



Heat pump systems – our approach to regulation

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Renewable Heat & EA

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Environment Agency

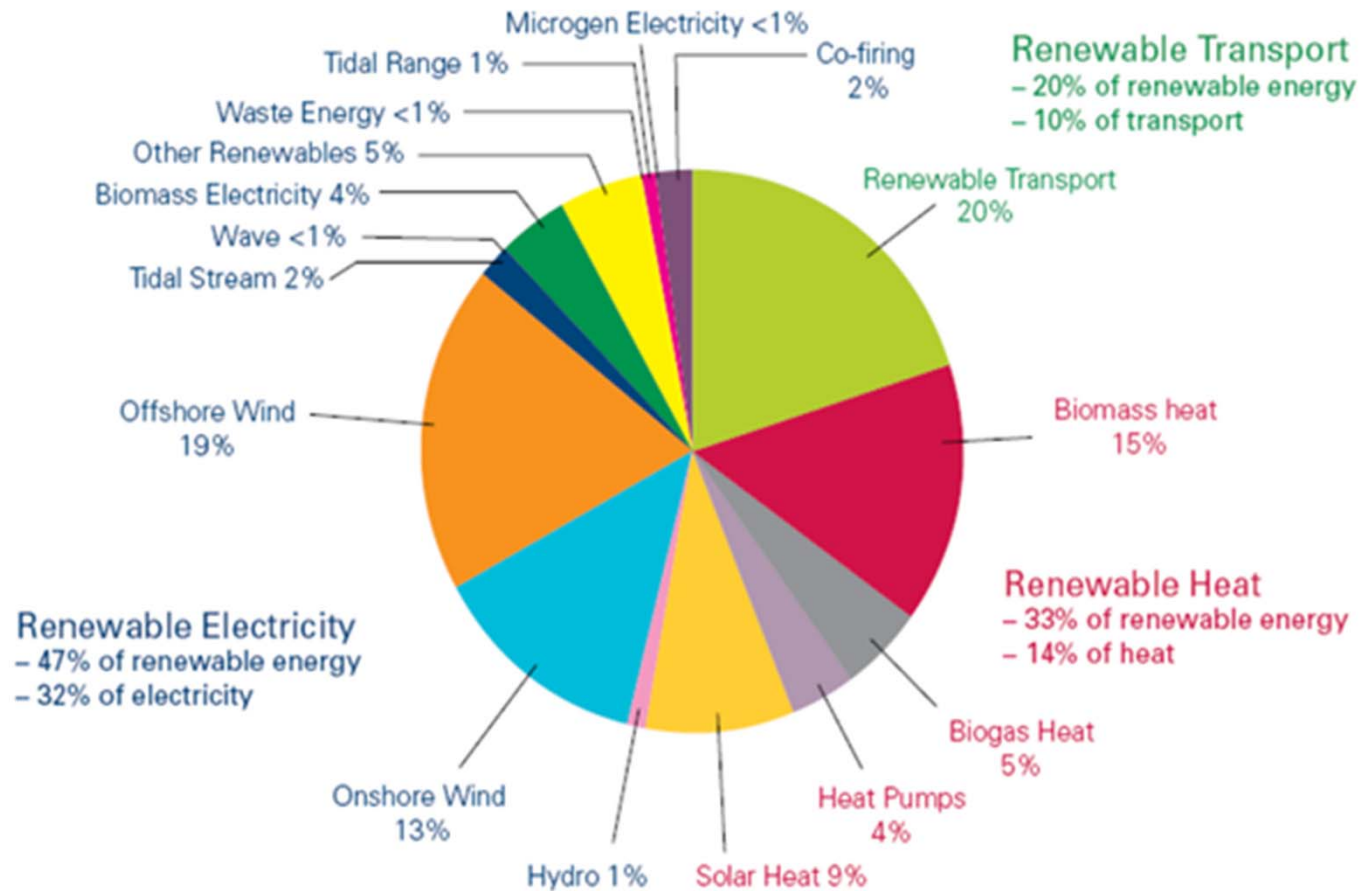
- ➔ We work to create better places for people and wildlife and support sustainable development
- ➔ executive non-departmental public body sponsored by Defra (government)
- ➔ Our duties and roles include:
 - ➔ flood and coastal risk management
 - ➔ water quality and resources
 - ➔ conservation and ecology
 - ➔ protecting and improving fisheries
 - ➔ regulating major industry and waste



