ZEP Advisory Council 60

25th September 2019

Agenda Item 10: External Relations Group update

10.a. ERG Update

Appended to this paper is an update for the ZEP External Relations Group.

10.a.i. External engagement

Appended to this paper is a summary note of the HLG EII meeting on the 24th – 25th June.

10.a.ii. Op-ed on SET-Plan

Appended to this paper is the draft op-ed on the SET-Plan.

10.a.iii. ZEP press statement on sustainable taxonomy report

Appended to this paper is the ZEP press statement on the Sustainable Taxonomy report.

10.a.iv. ZEP congratulatory letter to re-elected MEPs

Appended to this paper is the template congratulatory letter to re-elected MEPs.

10.a.v. ERG updated work programme 2019

Appended to this paper is the ERG updated work programme 2019.

10.a.vi. Upcoming engagement/New MEPs mapping

Appended to this paper is the Preliminary mapping top 15 MEPs.

10.a.vii. Policy overview and orientation for 2019 and beyond

Appended to this paper is the Weber Shandwick Policy overview and orientation for 2019 and beyond.

10.a.viii. ZEP ERG dinner 27 August - Outcomes

Appended to this paper is the outcomes of the ZEP ERG dinner 27 August.

European Zero Emission Technology and Innovation Platform
ZEP Secretariat,
CCSA offices, rue de la Science 14b,
1040 Brussels, Belgium
www.zeroemissionsplatform.eu

10.a.ix. Weber Shandwick note on the European Industry 2030 vision document

Appended to this paper is the Weber Shandwick note on the European Industry 2030 vision document.

10.a.x. ZEP submission to the High Level Group on Energy Intensive Industries

Appended to this paper is the ZEP submission to the High Level Group on Energy Intensive Industries.

10.a.xi. ZEP recommendations for Member States NECPs

Appended to this paper is the ZEP recommendations for Member States NECPs.

10.a.xii. ZEP input regarding the new European Commission agenda

Appended to this paper is the ZEP input regarding the new European Commission agenda.

10.a.xiii. ZEP note for the Secretariat General

Appended to this paper is the ZEP note for the Secretariat General.

10.a.xiv. ZEP London Protocol position paper

Appended to this paper is the ZEP London Protocol position paper.

10.a.xv. ZEP feedback on the proposed European Partnership Clean Hydrogen Initiative

Appended to this paper is the ZEP feedback on the proposed European Partnership Clean Hydrogen Initiative.

10.a.xvi. ZEP paper on the European Green Deal

Appended to this paper is the ZEP paper on the European Green Deal.

ZEP Advisory Council 60

25th September 2019

Agenda Item 10.a.: ERG update

ERG Co-chairs: Jonas Helseth (Bellona) & Helen Bray (Shell)

External engagement

Since the last AC59 meeting, the Secretariat has taken part in the following meeting with key stakeholders:

- 24th – 25th June: DG Grow High Level Group on Energy Intensive Industries meeting.

A summary note of this meeting can be found as pre-read 10.a.i.

Joint CCS and CCU session at EU Sustainable Energy Week

ZEP hosted a joint session at this year's EU Sustainable Energy Week, together with GCCSI and CO_2 Value Europe, supported by IOGP and Energy Technologies Europe. The session "*CCS and CCU for a climate neutral Europe*" took place on the 20th June. The event was well attended. A playback of the event can be found here. A summary of the event can be found on the GCCSI website here.

Op-ed on SET-Plan

An op-ed from Graeme Sweeney has been written, focussed on the importance of CCS and CCU and the SET-Plan and linking with the EU Informal Meeting of Ministers Responsible for Competitiveness (to discuss sustainable growth) which took place on the 4th – 5th July. The op-ed will now be pitched to a number of different media outlets.

The final draft of the op-ed can be found as pre-read 10.a.ii.

ZEP press statement on sustainable taxonomy report

On the 18th June, the Technical Expert Group on the Sustainable Taxonomy file published its Technical Report 2019. ZEP has actively contributed to the technical work in recent months and issued a press statement to welcome the report.

The press statement can be found as pre-read 10.a.iii.

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ERG update

ZEP congratulatory letter to re-elected MEPs

Following the EU elections, it was decided that ZEP should send congratulatory letters to re-elected MEPs on the ITRE and ENVI committees. Letters were sent on the 2nd July.

The template congratulatory letter can be found as pre-read 10.a.iv.

ZEP website re-design

The ZEP website re-design project is progressing well. Global Concept Consulting has been selected as the design agency and they are now in the process of developing initial proposals and mock-up webpages. The ERG held a webinar on the 12th September where Global Concept Consulting presented their proposed design for the new website. It was agreed that the design is moving in the right direction.

Proposed ZEP conference

It is proposed that ZEP should hold a European Parliament Conference. The most important step is to identify a host/co-host MEP. The timing of the conference is yet to be determined (and will largely depend on the availability of the host/co-host). The Secretariat is currently working on identifying a host/co-host MEP.

ERG updated work programme 2019

Ahead of the July ERG strategy call, Weber Shandwick circulated an updated high-level ERG work programme for 2019. This sets out the overarching ZEP goals, the core 2019 focus activities as well as a detailed breakdown of the milestones and proposed activities for the remainder of this year.

The work programme can be found as pre-read 10.a.v.

Upcoming engagement/New MEPs mapping

Now that the EU elections have taken place, Weber Shandwick is focused on developing a comprehensive map of EU Parliament stakeholders, to inform the next round of engagement which will begin in September. Weber Shandwick have circulated an initial list of the top 15 MEPs of relevance to ZEP.

This list can be found as pre-read 10.a.vi.

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Agenda Item 10.a.
ERG update

Policy overview and orientation for 2019 and beyond

Ahead of the September ERG call, Weber Shandwick circulated a note setting out high-level European Policy developments for 2019/2020 and ZEP's external agenda.

This note can be found as pre-read 10.a.vii.

ZEP ERG dinner 27 August - Outcomes

On the 27th August, the ERG held a dinner with Weber Shandwick, to discuss forward strategy for the second half of 2019.

The outcomes of this discussion can be found as pre-read 10.a.viii.

Weber Shandwick note on the European Industry 2030 vision document

On the 28th June, the 'Industry 2030' group of experts and corporate leaders published 'A Vision for the European Industry until 2030'. This report will provide critical input for the New Industrial Strategy, which is due to be published later this year, alongside other reports such as the Industrial Masterplan which is being developed in the HLG EII. The report is of relevance to ZEPs efforts in the HLG EII.

Key recommendations include:

- Establish modern strategic infrastructures: Focus on smart grids, demand response, energy storage, networks for hydrogen or synthetic methane, charging an refueling infrastructures for transport. Plus focus on modernization of existing basic infrastructure e.g. energy grids.
- Accelerate the transformation towards climate-neutral, circular and resource-efficient economy by ensuring that the cost of decarbonization measures is fairly distributed among all actors. As well as developing an integrated strategy to increase demand and deployment of technologies.
- Strengthening strategic value chains by amongst others further developing IPCEIs and EU platforms (e.g. Battery Alliance and Plastics Alliance) and creating a new EU governance for strategic value chains.
- Taking global action for EU industrial leadership by amongst others leading on the implementation of the Paris agreement, as well as addressing the whole value chains and not individual sectors.

Weber Shandwick have written a detailed note on the report, which can be found as pre-read 10.a.ix.

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Agenda Item 10.a.
ERG update

ZEP input to the High Level Group on Energy Intensive Industries

The DG Grow High Level Group on Energy Intensive Industries (HLG EII) met on the 24th – 25th June. At this meeting, a number of draft papers were presented to the sub-groups. DG Grow requested comments by 28th June. The ERG therefore developed a document setting out a number of ZEP recommendations. This was submitted on the 28th June.

The ZEP submission can be found as pre-read 10.a.x.

The last Sherpa meeting was held on the 10th September. It is clear from the pre-reads sent out ahead of this meeting, that almost all of ZEP's comments have been taken on board. CCS/CCU is highlighted and there is a fairly good balance between CCS and other pathways. The documents will now be updated by a smaller group within the DG, with a plan to circulate (restricted) to stakeholders shortly, ahead of the final HLG EII meeting on the 2nd October. The Commission have emphasised that this is only the beginning of a process and the HLG EII will continue working for another year.

ZEP recommendations for Member States NECPs

On the 18th June, the EU Commission released its Communication on the draft Member States National Energy and Climate Plans (NECPs). Ahead of this date, the Commission invited stakeholders to submit their recommendations. ZEP submitted its recommendations on the 14th June, to the Commission officials responsible for the evaluation of the draft NECPs.

The ZEP submission can be found as pre-read 10.a.xi.

ZEP input regarding the new European Commission agenda

Chris Davies MEP contacted the ERG regarding a steering group that has been established from EPP, S&D, ALDE and the Greens. This steering group will draw up a manifesto of measures (agenda) for the next Commission – to include specifics not just generalities. Chris Davies requested that ZEP should send some recommendations that can be included in this manifesto. The ERG prepared a short document setting out ZEPs recommendations for the new Commission agenda. This was sent to Chris Davies on the 13th June.

The ZEP input can be found as pre-read 10.a.xii.

ZEP note for the Secretariat General

On the June ERG call, a discussion was held on the immediate actions needed from ZEP following the EU elections. It was agreed that a number of papers should be developed, including a short paper setting out ZEPs recommendations for the Secretariat General with specific asks for the Commission. This should focus on actions that should be taken and should include

recommendations on T&S infrastructure, the new Gas Package and the negotiations over the Sustainable Taxonomy. This note was developed and sent to the Secretariat General on the 29th July.

The note can be found as pre-read 10.a.xiii.

