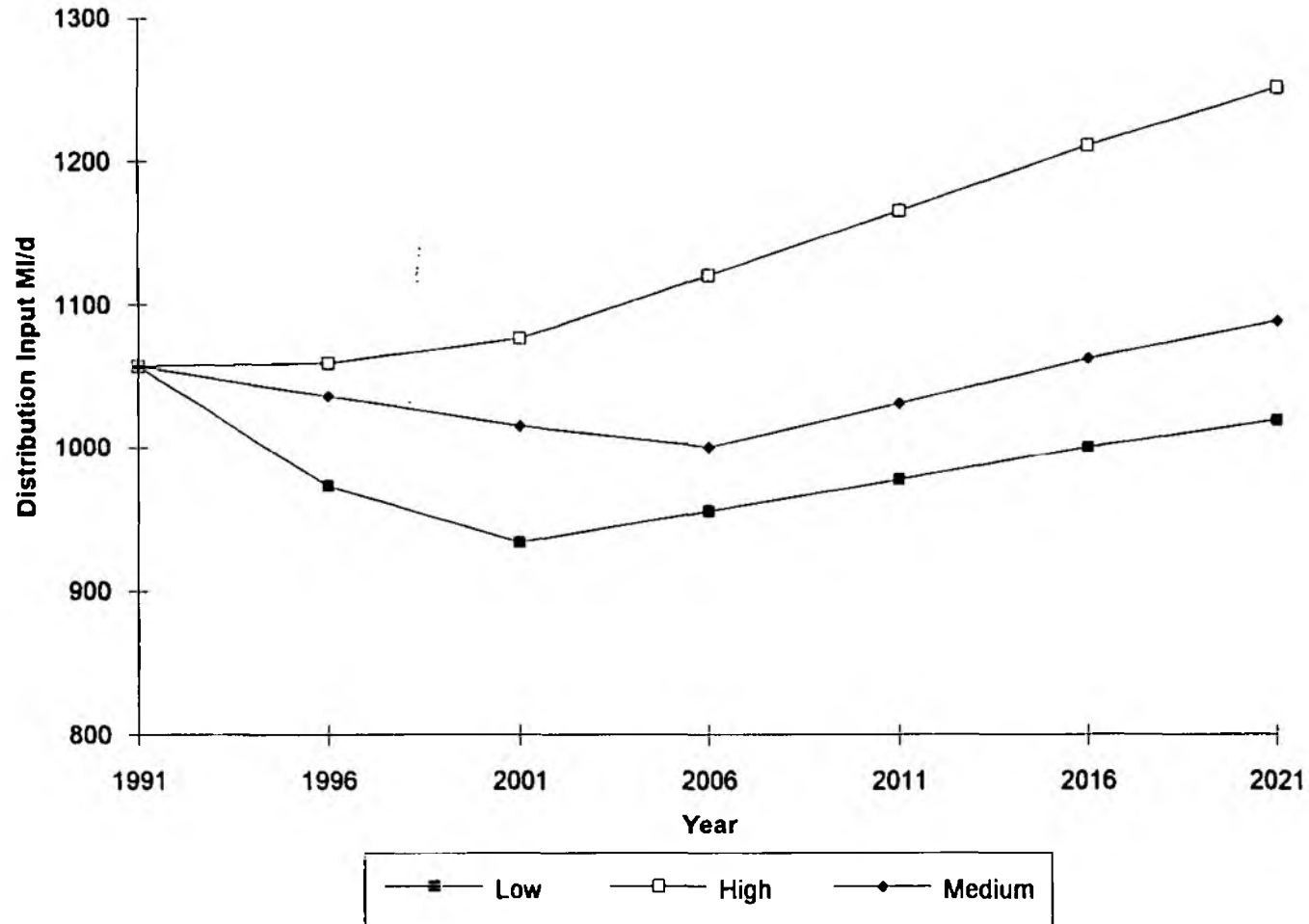
NRA demand forecast range for Sutton Water



COMPANY DEMAND SCENARIOS

DWR CYMRU							
CORE DATA			SOURCE				
Distribution Input 1991 (Mdd)	[a]	Input	1057				
Total Metered (Mdd)	[b]	Input	245.2				
Unm Non household (Mdd)	[c]	Input	44.6				
Proportion 1991 prop meter	[d]	Input	0.0276				
Weighted ave PCC	[j]	Input	140				
LINKED DATA			SOURCE				
			1991	1996	2001	2006	2011
Population	[e]	Input	2770000	2810000	2850000	2870000	2890000
M. Compression	[i]	Input	0.9	0.9	0.9	0.9	0.9
Occupancy rate	[f]	Input	2.54	2.51	2.47	2.44	2.41
PCC unsm. growth (%) - Low	[r1]	Input	0	0.64	0.64	0.64	0.64
PCC unsm. growth (%) - High	[r2]	Input	0	1	1	1	1
PCC unsm. growth (%) - Med	[r3]	Input	0	0.64	0.64	0.64	0.64
Unsm. non hh growth (%) - Low	[x1]	Input	0	0	0	0	0
Unsm. non hh growth (%) - High	[x2]	Input	0	0.75	0.75	0.75	0.75
Unsm. non hh growth (%) - Med	[x3]	Input	0	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0	0
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	[y3]	Input	0	0.5	0.5	0.5	0.5
Prop. properties meter - Low	[d1]	Input	0	0.0276	0.0276	0.0276	0.0276
Prop. properties meter - High	[d2]	Input	0	0.0276	0.0276	0.0276	0.0276
Prop. properties meter - Med	[d3]	Input	0	0.0276	0.0276	0.0276	0.0276
Unsm. night flow (Vpr/hr) - Low	[w1]	Input	17.89	12.89	10	10	10
Unsm. night flow (Vpr/hr) - High	[w2]	Input	17.89	15.89	14.5	14.5	14.5
Unsm. night flow (Vpr/hr) - Med	[w3]	Input	17.89	15.39	12.89	11	11
BASELINE 1991			SOURCE				
			1991				
Existing metered dom. props	[g]	(w/f)*d	30099213				
Unsm. dom. props	[h]	(w/f) - g	1060452				
Metered households (Mdd)	[k]	(g * f * j) / 10 ⁶	9.63				
Metered non h'hold (Mdd)	[l]	b - k	235.57				
Unmetered h'hold (Mdd)	[m]	(h * f * j) / 10 ⁶	377.10				
Distr. Input less UFW (Mdd)	[n]	m + b + c	666.90				
UFW	[p]	a - n	390.10				
Night flow (Vpr/h)	[q]	((p * 10 ⁶)(g+h))/20	17.89				
LOW			SOURCE				
			1996	2001	2006	2011	2016
Unsm. dom. props	[h1]	(e - ((g + ab) * f)) / f	1088623.11	1122000.00	1143765.57	1166073.03	1184857.14
Unmetered PCC (Vh/d)	[f]	j * ((1 + (r/100))^5)	144.54	149.22	154.06	159.03	165.11
Metered PCC (Vh/d)	[u]	t * i	130.08	134.30	138.65	143.15	148.60
Unsm. non h'holds (Mdd)	[c1]	c * ((1 + (x/100))^5)	44.60	44.60	44.60	44.60	44.60
Meter. non h'holds (Mdd)	[l1]	l * ((1 + (y/100))^5)	235.57	235.57	235.57	235.57	235.57
Unmetered h'hold (Mdd)	[m1]	(h1 * f * j) / 10 ⁶	394.94	413.55	429.95	446.98	465.60
Metered households (Mdd)	[k1]	((g + ab) * f * n) / 10 ⁶	10.09	10.56	10.98	11.42	11.89
Total household (Mdd)	[v]	m1 + k1	405.03	424.11	440.93	458.39	477.49
Distr. Input less UFW (Mdd)	[n1]	v + e1 + l1	685.20	704.28	721.10	738.56	757.66
New dom. mat. props	[ab]	((w/f)*d1) - g [enter 0 if -ve]	799.59	1746.94	2364.72	2997.88	3531.04
Total domestic properties	[z]	e / f	1119521.91	1153846.15	1176229.51	1199170.12	1218487.39
Metered prop UFW redn. (Mdd)	[aa]	(1.5*20 * (g + ab)) / 10 ⁶	0.93	0.96	0.97	0.99	1.01
UFW (Mdd)	[p1]	((w1 * z * 20) / 10 ⁶) - aa	287.69	229.81	234.27	238.84	242.69
Distribution Input (Mdd)	[ac]	p1 + n1	972.88	934.09	955.37	977.40	1000.34
HIGH			SOURCE				
			1996	2001	2006	2011	2016
Unsm. dom. props	[h1]	(e - ((g + ab) * f)) / f	1088623.11	1122000.00	1143765.57	1166073.03	1184857.14
Unmetered PCC (Vh/d)	[f]	j * ((1 + (r/100))^5)	147.14	154.65	162.54	170.83	179.54
Metered PCC (Vh/d)	[u]	t * i	147.14	154.65	162.54	170.83	179.54
Unsm. non h'holds (Mdd)	[c1]	c * ((1 + (x/100))^5)	46.30	48.06	49.89	51.79	53.76
Meter. non h'holds (Mdd)	[l1]	l * ((1 + (y/100))^5)	244.53	253.84	263.51	273.54	283.95
Unmetered h'hold (Mdd)	[m1]	(h1 * f * j) / 10 ⁶	402.06	428.58	453.60	480.06	506.30
Metered households (Mdd)	[k1]	((g + ab) * f * n) / 10 ⁶	11.41	12.16	12.87	13.63	14.37
Total household (Mdd)	[v]	m1 + k1	413.47	440.74	466.48	493.69	520.67
Distr. Input less UFW (Mdd)	[n1]	v + e1 + l1	704.30	742.65	779.87	819.01	858.38
New dom. mat. props	[ab]	((w/f)*d2) - g [enter 0 if -ve]	799.59	1746.94	2364.72	2997.88	3531.04
Total domestic properties	[z]	e / f	1119521.91	1153846.15	1176229.51	1199170.12	1218487.39
Metered prop UFW redn. (Mdd)	[aa]	(1.5*20 * (g + ab)) / 10 ⁶	0.93	0.96	0.97	0.99	1.01
UFW (Mdd)	[p1]	((w2 * z * 20) / 10 ⁶) - aa	354.86	333.66	340.13	346.77	352.53
Distribution Input (Mdd)	[ac]	p1 + n1	1059.16	1076.31	1120.01	1165.78	1210.73
MEDIUM			SOURCE				
			1996	2001	2006	2011	2016
Unsm. dom. props	[h1]	(e - ((g + ab) * f)) / f	1088623.11	1122000.00	1143765.57	1166073.03	1184857.14
Unmetered PCC (Vh/d)	[f]	j * ((1 + (r/100))^5)	144.54	149.22	154.06	159.03	165.11
Metered PCC (Vh/d)	[u]	t * i	130.08	134.30	138.65	143.15	148.60
Unsm. non h'holds (Mdd)	[c1]	c * ((1 + (x/100))^5)	45.73	46.88	48.06	49.28	50.52
Meter. non h'holds (Mdd)	[l1]	l * ((1 + (y/100))^5)	241.52	247.61	253.87	260.28	266.85
Unmetered h'hold (Mdd)	[m1]	(h1 * f * j) / 10 ⁶	394.94	413.55	429.95	446.98	465.60
Metered households (Mdd)	[k1]	((g + ab) * f * n) / 10 ⁶	10.09	10.56	10.98	11.42	11.89
Total household (Mdd)	[v]	m1 + k1	405.03	424.11	440.93	458.39	477.49
Distr. Input less UFW (Mdd)	[n1]	v + e1 + l1	692.27	718.61	742.86	767.95	794.86
New dom. mat. props	[ab]	((w/f)*d3) - g [enter 0 if -ve]	799.59	1746.94	2364.72	2997.88	3531.04
Total domestic properties	[z]	e / f	1119521.91	1153846.15	1176229.51	1199170.12	1218487.39
Metered prop UFW redn. (Mdd)	[aa]	(1.5*20 * (g + ab)) / 10 ⁶	0.93	0.96	0.97	0.99	1.01
UFW (Mdd)	[p1]	((w3 * z * 20) / 10 ⁶) - aa	343.66	296.51	257.80	262.82	267.06
Distribution Input (Mdd)	[ac]	p1 + n1	1035.93	1015.11	1000.46	1030.77	1061.92

