Carbon Capture, Usage and Storage (CCUS) Track-1 Expansion: HyNet Application Guidance, Annex E

Environmental signposting for innovative net zero technologies September 2023

If you are developing or implementing a hydrogen, Greenhouse Gas Removal (GGR), Carbon Capture, Utilisation and Storage (CCUS) innovation or bioenergy (biomass, biofuels, waste derived fuels) development project, we strongly encourage you to consider, as early as possible, the potential associated environmental impacts of your project. This consideration is needed at every stage of technology development to ensure that the risks to the environment and human health are adequately understood. The project should seek to design out and minimise environmental risks and maximise wider environmental co-benefits.

In England, the Environment Agency (EA) protects our air, land and water and enables a net zero nation that's resilient to climate change. We work with government, policy makers and developers to manage environmental risks at the earliest opportunity and help industries prepare for necessary regulation. We also aim to build public trust in our regulation of the key environmental risks. For contacts in devolved nations see below.

Environmental Principles

It is important to assess comprehensively what environmental risks could be associated with the technology you are testing, and how you can reduce those risks. We outline three environmental principles that summarise how you should approach this.

We are supportive of technologies and approaches that:

1. Consider environmental risks early and comprehensively. This includes:
    i. Building environmental considerations into decision making at the earliest stage – not as an afterthought
    ii. Providing robust evidence that allows the environmental risks to be effectively managed and regulated, and which considers risks of deployment at commercial scale
    iii. Assessing all impacts from cradle-to-grave - including harvesting feedstocks & raw materials, decommissioning, and safe long-term recovery or disposal of waste

iv. Engaging the public so they understand the risks and benefits

1. Minimise the impacts and risks to people and our environment – air, land and water. This includes:

   i. Maximising decarbonisation and greenhouse gas reduction within safe environmental limits

   ii. Maximising resource, energy and water efficiency – wasted resources, energy and water represent harm without benefits

   iii. Maximising co-benefits for people and the environment

2. Are fit for the future, including resilience to the impacts of climate change

Environmental Regulation

We are supportive of innovation and know that some of the technologies and approaches we'll need to achieve UK Net Zero by 2050 haven't yet been invented. We want to help innovators to design solutions to the climate emergency that are fit for the future and safe for people and wildlife. We also want to ensure that innovative technologies are subject to proportionate and risk-based regulation to provide the necessary level of environmental protection. This includes developing Best Available Techniques (BAT) for new technologies and updating pre-existing BAT guidance, to prevent or minimise their emissions and impacts on the environment.

Please read and follow our regulatory guidance relevant to your technologies, some of which are listed below. Please note that we may charge for detailed pre-application and permitting advice. The scope and costs associated with this service will be discussed and agreed prior to providing detailed regulatory advice. Further details of our pre-application advice service here.

Examples of guidance for specific Environment Agency regulation of relevance

Examples of guidance for specific Environment Agency regulation of relevance	
Does your innovation project involve…	**Regulations you may need to consider**
Planning Permission	• Environmental advice on planning proposals
Getting an environmental permit	• Check if you need an environmental permit • Check if your proposal meets our research & development criteria • Risk assessments for specific activities: environmental permits

Control of Major Accident Hazards Regulations		• COMAH
Air	Carbon Capture and Storage	• Carbon Capture and Storage Best Available Techniques
	Hydrogen Production and Use	• Inorganic chemicals sector: additional guidance • Hydrogen production with carbon capture guidance for emerging techniques is available. • We are in the process of developing other guidance to support hydrogen production and use. Please refer to Technical guidance for regulated industry sectors: environmental permitting for our latest publications.
	Gasification	• Gasification, liquefaction and refining installations: guidance
	Anaerobic digestion	• Regulation | Anaerobic Digestion (biogas-info.co.uk)
	Emissions to air	• Air quality in planning • Emissions Trading Scheme
Land	Waste management *(Think very carefully about potential waste status of each output and check guidance)*	• Check if your material is waste • Get an opinion from the definition of waste service • New waste management techniques • Waste and environmental impact • Register or renew waste exemptions • Incineration of waste (EPR5.01): guidance
	Spreading waste/ materials to land *(e.g. biochar, enhanced weathering)*	• Land spreading guidance • Storing and treating waste to make biochar: LRWP 60 • Storing and spreading biochar to benefit land: LRWP 61
Water	Water abstraction	• Freshwater - Apply for a water abstraction or impoundment licence • Seawater - Do I need a marine licence Engage with Marine Maritime Organisation
	Effluent to water	• To freshwater and seawater - engage with EA if novel, otherwise enhanced pre-application for Discharges to surface water and groundwater permit
	Farming	• Farming rules for water • Storing silage, slurry and agricultural fuel oil

If you have any further technology or regime specific queries, then contact:

- In England, please contact: EnablingNetZero@environment-agency.gov.uk
- In Scotland, please contact SEPA: ppc@sepa.org.uk
- In Wales, please contact NRW: enquiries@naturalresourceswales.gov.uk
- In Northern Ireland, please contact NIEA: IPRI@daera-ni.gov.uk