

ZEP 64th Advisory Council meeting

23 September 2020, 10:00-13:00

Agenda Item 1: Introduction and welcome

1.a. Virtual meeting instructions

The ZEP AC64 will be a virtual meeting, held on Microsoft Teams.

Below are some instructions in order for the meeting to run smoothly:

- Before the meeting, you will receive an Outlook invitation for the meeting (10.00-13.00 on Wednesday 23 September). The Outlook invitation contains a link to Microsoft Teams to join the meeting. If you have not received it, please contact the ZEP Secretariat.
- The Chair will let the presenter for each agenda item finalise his/her presentation before giving the floor to other participants.
- If you have a question, use the chat function (if you have not used it before, you will find a button at the bottom of the screen and the chat function will open up in a window on the right-hand side of the screen).
- In order for the Chair to organise the speaking order, please use the following vocabulary when you have a question:
 - “Chair: question to NN”, if you have a written question for the Chair to highlight, or
 - “Chair: oral question” if you want the Chair to give you the floor for an oral question or comment.
- When you are not speaking, we would suggest that you mute your microphone for sound optimisation.

1.b. AC64 meeting agenda

The agenda for the 64th meeting of the Advisory Council is appended as pre-read 1.b.

1.c. AC63 draft meeting minutes

The draft minutes for the 63rd meeting of the Advisory Council, which took place on 10 June 2020, are appended as pre-read 1.c.

1.d. ACEC July meeting minutes

The ACEC July meeting minutes are appended as pre-read 1.d.

1.e. ACEC August draft meeting minutes

The ACEC August draft meeting minutes are appended as pre-read 1.e.

ZEP 64th Advisory Council meeting

23 September 2020, 10:00-13:00

1.b. AC64 meeting agenda

Virtual meeting

Item	Lead Presenter	Time
1 Introduction and welcome	Graeme Sweeney	10:00-10:10
2 Secretariat update	Per-Olof Granström	10:10-10:20
3 ZEP planning for 2021 – approval	ZEP Secretariat	10:20-10:35
4 Climate law – EU recovery – information <ul style="list-style-type: none"> Green Package update Input to the SET-Plan steering group: CCS/CCU in the Energy System Integration / Market-ready projects 	Peter Horvath, DG ENER Alessia Clocchiatti, DG ENER	10:35-11:05
5 Hydrogen Strategy and Clean Hydrogen Alliance – approval <ul style="list-style-type: none"> Status and input 	Titas Anuskevicius, DG GROW ZEP Secretariat	11:05-11:20
6 Innovation Fund / EU Taxonomy – information <ul style="list-style-type: none"> Progress on the first IF call Taxonomy status 	Maria Velkova, DG CLIMA	11:20-11:40
7 CCS/CCU pathway to 2050 – presentation, discussion <ul style="list-style-type: none"> SET-Plan modelling exercise 	IWG9 Dr Isabela Butnar, UCL Institute of Sustainable Resources	11:40-12:10
8 Horizon Europe/partnerships – information <ul style="list-style-type: none"> Update on Horizon Europe and Clean Hydrogen Partnership Status on the Clean Energy Transition Partnership SRIA 	Vassilios Kougionas, DG RTD	12:10-12:30
9 Updates from Networks and ERG <ul style="list-style-type: none"> Network Policy and Economics update Network Technology update External Relations Group update 	Co-chairs / ZEP Secretariat	12:30-12:55
10 Closing remarks and next meeting	Graeme Sweeney	12:55-13:00

1.c. AC63 draft meeting minutes

DRAFT MINUTES

ZEP 63rd ADVISORY COUNCIL MEETING

10 June 2020, 10:00-13:00 CET

Virtual meeting

1. Introduction and welcome

Chair, **GS**, verifies quorum and welcomes participants.

Chair moves to adopt AC63 agenda. Agenda is adopted.

Chair moves to approve draft meeting minutes from AC62 and ACEC April and May 2020, and notes that actions from the meetings will be dealt with in Agenda Item 2. Minutes are adopted.

Chair moves to the results of the vote for Isabelle Czernichowski of BRGM to be nominated to the ZEP Advisory Council. The required number of votes met, all in favour. **GS** welcomes **IC** to the AC. **IC** thanks all for support, very pleased to join the AC and appreciates work of ZEP.

2. Secretariat update

Chair gives floor to **POG** for the Secretariat update.