ZEP London Protocol position paper

On the August ACEC call, a discussion was held regarding the London Protocol barrier to CCS (export of CO2 for the purpose of permanent geological storage). The Contracting Parties of the London Protocol will meet in October where this issue will be discussed. Ahead of this meeting, the Norwegian and Dutch governments have proposed an interim solution to unblock this barrier. There was strong support from the ACEC that ZEP should develop a position paper and plan of action to increase the possibility of achieving a positive decision at the meeting in October.

The position paper can be found as pre-read 10.a.xiv.

The ERG have agreed the below forward plan of action:

- To contact the permanent representations of the 17 EU members that are London Protocol parties and reach out to networks of industrial actors and other interesting stakeholders with the position paper and cover letter.
- To encourage them to highlight this issue with the right contacts on national level.
- To invite ZEP to meetings to discuss this further during September.
- To coordinate with the Norwegian and Dutch government representatives and other stakeholders to make the case stronger and to be as effective as possible.
- To exert a little extra pressure on Germany/Westphalia.
- To highlight and promote the ZEP position.

ZEP feedback on the proposed European Partnership Clean Hydrogen Initiative

During the summer, the Commission announced an initiative to develop a roadmap for a European Partnership Clean Hydrogen under Horizon Europe. The Commission invited comments by the 27th August.

On the August ACEC call, it was agreed that ZEP should follow and engage with this initiative. As the Commission seems to be leaning towards setting up a joint undertaking under Horizon Europe, it would be prudent to ensure that this undertaking includes research into activities linked to CCS and CCU technologies.

The Commission intends to propose a European Partnership that would build upon the existing Fuel Cells and Hydrogen 2 Joint Undertaking. The Partnership would have a "*significantly revised scope, involve more partners and take account of the strengthened societal, economic and technological impact criteria of Horizon Europe*". The Partnership would stimulate the creation of

an innovative and competitive European clean hydrogen sector that can support the energy transition by accelerating market uptake of "*near-zero carbon hydrogen*" technologies.

ZEP submitted feedback to the proposed European Partnership Clean Hydrogen initiative on the 27th August. This feedback can be found as pre-read 10.a.xv.

The Commission has since released a consultation on all 12 proposed European Partnerships under Horizon Europe. The European Partnership Clean Hydrogen consultation can be found here. The deadline is 6th November. A ZEP response will be developed through Network Policy and Economics.

ZEP paper on the European Green Deal

The European Green Deal (EGD) – reaching net zero by 2050 and aiming to become the first carbon neutral continent – is defining the new European Commission college (designate). Not only is it highlighted as the overarching and most important area, it is also setting the agenda in the motivation letter to every Commissioner, defining their portfolios. CCS and CCU is a key part of the EGD, and as the process for its development has already started, it will be crucial that ZEP actively engages in this work. On the September ERG call, it was therefore decided that ZEP should develop a short paper setting out the importance of the EGD for ZEP, key messages and proposed engagement activities.

This paper can be found as pre-read 10.a.xvi.

The next step will be to review and update the ZEP work plan and messaging in line with the EGD, with the aim to have a discussion and approval at the next ACEC call on the 22nd October.

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Agenda Item 10.a.i.
Summary note of HLG EII June meeting

High Level Expert Group on Energy Intensive Industries

Meeting of the sub-groups developing the Industrial Transformation Master Plan for Climate Neutral Industry by 2050

The three sub-groups developing the Industrial Transformation Master Plan met on the 24th and 25th June to present their draft reports to stakeholders and receive feedback ahead of the next phase of drafting. The sub-groups are;

- Sub-Group 1 – Creation of markets for climate neutral, circular economy
- Sub-group 2 – Developing climate neutral solutions and financing their uptake
- Sub-Group 3 – Resources and deployment

The context for this work is the Council agreement on the need for an Industrial Strategy. This is currently being drafted by the European Commission. It is not clear when this will be published however there is a need to accelerate the work of the HLG on EII so that it can feed into the process. In addition, the EC believes that we are heading towards climate neutrality by 2050 which reinforces the importance of this work. In addition, there is the ongoing work around Strategic Value Chains (SVC) and the proposal for a low carbon industry SVC is being discussed actively between industry and MS.

The discussions remain broad and largely technology neutral, albeit with some bias towards the electrification decarbonisation pathway. CCS, CCU and low carbon hydrogen are coming up repeatedly in the discussions, generally continue to be framed positively and seem accepted by most participants as an essential part of the technology mix require for industry. The discussions between the different sub-groups overlapped. The key themes emerging form the discussions include;

- Infrastructure: strong emphasis on importance of low carbon infrastructure including, CO_2 and Hydrogen and the need for infrastructure mapping to be undertaken to understand future needs and then develop an overall plan (e.g. for CCS). EC spoke about the infrastructure "silos" of energy, transport, technology, etc. However, need an integrated approach and is an area that different EC agencies will need to collaborate on. The union, IndustriALL, were very constructive on infrastructure and the respective needs for CO2 and hydrogen. NL also specifically wants the group to focus on cross border CO2 transport.
- DG Energy spoke about the need for a long-term strategic approach to gas infrastructure and this is now a priority area (this links to the recent discussions under the Madrid Forum).

Reference was made to the 'massive' volumes of hydrogen needed for decarbonisation of the steel sector. While the discussion was largely focussed on the need for "climate neutral" solutions, Climate Action Network made an intervention stating that fossil gas must have no role in a net zero world and that only renewable based gases are acceptable to them.

- The EC is keen to understand industry investment needs as Horizon Europe budgets are under discussion. Flet that industry has not been clear on this and noted that idustry is in the same cluster as digital who are being very proactive in attempting to secure the majority of funds.
- There is substantial discussion around creation of low carbon markets, e.g. through using standards and certification. This was also linked to the Sustainable Taxonomy work. The EC is working on how to improve monitoring of MS purchasing of green goods and whether MS should go further as provisions are currently non-binding. Corporate purchasing is also material but it not clear whether industry following the EC guidelines.
- The Coal Transition work is being transformed to a carbon intensive regions initiative which will focus on helping these industries transition and develop the new skills and technologies needed to thrive in a low carbon economy.
- The EC is minded to raise the HLG EII work in the July Competiveness Council to encourage the national officials working the national energy and climate plans to look in more detail at industrial transition.
- A number of the NGO representatives at the meetings made interventions expressing concerns about the transparency and inclusiveness of the HLG EII process as they did not feel that their comments have been addressed.
- The HLG EII's current mandate expires at the end of the year, there will be a recommendation that the next Commission extends the mandate of the HLG.
- Nest steps;
    - The sub-groups will incorporate the feedback from the workshops and the updated reports will go back to sub-groups for comment by middle of August.
    - The next Sherpa meeting of the HLG EII will be on 10th September.
    - Next HLG EII meeting will be held on 2nd October.

ZEP AC60 25.09.2019
Agenda Item 10.a.ii.
Op-ed on SET-Plan

CCS in European regions: delivering a just transition

By Dr Graeme Sweeney, Chairman of European Zero Emission Technology and Innovation Platform (ZEP)

This Thursday and Friday, the Informal Meeting of Ministers Responsible for Competitiveness gathers in Helsinki to discuss sustainable growth and the future of the low-carbon economy. They will address a critical question: what technologies and type of R&I do we need to realise a competitive, sustainable and equitable transition to climate neutrality by 2050? As Finland takes the helm of the sCouncil Presidency with an aim to boost low-carbon technologies, policymakers must ensure that the EU's Structural Funds and the Cohesion Fund are deployed to unlock the regional growth that comes with the low-carbon transition. Safeguarding prosperity to European regions through delivering shared infrastructure for CCS (Carbon Capture and Storage) is an opportunity we cannot afford to miss.

Along with maximum renewables and energy efficiency measures, CCS and in some cases CCU (Carbon Capture and Utilisation) will play a key role. Not only in reaching the 2050 goal, but also in keeping global warming to 1.5 °C. CCS can facilitate an equitable cost distribution when it comes to the transition to low-carbon economy, while achieving deep emissions reductions across a number of important sectors – including industry, heating, power and transport - some of which do not have any alternative decarbonisation options. This much is clear from the IPCC's Special Report on 1.5°C and the Commission's long-term scenarios, as well as various draft national energy and climate plans and the 25th June Energy Council Conclusions.

We now need to deepen and broaden regional cooperation to deliver CCS clusters in the industrial regions of Europe, which facilitate the industrial transformation. CCS is a key building block for sustainable industrial value chains and numerous projects in Europe and beyond have demonstrated that the technology is available, scalable and cost effective. A wide range of projects, including Northern Lights and PORTHOS, can be connected through common CO_2 infrastructure and further unlocked with dedicated regional infrastructure planning and funding. Unlocking the economic opportunities in regions and delivering net-zero emissions at the lowest possible cost hinges on our ability to deliver an infrastructure for CCS. Regional political leaders have an important role to play in achieving this goal and continue to deliver future economic growth in their regions. As the European Commission continues its work on the New Industrial Strategy for Europe, it is vital that the strategy recognises the role of CO_2 transport and storage infrastructure in facilitating the industrial transformation.

The development of such shared infrastructure can help realise sustainable industrial zones. Such zones would allow EU regions to reconcile continued growth with achieving net-zero emissions, securing cost-effective decarbonisation in key sectors such as industry, heating and transport. Good progress is already being made on this front – for example, the port areas in Rotterdam, Antwerp and the North Sea Port, which collectively emit 66,5 Mton of CO_2 per year, are exploring potential synergies in the development of CCS in each of the three regions. They recently submitted a Project of Common Interest proposal under the Connecting Europe Facility (CEF) with the name 'CO2TransPort', which would effectively create a 'hub of ports'.

