

# Overview of BAT for Hydrogen from Methane with CCS

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# EA role on Hydrogen with CCS

- ➔ Hydrogen Production and CO<sub>2</sub> capture plant - permitting, EUETS & COMAH regulation
- ➔ Technical advice on CCR to DCO planning process
- ➔ Pipelines - statutory consultee, planning
- ➔ CO<sub>2</sub> storage – no remit (OPRED will regulate CO<sub>2</sub> transfer and storage, all offshore)
- ➔ EUETS current and future phases (or future UK ETS) includes CCS
- ➔ Support low-carbon technologies to reduce climate change and its consequences + Net Zero 2050

# Reminder of Best Available Techniques

- ➔ Most effective and advanced stage in the development of activities and their methods of operation
- ➔ Practical
- ➔ Provide the basis for emission limit values and other permit conditions
- ➔ Prevent and, where that is not practicable, reduce emissions and the impact on the environment as a whole

## Why do we need a view on BAT for H<sub>2</sub> with CCS now?

- ➔ Environmental Regulators need to comply with the requirements of Industrial Emissions Directive (IED) **2010/75/EU** when setting environmental **permit conditions**
- ➔ No BAT reference (BRef) document covers 'H<sub>2</sub> from methane with CCS' explicitly – emerging technique(s)?
- ➔ No BAT reference document for CCS for combustion or other processes (being developed)
- ➔ Pre-application discussions for permits – need to provide advice to operators and regulators (H<sub>2</sub> from methane with CCS)

# BAT Reference and other relevant documents

- ➔ Manufacture of Large Volume Inorganic Chemicals (2007)
- ➔ Refining of Mineral Oil and Gas (2015)
- ➔ Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector (2016)
- ➔ UK TWG 18 Submission for Combustion Sector Bref Note Revision, Carbon Capture Technology and Carbon Capture Ready Criteria), 31/5/2012
- ➔ Carbon Capture Readiness (CCR) A guidance note for Section 36 Electricity Act 1989 consent applications, URN 09D/810 November 2009 and amendments.
- ➔ Review of amine emissions from carbon capture systems, SEPA, 2015
- ➔ Water Demand for Carbon Capture and Storage (CCS), Environment Agency November 2012

# How must regulators comply?

- ➔ Technique not described in relevant BAT conclusions Article 14(5)
  - ➔ Must ensure environmental protection equivalent to BAT
- ➔ Encourage emerging techniques Article 27
- ➔ Activity not covered by any BAT conclusions or conclusions don't address all potential environmental effects Article 14(6)
  - ➔ Set ELVs and other conditions – **regulators' own determination of BAT**
  - ➔ Defra's guidance to E&W – develop BAT in consultation with operators
- ➔ Both need to refer to Annex III criteria

# Criteria for determining best available techniques

## Annex III

- ➔ Available to be implemented – economically/technically viable at scale
- ➔ Emissions to air/water/land including heat, vibrations, noise – effects/volume
- ➔ Low waste - maximise recovery/recycling
- ➔ Less hazardous substances
- ➔ Energy efficiency
- ➔ Raw material/water usage
- ➔ Prevent/reduce overall impact
- ➔ Prevent/minimise consequences of accidents
- ➔ Take account of published information – international

# Liaison between Regulators and Industry

- ➔ Essential for a good outcome – comprehensive BAT document
- ➔ Covers all deployable and emerging techniques (including retrofit for CCS?)
- ➔ Techniques with range of ELVs and performance ranges accepted
- ➔ Required by IED
- ➔ Early input – identify/eliminate/minimise potential harm to environment/human health
- ➔ Provide evidence for BAT criteria
- ➔ Enables regulators to assess and permit proposed processes
- ➔ Minimise disruption to proposed developments



# Next steps

- ➔ Review specification as necessary after today's webinar
- ➔ Go out to tender to produce BAT document
- ➔ Link with ongoing BAT for CCS work as appropriate
- ➔ Timescales (yet to be finalised).
- ➔ First draft – Autumn – regulator review, industry review
- ➔ Assist application process for permit due end of 2020
- ➔ Final version and publication early 2021