Policy context

- ⇒ 15% renewable energy by 2020
- ⇒ 4th & 5th Carbon Budgets
 - ⇒ Cover period to 2032
 - ⇒ UK significantly off-track to delivery
 - ⇒ Renewable Heat could affect overall carbon reduction plans
- ⇒ Barriers to deployment
 - ⇒ Incentives
 - ⇒ Opportunities?
 - ⇒ Regulation? – let us know

2009 – Renewable Energy Strategy

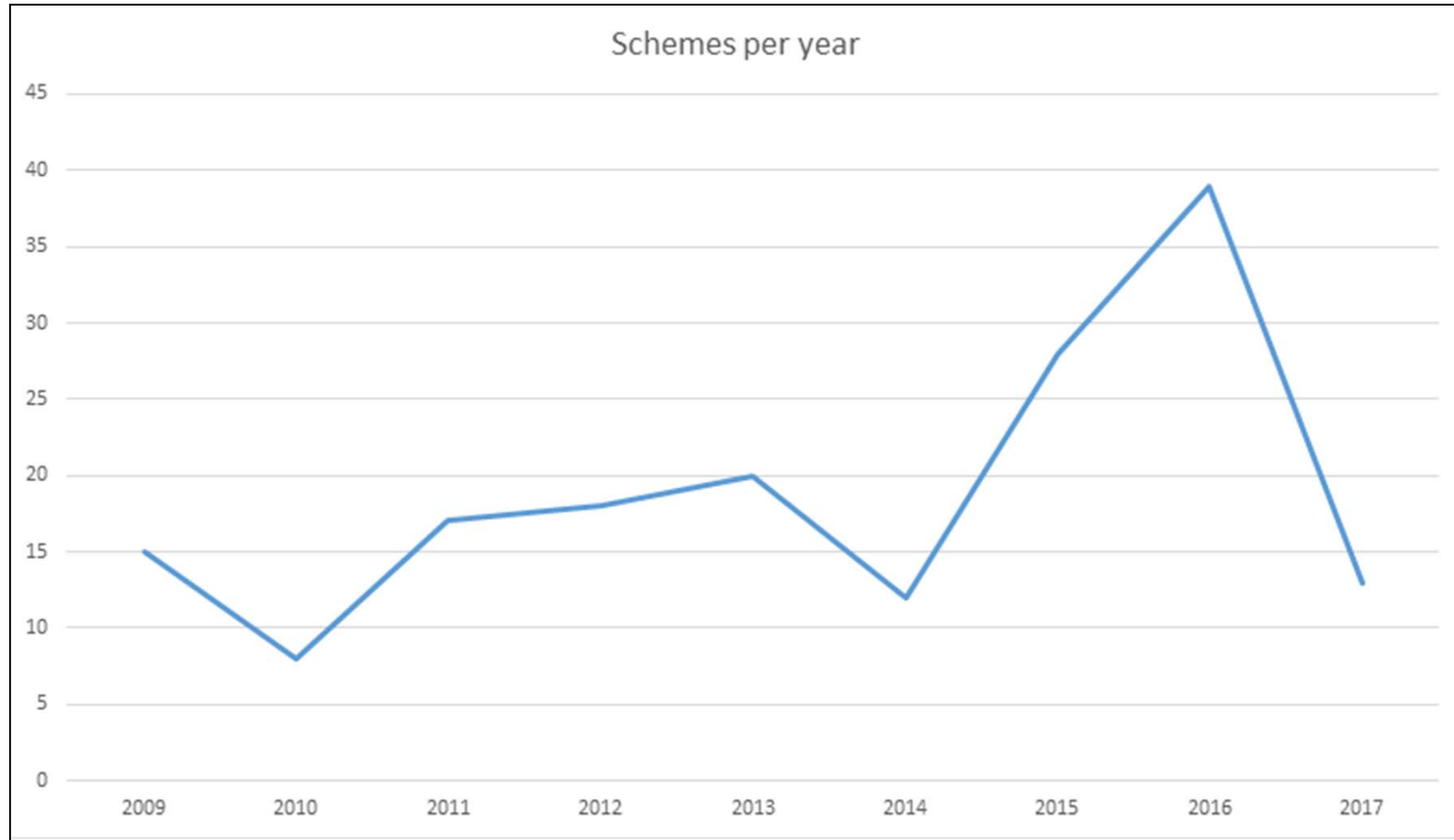


Water for life and livelihoods

- ➔ Water is the most essential of our natural resources
- ➔ Our job to ensure that we manage and use it effectively and sustainably



Popularity of heat pumps



Yes, if...

We need to be confident that a proposed scheme will **not have unacceptable impacts.**

**Water Framework Directive (WFD)
objectives**

fish

protected sites or species

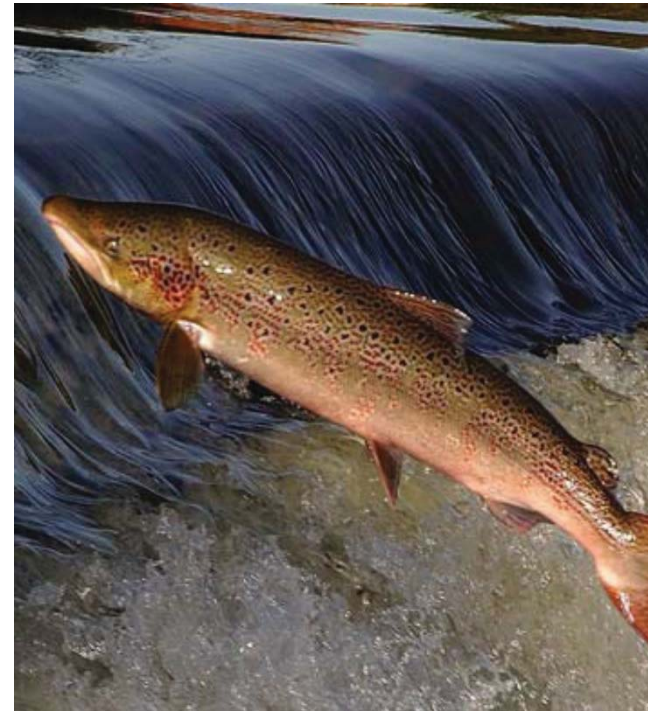
rights of other water users

Discharges

- ➔ Understanding temperature stresses is crucial to our permit determination
- ➔ Cooler discharge is better than warmer discharge
- ➔ Generally, temperature differences of 2 - 3° C in the mixing zone will be preferred
- ➔ Modelling may be required
- ➔ We may need to consider the potential for cumulative effects from multiple schemes and other development pressures

Surface water systems - screening the intake

- ➔ To protect fish and eels, we will require screens on intakes
- ➔ Depending on the river and site location, screen size may be as fine as 1- 2mm
- ➔ Screen positions and maintenance must address the risk of fish entrapment





Permitting heat pump applications

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Structure

- ➔ What we regulate
- ➔ Application process
- ➔ Determination process
- ➔ Permit conditions
- ➔ How we are trying to improve things

The regulatory structure - open loop systems



➔ Ground source systems

➔ Groundwater investigation consent

➔ Ground and surface water source systems:

➔ Abstraction licence – to take water into the system

- Controls volume, timing, siting, screening etc

➔ Discharge permit – to put the water back

- Controls quality, treatment, temperature etc

➔ Permit for flood risk activity – building in a flood risk area

The regulatory structure - closed loop systems

- ➔ A closed-loop heat exchanger doesn't need groundwater investigation consent, an abstraction licence or an environmental permit.