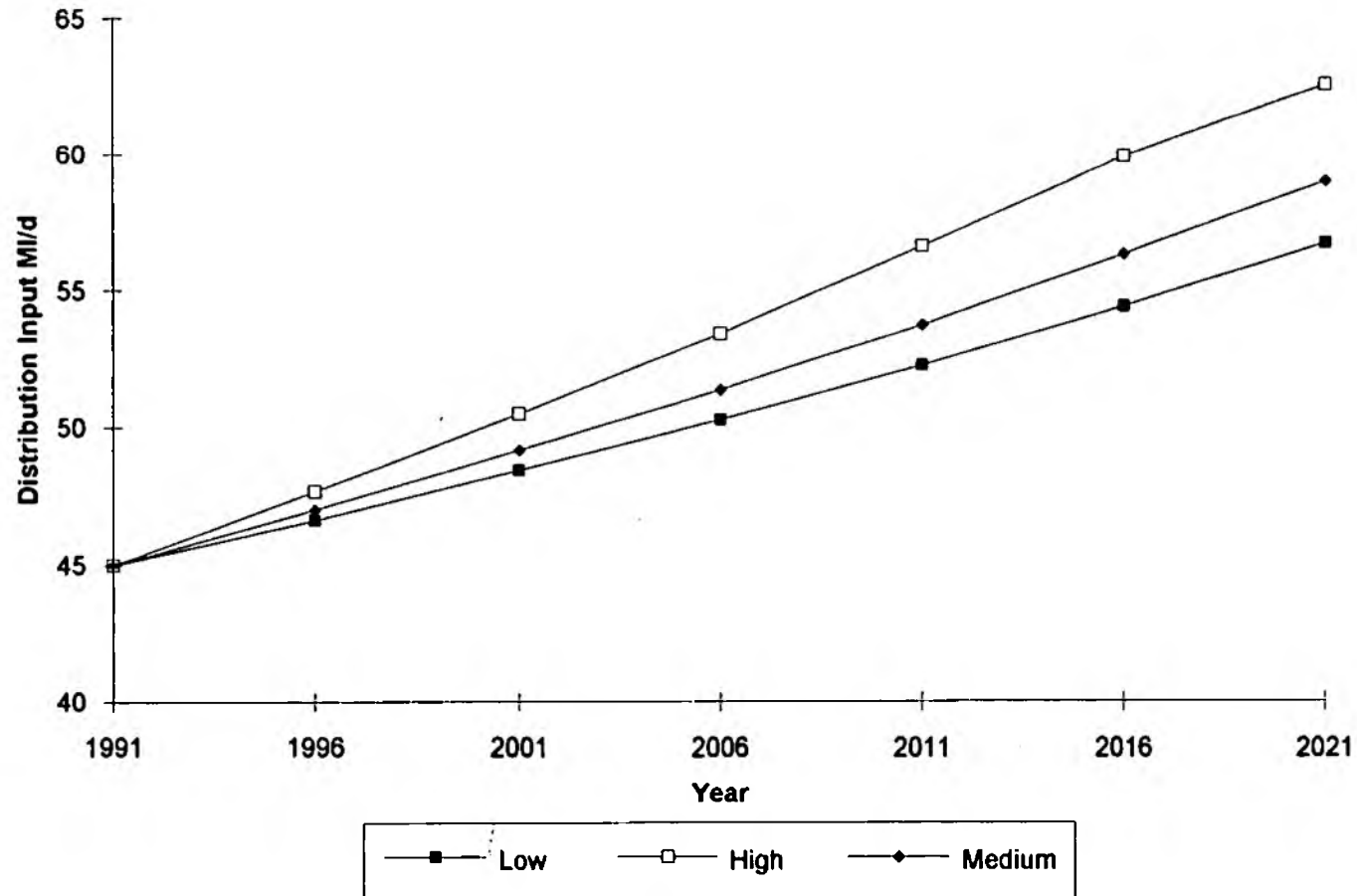
NRA demand forecast range for Welsh Water



