

# Drought: how it is managed in England – Energy UK Response

Energy UK is the trade association for the energy industry with over 100 members - from established FTSE 100 companies through to new, growing suppliers, generators and service providers across energy, transport, heat and technology. Our members deliver nearly 80% of the UK's power generation and over 95% of the energy supply for 28 million UK homes as well as businesses.

The sector invests £13bn annually and delivers nearly £30bn in gross value - on top of the nearly £100bn in economic activity through its supply chain and interaction with other sectors. The energy industry is key to delivering growth and plans to invest £100bn over the course of this decade in new energy sources. The energy sector supports 700,000 jobs in every corner of the country.

Energy UK plays a key role in ensuring we attract and retain a diverse workforce. In addition to our Young Energy Professionals Forum, which has over 2,000 members representing over 350 organisations, we are a founding member of TIDE, an industry-wide taskforce to tackle Inclusion and Diversity across energy.

## Executive Summary

The Environment Agency consultation on drought in England raises some useful points for the electricity generation sector. In particular, we are keen to stress in this response that remaining thermal plant in a decarbonised power sector require constant access to water, and must be able to respond to power demand in a flexible system.

If you would like to discuss this response in further detail with Energy UK and its members, we would welcome further engagement.

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**Question 1: Before reading 'Drought: how it is managed in England', how familiar would you say you were about drought management in England?**

Moderately.

**Question 2: Refer to Section 1: 'Drought in England: an overview'. Does this section clearly describe drought in England?**

Agree. This describes historical drought in England.

**Question 3: Refer to Section 2: 'Drought impacts and mitigations'. Does this section clearly describe the impacts of drought and some of the actions other sectors take to mitigate these impacts?**

Disagree. A single power station site does not have the multi-source options open to Water Companies. Whilst sufficient demineralised water can be stored on site to use as process water, it is not possible to store sufficient cooling water on site for emergency use in a drought. Cooling water is abstracted from surface water at time of use. Historically, the fossil fuel dominated electricity generation system has had the flexibility and resilience described in the text because of the number of stations and grid system. This was because fossil fuelled stations provided both generation and reserve on a typical day. As the energy system becomes increasingly renewables dominated, low carbon dispatchable thermal plant (e.g. a combined cycle gas turbine with a carbon capture plant) will generate less often than historical coal and gas plant, but will be crucial for providing electricity system security when wind and solar generation are unavailable. It is essential these low carbon dispatchable thermal plant have access to water at all times to provide electricity system security when required. The implications of abstraction restrictions at low carbon dispatchable thermal plant sites go far beyond the commercial consequences for the individual site.

**Question 4: Refer to Section 3: 'Planning, management and response'. Does this section clearly describe the responsibilities of the Environment Agency, government, public bodies, regulators, water companies and local responders in drought planning, management and response?**

Agree.

**Question 5: Refer to Section 4: 'Our drought teams and actions'. Does this section clearly describe the Environment Agency's drought stages, response arrangements, drought actions and triggers, monitoring and data?**

Agree. Note that it would be very difficult for power stations to share water with third party abstractors during a drought under the current system. For a power station it involves an abstraction licence variation, which currently takes >8 months, by which time the drought may be over. It is likely not all dispatchable thermal power stations would be required all day everyday, but every power station would need access to water when required to generate. Electricity is traded over a range of timescales from months to hours and therefore while there is an opportunity to share water at times of the day when a power station isn't needed, this cannot be determined far in advance as the power stations respond to changing demand and the availability of renewables in real time.

**Question 6: Considering your responses to questions 4 and 5, how well do you understand the scope and purpose of Environment Agency area drought plans described in sections 3 and 4?**

Somewhat. Historically, water abstraction for power stations has not been restricted during a drought. If this is not the case in the future, there are new issues to consider. Who will determine which power stations have abstraction restrictions imposed on them during a drought? Will this be the EA or will this be done in consultation with the National Energy System Operator (NESO)? How will energy security and other uses be balanced? Who will pay for the consequences of a low carbon dispatchable thermal plant being unable to generate due to a drought restriction on its abstraction licence?

**Question 7: Refer to Section 5: 'How we communicate with others'. Does this section clearly describe the Environment Agency's role in drought communications and the tools we use to do so?**

Neither agree nor disagree. The new National Energy System Operator (NESO) should be kept informed and any potential abstraction restrictions on dispatchable thermal plant should be discussed with NESO in addition to the plant operators.

**Question 8: Refer to Section 6: 'Recovery'. Does this section clearly describe the Environment Agency's role in recovery and how we seek to learn from each drought?**

Agree.

**Question 9: After reading 'Drought: how it is managed in England' and answering these questions, are there any inaccuracies you would like to highlight or any other suggested improvements you would like to make?**

The electricity generation sector is going through a period of massive change as the grid is decarbonised. The impacts of drought on electricity system security could be different in the future from the past, as the system becomes more renewables dominated, but more dependent on fewer low carbon dispatchable thermal plant to provide electricity system security in the longer term, e.g. in times of a wind drought, which could coincide with a water drought.

**Question 10: After reading 'Drought: how it is managed in England' and answering these questions, do you have a better understanding of how droughts are managed in England, the respective roles of the organisations and groups involved, and how they work together to minimise the impacts of drought?**

Moderately.

**Question 11: Which Environment Agency operational areas are you most interested in with respect to drought?**

All.

**Question 14: How engaged did you feel with the Environment Agency and other stakeholders during the last period of prolonged dry weather or drought?**

Very. Energy UK has attended National Drought Group Meetings. The Energy Sector also has representation on the Water Resources East Drought Group.

**Question 15: How do you think the Environment Agency and others can better work together during prolonged dry weather and drought?**

There may be a benefit to EA and others including NESO in playing out the consequences of drought under Clean Power 2030 ([Government sets out plan for new era of clean electricity - GOV.UK](#)) and other longer term scenarios. This would allow the consequences of drought restrictions on the electricity sector currently being planned to be understood..