In addition to the CEF, the European Strategic Energy Technology Plan (SET Plan) is one of the key instruments in enabling a CO_2 infrastructure that will unlock economic opportunities in European regions. It seeks to accelerate the deployment of low-carbon technologies through fostering cooperation between Member State ministries, regional authorities, research institutions and industries. The plan ensures better alignment between different research and innovation programmes

at EU, national and regional level, in line with SET Plan priorities, while also increasing cooperation between national programmes to avoid duplication and heighten the impact of public investment.

In particular, the CCS and CCU pillar of the EU's SET Plan Action 9 outlines eight key research and innovation activities required to achieve the ambitious targets for CCS and CCU for 2020, as agreed by the European Commission, SET Plan countries and industry in the 2016 Declaration of Intent. The Implementation Plan also identifies the ongoing actions that will be required to meet the Key Performance Indicators set for 2030. Ten countries, including France, Germany, Italy, Norway and the Netherlands - are members of the Implementation Working Group 9 (IWG9), alongside industrial stakeholders, non-governmental organisations and research institutions.

While the SET Plan and the CEF are key tools for enabling CCS, they alone are not enough. We need to start deploying the EU's Structural Funds and the Cohesion Fund to support the transition. It is particularly vital that the right kind of regional infrastructure is developed urgently, if we are to deliver climate neutrality by 2050 and allow European regions to prosper at the same time. For CCS to fulfil its role in delivering the EU's long-term Strategy, action must begin now. We are calling on EU policymakers and the Finnish Presidency to ensure that the policy mechanisms for delivering CCS are designed to boost regional infrastructure deployment and enable low-carbon industrial hubs across Europe, making a just transition a reality for Europe's regions.

PRESS STATEMENT

ZEP WELCOMES TECHNICAL EXPERT GROUP REPORT ON THE SUSTAINABLE TAXONOMY

Brussels, June 18 – The European Zero Emissions Technology & Innovation Platform (ZEP) welcomes today's publication of the Technical Expert Group report on the Sustainable Taxonomy. The report outlines an EU classification system for environmentally sustainable economic activities, alongside sector and activity-specific technical screening criteria, to encourage capital markets to re-direct capital flows.

Commenting on the announcement, Dr. Graeme Sweeney, Chairman of ZEP, said:

"We welcome the Technical Report 2019 by the Technical Expert Group (TEG) on the Sustainable Taxonomy. ZEP has actively contributed to the technical work in recent months. We are convinced that the Taxonomy can play a critical role in re-orienting finance towards sustainable economic assets and activities, enabling a more cost-effective, sustainable and equitable transition to a climate neutral EU by 2050.

Given ZEP's mandate as formal advisor to the European Commission on Carbon Capture, Utilisation and Storage (CCUS), we particularly welcome the classification of:

- *CCS as eligible in any sector or activity if it enables the primary activity to meet the relevant threshold, including with the production of steel, cement and chemicals. This will greatly benefit Europe's efforts to develop sustainable industrial value chains and clusters.*
- *Manufacturing of blue hydrogen with CCS as sustainable if it meets the threshold. While support for green hydrogen via electrolysis is critical, we will not create the necessary volumes in time without blue hydrogen produced through steam reforming of natural gas coupled with CCS.*
- *CO_2 transport and storage infrastructure as essential to meet our climate objectives. Publicly backed CO_2 infrastructure can help mitigate investment risks for the private sector, stimulate CCS by creating an investment model, and enable emissions intensive industries to address future increases in the cost of emitting CO_2 by providing access to the infrastructure they need to decarbonise.*

Overall, the TEG's approach aligns with the fact that CCS is now widely considered an indispensable technology for the long-term decarbonisation of industry and power, alongside maximum deployment of renewables. This is evidenced by the references in the IPCC's Special Report, its role as a building

block in the Commission's 2050 decarbonisation pathways, and the inclusion in draft National Energy and Climate Plans of various EU Member States.

That being said, for CCS projects to be operational by 2035, significant activity will need to be undertaken beforehand. That is one reason why we now need to operationalise the Taxonomy so we can reap the benefits as soon as possible. We call on Member States and the Commission to endorse and implement the recommendations of the TEG to ensure alignment with EU fiscal instruments and climate neutrality."

ENDS

Notes to Editors:

ZEP

Founded in 2005, the European Zero Emission Technology and Innovation Platform (ZEP) is a unique coalition of European oil and gas companies, equipment suppliers, scientists, academics and environmental NGOs united in their support for CO_2 Capture and Storage (CCS) as a key technology for combating climate change. ZEP serves as advisor to the European Commission on the research, demonstration and deployment of CCS.

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ZEP AC60 25.09.2019
Agenda Item 10.a.iv.
ZEP congratulatory letter to re-elected MEPs

Brussels, 2 July 2019

Dear Mr. / Mrs. [enter surname],

On behalf of the Zero Emissions Platform (ZEP), I would personally like to share our warmest congratulations on your re-election to the European Parliament. This House has a defining role to play in furthering the EU's energy, climate, industrial and social agenda at a critical juncture in our efforts to mitigate climate change. We will continue to contribute to those efforts.

As you may recall from our pervious engagements, ZEP is an official European Technology and Innovation Platform (ETIP) composed of European energy-intensive industry companies, petroleum companies, equipment suppliers, scientists, academics and NGOs founded in 2005, including Norwegian stakeholders. ZEP is as the advisor to the European Commission on the research, demonstration and deployment of Carbon Capture, Utilisation and Storage (CCUS).

CCS is now widely considered an indispensable technology for the long-term decarbonisation of industry and power, alongside maximum deployment of renewables. This was confirmed in the IPCC's Special Report, the Commission's long-term scenarios, various draft national energy and climate plans, and recent Energy Council Conclusions. **CCS is a building block for sustainable industrial value chains and can facilitate a more just transition. CCS and related technologies are cross-cutting** and should be considered as such in our long-term climate strategy, the new industrial strategy, and related own-initiative reports from the Parliament.

Parliament's support in the years ahead will be critical in charting an equitable, sustainable, and competitive path towards a climate neutral European economy by 2050. ZEP is already working with various European countries and stakeholders to coordinate R&D efforts under the EU's Strategic Energy Technologies Plan Action 9, the pillar on CCS and CCU. Discussions around the opportunity of CCS have however moved beyond R&D. They now focus on **how, where and in what form CCS, CCU, green and blue hydrogen, and Bio-CCS can contribute to climate neutrality by 2050**. We hope the Parliament will continue to contribute to that debate.

Let me congratulate you once again with your re-election and express my firm hope to work closely with you and your colleagues around these important issues. Please do not hesitate to contact us in the meantime should you wish further information or discuss closer collaboration.

Sincerely,

Dr. Graeme Sweeney, Chair of the Zero Emissions Platform

WEBER SHANDWICK
WE SOLVE

ZEP ERG WORK PROGRAMI

WEBER SHANDWICK PROPOS

UPDATE 8 JULY 2019

OVERARCHING GOALS SSFZEP:

- Regain ZEP's role as the primary CCS actor in Brussels,
- Create the political and framework conditions at EU level that are necessary for upsc CCU and hydrogen projects.

FOCUS 2019 ACTIVITIES:

- Positioning the CCS industry as thriving.
- Connecting the value of CSS and related technologies with national and regional con
- Building and safeguarding political support for CCS and related technologies.

Months	Milestones	Actions	Tactical rationales
July	W/c 8: EP Committee formation	• **Targeted stakeholder mapping** (throughout August)	
August	*Fallow month*		
September	5: EU-Norway CCS conference 5: ZEP/EC Innovation Fund workshop 13: Deadline consultation TEG Taxonomy report 23: UN Climate Summit 24: Energy Council on draft NECPs 24-26: EU R&I days 26-27: COMPET Council (TBC): EP hearings of new EC (TBC): HLG EnII report shared with EC (TBC): PCI list	• **On-boarding pack** to all newly elected ITRE/ENVI MEPs: - Congratulatory letter incl. ZEP priorities for 2019-2024 - Save the Date invitation to ZEP conference 2019 - High-level paper on ZEP: focused on CCS and the new industrial strategy and the LTS • **Engagement programme** focusing on new MEPs in ITRE/ENVI Committees to influence INI reports on Industrial Strategy and LTS • **ZEP technical workshop** with MEP advisors on CCS technology landscape at WS office • **ZEP/EC Innovation Fund workshop** coordinated by the Secretariat • *Start of targeted social media campaign in run-up to and after the ZEP conference (TBC extra budget needs)*	Raise ZEP profile p elections Connect projects w constituencies, law Secure MEP amba Awareness around technology mix in th Create buzz pre-ZE conference Engage around EU Industrial Strategy,
October	4: Environment Council to discuss COP25 8-10: Pre-COP25 in Costa Rica 17-18: EUCO guidance on LTS 23-24: Madrid Forum (TBC): EP hearings of new EC (TBC): Adoption new PCI list	• **High-level media programme** on CCS in the context of the HLG EnII Masterplan publication • ZEP new website launch at the conference (separate process)	Position ZEP as the CCS actor in Bruss Raise awareness o projects in EU CCS Draw attention to a new PCI list CO2 p

	(TBC): EP INI reports on LTS & Industrial Strategy		
November/ December	New EC takes office and starts developing 5-year work programme	• **ZEP Conference in EP** (General Assembly) as projects exhibition coupled with policy debate • **Targeted stakeholder mapping new EC** • **On-boarding pack** to new EC leadership - Congratulatory letter incl. ZEP priorities for 2019-2024 - Briefing paper describing CCS related technologies (as per MEP pack)	Position ZEP as the CCS actor in Bruss Connect projects w constituencies, law Secure MEP amba Establish relations EC Influence new EC 5 programme

