

# Annex G: Water – supplementary material



## G.1 PREVIOUS QUANTIFIED ASSESSMENTS

Most contemporary analyses of the performance of water supply infrastructure in Great Britain focus on quantification of the projected impacts of climate change, and the requirements of the EU Water Framework Directive.

Figure 1: The classification of Environment Agency catchment management units by licence availability.



- No water available
- Water available
- Over licensed
- Over abstracted

Regulation of the water environment of Great Britain, and thus management of the competition for water resource within it, falls within the remit of the Environment Agency of England and Wales and the Scottish Environmental Protection Agency. These are currently the only analyses that directly evaluate the impacts of, and interactions between, all uses of water. The Environment Agency suggests that most sources of fresh water in England and Wales are already contributing to national water resource at the limit of their means (EA, 2008) (Figure 1). By way of contrast, 82% of surface water bodies and 88% of groundwater bodies in Scotland have 'good' quantitative status (SEPA, 2009), suggesting that additional options for water resource development remain.

The water supply companies of England and Wales and Scottish Water perform detailed quantitative evaluation; however, it is limited to the performance of the public water supply infrastructure. The most recent draft Water Resource Management Plans identified changes in deployable water resource due to projected climate change between 0% and 58%, reflecting regional variation in impacts (Charlton and Arnell, 2011). The estimated national aggregate loss in deployable water resource was 3% by 2034–2035 under a 'core' climate scenario; however, this study did not include analysis of resource-critical regions such as Wales, Scotland and East Anglia. Furthermore, there are significant technical deficiencies and inconsistencies in the methods of climate change impact assessment presently employed in developing the Water Resource Management Plans, for which an improved nationally consistent replacement is forthcoming.

A more comprehensive analysis of the River Thames suggests amplified and uncertain local impacts (Manning *et al.*, 2009). This study reports a change in the mean daily flow exceeded on 50% of days of up to 70% for the period 2040–2069, and nearly 80% for the period 2070–2099.

## G.2 DATA FOR TRANSITION STRATEGIES

Values for each water company were compiled from the available data, and adjusted for existing imports and exports:

Table 1: The supply capacity of each water supplier in 2008

Company	Water available	Imports	Exports	Supply
Scottish Water	3564	0	0	3564
Thames Water	2840	2	24	2818
Severn Trent Water	2067	43	84	2027
United Utilities	2096	1	90	2007
Yorkshire Water	1365	47	0	1411
Anglian Water	1484	3	109	1378
Dwr Cymru Welsh Water	1069	12	28	1053
Veolia Water Central	1053	57	80	1030
Northumbrian Water	933	0	1	932
Southern Water	762	28	42	749
South East Water	594	84	30	648
South West Water	504	11	11	504
Essex and Suffolk Water	387	94	5	476
Wessex Water	418	24	9	433
South Staffs Water	353	0	1	353
Bristol Water	341	1	12	330
Portsmouth Water	235	0	4	230
Sutton and East Surrey Water	200	5	5	200
Sembcorp Bournemouth Water	211	0	41	170
Cambridge Water	99	0	0	99
Dee Valley Water	78	0	0	78
Veolia Water Southeast	51	2	0	53
Veolia Water East	37	0	0	37

Table 2: The proportion of the total population of England and Wales served by each private water company in 2008

Company	Proportion (%)
Thames Water	17.2
United Utilities	13.7
Yorkshire Water	9.7
Anglian Water	8.5
Veolia Water Central	6.2
Severn Trent Water	5.8
Dwr Cymru Welsh Water	5.8
Northumbrian Water	5.0
Southern Water	4.7
South East Water	4.0
Essex and Suffolk Water	3.6
South West Water	3.3
South Staffs Water	2.5
Wessex Water	2.5
Bristol Water	2.3
Portsmouth Water	1.3
Sutton and East Surrey Water	1.3
Sembcorp Bournemouth Water	0.8
Cambridge Water	0.6
Dee Valley Water	0.5
Veolia Water Southeast	0.3
Veolia Water East	0.3

Company	2008 (%)	2014 (%)	2030 (%)	2040 (%)
Veolia Water East	61	71	80	90
Veolia Water Southeast	60	90	90	90
Anglian Water	55	81	81	90
Cambridge Water	54	70	80	90
South West Water	53	79	80	90
Sembcorp Bournemouth Water	45	66	80	90
Dee Valley Water	42	58	80	90
Wessex Water	37	58	80	90
Essex and Suffolk Water	35	43	80	90
Veolia Water Central	33	44	80	90
Southern Water	32	92	92	92
Yorkshire Water	31	48	80	90
South East Water	31	68	80	90
Severn Trent Water	30	42	80	90
Bristol Water	27	46	80	90
Sutton and East Surrey Water	27	47	80	90
Thames Water	24	37	80	90
United Utilities	24	38	80	90
Dwr Cymru Welsh Water	21	41	80	90
South Staffs Water	20	35	80	90
Northumbrian Water	15	43	80	90
Portsmouth Water	10	24	80	90

Table 4: Non-household demand as a proportion of total demand in 2008

Company	Proportion (%)
Anglian Water	31
Dwr Cymru Welsh Water	26
Northumbrian Water	28
Severn Trent Water	37
Southern Water	27
South West Water	26
Thames Water	25
United Utilities	25
Wessex Water	36
Yorkshire Water	24
Bristol Water	25
Cambridge Water	31
Dee Valley Water	33
Essex and Suffolk Water	25
Portsmouth Water	27
Sembcorp Bournemouth Water	69
South East Water	25
South Staffs Water	19
Sutton and East Surrey Water	19
Veolia Water East	19
Veolia Water Southeast	35
Scottish Water	26

## REFERENCES

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