

**Department for Environment, Food and Rural Affairs**

# **Main Sources of Evidence**

**December 2013**

## **Contents**

Purpose of this document .....	1
Assessing future water availability .....	1
Developing policy options .....	2
Assessment of impacts of reform options .....	3

## Purpose of this document

To set out the main sources of evidence supporting the consultation document and impact assessment.

## Assessing future water availability

### **Defra, 2013, Assessing climate and land use impacts on water demand for agriculture and opportunities for adaptation: Current and future water demand – Phase I**

This work commissioned from Cranfield University examined current and future trends in demand for abstracted water by farmers and growers. It indicated that in the short to medium term there was a downward trend in irrigation demand. However in the longer-term demands were likely to significantly increase driven by climate change and population growth. Phase II of this work will examine adaptation options and create a web tool to allow individual farmers and growers to assess the future prospects for land suitability and irrigation needs now and in the future.

[Full report available](#)

### **Environment Agency, 2013, Forecasting future water demand by the electricity generation sector**

This work consisted of two phases. The first involved commissioning The Futures Company and working with those with responsibility and insight into electricity demand, supply and water resources. Using four socio-economic scenarios we explored how demand for electricity might change out to 2050 and how the electricity supply mix might vary. The second phase involved calculating the range of possible water demand associated with each. The results show a very uncertain future but demonstrate an overall trend of increasing total demand. Projections for future freshwater demand are more variable and could increase or decrease depending on the electricity generation mix, future location and the cooling technology used.

[Water Use and Electricity Generation: Key Facts](#)

The Futures Company report '*Building electricity generation scenarios to identify water demand impacts*': Report available on request by emailing [kate.riley@environment-agency.gov.uk](mailto:kate.riley@environment-agency.gov.uk)

Full technical report forthcoming

## **Environment Agency, 2013, Case for Change Refresh - addendum to “The Case for Change – current and future water resources availability**

The Environment Agency refreshed their Case for Change<sup>1</sup> analysis of future water resource availability. The Case for Change sets out current evidence on the availability and reliability of water now and in the future, based on different climate change, environmental and socio economic scenarios. It explores and projects water demand for different sectors to provide an envelope of plausible future water use. In understanding the potential range of future demand we can begin to understand the risks for future water availability. The refreshed analysis includes refreshed projections for water demand to provide a plausible envelope of future water demand. The analysis also includes, for the first time, projections for future water demand in relation to electricity generation.

[Full report available](#)

## **Developing policy options**

### **Defra, 2012, Review of International Water Abstraction Regulation**

This work commissioned from AEA Technology reviewed abstraction regulation and reform in a range of other countries to assess whether lessons could be learnt to apply to abstraction reform in England and Wales. Overall, it was concluded that the system of regulation and management of abstraction in operation in England and Wales is already relatively advanced compared with many countries studied and hence the lessons that can be learnt are limited, with Australia providing the most potential given the extensive reform process there.

[Full report available](#)

### **M. Young, 2012, Towards a Generic Framework for the Abstraction and Utilisation of Water in England and Wales**

Professor Mike Young wrote this report from a Visiting Fellowship jointly funded with University College London and the University of Adelaide. It draws upon global experience in the development of abstraction licensing regimes in Australia, Canada and New Zealand and his time visiting England and Wales. The aim of the fellowship was to identify elements of a framework that could be used to manage the abstraction and utilisation of water in England and Wales. The Framework is indicative of the nature of the abstraction reforms that experience in Australia and elsewhere suggests is worthy of serious consideration.

[Full report available](#)

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<sup>1</sup> The case for change – current and future water availability. Environment Agency (2011) Report No: GEHO1111BVEP-E-E

## **Nera Economic Consulting, 2013, A Cross-Sector and Cross-Country Review of Approaches to Transitioning to Markets**

This work reviewed the experience of transitions to market-based approaches in selected other sectors and countries. This review takes the form of case studies. The purpose of the case studies is to draw lessons from the experience of transitioning to markets in other sectors that may be relevant for water abstraction. This work identified a number of areas of market regulation and development requiring further consideration within abstraction reform.

[Full report available](#)

## **Amec, 2013, Hydrological Aspects of Regulatory Inputs to Trial Catchment Modelling**

AMEC E&I UK Ltd, working on behalf of the Environment Agency, has provided support to the abstraction reform programme to help develop the detailed hydrological aspects of the abstraction reform options so they could be represented in the catchment case study modelling to assess their impacts. The reform proposals include two options for improving surface water regulation ('Current System Plus' and 'Water Shares'), underpinned by a common system for optimising the use of groundwater storage.

[Full report available](#)

# **Assessment of impacts of reform options**

## **Defra, 2014, the Impact of Abstraction Reform**

This work commissioned from Risk Solutions has developed estimates of the impacts of reform options on abstractors and the environment. It has involved development of innovative modelling approaches to provide initial estimates for the consultation impact assessment, working closely with stakeholders. It is based on modelling catchment case studies that are then aggregated to provide estimates for England and Wales. Further work will continue with stakeholders in 2014.

Report forthcoming. [Further details available](#).

## **Defra, 2013, Detailed case studies of the costs and benefits of abstraction reform in catchments in Australia with similar relevant conditions to England and Wales**

This report authored by Professor Mike Young and Christine Esau was commissioned to identify a number of catchments in Australia with similar relevant conditions to England and Wales to provide lessons for abstraction reform. It sought to assess the nature and extent of water rights trading in these catchments, to understand better the factors that

drive trading, to describe the regulatory procedures to operating the regimes in these catchments and to quantify the resulting administrative costs to regulators and the regulated. This work particularly informed the assessment of administrative costs in the consultation impact assessment.

[Full report available](#)

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Any enquiries regarding this document/publication should be sent to us at:

Abstraction Reform Team  
Area 3B  
Nobel House  
17 Smith Square  
London  
SW1P 3JR

[abstraction\\_reform@defra.gsi.gov.uk](mailto:abstraction_reform@defra.gsi.gov.uk)

If you have any specific questions regarding this document/publication relating specifically to Wales, these should be sent to:

Integrated Water Management Programme Manager  
Water Branch  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