POG refers to actions from AC62 and ACEC meetings:

- The *Clean Hydrogen Alliance* is being developed by the EC to be presented probably in July, linked to the Clean Hydrogen Strategy. Good hope that blue hydrogen is included. This item will be brought up by DG Grow later in today's agenda.
- Regarding the *Communication on CCUS in the recovery plan* – Following a successful meeting with the Cabinet of EVP Timmermans, where ZEP was asked to show what CCUS can do for the recovery plan, ZEP gathered a group of companies – beyond members – to bring forward these possibilities, shovel-ready CCUS projects to show how these can boost the economy. A letter was sent to EVP Timmermans requesting a meeting and the Cabinet has come back to us, highlighting that a ZEP meeting with the EVP has been recommended. Next step, the Cabinet will come back to us with a time slot for the meeting shortly.
- Regarding *ZEP input on the Taxonomy*, for the Platform, expected to be up and running in September, we are, in TWG Negative emissions, to prepare input on Bio-CCS and Waste-to-Energy, and also look into the screening criteria for CCU. In the short-term, ahead of the EC's delegated act, we are communicating that the third threshold for hydrogen manufacturing is effectively excluding all electricity grid-

connected manufacturing of hydrogen, regardless of technology and that . should this threshold not be deleted, such as guarantees of origin.

- *ZEP input on the TEN-E regulation* has been prepared and discussed with the ERG and the ACEC. We will come back to this later in today's agenda.

Regarding the finances, **POG** refers to the enhanced 2020 outreach budget and highlights the service agreement with CCSA. He points out lower 2020 spending expected due to Covid-19, resulting in larger surplus expected for the end of the year.

POG welcomes Meghann Kissane, who has joined to ZEP secretariat.

POG highlights that the mid-term review of ZEP on 27 May, was very positive: it commends ZEP as very successful with high quality reports, products and activities. **POG** directs this to all engaged in ZEP; chair, vice and co-chairs, participants in networks and working groups, colleagues in London and Brussels offices, and EC representatives.

GS adds that ZEP is also preparing a piece for the Taxonomy on CCS/CCU and pipelines.

3. Commission update

DG RTD

VK gives an update:

CETP is a co-funded partnership. The programme is to be launched in 2021 with a call for partnership in 2022. Rationale is to accelerate the energy transition to meet climate goals and objective is to have a partnership to transform research and innovation across Europe, address the key challenge of energy transition and support visions and objective of energy unions, Clean Planet for All and European Green Deal.

Recognising national and regional programmes is key. This will pave the way for the European knowledge economy, to integrate with partnerships outside Europe too, support the implementation of NECPs and make Europe a frontrunner by becoming the first climate-neutral continent. Coherence with other European partnerships, such as hydrogen, built environment and construction, industrial battery value chain.

On Horizon Europe, a co-creation group was created on CCUS and we were fortunate to receive feedback from ZEP. The group was EC internal to provide input for next work programme. At the moment, the aim to submit work programme, where a skeleton will be discussed on 26 June. We have taken into account your input. CCUS in industry is an important element and also addressing clean hydrogen with CCUS. Infrastructure, storage and capture are all included. This is relevant to the SET-Plan and achieving targets.

On hydrogen, we are working on new strategy and there are prospects that clean hydrogen will play a more substantial role than before. EC wants to take lead on the next emission innovation initiatives. Clean hydrogen with CCUS could play major role here.

DG ENER

PH welcomes new ZEP reports, which show usefulness and relevance of ZEP for EC processes. High quality and appreciates this input.

PH outlines two communication strategies that are in the pipeline: hydrogen and integrated energy systems. Both are delayed one or two weeks. As part of the European Green Deal remains relevant and will now be adjusted for the recovery, to be discussed on 15 June, when energy ministers will hold an informal meeting.

For the TEN-E revision, not much news to share now. The public consultation is open. A recent ZEP report on transport provides relevant input to some discussions, namely role of support to non-pipeline CO₂ transportation. This clarifies the issue from the industry and ZEP's points of view, which is helpful for EC.

JH asks regarding the economic recovery, could you provide some more details/resolution to the proposed €2.5bn budget cut to TEN-E? **PH** says that he is happy to check this info and provide email answer to **POG**.

DG CLIMA

MP highlights that the first call of the Innovation Fund will be launched within the next month and a half. The expert group meeting was held on 5 June. The call targets large projects, above €7.5m and both CCS and CCU are eligible. **MP** explains the call, the selection process, etc.: webinars to help applicants will be organised in July and September, applications will close at the end of October with results and invitation for the second stage in 2021 and grants awarded in second half of 2021.