ZEP AC60 25.09.2019
Agenda Item 10.a.vi.
Preliminary mapping top 15 MEPs

ZEP - Top 15 EU Stakeholder Mapping - *European Parliament*

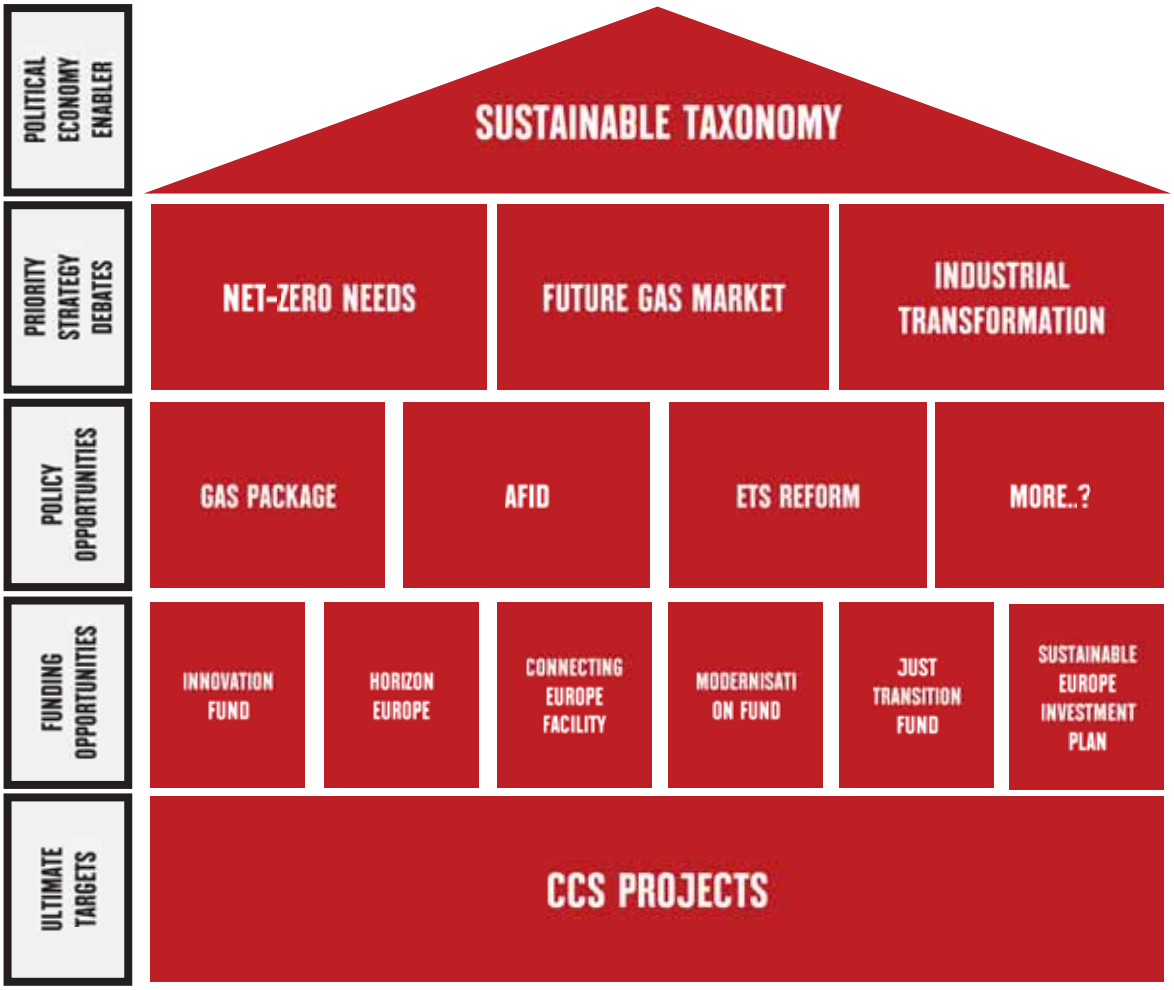
As of 22 July 2019

Title	First Name	Last Name	Political gro	Countr	Member	Substitute	Position on CO
Chair	Pascal	Canfin	Renew Europe	FR	ENVI	ECON	TBC
Chair	Adina Ioana	Valean	EPP	RO	ITRE	ENVI	Supportive
Chair	Karima	Delli	Greens/EFA	FR	TRAN	BUDG	TBC
Vice Chair	Bas	Eickhout	Greens/EFA	NL	ENVI	ECON	Limited support
Vice-Chair / Coordinator	Zdzislaw	Krasnodebski	ECR	PL	ITRE		TBC
Coordinator	Peter	Liese	EPP	DE	ENVI	BUDG	Supportive with caveats
Coordinator	Christian	Ehler	EPP	DE	ITRE		TBC
Coordinator	Nils	Torvalds	Renew Europe	FI	ENVI	ITRE	TBC
Coordinator	Fredrick	Federley	Renew Europe	SE	ITRE		Supportive with caveats
Coordinator	Dan	Nica	S&D	RO	ITRE		TBC
Coordinator	Jytte	Guteland	S&D	SE	ENVI		Supportive with caveats
Coordinator	Agnes	Jongerius	S&D	NL	EMPL		TBC
Vice-President S&D	Miriam	Dalli	S&D	MT	ENVI		Supportive
Vice-President EPP	Esther	de Lange	EPP	NL	ENVI	ECON	Supportive
Vice-President Renew Europe	Frédérique	Ries	Renew Europe	BE	ENVI		TBC

TOMORROW'S EU POLICY

	2019	202
KNOWN UPCOMING POLICIES / STRATEGIES		Gas market package
		Alternative Fuels Infrastructure Directive review pr
		Development Horizon Europe calls for propos
	Inter-institutional agreement on Taxonomy Regulation and implementing legislation	
	Development Innovation Fund calls for proposals	
	2050 Strategy and national plans	
	Update NECPs	
	New Industrial Strategy	
URSULA VON DER LEYEN'S PROMISES	FIRST 100 DAYS: GREEN DEAL FOR EUROPE	Upgrading 2030 GHG target to 50/55%
		EU Climate Law to entrench 2050 climate neutrality target
		Expanding the ETS to other sectors (transport, maritime)
		Carbon Border Tax
		Just Transition Fund
		Climate Bank and Sustainable Europe Investment Plan

ZEP'S EXTERNAL AGENDA



ZEP ERG DINNER – 27 AUGUST

STRATEGIC ALIGNMENT FOR H2 2019 OUTCOMES

29 August 2019

Agenda and feedback

- **What changed in the politics and policies since the elections and how does this affect ZEP's advocacy?**

The institutional turnover with many new (uninformed) faces requires ZEP to refocus its reputational advocacy efforts as a means to pursue our regulatory aims.

The forthcoming Gas Package implies a growing relevance of DG ENER in addition to RTD for ZEP. We urgently need to build more champions within ENER.

- **Where are we with the ongoing policy files and how can/should ZEP provide further input?**

The Sustainable Taxonomy, 2050 Strategy, and Industrial Strategy remain of critical importance and require continued engagement from ZEP. They are critical to pushing hydrogen and infrastructure.

Engagement on the 2050 Strategy can focus less on advocating net-zero by 2050, as sufficient stakeholders now carry this as the new norm. ZEP can instead focus more on the strategic debates and actual policies to get there.

- **Which upcoming files should be prioritized in light of ZEP's strategic goals and how can/should ZEP provide further input?**

The Gas Package is the next big thing through which ZEP can pursue its goal of enhancing the regulatory enablers for the projects, promoting hydrogen and CO2 infrastructure in particular.

Three key debates were given priority:

1. *How to get to net-zero by 2050.*
2. *How to ensure continued gas market value.*
3. *How to transform and decarbonise industry.*

FYI – In a separate call with Graeme to get his input, he stressed the Sustainable Taxonomy as the prism through which to pursue the above. It is the only piece that directly

impacts the political economy by setting the rules for net-zero and redistributing capital accordingly, with real-world consequences.

- **Where and with which other stakeholders should ZEP coordinate with to pursue the defined priorities?**

Whereas ZEP itself houses a broad intersection of stakeholders, we need to (re)engage others (beyond the converted) to strengthen our political clout. This could involve forming ad hoc coalitions around specific issues as a 'side-activity' for ZEP. Stakeholders mentioned include: ETUC, IndustriALL, ECF.

Equally important is to bring in the science to ensure continued recognition of ZEP as a knowledge institution. This could involve giving more exposure to ZEP affiliated academics, potentially in the context of owned technical workshops.

- **What does the above imply for the activities that are needed at EU (and national/regional) level in the next four months?**

1. *Establishing advocacy KPIs and goals to track progress.*
2. *Focusing on reputational advocacy in the short term, especially for the EP.*
3. *Diversify MS engagement – Perm Reps, regional, national, and cities (mayors).*
4. *Ensuring continued regulatory advocacy with the EC around priority issues.*
5. *Engaging EU liaison offices of ZEP members to involve in external relations.*
6. *Broadening ZEP's base of friends among stakeholders beyond the inner circle.*

Background

Overarching goals ZEP

- Regain ZEP's role as the primary CCS actor in Brussels.
- Create the political and framework conditions at EU level that are necessary for upscaling the ecosystem of CCS, CCU and hydrogen projects.

Focus 2019 activities

- Positioning the CCS industry as thriving.
- Connecting the value of CSS and related technologies with national and regional constituencies.
- Building and safeguarding political support for CCS and related technologies.