Application process

- ➔ Exemptions
- ➔ Pump test
- ➔ Joint application form A, B8 and F2
- ➔ Additional information
- ➔ How we communicate with you

Determination process

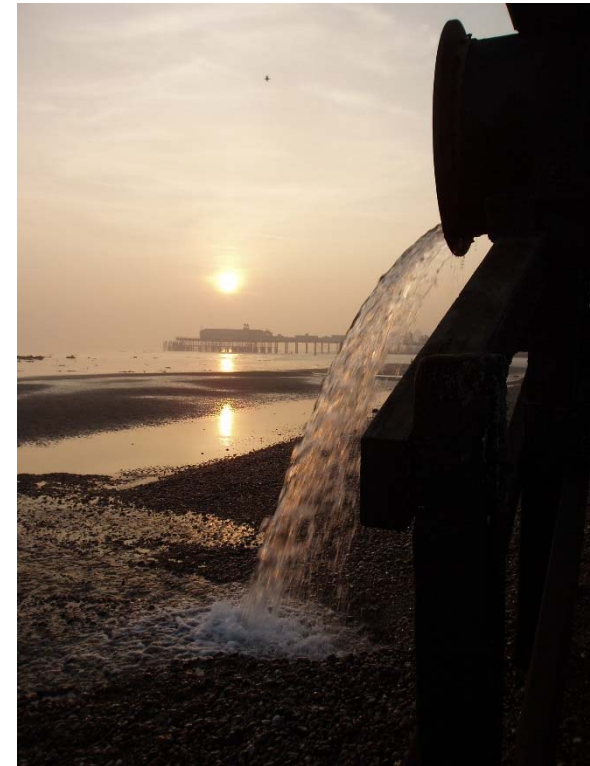
- ⇒ What is important to the EA?
 - ⇒ Volume of water abstracted and discharged
 - ⇒ Distance between abstraction and discharge points
 - ⇒ Time between abstraction and discharge
 - ⇒ Thermal impacts
 - ⇒ Saline intrusion



Discharge permits – standard rules etc

- ➔ Smaller schemes may be eligible for a range of exemptions or ‘standard rules’ permits.
- ➔ For details of these and the whole application process, search GOV.UK for ‘heat pump systems’

(<https://www.gov.uk/guidance/open-loop-heat-pump-systems-permits-consents-and-licences>)



Permit conditions

⇒ Abstraction Licence

- ⇒ Amount of water abstracted
- ⇒ Point of abstraction and discharge
- ⇒ Screening for surface water licences only

⇒ Discharge permits

- ⇒ Point at which the water is returned
- ⇒ How much water can be returned
- ⇒ Temperature of the returned water

Further information



Environmental management – guidance

Open-loop heat pump systems: permits, consents and licences

From: [Environment Agency and Department for Environment, Food & Rural Affairs](#)

First published: 1 February 2016

Last updated: 6 May 2016, [see all updates](#)

Part of: [Environmental permits: regulatory position statements, Water, Environmental permits, Business and the environment and Water quality](#)

Applies to: [England \(see detailed guidance for Scotland](#), [Northern Ireland](#) and [Wales](#))

The environmental permit, consent and licence you need before you install a ground source or surface water source heating or cooling system.

How we are improving our service

- ➔ Contact us for pre-application advice:
 - ➔ National Customer Contact Centre
 - E: enquiries@environment-agency.gov.uk
 - T: 03708 506 506
- ➔ Joint application form for ground and surface water systems
- ➔ All Applications processed by our Sheffield-based heat pump team
- ➔ Updated guidance on GOV.UK