

Written evidence submitted by Tees Valley Combined Authority

We are a Mayoral Combined Authority driving economic growth and job creation across Tees Valley.

We are a partnership of Darlington, Hartlepool, Middlesbrough, Redcar & Cleveland and Stockton-on-Tees local authorities, working with the wider business community and other stakeholders through our integrated Local Enterprise Partnership to make local decisions that support the growth of our economy. Under our devolution deal, we have taken on responsibilities previously held by Whitehall including transport, infrastructure, skills and business investment.

Our locally agreed Local Industrial Strategy (2019) sets out to make the Tees Valley the national hydrogen capital and home to the UK's first net zero industrial cluster – and to make our region entirely carbon neutral by 2050.

The region sees its future linked to achieving net zero and demonstrating how an energy intensive manufacturing cluster can continue to provide the materials needed to support this transition at the same time as providing continued economic activity for our people.

For the Tees Valley – and the rest of the UK - some emissions in the hardest to decarbonise sectors will have to be compensated for by negative emissions technology. This has been recognised by the incorporation of biomass power and energy from waste installations within ambitious local projects such as Net Zero Teesside, a consortium of major energy firms seeking to capture 10 million tonnes of carbon each year, and the Northern Endurance Partnership, the CO₂ transportation and storage company which will deliver the onshore and offshore infrastructure needed to capture carbon from a range of emitters across Teesside and the Humber.

We therefore see negative emissions technology as critical to meeting the UK's Net Zero target.

The Tees Valley Combined Authority is pleased to be able to respond to this consultation.

1. What contribution could NETs (through DACCS, BECCS, and/or other NETs) make to achieving net zero by 2050?

The Tees Valley Combined Authority is convinced that NETs have a significant role to play in meeting the Net Zero target, particularly as it is impossible to capture 100% of emissions from industry and power generation with existing technology, alongside those from other sectors such as transport or housing.

Given the need for economies of scale to make a significant impact and to make best use of public and private funds, NETs need to be linked to large scale CCS networks such as those proposed for Teesside and detailed above. The Tees Valley can, by using NETs to sequester emissions, act as one of the UK's main CCS hubs.

The government's own modelling notes that between 75-81Mt of CO₂ removal per year by 2050 is required by engineered solutions. This can only be achieved by the development of CCS clusters such as those proposed for the East Coast. By being an early developer of NET's technology, the UK and the Tees Valley will be able to transition its workforce from existing fossil-based technology to those needed to support a net zero world, including sustainable synthetic fuels.

2. Which ‘hard to decarbonise’ sectors could benefit most from NETs, and which should be prioritised?

NET is not specifically aimed at one sector but has a role in compensating for emissions which are otherwise inevitable due to capture not being 100% effective. Clearly those parts of the economy which cannot move to renewable electricity will be the source of these emissions and energy intensive industrial production is one of these, as the processes likely to be available up to 2050 will not be zero emission.

The most appropriate criteria is the ability to store the CO₂ from NETs safely and securely at low cost and hence establishing it at industrial clusters - as is proposed for the Northern Endurance Partnership - is clearly the best way forward.

A further and possibly more significant issue is the development of policy frameworks and financial models for the rewarding of NET deployment, which remains a key challenge as it is for other sectors.

3. At what technological stage are current NETs, and what is the likely timeframe that will allow NETs to be operational at scale in the UK?

Whilst possibly behind in technology readiness compared to gas fired power generation or some other industrial processes, capture from biomass combustion processes is not seen by major projects such as Net Zero Teesside as a significant hurdle.

4. What are, and have been, the barriers to further development of NETs? How can such barriers be overcome?

Development of NETs is dependant on appropriate financial models and the delivery of scalable CCS infrastructure.

A further concern is the availability of sustainable biomass. As a result we would support rapid deployment of NET to biomass power to ensure the limited amount of biomass is used to best advantage in reducing emissions and not used in an unabated way.

5. What, if any, are the links and co-benefits to other technological innovations, such as sustainable aviation fuel or sustainability in the energy sector?

NETs have a role to play in addressing those emissions which cannot be easily reduced from other processes. The CO₂ which could be captured would in principle be “green” and would therefore be an ideal feedstock for use in CCU processes such as the development of Sustainable Aviation Fuels over the long term - assuming that the biogenic resources are replaced.

6. What are the trade-offs between availability of land and availability of sustainable biomass to make NETs a viable option in and beyond the UK?

The Tees Valley Combined Authority is convinced that - as the Committee on Climate Change stated in 2019 and as can be achieved in clusters such as on Teesside - biomass use should be combined with CCUS to capture the biogenic CO₂ for permanent storage or use in products (in substitution for fossil derived CO₂).

7. What are the options for the storage of captured carbon, whether onshore or offshore?

The Northern Endurance Partnership project linking Teesside and Humberside is clearly a leading option, and the other clusters in the UK provide further options for large-scale cost-effective CCS offshore, avoiding risks associated with onshore storage while utilising UK's geological advantages.

8. What other drawbacks for the environment and society would need to be overcome to make NETs operational?

As mentioned above the sustainable provision of biomass is clearly important for further development of BECCS, as is acceptance of large scale Energy From Waste projects which would involve movement of waste over distances, such as is already achieved in the Tees Valley with its links to waste from Halton in Cheshire.

By focussing on clusters such as the Tees Valley where these issues have been addressed these concerns can be overcome.

9. Given the proposed role of NETs in climate change modelling, is there a danger of over-reliance on these technologies in net zero strategies?

We have been clear that CCS technology must be deployed rapidly if the UK is to stand any chance of meeting its climate goals but also to make sure that economic activity is retained and attracted to industrial heartlands such as ourselves.

NETs have a role to play - particularly BECCS - but other approaches which are already available now must be prioritised.

10. How should the UK Government support the further development of NETs?

The development of business models for BECCS is key to the early deployment of this technology at the clusters where power plants already exist - such as on Teesside - and where CCS infrastructure is likely to be installed.

11. What policy changes, if any, are needed to ensure the UK gains a competitive advantage and remains at the cutting edge of this sector?

Assuming the deployment of CCS infrastructure proceeds the key to UK benefitting from the deployment of NETs (and of CCS more widely) is the development of a supply chain and the training of a UK workforce able to deliver projects on time and on budget.

This is similar to the needs of other infrastructure projects and requires a long-term commitment.

12. The Government has indicated it will publish a Biomass Strategy in 2022, including the role of BECCS. What should be included in this strategy?

As mentioned above, this strategy must include the development of market mechanisms.

It must also recognise the need to build on the deployment of industrial CCS and associated Transport and storage networks, and to exploit existing biomass assets at convenient locations such as Teesside.

Compatibility with CCS business models is also essential.

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