COMPANY DEMAND SCENARIOS

WREXHAM									
CORE DATA			SOURCE						
Distribution Input 1991 (Mdd)	(a)	Input	45						
Total Metered (Mdd)	(b)	Input	12.8						
Unm Non household (Mdd)	(c)	Input	2						
Proportion 1991 prop meter	(d)	Input	0.0348						
Weighted ave PCC	(j)	Input	144						
LINKED DATA			SOURCE						
			1991	1996	2001	2006	2011	2016	2021
Population	(e)	Input	146769	150932	155134	159317	163900	167683	171973
PCC Suppression	(i)	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Occupancy rate	(f)	Input	2.67	2.64	2.6	2.57	2.53	2.5	2.47
PCC un. growth (%) - Low	(r1)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
PCC un. growth (%) - High	(r2)	Input	0	1	1	1	1	1	1
PCC un. growth (%) - Med	(r3)	Input	0	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	(x1)	Input	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	(x2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	(x3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	(y1)	Input	0	0	0	0	0	0	0
M. non hh growth (%) - High	(y2)	Input	0	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	(y3)	Input	0	0.5	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	(d1)	Input	0	0.0348	0.0348	0.0348	0.0348	0.0348	0.0348
Prop. properties meter - High	(d2)	Input	0	0.0348	0.0348	0.0348	0.0348	0.0348	0.0348
Prop. properties meter - Med	(d3)	Input	0	0.0348	0.0348	0.0348	0.0348	0.0348	0.0348
Unm. night flow (lpr/hr)-Low	(w1)	Input	8.91	8.91	8.91	8.91	8.91	8.91	8.91
Unm. night flow (lpr/hr)-High	(w2)	Input	8.91	8.91	8.91	8.91	8.91	8.91	8.91
Unm. night flow (lpr/hr)-Med	(w3)	Input	8.91	8.91	8.91	8.91	8.91	8.91	8.91
BASELINE 1991			SOURCE						
			1991						
Existing metered dom. props	(g)	$(e/f)*d$	1912.94427						
Unm. dom. props	(h)	$(e/f) - g$	53056.71865						
Metered households (Mdd)	(k)	$(g * f^{-1}) / 10^6$	0.66						
Metered non h'hold (Mdd)	(l)	b - k	12.14						
Unmetered h'hold (Mdd)	(m)	$(h * f^{-1}) / 10^6$	20.40						
Discr. Input less UFW (Mdd)	(n)	m + b + c	35.20						
UFW	(p)	e - n	9.80						
Night flow (lpr/hr)	(q)	$((p * 10^6) / (g+h)) / 20$	8.91						
LOW			SOURCE						
			1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	$(e - ((g + ab) * f)) / f$	55188.97	57590.51	59833.76	62373.57	64739.05	67201.76	
Unmetered PCC (l/h/d)	(t)	$j * ((1 + (r1/100))^5)$	148.67	153.49	158.46	163.60	169.82	176.29	
Metered PCC (l/h/d)	(u)	i * j	133.80	138.14	142.61	147.24	152.84	158.66	
Unm. non h'holds (Mdd)	(c1)	$c * ((1 + (x1/100))^5)$	2.00	2.00	2.00	2.00	2.00	2.00	
Met. non h'holds (Mdd)	(l1)	$l * ((1 + (y1/100))^5)$	12.14	12.14	12.14	12.14	12.14	12.14	
Unmetered h'hold (Mdd)	(m1)	$(h1 * f^{-1}) / 10^6$	21.66	22.98	24.37	25.82	27.49	29.26	
Metered households (Mdd)	(k1)	$((g + ab) * f^{-1}) / 10^6$	0.70	0.75	0.79	0.84	0.89	0.95	
Total household (Mdd)	(v)	m1 + k1	22.36	23.73	25.16	26.66	28.38	30.21	
Discr. Input less UFW (Mdd)	(n1)	v + c1 + l1	36.50	37.87	39.30	40.79	42.52	44.35	
New dom. met. props	(ab)	$((e/f)*d1) - g$ [enter 'v' if -ve]	76.88	163.46	244.34	335.99	421.20	510.00	
Total domestic properties	(z)	a / f	57178.79	59666.92	61991.05	64624.51	67073.20	69624.70	
Metered prop UFW redn. (Mdd)	(m)	$(1.5 * 20 * ((g + ab))) / 10^6$	0.06	0.06	0.06	0.07	0.07	0.07	
UFW (Mdd)	(p1)	$((w1 * z * 20) / 10^6) - m$	10.13	10.57	10.98	11.45	11.88	12.33	
Distribution Input (Mdd)	(ac)	p1 + n1	46.63	48.44	50.28	52.24	54.40	56.68	
HIGH			SOURCE						
			1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	$(e - ((g + ab) * f)) / f$	55188.97	57590.51	59833.76	62373.57	64739.05	67201.76	
Unmetered PCC (l/h/d)	(t)	$j * ((1 + (r2/100))^5)$	151.35	159.07	167.18	175.71	184.67	189.00	
Metered PCC (l/h/d)	(u)	i * j	151.35	159.07	167.18	175.71	184.67	189.00	
Unm. non h'holds (Mdd)	(c1)	$c * ((1 + (x2/100))^5)$	2.08	2.16	2.24	2.32	2.41	2.50	
Met. non h'holds (Mdd)	(l1)	$l * ((1 + (y2/100))^5)$	12.60	13.08	13.58	14.09	14.63	15.19	
Unmetered h'hold (Mdd)	(m1)	$(h1 * f^{-1}) / 10^6$	22.05	23.82	25.71	27.73	29.89	31.37	
Metered households (Mdd)	(k1)	$((g + ab) * f^{-1}) / 10^6$	0.80	0.86	0.93	1.00	1.08	1.13	
Total household (Mdd)	(v)	m1 + k1	22.85	24.68	26.63	28.73	30.97	32.50	
Discr. Input less UFW (Mdd)	(n1)	v + c1 + l1	37.52	39.91	42.45	45.15	48.01	50.19	
New dom. met. props	(ab)	$((e/f)*d2) - g$ [enter 'v' if -ve]	76.88	163.46	244.34	335.99	421.20	510.00	
Total domestic properties	(z)	a / f	57178.79	59666.92	61991.05	64624.51	67073.20	69624.70	
Metered prop UFW redn. (Mdd)	(m)	$(1.5 * 20 * ((g + ab))) / 10^6$	0.06	0.06	0.06	0.07	0.07	0.07	
UFW (Mdd)	(p1)	$((w2 * z * 20) / 10^6) - m$	10.13	10.57	10.98	11.45	11.88	12.33	
Distribution Input (Mdd)	(ac)	p1 + n1	47.65	50.48	53.43	56.59	59.89	62.53	
MEDIUM			SOURCE						
			1996	2001	2006	2011	2016	2021	
Unm. dom. props	(h1)	$(e - ((g + ab) * f)) / f$	55188.97	57590.51	59833.76	62373.57	64739.05	67201.76	
Unmetered PCC (l/h/d)	(t)	$j * ((1 + (r3/100))^5)$	148.67	153.49	158.46	163.60	169.82	176.29	
Metered PCC (l/h/d)	(u)	i * j	133.80	138.14	142.61	147.24	152.84	158.66	
Unm. non h'holds (Mdd)	(c1)	$c * ((1 + (x3/100))^5)$	2.05	2.10	2.16	2.21	2.27	2.32	
Met. non h'holds (Mdd)	(l1)	$l * ((1 + (y3/100))^5)$	12.44	12.76	13.08	13.41	13.75	14.10	
Unmetered h'hold (Mdd)	(m1)	$(h1 * f^{-1}) / 10^6$	21.66	22.98	24.37	25.82	27.49	29.26	
Metered households (Mdd)	(k1)	$((g + ab) * f^{-1}) / 10^6$	0.70	0.75	0.79	0.84	0.89	0.95	
Total household (Mdd)	(v)	m1 + k1	22.36	23.73	25.16	26.66	28.38	30.21	
Discr. Input less UFW (Mdd)	(n1)	v + c1 + l1	36.86	38.59	40.39	42.28	44.39	46.63	
New dom. met. props	(ab)	$((e/f)*d3) - g$ [enter 'v' if -ve]	76.88	163.46	244.34	335.99	421.20	510.00	
Total domestic properties	(z)	a / f	57178.79	59666.92	61991.05	64624.51	67073.20	69624.70	
Metered prop UFW redn. (Mdd)	(m)	$(1.5 * 20 * ((g + ab))) / 10^6$	0.06	0.06	0.06	0.07	0.07	0.07	
UFW (Mdd)	(p1)	$((w3 * z * 20) / 10^6) - m$	10.13	10.57	10.98	11.45	11.88	12.33	
Distribution Input (Mdd)	(ac)	p1 + n1	46.99	49.16	51.38	53.72	56.28	58.97	

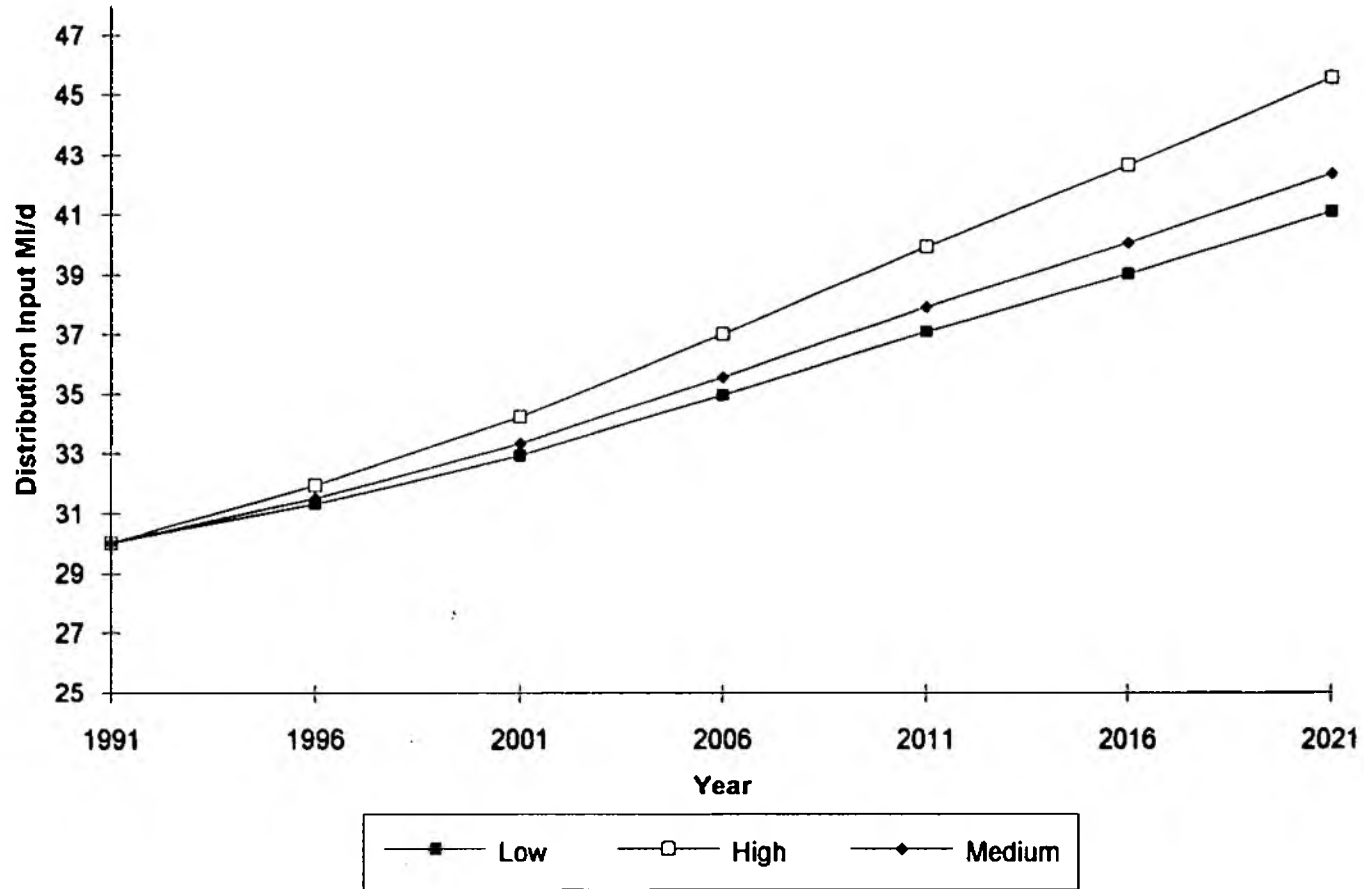
NRA demand forecast range for Wrexham Water