In response to questions, she highlights that:

- Calls will be held on a yearly basis.
- The only criteria where a project will be compared to projects in their own sector is GHG emissions avoidance potential: The minimum requirement is to match the benchmark. Project will most likely have to perform better than the minimum benchmark going forward.
- Funding is not different for various regions.

GS mentions that he attended the expert group meeting with **GB**, and made a number of interventions regarding the council party risk, coordination with Taxonomy, etc.

DG GROW

AV speaks about the new industrial strategy published in March, closely linked to the Green Deal. Investments under EU recovery plan will support industries transition and sustainable solutions. Industrial strategy mentions a few alliances. The alliance on low-carbon industries is of special interest, although not as straightforward as clean hydrogen strategy. Overall, the idea of introducing industry alliances has been welcome and will provide a new kind of capacity to become more operational – combining industry alliances with recovery funding and other instruments could speed up investments. CCUS remains firmly on the agenda. Regarding

alliances, it is not becoming a specific focus area, but will certainly be part of solutions that will be applied when the industry moves towards climate neutrality.

The mapping of energy and infrastructure needs a recommendation from the work of the high-level group. This is a tool that will help make analyses on the future needs and options regarding energy and infrastructure. This project is about to start with JRC but will not deliver very soon.

Asked if the Low-carbon industry alliance will cover blue and green hydrogen as well as CCU and CCUS, **AV** responds that it is not there yet – further work to be done and that it will be coordinated with the Clean Hydrogen Alliance. He highlights that the alliances are joint actions by multiple stakeholders including the industry, and that the EC is technology-neutral. **GS** highlights that ZEP should make that case.

Action: Update on the JRC clean energy infrastructure project as it progresses.

4. Updates on European Green Deal/EU Policy

GB provides the policy update, highlighting ZEP's work on the Hydrogen Strategy and Clean Hydrogen Alliance, as part of the ZEP workplan. **GB** adds that ZEP is following the European Parliament's own initiative report on the Industrial Strategy and has been invited to provide input. The report covers economic recovery and supports industrial strategy.

On Taxonomy, the Parliament will vote on the regulation on 17 June and the vote is expected to be positive. Once regulation is adopted, ZEP will follow the progress on the delegated act and on the establishment of the Taxonomy Platform. **GB** concludes with an update on the timeline for the Taxonomy related initiatives, highlighting the need to be prepared with input for the public consultation on the draft act in September.

5. EU Strategy for Integrated Energy Systems

GS notes that ZEP's input on this strategy is available on the website.

MvS gives a background and states that DG ENER has started to work on the view of decarbonised energy systems as a whole. He notes that Commissioner Cañete published the Clean Energy Package which set the frame for the energy market of the future and was very much focused on electricity, with elements linked to transport, share of renewable energy in fuels, buildings directive. DG ENER thinks that more is needed and must expand the scope of what they are doing for a climate-neutral Europe, e.g. the hard-to-decarbonise sectors, particularly when not through electrification. A lot of effort is dedicated to decarbonisation that cannot be done through electricity: heating, industry, transport, etc. and how to create markets, use existing infrastructure.

Dedicated communication on hydrogen, the important role it can play in the future for hard-to-decarbonise sectors. Hydrogen is always in competition with other technologies. How do we make partnerships and research across different areas work together? DG ENER is looking

at a partnership for sustainable industry, particularly on chemical industry, steel production and research in transport. **MvS** states that joint calls, cooperation and alignment are key priorities for the next months. He notes that ZEP include industry stakeholders, an interest in many different partnerships and can help make this happen.

MvS leaves the meeting due to broken connection. **PH** takes up the thread and highlights that DG ENER are putting together for different technologies an overview of development challenges and market conditions – a so called Clean Energy Research Outlook, where also input from ZEP has been used. This is now being shared with DG RTD and after that we would like to share it with ZEP for expert feedback.

6. Clean Energy Transition Partnership and the role of CCUS

GBK presents CETP, under Horizon Europe, supported by *attached* slides.

The draft CETP proposal shows indicative budgets from various countries, for the 7 years' program. It is also intended to cover SET-Plan priorities. CCSU is an initial thematic priority. A kick-off meeting for the strategic research and innovation agenda (SRIA) work has been held.

GBK discusses SRIA. It is important to realise challenges on various levels. CCS and CCU are part of the key enabling technologies. These allow development of a climate-neutral energy system through services: such as energy storage, heating and cooling, electricity, that need to be developed, on a system level.