A Vision for the European Industry until 2030
Final report of the Industry 2030 High Level Industrial Roundtable

Weber Shandwick note

9 July

Executive summary

As you are aware, the 'Industry 2030' group of experts and corporate leaders published 'A Vision for the European Industry until 2030' (see here). This final report is the result of the work carried out by the Industry 2030 high-level industrial roundtable established by the European Commission in December 2017 to provide independent advice on future EU industrial policy.

The content of this Report will be critical input for the New Industrial Strategy due later this year, which will lead to further legislative action in the years ahead in the fields of climate, energy, transport, technology, finance and sustainability. The input comes alongside other reports such as the Industrial Masterplan under preparation in the HLG ENII. We assessed the report's content to check for ZEP relevant points to help our efforts in the HLG ENII.

The report is divided in four main sections: a detailed overview of the Industry 2030 Vision; identification of the existing trends towards 2030 with their subsequent challenges and opportunities; current needs to be addressed and their key drivers of success to achieve the Vision 2030; and a series of recommendations and game-changing actions aimed to help the EU to better manage this transformation.

Vision 2030

The Vision defines the 2030 EU economy as collaborative, innovative, sustainable, competitive and human-centered in an increasingly populated, resource constrained and interconnected world. Cornerstones of the Vision are investment in cutting-edge and breakthrough technologies, respect for planetary boundaries and biodiversity, leadership in smart European and global alliances, reinforcement of EU global competitiveness and the future of the next generations.

This vision outlines three main building blocks:

- **The transformation of the European industry** will be driven by the automation and digitalisation of manufacturing, products and data-driven services, the reorganization of industrial value-chains towards a circular economy, increased R&D expenditure, leadership in achieving climate neutrality and breakthrough policies.
- **The competitiveness of Europe at the global level** will be based in the constant evolution of the Single Market and its legislation, which will be at the core of the industrial policy. The world's major economies will acknowledge Europe as a key partner and the European technology-led transformation from volume to value driven economy will be seen as an attractive economic model.
- **Social inclusiveness and values** will be at the core of the EU industry. The achievement and maintenance of competences and skills through life-long learning and the empowerment of the EU citizens by cutting-edge technologies and innovations will be key aspects. Moreover, the new industrial strategy will help to share the benefits of economic development more widely across the society and regions, while stakeholders, academia and civil society will work collaboratively with policymakers.

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Concrete challenges and opportunities of relevance to ZEP:

- **Scientific and technological developments:**
  - Challenge: Insufficient investment in infrastructure / Opportunities: Demand for batteries and hydrogen fuel cells + CCS/CCU technologies to decarbonize energy and the industry.
  - Challenge: Insufficient trickle down of new tech to SMEs / Opportunity: Build on our leadership on low carbon, energy, resources, waste management and KET and gain strategic independence from foreign suppliers.
  - Challenge: Risk of innovation gap / Opportunity: Modernizing traditional sectors, developing the demand side for the deployment of technologies and better connecting technology infrastructure.
- **Climate change and other environmental developments - opportunities:**
  - Challenge: Decarbonization of the energy sectors as a precondition for the decarbonization of industry / Opportunity: benefit from the early mover advantage and sustainable innovative technologies.
  - Challenge: Transition of sectors facing carbon leakage risks. Opportunity: Achieving global leadership in renewable energy, energy efficiency and climate neutral technologies.
- **Global geopolitical and economic developments: n/a**
- **Social developments: n/a**

Key drivers of success and main needs

- **Leadership in technology, innovation and sustainability:**
  - Need for sustainable and climate-neutral consumption and production based on correct and detailed data availability.
  - Need for a proper policy mix and investment strategies addressing the interplay between technology, innovation and sustainability.
- **Anticipating and developing skills**
- **Focus on strategic value chains as highlighted by the Strategic Forum on IPCEIs**
- **Fair, competitive and agile business environment**
  - Need for policy designed to ease the costs of doing business responsibly in Europe.
  - Need to use the “innovation principle”.
  - Need to promote self-certification for products or services and intelligent setting of EU regulatory requirements and European-wide standards.
  - Necessary to mainstream climate considerations into financial markets:
    - Policy needs to internalize climate costs and align costs on carbon and natural resources to the IPCC Recommendations.
    - Necessary a fair and predictable tax system through the EU.
    - Necessary free-flow of capital: easy cash-in and cash-out processes to support industry looking for alternative financing sources.

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- Adequate EU state aid and competition policy to support industry competitiveness.

- **Social fairness and wellbeing**

Recommendations for deliver and game-changing actions

The Report suggests a series of recommendations and game-changing actions for the future EU industrial policy, focusing in three main strategic areas:

- **Manage a fast and inclusive transformation**
  - Design an appropriate ecosystem stimulating innovation and technology uptake
    - Establish modern strategic infrastructures:
      - Focus on smart grids, demand response, energy storage, networks for hydrogen or synthetic methane, charging an refueling infrastructures for transport
      - Focus on digital infrastructures giving access to standardized data for re-use by service providers and ultra-high-spread broadband and 5g networks
      - Focus on modernization of existing basic infrastructure i.e. Energy grids
    - Facilitate the allocation of EU, regional and national funds to investment (CAPEX) and operation (OPEX) of testing and demonstration facilities
    - **Game-changing actions:** Next Enlightenment for Technological Leadership and Strategic Programme for technological Infrastructures
  - Accelerate the transformation towards climate-neutral, circular and resource-efficient economy
    - Establish tough market-based instruments appropriate price-signals by introducing a carbon pricing for non-EU ETS activities
    - First steps in the decarbonization of energy-intensive industries
    - Cost of decarbonization measures should be fairly distributed among all actors
    - Develop an integrated strategy to increase demand and deployment of technologies
    - Use policies, incentives, standards and certification to create markets for innovative technologies and new circular business models (bio-feedstock, biodegradable plastics, new recycling technologies):
  - Ensure reliable access to sufficient and affordable low carbon energy and raw material
    - On-time development of infrastructure aimed to produce low GHG electricity and feedstocks
    - Consider energy sources in line with circular economy principles and address the significant increase in demand for primary raw materials
    - Consider the access of industry to affordable renewable energy in the review of the EU Guidelines on State Aid for environmental protection and energy
    - **Game-changing actions:** Carbon-leakage 2.0 plan; Green Deal with Industry; standardized carbon reporting and Circular Industrial Champion
  - Finance the transition

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        - Strengthen and develop new adequate financial instruments to support the clean energy transition
        - Facilitate access to both public and private financing in the early stages and in the growth stages: it is necessary dedicated grant financing to boost the riskiest stages of technology development and dedicated patient capital instruments for Deep Tech startups
        - Develop an appropriate taxonomy for sustainable finance and new forms for sustainable finance (i.e. green bonds) in a smart positive and science-based way

- **Champion global competitiveness**
    - Ensure a greater role for the Single Market:
        - Complete the Single Market in networks (energy, transport, ICT) to drive industry transformation and boost the EU leadership in alternative fuel transport systems
        - Avoid legislative overlaps and regulatory instability by integrating competitiveness and sustainability elements from the design phase of legislation
        - Ensure the rule of law and legal certainty to simulate investments and innovation
        - Use demand-side policy instruments, investment programmes and Intellectual Property Rights to create well-functioning markets
        - Make the best use of EU competition and state aid legislation: examine whether changes to the EU's competition tools and processes may be required to deal with competition enforcement in the digital sector
    - Strengthen strategic value chains
        - Strengthening strategic value chains and monitor their competitiveness
        - Further develop IPCEIs and EU platforms: Battery Alliance and Plastics Alliance
        - Create a new EU governance for strategic value chains
        - Leverage the innovation networks of large companies, SMEs and start-ups together with research institutes and universities
        - **Game-changing actions:** Clusters of Change, Constellations of Standardization, Minimum Viable Regulation, Acceleration Centers
    - Take global action for EU industrial leadership
        - Lead implementation of the Paris agreement
        - Address whole value chains and not individual sectors
        - Establish appropriate price signals through market-based instruments: carbon prices and global taxes
        - Secure sufficient access to alternative energy sources and raw materials at competitive prices
        - Promote global technical harmonization
- **Address social inclusiveness and values**
    - Ensure social fairness of industrial transition
    - Spread benefits of the transformation in European regions

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ZEP feedback on the draft papers presented HLG on EII subgroup meetings held on the 24th and 25th June

The European Zero Emission Technology and Innovation Platform (ZEP) is a European Technology and Innovation Platform (ETIP) and acts as the EU's technical adviser on the development and deployment of Carbon Capture and Storage (CCS) and Carbon Capture and Utilisation (CCU).

ZEP welcomes the opportunity to provide feedback on the draft papers presented at the subgroup meetings and as requested by meetings' Chairs is providing prompt written feedback.

As the reports are still at a draft stage the comments are restricted to substantive themes that should be addressed in the next round of drafting. ZEP would be very pleased to hold further conversations with the reports' authors on detailed drafting if that would be helpful.

Sub-Group 1 – Creation of markets for climate neutral, circular economy products

- Pg 3/17 – The paper appears to imply that there is sufficient time for new breakthrough technologies to be developed, tested and deployed by 2050. This is unlikely in many cases and the energy transition to 2050 will largely use existing technologies and processes that are adapted to fit with decarbonisation objectives.
- The language changes throughout the paper between "climate neutral and circular economy solutions" and climate neutral, circular economy solutions". It should be noted that both options – i.e. climate neutral AND circular economy – are needed to deliver climate neutral industry. The language should be checked to ensure that it does not imply that the only technologies that are required and should be supported are technologies that simultaneously display both characteristics. Some parts of the report (e.g. pg 5/17) say that special emphasis should be placed on aspects related to the circular economy. It is not clear why this statement has been made as the report is supporting the "Industrial Transformation Master Plan for Climate Neutral Industry by 2050". The specific emphasis on circular economy seems therefore inappropriate.
- Pgs: 5/17; 7/17; 13/17 & 14/17 – the recommendations on public procurement, creating markets, empowering consumers and complementary policies alongside the ETS to foster investment. All of these tools have the potential to be really important drivers of low carbon industrial products and markets. However, the report makes relatively few firm policy recommendations. It would be really helpful if the report could highlight the need for more work on these important issues to act as a trigger for a process to look at these topics in detail. ZEP also believes that reference should be made to the recently released work "Taxonomy Technical Report" which was recently released by the EU Technical Group on Sustainable Finance. This work specifically considers what actions should be considered sustainable and are relevant to these issues.