COMPANY DEMAND SCENARIOS

CHESTER WATERWORKS							
CORE DATA		SOURCE					
Distribution Input 1991 (Mld)	(a)	Input	30				
Total Metered (Mld)	(b)	Input	7.3				
Unm Non household (Mld)	(c)	Input	0.8				
Proportion 1991 prop meter	(d)	Input	0.0182				
Weighted ave PCC	(j)	Input	134				
LINKED DATA		SOURCE					
			1991	1996	2001	2006	2011
Population	(e)	Input	116000	119790	124740	131270	137790
PCC Suppression	(f)	Input	0.9	0.9	0.9	0.9	0.9
Occupancy rate	(f)	Input	2.75	2.71	2.68	2.64	2.61
PCC unsm. growth (%) - Low	(r1)	Input	0	0.64	0.64	0.64	0.64
PCC unsm. growth (%) - High	(r2)	Input	0	1	1	1	1
PCC unsm. growth (%) - Med	(r3)	Input	0	0.64	0.64	0.64	0.64
Unsm. non hh growth (%) - Lo	(s1)	Input	0	0	0	0	0
Unsm. non hh growth (%) - Hig	(s2)	Input	0	0.75	0.75	0.75	0.75
Unsm. non hh growth (%) - Me	(s3)	Input	0	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	(y1)	Input	0	0	0	0	0
M. non hh growth (%) - High	(y2)	Input	0	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	(y3)	Input	0	0.5	0.5	0.5	0.5
Prop. properties meter - Low	(d1)	Input	0	0.0182	0.0182	0.0182	0.0182
Prop. properties meter - High	(d2)	Input	0	0.0182	0.0182	0.0182	0.0182
Prop. properties meter - Med	(d3)	Input	0	0.0182	0.0182	0.0182	0.0182
Unsm. night flow (Vp/hr) - Low	(w1)	Input	7.87	7.87	7.87	7.87	7.87
Unsm. night flow (Vp/hr) - Hig	(w2)	Input	7.87	7.87	7.87	7.87	7.87
Unsm. night flow (Vp/hr) - Med	(w3)	Input	7.87	7.87	7.87	7.87	7.87
BASELINE 1991		SOURCE					
			1991				
Existing metered dom. props	(g)	$(w/f)*d$	767.709				
Unsm. dom. props	(h)	$(w/f) - g$	41414.1				
Metered households (Mld)	(i)	$(g * f * i) / 10^6$	0.25				
Metered non h'hold (Mld)	(j)	$b - k$	7.05				
Unmetered h'hold (Mld)	(m)	$(h * f * j) / 10^6$	15.26				
Distr. Input less UFW (Mld)	(n)	$m + b + c$	23.36				
UFW	(p)	$a - n$	6.64				
Night flow (Vp/hr)	(q)	$((p * 10^6) / (g+h)) / 20$	7.87				
LOW		SOURCE					
			1996	2001	2006	2011	2016
Unsm. dom. props	(h1)	$(e - ((g + ab) * f)) / f$	43398.46	45697.66	48818.52	51832.27	54263.48
Unmetered PCC (Vh/d)	(i)	$j * ((1 + (r/100))^5)$	138.34	142.83	147.46	152.24	158.03
Metered PCC (Vh/d)	(e)	$i * i$	124.51	128.54	132.71	137.01	142.23
Unsm. non h'holds (Mld)	(c1)	$c * ((1 + (x/100))^5)$	0.80	0.80	0.80	0.80	0.80
Mtr. non h'holds (Mld)	(l1)	$l * ((1 + (y/100))^5)$	7.05	7.05	7.05	7.05	7.05
Unmetered h'hold (Mld)	(m1)	$(h1 * f * i) / 10^6$	16.27	17.49	19.00	20.59	22.12
Metered households (Mld)	(k1)	$((g + ab) * f * i) / 10^6$	0.27	0.29	0.32	0.34	0.37
Total household (Mld)	(v)	$m1 + k1$	16.54	17.78	19.32	20.94	22.49
Distr. Input less UFW (Mld)	(n1)	$v + c1 + l1$	24.39	25.63	27.17	28.78	30.34
New dom. met. props	(ab)	$((w/f)*d1) - g$ [enter 'v' if -ve]	36.78	79.41	137.26	193.13	238.19
Total domestic properties	(z)	e / f	44202.95	46544.78	49723.48	52793.10	55269.38
Metered prop UFW redn. (Mld)	(m)	$(1.5 * 20 * (g + ab)) / 10^6$	0.02	0.03	0.03	0.03	0.03
UFW (Mld)	(p1)	$((w1 * x * 20) / 10^6) - am$	6.93	7.30	7.80	8.28	8.67
Distribution Input (Mld)	(ac)	$p1 + n1$	31.32	32.93	34.97	37.06	39.01
HIGH		SOURCE					
			1996	2001	2006	2011	2016
Unsm. dom. props	(h1)	$(e - ((g + ab) * f)) / f$	43398.46	45697.66	48818.52	51832.27	54263.48
Unmetered PCC (Vh/d)	(i)	$j * ((1 + (r/100))^5)$	140.84	148.02	155.57	163.51	171.85
Metered PCC (Vh/d)	(e)	$i * i$	140.84	148.02	155.57	163.51	171.85
Unsm. non h'holds (Mld)	(c1)	$c * ((1 + (x/100))^5)$	0.83	0.86	0.89	0.93	0.96
Mtr. non h'holds (Mld)	(l1)	$l * ((1 + (y/100))^5)$	7.31	7.59	7.88	8.18	8.49
Unmetered h'hold (Mld)	(m1)	$(h1 * f * i) / 10^6$	16.56	18.13	20.05	22.12	24.06
Metered households (Mld)	(k1)	$((g + ab) * f * i) / 10^6$	0.31	0.34	0.37	0.41	0.45
Total household (Mld)	(v)	$m1 + k1$	16.87	18.46	20.42	22.53	24.50
Distr. Input less UFW (Mld)	(n1)	$v + c1 + l1$	25.01	26.92	29.20	31.64	33.96
New dom. met. props	(ab)	$((w/f)*d2) - g$ [enter 'v' if -ve]	36.78	79.41	137.26	193.13	238.19
Total domestic properties	(z)	e / f	44202.95	46544.78	49723.48	52793.10	55269.38
Metered prop UFW redn. (Mld)	(m)	$(1.5 * 20 * (g + ab)) / 10^6$	0.02	0.03	0.03	0.03	0.03
UFW (Mld)	(p1)	$((w2 * x * 20) / 10^6) - am$	6.93	7.30	7.80	8.28	8.67
Distribution Input (Mld)	(ac)	$p1 + n1$	31.95	34.22	37.00	39.92	42.63
MEDIUM		SOURCE					
			1996	2001	2006	2011	2016
Unsm. dom. props	(h1)	$(e - ((g + ab) * f)) / f$	43398.46	45697.66	48818.52	51832.27	54263.48
Unmetered PCC (Vh/d)	(i)	$j * ((1 + (r/100))^5)$	138.34	142.83	147.46	152.24	158.03
Metered PCC (Vh/d)	(e)	$i * i$	124.51	128.54	132.71	137.01	142.23
Unsm. non h'holds (Mld)	(c1)	$c * ((1 + (x/100))^5)$	0.82	0.84	0.86	0.88	0.91
Mtr. non h'holds (Mld)	(l1)	$l * ((1 + (y/100))^5)$	7.22	7.41	7.59	7.78	7.98
Unmetered h'hold (Mld)	(m1)	$(h1 * f * i) / 10^6$	16.27	17.49	19.00	20.59	22.12
Metered households (Mld)	(k1)	$((g + ab) * f * i) / 10^6$	0.27	0.29	0.32	0.34	0.37
Total household (Mld)	(v)	$m1 + k1$	16.54	17.78	19.32	20.94	22.49
Distr. Input less UFW (Mld)	(n1)	$v + c1 + l1$	24.39	25.63	27.17	28.78	30.34
New dom. met. props	(ab)	$((w/f)*d3) - g$ [enter 'v' if -ve]	36.78	79.41	137.26	193.13	238.19
Total domestic properties	(z)	e / f	44202.95	46544.78	49723.48	52793.10	55269.38
Metered prop UFW redn. (Mld)	(m)	$(1.5 * 20 * (g + ab)) / 10^6$	0.02	0.03	0.03	0.03	0.03
UFW (Mld)	(p1)	$((w3 * x * 20) / 10^6) - am$	6.93	7.30	7.80	8.28	8.67
Distribution Input (Mld)	(ac)	$p1 + n1$	31.32	33.33	35.58	37.89	40.05