Open consultation on CETP and stakeholder dialogues are a very important part of the process, dialogues goes through the IWGs and ERA-nets, open consultation to start soon. Dialogue sessions started on 29 May. IWG on CCUS discussed at the second dialogue on 4 June. Sessions lead to input papers, which bring together transition challenges identified by various groups. A process is developing now and the IWG9 and ERA-net act have been asked to provide input papers, that will be the starting point for the a draft SRIA in September.

GBK highlights to ZEP the importance of participating and taking a coordinating role, ensuring that people sign up to contribute in the process.

POG points out that the key question is the governance of the CETP in relation to the SET-plan. He highlights the importance of being involved, pushing for CCUS. In the process of preparing the strategic research and innovation agenda, IWG9 is the main stakeholder for CCUS and that within that frame, ZEP (Network Technology), in close cooperation with EERA, can take an active part in the work. IWG9 is now coordinating CCUS input across the stakeholder dialogues.

GS reiterates that IWG9 is the formal correspondent party but that there is highly effective cooperation. He highlights that ZEP must participate and that it may be easier for ZEP than the IWG9 to make submissions.

7. Review of Network Work Programmes

LE states that work is beginning on TEN-E regulations. Review in the pipeline for several months, first roadmap for feedback and the response to it was discussed at calls in April and May at the ACEC and ERG. Submitted on 8 June. Another consultation on the way. Two volunteers to co-chair this group from Shell and E3G. Work is progressing well, with a call next week. Hope for a draft for revision on 1 July and then submit a response. **LE** opens invitation for next NWPE meeting on 30 June.

FN provides an update on NWT. A number of reports have been finalised over the past months. He highlighted that the working group on hydrogen put together a brief report available on ZEP's website. The hydrogen working group next meeting on 12 June. The aim of the group is to work on a report, which will be an extended version of the brief: the whole hydrogen value chain, and possibly look into business models and European projects. **FN** highlights that new members are welcome to the group. The next NWT meeting takes place on 25 June.

SC asks if ZEP could set up a group of experts to advise on standardisation as the CO₂ cross-border PCIs are being developed? **RvdM** gives short background on the roles of ISO and CEN in this respect. **GS** replies that ZEP could set up a small group to follow this.

Action: Set up a small group of experts to follow the standardisation as cross-border CO₂ infrastructure projects are developing (link to the ISO work).

Approval of reports

Report on CO₂ Transportation: **FN** presents the report. **GS** opens floor for any further input. Since there are no proposed changes and no objections, the report is approved.

Report on Carbon Dioxide Removal: **FN** presents the report and its aims: the first of two reports, addressing two of four carbon dioxide removal principles. The other two principles dealing with upstream and downstream CO₂ removal will be addressed in a subsequent report. He also notes that an added example was received yesterday from Stockholm Exergi to be added.

- **GS** notes comment from **EdC** regarding CDA and CDU principles. **SS** comments that the example on direct air capture in Iceland on page 22, is a niche application, and that the word 'commercially' should be taken out.
- **GS** notes a number of amendments and highlights that **the approval will be done by email to the AC members.**

Report on CCU Sink Factor: The draft report was circulated on 5 June, so feedback allowed until 16 June. **RvdM** presents the report and thanks those who contributed. He notes a few things to be added to the report. He asks if the AC agrees with the concept in the report.

- **EdC** adds that process for CCU not added. **RvdM** highlights that while finalising the report, further comments were received, which could not be taken into account. **GS** clarifies that material must fit within report and be public information. **RvdM** says that he will finalise the report and ask approval by email.
- **GS** sees no objections to this and highlights that the approval will be done by email to the AC members.

GS notes that the Innovation Fund is taking the view that electricity input to everything will be net-zero. He highlights that this is contrary to the position of the Taxonomy and that this will be brought up with DG CLIMA. He refers to the TWG and mentions that it would be helpful if **EdC** and **AP** could take part in a call, clarifying how this would impact on projects and how we can avoid disconnect between various initiatives.

Action: Prepare input on the Innovation fund to DG CLIMA regarding CCS projects, emission-factor zero on electricity and disconnect/lack of alignment between the IF and Taxonomy.

8. External Relations Group update

POG gives a short ERG update, stating that most items have already been highlighted during the meeting. He highlights one consultation that is not in pre-reads. EU ETS will be an important instrument for CCUS and there is a new EC ask for feedback on the MRR regulation 2021-2030, to be finalised at the end of July. ZEP will look into this. **POG** summarises a list of successful meetings with EC representatives and highlights that the next ERG meeting takes place on 19 June.