- 11/17 – Climate neutrality will also require the development of a range of greenhouse gas removal options. The ETS does not support negative emissions and action is needed to unlock these opportunities.
- Pgs: 3/17; 4/17 & 10/17 - include reference to LCA of products, CCU and CO2 avoidance. The range of terms used is confusing and it is not totally clear what is being proposed. The text on these issues would benefit from simplifying. Generally the text, e.g. pg 7/17, appears to be moving in the right direction and recognises the need for a comprehensive lifecycle analysis. For the sake of completeness it should also consider the source of inputs to the process, e.g. CO2 sources, and low carbon energy inputs (hydrogen and electricity).
- The report should also include some comments on international markets and the opportunities for EU leadership on climate neutral technologies which can lead to new growth opportunities in overseas markets.

Sub-Group 2 – Developing climate-neutral solutions and financing their uptake

- Pg.5 – There is a need to critically assess EU industrial innovation financing mechanisms to understand how they can be applied to help drive development of CCS and CCU technologies from early stage research through to deployment. The report includes a diagram on pg. 5 which purports to show how these instruments line up to help progress technologies. However, in practice there may be gaps and misalignment that should be addressed. For example, some industrial pilot projects may not move seamlessly between Horizon Europe and the Innovation Fund. In particular there may be a need for a large pilot CCS or CCU project as part of a technology scale up that is too large for support under Horizon Europe but is too small to warrant the development of a complete value chain (e.g. transport and storage) and therefore cannot be supported under the Innovation Fund. Similarly at the other end of the scale on large scale deployment there is a barrier with some of the large structural and development funds that prohibit these funding mechanisms being used for activities listed under the EU ETS. This effectively prohibits the use of these large funding streams to support deployment of CCS and CCU in energy intensive industries (This is noted on pg.5 but would benefit from an action to review and consider how to address).

Sub-Group 3 – Resources and deployment

- The paper makes some constructive recommendations on the need for infrastructure mapping. This is particularly important as many EIIs will be reliant on access to shared networks to support decarbonisation, whether low carbon electricity, CO2 transport and storage or usage or low carbon hydrogen. In addition to consider spatial mapping it is also important to consider milestones to ensure that infrastructure development is aligned with progress on delivering climate neutrality. However, to date much of the conversation on infrastructure needs focuses on the investments needed to deliver on 2030 or 2050 targets. It is also important that the assessment considers infrastructure preparedness, e.g. what is required by a point in time to unlock subsequent deeper decarbonisation? For example, in the case of CCS and CCU there are significant infrastructure investments needed in the 2020s in order to provide the underpinning for the subsequent decarbonisation required in the 2030s and 2040s.

- The HLG EII input to the Long Term Strategy included a table which shows the key technology pathways needed for the decarbonisation of EU industry. These include two electrification routes, one biomass, one CCS, one CCU and one on hydrogen. However, the current draft of the report has a strong emphasis on the electrification route and would benefit from more balance to highlight also the infrastructure needs for CCS, CCU and hydrogen.
- Pg.8 – includes a section on climate-neutral hydrogen. However, the accompanying text only discusses in any detail the production of hydrogen from electrolysis. The evidence strongly suggest that in the next decade or two the main route for the large volumes of relatively low cost, climate neutral hydrogen is through the reforming of natural gas with CCS. This section should be more technology neutral in describing the production routes for low carbon hydrogen.

ZEP recommendations for CCS, CCU, and low-carbon hydrogen in Member State National Energy and Climate Plans

14th June, 2019.

ZEP is a European Technology and Innovation Platform (ETIP) under the Commission's Strategic Energy technologies Plan (SET-Plan), and acts as the EU's technical adviser on the deployment of Carbon Capture and Storage (CCS), and Carbon Capture and Utilisation (CCU).

As part of the National Energy and Climate Plans process, the European Commission are expected to provide an overarching feedback to all Member States, as well as individual Member State feedback on their draft National Climate and Energy Plans submitted in December 2018.

ZEP encourages the Commission to consider six key areas outlined in this document when assessing whether Member States can achieve the five dimensions of the Energy Union objectives, and collectively realise the EU's 2030 climate targets.

Europe needs all available tools to deeply reduce emissions in line with the Paris Agreement and choosing the measures to reach net-zero emissions remains the prerogative of each Member State. Yet, we urge the Commission to ensure Member States provide credible, effective and implementable strategies to ensure that efforts to reduce emissions can collectively achieve the EU's climate targets.

In particular, ZEP cautions against putting too much faith in the electrification of heavy industry and the potential for green hydrogen. Whilst these strategies are, no doubt, incredibly important, the energy intensity and consequent demand for renewable electricity prevents the availability of options such as the production of green hydrogen at scale for many Member States.

As a result, climate scenarios from the ETC[1], Material Economics[2], IEA, IPCC[3], the BDI (BCG)[4], and others, have shown that CCS remains an essential technology to achieve net-zero emissions, particularly for industry.

[1] Energy Transition Committee, 2017. Better Energy, Greater Transition.
Available at: http://energy-transitions.org/sites/default/files/BetterEnergy_fullReport_DIGITAL.PDF
[2] Material Economics, 2019. Industrial Transformation 2050: Pathways to Net-Zero Emissions from EU Heavy Industry
Available at: https://materialeconomics.com/material-economics-industrial-transformation-2050.pdf?cms_fileid=b9785e8b652ba47f227181543fc5d1e8
[3] IPCC, 2018. Summary for Policymakers. In: *Global Warming of 1.5°C. An IPCC Special Report*
Available at: https://www.ipcc.ch/sr15/
[4] BDI (BCG), 2019. Klimapfade für Deutschland

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CCS is needed at scale to reach climate targets

Carbon Capture and Storage (CCS) is available today, constitutes an essential part of the lowest cost solution, and is particularly necessary for reducing emissions from 'hard to mitigate' sectors such as industrial processes and distributed heating. Once in place, a CCS infrastructure enables deep emission cuts for a variety of source points, and opens new paths for decarbonisation as well as carbon removal technologies

The Paris Agreement targets need to be taken seriously, ensuring all available and cost-effective measures are implemented to allow net-zero emissions to be achieved by 2050. The European Commission have set out their vision for a climate-neutral 2050, including CCS in several of their modelled scenarios[5]. In fact there are very few climate modelling scenarios in Europe and globally which achieve a 2° target, let alone a 1.5° target, without the use of CCS at scale[6].

The European Commission need to consider if, in aggregate, the ambition on CCS proposed in the National Energy and Climate Plans is sufficient to achieve the EU 2030 climate targets.

Low-carbon hydrogen production with CCS can decarbonise multiple sectors

Hydrogen has the ability to decarbonise power, heating, certain industries and transport. Hydrogen is key to decarbonise a number of different sectors and play a key role in the energy transition.

Decarbonised hydrogen can be produced through the application of CCS on established natural gas to hydrogen production units ("low-carbon" hydrogen), or electrolysis using renewable energy sources ("green" hydrogen). However, electrolysis is an energy-intensive method, whose climate footprint depends on the carbon intensity of the electricity supply.

In many Member States access to cheap and abundant renewable electricity for electrolysis and green hydrogen production is limited and will likely remain so for the foreseeable future [7].

Where green hydrogen has been cited as part of a NECP, the European Commission has to consider whether this is a credible strategy to provide hydrogen at the volumes required, and review the potential implications for other sectors, especially the electricity supply.

Sufficient progress on CCS is required pre-2030 to realise 2050 climate targets

Given the ambition of the European Commission to achieve a net-zero 2050 climate targets the Commission must ensure that collectively the foundations for decarbonisation at scale with CCS are realised by 2030.

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[5] European Commission, 2018. A Clean Planet for all A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy.
Available at: https://ec.europa.eu/clima/sites/clima/files/docs/pages/com_2018_733_en.pdf
[6] IPCC, 2018. Summary for Policymakers. In: *Global Warming of 1.5°C. An IPCC Special Report*
Available at: https://www.ipcc.ch/sr15/
[7] Zero Emissions Platform (ZEP), 2017. Commercial Scale Feasibility of Clean Hydrogen
Available at: http://www.zeroemissionsplatform.eu/component/downloads/downloads/1638.html

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Net-zero emissions will require significant investment and urgent actions on all emissions, including the hard to mitigate sectors such as heating of buildings and industries, heavy-duty and maritime transport. Europe therefore needs to deploy all available and most affordable solutions to cut its emissions dramatically. The timeframe, to 2050, means that we cannot rely on technological breakthroughs or radical changes in consumption patterns. It is essential to address the emissions we generate with available solutions as fast as possible.

Achieving deep reductions in CO_2 emissions in the most affordable and economically sustainable way will require a mixed portfolio of technologies and solutions. It is estimated that a portfolio of solutions which includes CCS, biomethane and hydrogen as part of a balanced energy mix, delivers a saving of over €1,150 bn compared to a pathway without CCS[8]. This compares to €1,000 bn modelled in the ZEP 5th Market Economics report[9].