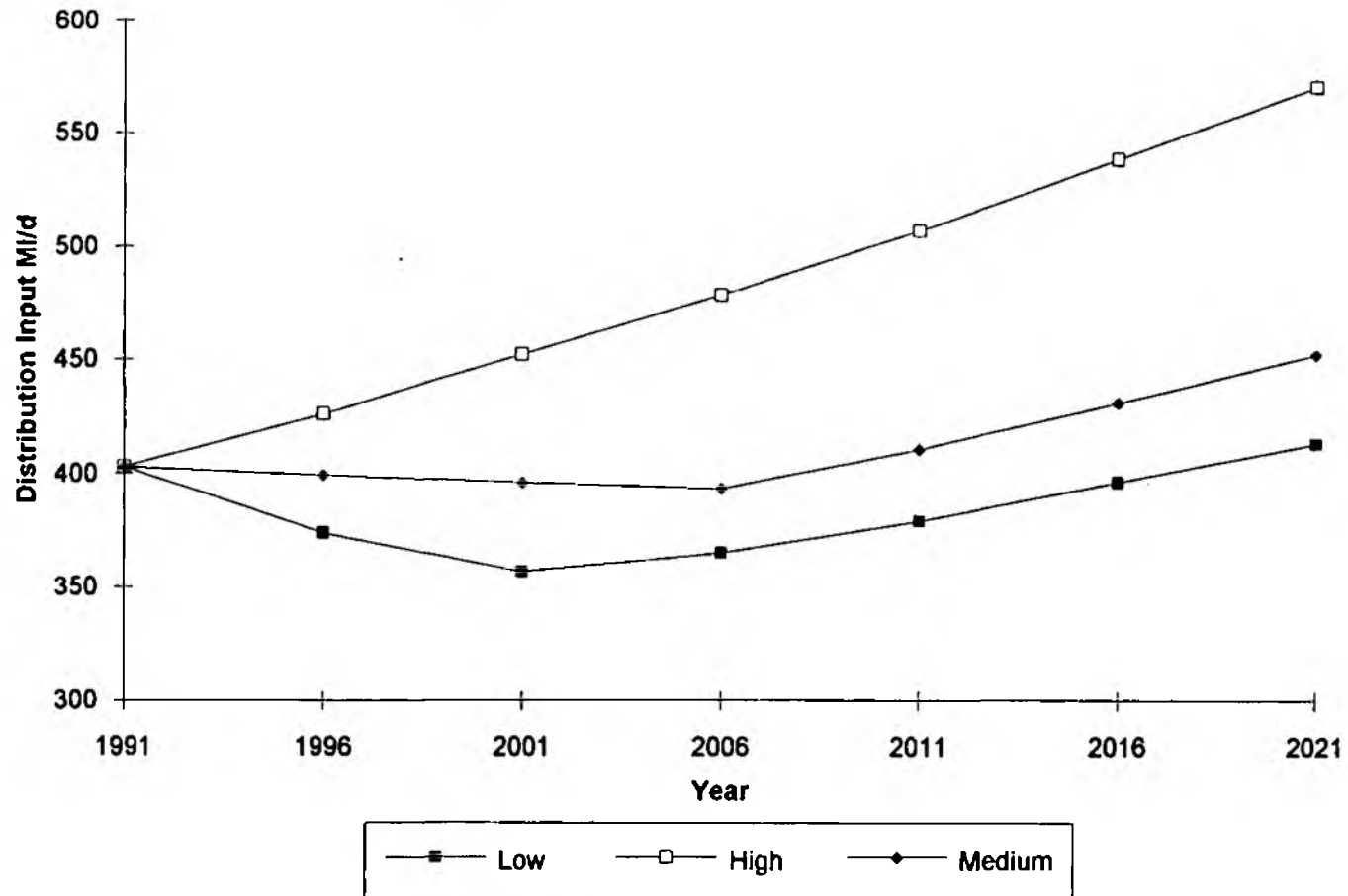
NRA demand forecast range for Chester Water Company



COMPANY DEMAND SCENARIOS

WESSEX WATER										
CORE DATA -		SOURCE								
Distribution Input 1991 (M/d)	[a]	Input	403							
Total Metered (M/d)	[b]	Input	131.2							
Unm Non household (M/d)	[c]	Input	9.2							
Proportion 1991 prop meter	[d]	Input	0.037							
Weighted ave PCC	[f]	Input	136							
LINKED DATA		SOURCE		1991	1996	2001	2006	2011	2016	2021
Population	[e]	Input	1101400	1137700	1177400	1215800	1255600	1298350	1342100	
PCC Suppression	[j]	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
Occupancy rate	[f]	Input	2.63	2.6	2.56	2.53	2.5	2.46	2.43	
PCC unsm. growth (%) - Low	[r1]	Input	0	0.64	0.64	0.64	0.64	0.75	0.75	
PCC unsm. growth (%) - High	[r2]	Input	0	1	1	1	1	1	1	
PCC unsm. growth (%) - Med	[r3]	Input	0	0.64	0.64	0.64	0.64	0.75	0.75	
Unm. non hh growth (%) - Low	[x1]	Input	0	0	0	0	0	0	0	
Unm. non hh growth (%) - High	[x2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75	
Unm. non hh growth (%) - Med	[x3]	Input	0	0.5	0.5	0.5	0.5	0.5	0.5	
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0	0	0	0	
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75	
M. non hh growth (%) - Med	[y3]	Input	0	0.5	0.5	0.5	0.5	0.5	0.5	
Prop. properties meter - Low	[d1]	Input	0	0.037	0.13	0.3	0.3	0.3	0.3	
Prop. properties meter - High	[d2]	Input	0	0.037	0.037	0.037	0.037	0.037	0.037	
Prop. properties meter - Med	[d3]	Input	0	0.037	0.037	0.06	0.09	0.12	0.15	
Unm. night flow (lpr/hr)-Low	[w1]	Input	14.13	9.13	6	6	6	6	6	
Unm. night flow (lpr/hr)-High	[w2]	Input	14.13	14.13	14.13	14.13	14.13	14.13	14.13	
Unm. night flow (lpr/hr)-Med	[w3]	Input	14.13	11.63	9.13	7	7	7	7	
BASELINE 1991		SOURCE		1991						
Existing metered dom. props	[g]	(e/f)*d	15494.981							
Unm. dom. props	[h]	(e/f) - g	403288.289							
Metered households (M/d)	[k]	(g * f * j) / 10^6	4.99							
Metered non h'holds (M/d)	[l]	b - k	126.21							
Unmetered h'hold (M/d)	[m]	(h * f * j) / 10^6	144.25							
Distr. Input less UFW (M/d)	[n]	m + b + c	284.65							
UFW	[p]	a - n	118.35							
Night flow (lpr/hr)	[q]	((p * 10^6)/(g+h))/20	14.13							
LOW		SOURCE		1996	2001	2006	2011	2016	2021	
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	421386.58	390933.59	336387.35	351568.00	369391.46	386613.17		
Unmetered PCC (l/h/d)	[j]	j * ((1+(r1/100))^5)	140.41	144.96	149.66	154.51	160.39	166.50		
Metered PCC (l/h/d)	[a]	i * i	126.37	130.46	134.69	139.06	144.35	149.85		
Unm. non h'holds (M/d)	[c1]	c * ((1+(x1/100))^5)	9.20	9.20	9.20	9.20	9.20	9.20		
M. non h'holds (M/d)	[l1]	l * ((1+(y1/100))^5)	126.21	126.21	126.21	126.21	126.21	126.21		
Unmetered h'hold (M/d)	[m1]	(h1 * f * i) / 10^6	153.83	145.07	127.37	135.80	145.83	156.42		
Metered households (M/d)	[k1]	((g + ab) * f * u) / 10^6	5.32	23.04	49.13	52.38	56.25	60.33		
Total household (M/d)	[v]	m1 + k1	159.15	168.11	176.49	188.18	202.07	216.75		
Distr. Input less UFW (M/d)	[n1]	v + c1 + l1	294.56	305.53	311.91	323.59	337.48	352.16		
New dom. mat. props	[ab]	((e/f)*d2) - g [enter 0 if -ve]	695.37	53493.30	128671.03	135177.02	142901.36	150196.38		
Total domestic properties	[z]	e / f	437576.92	459921.88	480553.36	502240.00	527987.80	552304.53		
Metered prop UFW radn. (M/d)	[an]	(1.5 * 20 * (g + ab)) / 10^6	0.49	2.07	4.32	4.52	4.75	4.97		
UFW (M/d)	[p1]	((w1 * z * 20) / 10^6) - an	79.42	53.12	53.34	55.75	58.61	61.31		
Distribution Input (M/d)	[ac]	p1 + n1	373.98	358.65	365.25	379.34	396.09	413.47		
HIGH		SOURCE		1996	2001	2006	2011	2016	2021	
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	421386.58	442904.77	462772.89	483657.12	508452.26	531869.26		
Unmetered PCC (l/h/d)	[j]	j * ((1+(r2/100))^5)	142.94	150.23	157.89	165.95	174.41	183.31		
Metered PCC (l/h/d)	[a]	i * i	142.94	150.23	157.89	165.95	174.41	183.31		
Unm. non h'holds (M/d)	[c1]	c * ((1+(x2/100))^5)	9.55	9.91	10.29	10.68	11.09	11.51		
M. non h'holds (M/d)	[l1]	l * ((1+(y2/100))^5)	131.02	136.00	141.18	146.56	152.13	157.93		
Unmetered h'hold (M/d)	[m1]	(h1 * f * i) / 10^6	156.60	170.33	184.86	200.65	218.15	236.91		
Metered households (M/d)	[k1]	((g + ab) * f * u) / 10^6	6.02	6.54	7.10	7.71	8.38	9.10		
Total household (M/d)	[v]	m1 + k1	162.62	176.88	191.96	208.36	226.53	246.02		
Distr. Input less UFW (M/d)	[n1]	v + c1 + l1	303.19	322.80	343.44	365.60	389.76	415.43		
New dom. mat. props	[ab]	((e/f)*d2) - g [enter 0 if -ve]	695.37	1522.13	2285.49	3087.90	4040.57	4940.79		
Total domestic properties	[z]	e / f	437576.92	459921.88	480553.36	502240.00	527987.80	552304.53		
Metered prop UFW radn. (M/d)	[an]	(1.5 * 20 * (g + ab)) / 10^6	0.49	0.51	0.53	0.56	0.59	0.61		
UFW (M/d)	[p1]	((w2 * z * 20) / 10^6) - an	123.17	129.44	135.27	141.38	148.62	155.47		
Distribution Input (M/d)	[ac]	p1 + n1	426.36	452.26	478.71	506.98	538.38	570.92		
MEDIUM		SOURCE		1996	2001	2006	2011	2016	2021	
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	421386.58	442904.77	451720.16	457038.40	464629.27	469458.85		
Unmetered PCC (l/h/d)	[j]	j * ((1+(r3/100))^5)	140.41	144.96	149.66	154.51	160.39	166.50		
Metered PCC (l/h/d)	[a]	i * i	126.37	130.46	134.69	139.06	144.35	149.85		
Unm. non h'holds (M/d)	[c1]	c * ((1+(x3/100))^5)	9.43	9.67	9.91	10.17	10.42	10.68		
M. non h'holds (M/d)	[l1]	l * ((1+(y3/100))^5)	129.40	132.67	136.02	139.45	142.97	146.58		
Unmetered h'hold (M/d)	[m1]	(h1 * f * i) / 10^6	153.83	164.36	171.04	176.54	183.32	189.94		
Metered households (M/d)	[k1]	((g + ab) * f * u) / 10^6	5.32	5.68	6.03	6.38	6.72	7.06		
Total household (M/d)	[v]	m1 + k1	159.15	170.04	180.86	192.25	205.82	220.10		
Distr. Input less UFW (M/d)	[n1]	v + c1 + l1	297.98	312.38	326.79	341.87	359.22	377.37		
New dom. mat. props	[ab]	((e/f)*d3) - g [enter 0 if -ve]	695.37	1522.13	13338.22	29706.62	47863.54	67350.70		
Total domestic properties	[z]	e / f	437576.92	459921.88	480553.36	502240.00	527987.80	552304.53		
Metered prop UFW radn. (M/d)	[an]	(1.5 * 20 * (g + ab)) / 10^6	0.49	0.51	0.56	0.59	0.62	0.64		
UFW (M/d)	[p1]	((w3 * z * 20) / 10^6) - an	101.29	83.47	66.41	68.94	72.02	74.84		
Distribution Input (M/d)	[ac]	p1 + n1	399.28	395.85	393.21	410.83	431.23	452.21		

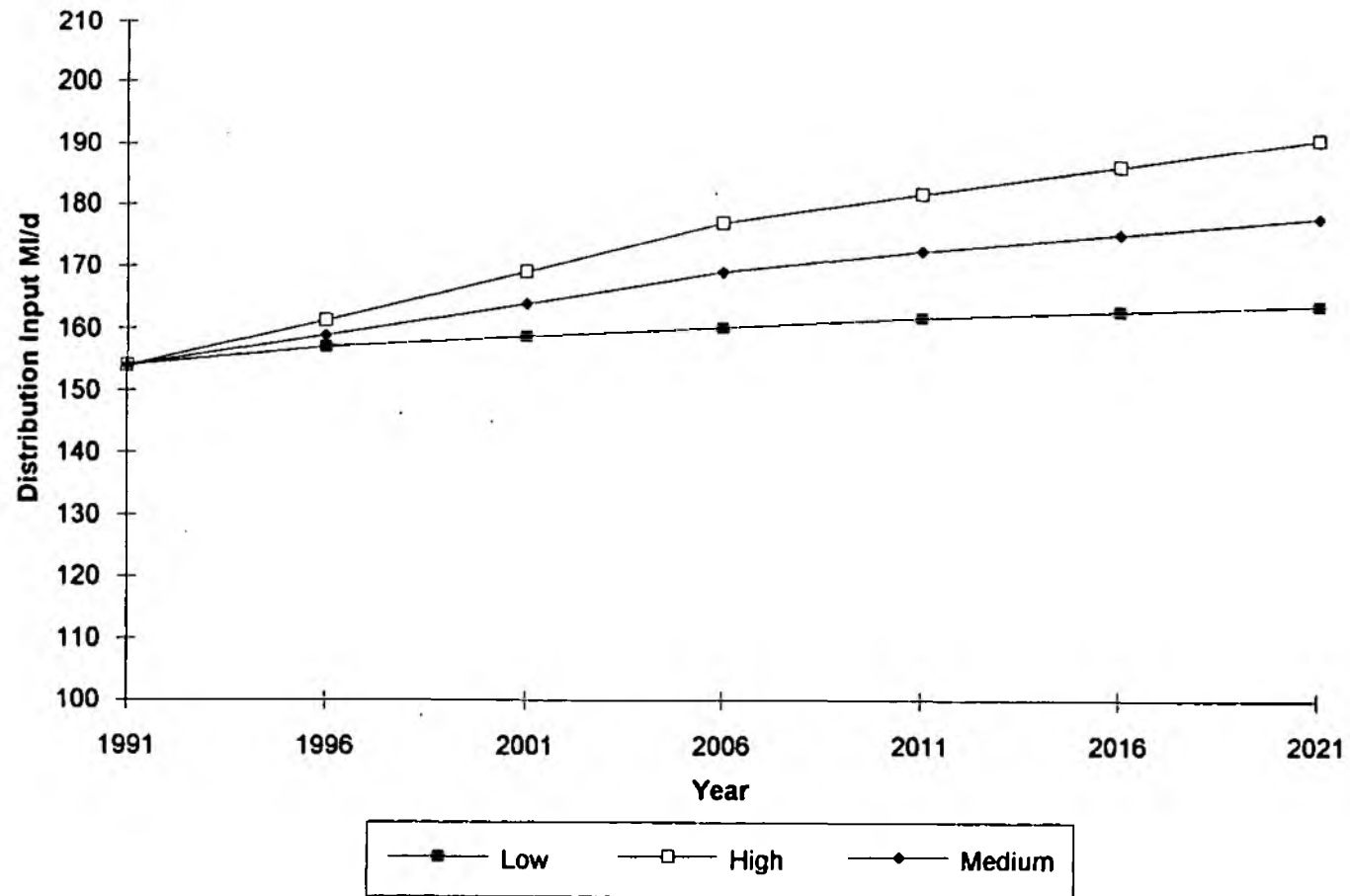
NRA demand forecast range for Wessex Water