CCS is required for industry to decarbonise and remain globally competitive

For many industrial activities to remain competitive globally in a net-zero Europe, CCS is essential.

The European Commission must increase its focus on how decarbonisation of heavy industry can be achieved in the EU and how collectively Member States can contribute. The Governance Regulation[10] places a minor focus on industry; however, this sector alone emits around 500 million tonnes of CO_2 per year, equivalent to 14% of all EU CO_2 emissions.

The future of these energy intensive industries is highly dependent on CCS. For these sectors and many more, CCS is critical to retaining high-skilled jobs and boosting economic activity across EU Member States in an increasingly carbon-constrained world[11]. Recent modelling work by Material Economics has shown that CCS has a role to play in all net-zero heavy industry 2050 scenarios, concluding up to 235 Mt CO_2 storage per year is required for heavy industry alone by 2050[12].

Without CCS and certain CCU technologies, Europe's industrial regions risk rising investment uncertainty as climate pressures mount, resulting in stranded assets, an eventual exodus of process industries, and the loss of millions of jobs also further down the value chain[13]. In Germany alone, over 50 million tonnes of residual process CO_2 emissions would remain unabated without CCS,

[8] Pöyry, 2018. Fully decarbonising Europe's energy system by 2050.
Available at: http://www.poyry.com/sites/default/files/media/related_material/poyrypointofview_fullydecarbonisingeuropesenergysystemby2050.pdf.
[9] Zero Emission Platform (ZEP), 2017. CCS and Europe's Contribution to the Paris Agreement.
Available at: http://www.zeroemissionsplatform.eu/library/publication/271-me5.html
[10] Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC)
Available at: http://data.europa.eu/eli/reg/2018/1999/oj
[11] Zero Emission Platform (ZEP), 2017. CCS and Europe's Contribution to the Paris Agreement.
Available at: http://www.zeroemissionsplatform.eu/library/publication/271-me5.html
[12] Material Economics, 2019. Industrial Transformation 2050: Pathways to Net-Zero Emissions from EU Heavy Industry
Available at: https://materialeconomics.com/material-economics-industrial-transformation-2050.pdf?cms_fileid=b9785e8b652ba47f227181543fc5d1e8
[13] Zero Emissions Platform (ZEP), 2018. Role of CCUS in a below 2 degrees scenario
Available at : http://www.zeroemissionsplatform.eu/component/downloads/downloads/1688.html

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risking about 3.5 million steel-related jobs alone, and several hundred thousand more in the chemicals and cement sectors[14].

Cross-border CO_2 transport infrastructure networks are required across Europe

Widespread investment in CO_2 transport and storage infrastructure must start now in order to enable deployment of CCS at widely from 2025[15].

The Commission should concentrate on encouraging the collaboration between national and regional governments to implement cross-border CCS and low-carbon hydrogen infrastructure as a strategic option for greenhouse gas (GHG) mitigation. This will involve stimulating cooperation across countries, supporting development and provision of infrastructure, and reducing the level of risk for companies that need to act to reduce emissions where they actually occur.

A CO_2 and hydrogen network enables Europe's industry sector options to deeply decarbonise, drives climate innovation and improves the attractiveness of Europe as a base for industry.

Negative emissions technologies have a role to play in a carbon-neutral Europe

Almost all scenarios to meet Paris Agreement targets rely on negative emissions to some extent, to offset residual emissions in areas of the economy that are impossible or too expensive to currently abate. It is important to stress that negative emissions *do not remove the need to act as quickly as possible on climate change mitigation now*. However, even with a rapid acceleration of mitigation globally, negative emissions are likely to still be required[16].

There are limited options for enabling negative emissions: land use change and afforestation can, and must play a key role, as can bioenergy coupled with CCS (BECCS) when used in combination with industrial processes, such as steel and cement production. Direct air capture of CO_2 combined with CCS may also have an important role to play.

The European Commission must develop strategies in the 2030s to consider negative emissions technologies on a Europe wide scale, and encourage Member States to consider negative emissions technologies in climate and energy plans to 2030 and 2050.

[14] BDI (BDC), 2018. Klimpfade fur Deutschland.
Available at: https://bdi.eu/publikation/news/klimapfade-fuer-deutschland/
[15] Pöyry, 2018. Fully decarbonising Europe's energy system by 2050.
Available at: http://www.poyry.com/sites/default/files/media/related_material/poyrypointofview_fullydecarbonisingeuropesenergysystemby2050.pdf
[16] IPCC, 2018. Summary for Policymakers. In: *Global Warming of 1.5°C. An IPCC Special Report*
Available at: https://www.ipcc.ch/sr15/

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ZEP input regarding the new European Commission agenda

The European Zero Emission Technology and Innovation Platform (ZEP) is a European Technology and Innovation Platform (ETIP) and acts as the EU's technical adviser on the development and deployment of Carbon Capture and Storage (CCS) and Carbon Capture and Utilisation (CCU).

Recommendations:

1. Require Member States to focus on credible decarbonisation pathways in terms of ensuring a sustainable, competitive and equitable transition to net zero by 2050. Put in place an EU-level scrutiny process for the national long-term strategies to maintain alignment with the national energy and climate plans and the EU long-term strategy.
2. Identify key technologies that are critical to reaching net zero by 2050, but may not be necessary to reach interim 2030 goals. Prepare technology-specific strategies and action plans for their development and deployment in the 2020s to guarantee that EU and national institutional capacity, supply chains and industrial actors foster deep decarbonisation in the 2030s and 2040s.
3. Prioritise technological leadership in critical areas, including for the production of clean hydrogen, where the EU needs to progress in the 2020s to support deep decarbonisation and safeguard continued competitiveness of the EU economy. Focus on:
    a. Technologies that support European industry to transition to a low carbon economy, as identified in the industrial masterplan prepared by the High-Level Expert Group for Energy Intensive Industries.
    b. A low-carbon energy infrastructure that can deliver a climate neutral economy by enabling a second low carbon energy vector in the form clean hydrogen to complement low-carbon electricity and support decarbonisation of hard to abate sectors.
4. Strengthen the emphasis on deploying regional CO2 transport and storage infrastructure over capture facilities, which will largely be a Member State task.
5. Update the SET-Plan to include fresh 2025 targets that will put the EU on the pathway to develop the capabilities identified above. Recommend that Member States align their SET Plan commitments with their national energy and climate plans.
6. Call on the Commission to implement the recommendations of the technical expert group on sustainable finance to ensure alignment with EU fiscal instruments and climate neutrality.
7. Introduce cradle-to-grave life-cycle analyses and proper accounting for decarbonisation technologies to avoid undermining existing funding instruments.
8. Undertake a review of the climate diplomacy strategy to boost (critical) clean technology development and deployment support to developing economies in support of their transition.
9. Undertake a review in the first 100 days / one year of the new Commission so that the instruments can deliver all of the above.

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ZEP note for the Secretariat General

Input to the Secretariat-General of the European Commission

From the Zero Emission Technology and Innovation Platform (ZEP)

ZEP is the technical adviser to the EU on the deployment of Carbon Capture and Storage (CCS), and Carbon Capture and Utilisation (CCU), a European Technology and Innovation Platform (ETIP) under the Commission's Strategic Energy Technologies Plan (SET-Plan).

In her Agenda for Europe, European Commission President-elect, Ursula von der Leyen, presented her ambition for Europe to become the first climate-neutral continent, highlighting among other things that "We will need to invest in innovation and research, redesign our economy and update our industrial policy".

Against this background ZEP would like to recommend the following:

1. Strengthen the emphasis on deploying cross-border CO_2 transport and storage infrastructure by mobilising more funds in addition to the Connecting Europe Facilities and the Innovation Fund. Facilitate retrofitting of gas pipelines to accept hydrogen and CO_2 in the Gas Market Reforms.

2. Identify key technologies that are critical to reaching net zero by 2050 and prepare technology-specific strategies and action plans for their development and deployment in the 2020s, following the ZEP report on technologies for industrial decarbonisation (annex), to guarantee that EU and national institutional capacity, supply chains and industrial actors foster deep decarbonisation in the 2020s as well as in the 2030s and 2040s.

3. Prioritise technological leadership in critical areas using initiatives such as Horizon Europe, the Innovation Fund and the SET-Plan. Include the production of clean hydrogen, where the EU needs to progress in the 2020s to support deep decarbonisation and safeguard continued competitiveness of the EU economy. Focus on a low-carbon energy infrastructure that can deliver a climate neutral economy by enabling a second low carbon energy vector – clean hydrogen – to complement low-carbon electricity and support decarbonisation of hard-to-abate sectors.

4. Update the SET-Plan to include fresh 2025 targets that will put the EU on the pathway to develop the capabilities identified above.

5. Require Member States to focus on credible decarbonisation pathways, ensuring a sustainable, competitive and equitable transition to net zero by 2050, through the National Energy and Climate Plans. Recommend that Member States align their SET-Plan commitments with these plans.

6. Ensure that the role of CCS as a key enabler for a climate neutral economy is recognised in the EU list of economic activities considered environmentally sustainable for investment purposes (Taxonomy). We also support the conclusions from the technical expert group that further work is needed regarding the role of CCU.

7. Introduce cradle-to-grave life-cycle analyses and proper accounting for decarbonisation technologies to avoid undermining existing funding instruments.

8. Publish a Hydrogen for Europe Roadmap to 2050 to outline a vision for the at-scale production of hydrogen from both methane reforming with CCS and electrolysis.

ZEP supports interim solution to the London Protocol – unblocking regulatory barrier to CCS!