COMPANY DEMAND SCENARIOS

BOURNEMOUTH & DISTRICT										
CORE DATA		SOURCE								
Distribution input 1991 (Mdd)	[a]	Input	154							
Total Metered (Mdd)	[b]	Input	70.6							
Unm Non household (Mdd)	[c]	Input	5.8							
Proportion 1991 prop meter	[d]	Input	0.0181							
Weighted ave PCC	[j]	Input	162							
LINKED DATA		SOURCE		1991	1996	2001	2006	2011	2016	2021
Population	[e]	Input	424000	428325	432650	436975	441300	445625	449950	
PCC Suppression	[f]	Input	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
Occupancy rate	[g]	Input	2.67	2.64	2.6	2.57	2.53	2.5	2.47	
PCC unsm. growth (%) - Low	[i1]	Input	0	0.64	0.64	0.64	0.64	0.64	0.75	0.75
PCC unsm. growth (%) - High	[i2]	Input	0	1	1	1	1	1	1	1
PCC unsm. growth (%) - Med	[i3]	Input	0	0.64	0.64	0.64	0.64	0.64	0.75	0.75
Unm. non hh growth (%) - Low	[x1]	Input	0	0	0	0	0	0	0	0
Unm. non hh growth (%) - High	[x2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Unm. non hh growth (%) - Med	[x3]	Input	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0	0	0	0	0
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	[y3]	Input	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Prop. properties meter - Low	[d1]	Input	0	0.0181	0.13	0.3	0.3	0.3	0.3	0.3
Prop. properties meter - High	[d2]	Input	0	0.0181	0.0181	0.0181	0.0181	0.0181	0.0181	0.0181
Prop. properties meter - Med	[d3]	Input	0	0.0181	0.03	0.06	0.09	0.12	0.15	
Unm. night flow (Upr/h) - Low	[w1]	Input	3.20	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Unm. night flow (Upr/h) - High	[w2]	Input	3.20	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Unm. night flow (Upr/h) - Med	[w3]	Input	3.20	3.2	3.2	3.2	3.2	3.2	3.2	3.2
BASELINE 1991		SOURCE		1991						
Existing metered dom. props	[g]	(w/f)*d	2874.30712							
Unm. dom. props	[h]	(w/f) - g	155927.191							
Metered households (Mdd)	[k]	(g * f * j * i) / 10^6	1.12							
Metered non h'hold (Mdd)	[l]	b - k	69.48							
Unmetered h'hold (Mdd)	[m]	(h * f * j) / 10^6	67.44							
Distr. Input less UFW (Mdd)	[a]	m + b + c	143.84							
UFW	[p]	n - m	10.16							
Night flow (Upr/h)	[q]	((p * 10^6) / (g+h)) * 20	3.20							
LOW		SOURCE		1996	2001	2006	2011	2016	2021	
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	159307.70	141443.27	119020.43	122098.81	124775.00	127516.19		
Unmetered PCC (U/d)	[i]	j * ((1 + (r1/100))^5)	167.25	172.67	178.27	180.00	180.00	180.00		
Metered PCC (U/d)	[a]	i - j	150.53	155.40	160.44	162.00	162.00	162.00		
Unm. non h'holds (Mdd)	[c1]	e * ((1 + (x1/100))^5)	5.80	5.80	5.80	5.80	5.80	5.80		
Met. non h'holds (Mdd)	[l1]	l * ((1 + (y1/100))^5)	69.48	69.48	69.48	69.48	69.48	69.48		
Unmetered h'hold (Mdd)	[m1]	(h1 * f * i) / 10^6	70.34	63.50	54.53	55.60	56.15	56.69		
Metered households (Mdd)	[k1]	((g + ab) * f * a) / 10^6	1.17	10.09	21.03	21.45	21.66	21.87		
Total household (Mdd)	[v]	m1 + k1	71.51	73.59	75.56	77.05	77.81	78.56		
Distr. Input less UFW (Mdd)	[n1]	v + c1 + l1	146.79	148.87	150.84	152.33	153.09	153.84		
New dom. met. props	[ab]	((w/f)*d1) - g [enter 0 if -ve]	62.32	22086.27	48134.45	49453.76	50600.69	51775.49		
Total domestic properties	[z]	e / f	162244.32	166403.85	170029.18	174426.88	178250.00	182165.99		
Metered prop UFW redn. (Mdd)	[m]	(1.5 * 20 * (g + ab)) / 10^6	0.09	0.75	1.53	1.57	1.60	1.64		
UFW (Mdd)	[p1]	((w1 * z * 20) / 10^6) - m	10.30	9.90	9.35	9.59	9.80	10.02		
Distribution Input (Mdd)	[ac]	p1 + n1	157.08	158.77	160.19	161.93	162.89	163.86		
HIGH		SOURCE		1996	2001	2006	2011	2016	2021	
Unm. dom. props	[h]	(e - ((g + ab) * f)) / f	159307.70	163391.94	166951.65	171269.75	175023.68	178968.79		
Unmetered PCC (U/d)	[i]	j * ((1 + (r2/100))^5)	170.26	178.95	188.08	189.00	180.00	189.00		
Metered PCC (U/d)	[a]	i - j	170.26	178.95	188.08	189.00	189.00	189.00		
Unm. non h'holds (Mdd)	[c1]	c * ((1 + (x2/100))^5)	6.02	6.25	6.49	6.73	6.99	7.26		
Met. non h'holds (Mdd)	[l1]	l * ((1 + (y2/100))^5)	72.13	74.87	77.72	80.68	83.75	86.94		
Unmetered h'hold (Mdd)	[m1]	(h1 * f * i) / 10^6	71.61	76.02	80.70	81.90	82.70	83.50		
Metered households (Mdd)	[k1]	((g + ab) * f * a) / 10^6	1.32	1.40	1.49	1.51	1.52	1.54		
Total household (Mdd)	[v]	m1 + k1	72.93	77.42	82.18	83.41	84.22	85.04		
Distr. Input less UFW (Mdd)	[n1]	v + c1 + l1	151.07	158.34	166.39	170.82	174.97	179.24		
New dom. met. props	[ab]	((w/f)*d2) - g [enter 0 if -ve]	62.32	137.60	203.22	282.82	352.02	422.90		
Total domestic properties	[z]	e / f	162244.32	166403.85	170029.18	174426.88	178250.00	182165.99		
Metered prop UFW redn. (Mdd)	[m]	(1.5 * 20 * (g + ab)) / 10^6	0.09	0.09	0.09	0.09	0.10	0.10		
UFW (Mdd)	[p1]	((w2 * z * 20) / 10^6) - m	10.30	10.56	10.79	11.07	11.31	11.56		
Distribution Input (Mdd)	[ac]	p1 + n1	161.37	169.10	177.18	181.89	186.28	190.80		
MEDIUM		SOURCE		1996	2001	2006	2011	2016	2021	
Unm. dom. props	[h1]	(e - ((g + ab) * f)) / f	159307.70	161411.73	159827.43	158728.46	156860.00	154841.09		
Unmetered PCC (U/d)	[i]	j * ((1 + (r3/100))^5)	167.25	172.67	178.27	180.00	180.00	180.00		
Metered PCC (U/d)	[a]	i - j	150.53	155.40	160.44	162.00	162.00	162.00		
Unm. non h'holds (Mdd)	[c1]	c * ((1 + (x3/100))^5)	5.95	6.10	6.25	6.41	6.57	6.74		
Met. non h'holds (Mdd)	[l1]	l * ((1 + (y3/100))^5)	71.24	73.03	74.88	76.77	78.71	80.70		
Unmetered h'hold (Mdd)	[m1]	(h1 * f * i) / 10^6	70.34	72.47	73.22	73.28	73.59	73.84		
Metered households (Mdd)	[k1]	((g + ab) * f * a) / 10^6	1.17	2.02	4.21	6.43	8.66	10.93		
Total household (Mdd)	[v]	m1 + k1	71.51	74.48	77.43	79.72	82.25	84.77		
Distr. Input less UFW (Mdd)	[n1]	v + c1 + l1	148.69	153.61	158.56	161.90	164.53	167.21		
New dom. met. props	[ab]	((w/f)*d3) - g [enter 0 if -ve]	62.32	2117.81	7327.44	12824.11	18515.69	24450.59		
Total domestic properties	[z]	e / f	162244.32	166403.85	170029.18	174426.88	178250.00	182165.99		
Metered prop UFW redn. (Mdd)	[m]	(1.5 * 20 * (g + ab)) / 10^6	0.09	0.15	0.31	0.47	0.64	0.82		
UFW (Mdd)	[p1]	((w3 * z * 20) / 10^6) - m	10.30	10.50	10.58	10.69	10.77	10.84		
Distribution Input (Mdd)	[ac]	p1 + n1	158.99	164.11	169.14	172.59	175.29	178.05		

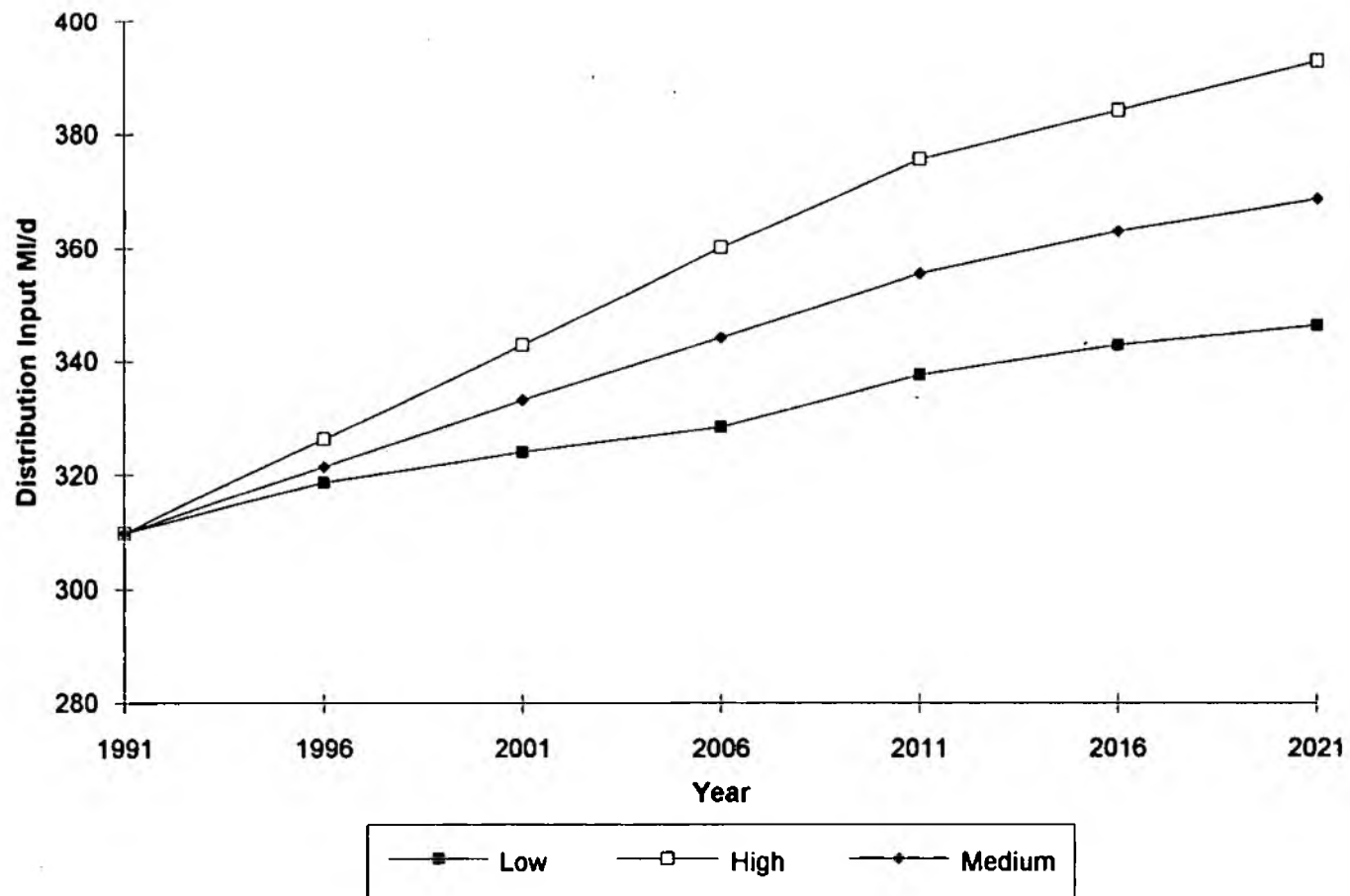
NRA demand forecast range for Bournemouth & West Hants Water Company



COMPANY DEMAND SCENARIOS

BRISTOL							
CORE DATA		SOURCE					
Distribution Input 1991 (Mdd)	[a]	Input	310				
Total Metered (Mdd)	[b]	Input	78.8				
Unm. Non household (Mdd)	[c]	Input	32.1				
Proportion 1991 prop meter	[d]	Input	0.0252				
Weighted ave PCC	[f]	Input	157				
LINKED DATA		SOURCE					
			1991	1996	2001	2006	2011
Population	[e]	Input	1010558	1027000	1041000	1054500	1068000
PCC Suppression	[j]	Input	0.9	0.9	0.9	0.9	0.9
Occupancy rate	[f]	Input	2.97	2.94	2.9	2.87	2.84
PCC unsm. growth (%) - Low	[r1]	Input	0	0.64	0.64	0.64	0.64
PCC unsm. growth (%) - High	[r2]	Input	0	1	1	1	1
PCC unsm. growth (%) - Med	[r3]	Input	0	0.64	0.64	0.64	0.64
Unsm. non hh growth (%) - Low	[k1]	Input	0	0	0	0	0
Unsm. non hh growth (%) - High	[k2]	Input	0	0.75	0.75	0.75	0.75
Unsm. non hh growth (%) - Med	[k3]	Input	0	0.5	0.5	0.5	0.5
M. non hh growth (%) - Low	[y1]	Input	0	0	0	0	0
M. non hh growth (%) - High	[y2]	Input	0	0.75	0.75	0.75	0.75
M. non hh growth (%) - Med	[y3]	Input	0	0.5	0.5	0.5	0.5
Prop. properties meter - Low	[d1]	Input	0	0.0252	0.15	0.3	0.3
Prop. properties meter - High	[d2]	Input	0	0.0252	0.0252	0.0252	0.0252
Prop. properties meter - Med	[d3]	Input	0	0.0252	0.05	0.06	0.09
Unsm. night flow (l/yr/hh) - Low	[w1]	Input	5.65	5.65	5.65	5.65	5.65
Unsm. night flow (l/yr/hh) - High	[w2]	Input	5.65	5.65	5.65	5.65	5.65
Unsm. night flow (l/yr/hh) - Med	[w3]	Input	5.65	5.65	5.65	5.65	5.65
BASELINE 1991		SOURCE					
			1991				
Existing metered dom. props	[g]	(w/f)*d	9908.97339				
Unsm. dom. props	[h]	(w/f) - g	383304.256				
Metered households (Mdd)	[k]	(g * f * j) / 10^6	3.60				
Metered non h'hold (Mdd)	[l]	b - k	75.20				
Unmetered h'hold (Mdd)	[m]	(h * f * i) / 10^6	154.66				
Dist. Input less UFW (Mdd)	[n]	m + b + c	265.56				
UFW	[p]	a - n	44.44				
Night flow (l/yr/hh)	[q]	((p * 10^6)/(g+h))/20	5.65				
LOW		SOURCE					
			1996	2001	2006	2011	2016
Unsm. dom. props	[h1]	(e - ((g + ab) * f)) / f	394141.57	353940.00	298846.15	306393.44	514128.63
Unmetered PCC (l/h/d)	[j]	j * ((1+(r1/100))^5)	162.09	167.34	172.77	178.37	180.00
Metered PCC (l/h/d)	[u]	i * i	145.88	150.61	155.49	160.53	162.00
Unsm. non h'holds (Mdd)	[c1]	c * ((1+(r1/100))^5)	32.10	32.10	32.10	32.10	32.10
Mst. non h'holds (Mdd)	[l1]	l * ((1+(y1/100))^5)	75.20	75.20	75.20	75.20	75.20
Unmetered h'hold (Mdd)	[m1]	(h1 * f * i) / 10^6	162.27	148.07	127.53	133.35	136.27
Metered households (Mdd)	[k1]	((g + ab) * f * n) / 10^6	3.78	23.52	49.19	51.43	52.56
Total household (Mdd)	[v]	m1 + k1	166.05	171.59	176.72	184.78	188.83
Dist. Input less UFW (Mdd)	[n1]	v + c1 + l1	273.35	278.89	284.02	292.08	296.13
New dom. mat. props	[ab]	((w/f)*d1) - g [enter 0 if -ve]	280.16	525.03	118167.95	121402.50	124717.58
Total domestic properties	[z]	e / f	404330.71	416400.00	426923.08	437704.92	448755.19
Metered prop UFW radn (Mdd)	[m]	(1.5 * 20 * (g + ab)) / 10^6	0.31	1.87	3.84	3.94	4.04
UFW (Mdd)	[p1]	((w1 * z * 20) / 10^6) - m	45.38	45.18	44.40	45.52	46.67
Distribution Input (Mdd)	[ac]	p1 + n1	318.73	324.07	328.42	337.60	346.34
HIGH		SOURCE					
			1996	2001	2006	2011	2016
Unsm. dom. props	[h1]	(e - ((g + ab) * f)) / f	394141.57	403908.72	416164.62	426674.75	437446.56
Unmetered PCC (l/h/d)	[j]	j * ((1+(r2/100))^5)	165.01	173.43	182.27	189.00	189.00
Metered PCC (l/h/d)	[u]	i * i	165.01	173.43	182.27	189.00	189.00
Unsm. non h'holds (Mdd)	[c1]	c * ((1+(r2/100))^5)	33.32	34.59	35.91	37.27	38.69
Mst. non h'holds (Mdd)	[l1]	l * ((1+(y2/100))^5)	78.06	81.04	84.12	87.32	90.65
Unmetered h'hold (Mdd)	[m1]	(h1 * f * i) / 10^6	165.19	175.99	187.36	196.77	199.25
Metered households (Mdd)	[k1]	((g + ab) * f * n) / 10^6	4.27	4.55	4.84	5.09	5.15
Total household (Mdd)	[v]	m1 + k1	169.46	180.54	192.21	201.85	204.40
Dist. Input less UFW (Mdd)	[n1]	v + c1 + l1	280.85	296.16	312.23	326.45	333.74
New dom. mat. props	[ab]	((w/f)*d2) - g [enter 0 if -ve]	280.16	584.31	849.49	1121.19	1399.66
Total domestic properties	[z]	e / f	404330.71	416400.00	426923.08	437704.92	448755.19
Metered prop UFW radn (Mdd)	[m]	(1.5 * 20 * (g + ab)) / 10^6	0.31	0.31	0.32	0.33	0.34
UFW (Mdd)	[p1]	((w2 * z * 20) / 10^6) - m	45.38	46.74	47.92	49.13	50.37
Distribution Input (Mdd)	[ac]	p1 + n1	326.23	342.90	360.15	375.58	384.11
MEDIUM		SOURCE					
			1996	2001	2006	2011	2016
Unsm. dom. props	[h1]	(e - ((g + ab) * f)) / f	394141.57	403908.00	401307.69	398311.48	394904.56
Unmetered PCC (l/h/d)	[j]	j * ((1+(r3/100))^5)	162.09	167.34	172.77	178.37	180.00
Metered PCC (l/h/d)	[u]	i * i	145.88	150.61	155.49	160.53	162.00
Unsm. non h'holds (Mdd)	[c1]	c * ((1+(r3/100))^5)	32.91	33.74	34.59	35.47	36.36
Mst. non h'holds (Mdd)	[l1]	l * ((1+(y3/100))^5)	77.10	79.05	81.04	83.09	85.19
Unmetered h'hold (Mdd)	[m1]	(h1 * f * i) / 10^6	162.27	168.98	171.25	173.35	171.31
Metered households (Mdd)	[k1]	((g + ab) * f * n) / 10^6	3.78	4.70	9.84	15.43	21.02
Total household (Mdd)	[v]	m1 + k1	166.05	173.68	181.09	188.78	192.33
Dist. Input less UFW (Mdd)	[n1]	v + c1 + l1	276.06	286.47	296.73	307.34	313.88
New dom. mat. props	[ab]	((w/f)*d3) - g [enter 0 if -ve]	280.16	2583.03	15706.41	29484.47	43941.65
Total domestic properties	[z]	e / f	404330.71	416400.00	426923.08	437704.92	448755.19
Metered prop UFW radn (Mdd)	[m]	(1.5 * 20 * (g + ab)) / 10^6	0.31	0.37	0.77	1.18	1.62
UFW (Mdd)	[p1]	((w3 * z * 20) / 10^6) - m	45.38	46.68	47.47	48.28	49.09
Distribution Input (Mdd)	[ac]	p1 + n1	321.44	333.15	344.20	355.62	362.98

NRA demand forecast range for Bristol Water Company



MEMORANDUM

To: Water Resources Managers
cc: Jerry Sherriff
Richard Streeter

From: Mark Sitton

Our Ref: MHS/JW(8.11)(W10b)
Your Ref:

Date: 4 August 1994

*Jan 6 - do you have
this? - I suggest you
keep in your system.*



Joe

NRA

WATER RESOURCES DEVELOPMENT STRATEGY - SUPPLEMENTARY REPORTS

Please find enclosed a copy of the full set of Development Strategy Supplementary Reports. These reports constitute the final project record for the work leading up to the publication of 'Water: Nature's Precious Resource'. The reports are intended as a source of reference only and I think at this stage should be kept internal.

If you have any queries regarding the reports please contact me.

MARK SITTON
Water Resources Co-ordinator

Enc. (1 Box)