The Zero Emissions Technology and Innovation Platform (ZEP) is the technical adviser to the EU on the deployment of Carbon Capture and Storage (CCS), and Carbon Capture and Utilisation (CCU), a European Technology and Innovation Platform (ETIP) under the Commission's Strategic Energy Technologies Plan (SET-Plan).

The Contracting Parties of the London Protocol will have the opportunity to unblock a significant regulatory barrier to the development of CCS at their meeting on 7-11 October 2019. Norway and the Netherlands have proposed an interim solution on the 2009 amendment to article 6 of the protocol, to allow for the export of CO2 for the purpose of permanent geological storage offshore.

ZEP strongly supports this interim solution and would urge the Contracting Parties to adopt the proposal.

The London Protocol and CCS

The London Protocol, the modernisation of the London Convention entered into force in 2006 with the aim to protect and preserve the marine environment from all sources of pollution by banning the unregulated dumping of wastes. Article 6 of the protocol, primarily aimed at preventing export of wastes to non-Parties, has the unintentional consequence that it effectively prohibits cross-border transfer of CO2 for the purposes of geological storage offshore.

The intention of the London Protocol was and is not to hinder the use of CCS as a climate mitigation technology and in 2009 an amendment to article 6 was adopted to allow for the export of CO2 for the purpose of permanent geological storage offshore. This amendment has so far only been ratified by six countries. However, for the amendment to enter into force, it needs to be accepted by two-thirds of the 53 Contracting Parties.

As highlighted several times by the Intergovernmental Panel on Climate Change (the IPCC), CCS is crucial to meet the targets set in the Paris Agreement. CCS offers the possibility to decarbonise Europe cost-efficiently, delivering substantial emission reductions across a range of industries and thus being a catalyst for economic growth, creating and preserving jobs.

For this to happen, cross-border CO2 transportation and storage infrastructure will be extremely important, particularly at an early stage, to help de-risk early development of the CCS value chains and reduce cost by creating economies of scale by establishing shared CO2 transportation infrastructure. The possibility to store CO2 is not spread evenly between countries so not having the possibility to transfer CO2 across borders for the purposes of geological storage is a significant regulatory barrier to the development of CCS. It effectively prevents progress on several maturing European CCS demonstration projects by hindering

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- cross-border collaboration;
- cost reduction through economies of scale;
- risk sharing for countries without access to offshore storage sites to deploy CCS.

There are multiple cross-border CO2 infrastructure projects on the European Commission's list of Projects of Common Interest.

ZEP supports the ratification of the 2009 amendment to article 6 but understands that it will take time.

Interim solution to unblock the regulatory barrier to CCS

Norway and the Netherlands have submitted a "*proposed resolution on the provisional application of the 2009 amendment to article 6 of the London Protocol*" that will be discussed at the 41st meeting of Contracting Parties to the London Convention and the 14th meeting of Contracting Parties to the London Protocol on 7-11 October 2019.

This is a proposal to adopt an interim solution that will give those parties who wish to use the amendment of article 6 from 2009 the possibility to do so, whilst having no legal bearing on those parties who do not wish to export or import CO2 for the purpose of permanent geological storage offshore. The proposed solution, which has clear legal basis within the Vienna Convention, is strictly limited to the 2009 amendment and explicitly states that it should not set any precedent.

This interim solution would remove the regulatory barrier to the deployment of carbon capture and storage technologies. The use of shared infrastructure across borders will be extremely important for risk sharing and cost reductions through economies of scale for projects.

The importance of the upcoming London Protocol meeting in October

While the ratification of the 2009 amendment will take time to come into force, there is now an opportunity to support the interim solution proposed by Norway and the Netherlands, giving the parties that would like to export or import CO2 for the purpose of permanent geological storage offshore the possibility to do so.

This will unblock the regulatory barrier and make it possible for maturing European CCS demonstration projects to collaborate across-borders, facilitate risk sharing for countries without access to offshore storage sites allowing them to deploy CCS and reduce cost through economies of scale.

The interim solution would also pave the way for the final ratification and give legal certainty for both governments and industries that are looking into CCS to mitigate climate emissions.

ZEP would therefore urge the London Protocol Contracting Parties to adapt the proposal.

ZEP feedback on the proposed European Partnership Clean Hydrogen initiative

ZEP is strongly supportive of proposed initiative, the revised scope, involving more partners and strengthening the synergies with other EU and Member State programmes to catalyse deployment of near-zero hydrogen at scale.

ZEP also believes that mapping of policy, option 2, is the preferred approach. The importance of the opportunity created by the development of a large scale, near-zero hydrogen sector in Europe and the scale of the challenge associated with the market failures for first movers and the fragmentation among players does necessitate the development of the more ambitious option 2.

ZEP would like to make the following points on the Inception Impact Assessment;

- Referring to the European Commission President-elect, Ursula von der Leyen, and her Agenda for Europe to become the first climate-neutral continent, the transition towards a clean, near-zero hydrogen economy can play a role but this can only be realised through coherent and consistent regulation and financial support mechanisms. We support the expanded scope of the European Partnership Clean Hydrogen and recommend that amount of investment should be reflective of the scale required to kickstart a cross-sectoral European clean hydrogen economy.
- ZEP believes it is critical that the new partnership should adopt a technology neutral approach to low carbon hydrogen production. The inception Impact Assessment document does not define near-zero hydrogen, but this should include support all production pathways, e.g. electrolysis with low carbon electricity, the reforming of natural gas fitted with CCS and bioenergy routes. Clean hydrogen, produced from fossil fuels and combined with CCS, can have an important role to ensure a sustainable, competitive and equitable transition to net zero by 2050. The potential to combine CCS with sustainable bioenergy can create the possibility of negative emissions, a net removal of CO2 from the atmosphere. This shows that equipping hydrogen production processes with CCS, will result in “near-zero carbon” hydrogen (or even “below-zero” hydrogen) and that the current use of classifications like “green” and “blue” hydrogen are overly simplistic and do not effectively provide insight to the climate impact.
- ZEP is supportive of the recognition of applying the technology to multiple sectors and multiple end users to enable the European hydrogen economy to return maximum economic and environmental benefits. Therefore, we support the focus of the partnership’s research and innovation initiatives expansion beyond mobility to the use of near-zero emissions across multiple sectors, ranging from power generation, fuel and feedstock switching for industry and domestic heating. Hydrogen production from current manufacturing processes equipped with CCS, e.g. Steam Methane Reforming (SMR) or Auto Thermal Reforming (ATR) of natural gas, can today be produced at less than half the cost of electrolysis derived hydrogen and can be an accelerator of the hydrogen economy. While the possible volumes of hydrogen being produced by renewable electricity and electrolysis are currently limited (and keeping in mind that the current electricity grid mix in most countries will not be low carbon) the use of natural gas reformed hydrogen with CCS can enable the production of the large clean hydrogen volumes needed to establish early markets.

- ZEP is also very supportive of the recognition in the Inception Impact Assessment of the importance of an approach that combines research-based supply-push (low TRL) and market-oriented demand-pull measures (high TRL) in order to ensure a successful transition to market-readiness. It is crucial to stimulate innovation along the entire hydrogen value chain from low technology readiness levels all the way to the market to accelerate commercial-scale deployment as well as drive innovation and cost-reduction. Multiple projects are already capturing CO_2 from the hydrogen production process.

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ZEP paper on the European Green Deal

The European Green Deal – a key objective for ZEP

The European Green Deal (EGD) – reaching net zero by 2050 and aiming to become the first carbon neutral continent – is defining the new European Commission college (designate). Not only is it highlighted as the overarching and most important area, it is also setting the agenda in the motivation letter to every Commissioner, defining their portfolios.

The EGD is highlighting stronger climate ambition commitments:

- The 2050 climate neutrality target to become a law
- Tougher emissions targets by 2030
- Further sectors in the EU ETS
- Increased ambition for other large emitters
- A green finance strategy
- A sustainable investment plan
- Part of the EIB to become "climate bank", unlocking €1 trillion of investment
- A carbon border tax to avoid carbon leakage
- A just transition fund.

With the strong and broad basis for the EGD, it is obvious that it will strongly influence the upcoming and ongoing regulatory processes – e.g. the sustainable taxonomy, the upcoming gas package and the continued work on clean hydrogen – the programs for funding and the SET-plan work. It will set the main framework for the path towards net zero, and thus be the guiding star for the development and deployment of CCS and CCU.

The need for CCS and CCU has never been greater than now and it is crucial to help the EU to find ways of making this a useful tool in the transition, thus a key part of the EGD.

The process has already started, and the EGD will soon start to take shape. It will be crucial for ZEP to actively take part in the process.

Being a long standing and strong supporter of 2050 climate neutrality and already having the advantage of being the adviser to the EU, ZEP has a unique position. ZEP will need to engage full heartedly in the EGD, support it and lead/guide the CCS/CCU community.

The key challenges for CCS and CCU are no longer in the technical field, on the contrary, in many ways this can be seen as a quite mature technology. Instead, it is in the fields of early deployment and commercialisation – regulatory, legal, policy and finance, where the defining barriers can be found. This area of political economy will take centre stage and ZEP has great possibilities to draw on its knowledge, stakeholders and the many ongoing projects to channel fact-based advice and propose solutions also on regulatory challenges, risks, finance and business models.

ZEP should be clear on the European Green Deal being a key objective, and should thus:

- Keep the strong focus on technology and facts as the basis for input
- Commit to and support the transition towards net zero

- Engage with the EU institutions and other relevant stakeholders
- Take on an active role in the shaping of this overarching framework that will bring us to net zero by 2050
- Clearly communicate this.

The next step will be to review and update the ZEP work plan and messages in accordance, with the aim to have a discussion and approval at the upcoming ACEC meeting on 22 October.