LE asks regarding the meeting with EVP Timmermans. **GS** replies that the Cabinet recommend that the meeting will take place, logistics and design of meeting this week. A timeslot for the meeting will be confirmed shortly.

GS notes no other matters, reminds all of the next AC meeting on 23 September. Whether held virtually or in person will be made clear in time. Significant set of actions to be taken by then.

GS thanks all for attending, thanks presenters and closes the meeting.

9. AOB

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Attendance

Name

Organisation

List of participants, as of 9/06/2020

ZEP AC representatives

1. Stijn Santen	EBN
2. Isabelle Czernichowski	BRGM
3. Stuart Haszeldine	SCCS
4. Johanna Lehne (Proxy for E3G)	E3G
5. Florence Delprat Jannaud	IFPEN
6. Nils Røkke	SINTEF
7. Charles Soothill	Sulzer
8. Filip Neele	TNO
9. Rob van der Meer	HeidelbergCement
10. Lamberto Eldering	Equinor

11. Ward Goldthorpe
12. Constantin Sava
13. Stanislas Van den Berg
14. Syrie Crouch
15. Martin Snodgrass (Proxy BP for Liz Rogers)
16. Stijn van Els (Proxy Allard Castelein)
17. Jonas Helseth (Proxy Frederic Hauge
and Chris Littlecott E3G)
18. Graeme Sweeney

Sustainable Decisions

GeoEcoMar

Total

Shell

BP

Port of Rotterdam

Bellona

Chair

External Speakers

19. Gerdi Breembroek
20. Mark Van Stiphout
21. Peter Horvath
22. Marion Perelle
23. Vassilios Kougonas
24. Antti Valle

RVO

DG ENER, European Commission

DG ENER, European Commission

DG CLIMA, European Commission

DG RTD, European Commission

DG GROW, European Commission

Guests

25. Eric De Coninck
26. Caterina de Matteis
27. François Regis-Mouton
28. Emrah Durusut
29. Pietro Gimondo
30. Brian Murphy
31. Keith Whiriskey
32. Josef Hauck
33. Jordi Martinez
34. Vincent Ceri
35. James Todd
36. Martijn van de Sande
37. Mehmet Onal
38. Anghel Sorin
39. Valentin Moens
40. Marie Bysveen
41. Svante Söderholm
42. Jorge Martínez
43. Enrico Maggio
44. Jannicke Bjerkas
45. Helen Bray
46. Anastasios Perimenis
47. Arthur Heberle
48. Nora Hansen
49. Ane Gjengedal
50. Angus Gillespie

ArcelorMittal

IOGP

IOGP

Element Energy UK

RINA

Ervia

Bellona

Schaeffler

Telefonica

Co2 GeoNet

BP

RVO

Shell

GeoEcoMar

ETN

Sintef

Energimyndigheten

Jubitero

Sotacarbo

Fortum

Shell

CO2VE

Mitsubishi

IOGP

Ministry of Oil and Petroleum Norway

GCCSI

51. Christine Glorieux

IOGP

ZEP secretariat
Giorgia Bozzini
Per-Olof Granström
Meghann Kissane
Luke Warren

1.d. ACEC July meeting minutes

14 July 2020

9:00-11:00

Online meeting

The duration of this ACEC meeting was shorter than usual, lasting 1 hour.

GS, Chair, welcomes participants to the meeting. Verifies quorum.

Chair moves to adopt ACEC July meeting agenda. The agenda is adopted.

Chair moves to adopt draft minutes from AC63. Minutes are adopted.

Chair asks for comments and input to the AC64 draft agenda. He highlights that he supports the items proposed and the switch to a topic-driven agenda, where presentations from the European Commission are included under each item. **HB** also supports the topic-driven approach and suggests incorporating 'update' sections into the relevant topic within the agenda. **GS** responds that it is a constitutional requirement, AC needs to approve sub committees' activities. This will be confirmed with the constitution. **HB** also asks if DG ENER could speak specifically about the CCUS Forum at AC64.

Meeting with EVP Timmermans

There is a short update and discussion regarding the positive meeting with EVP Timmermans and the two Directors General. **POG** mentions that a summary note with answers to the questions and a shovel-ready projects list is being prepared to send to the Cabinet. **GS** says that the SET-Plan steering group is also requesting input on market-ready projects and that, at the last SCG meeting, the IWG9 endorsed the list of projects that ZEP is compiling also for the send-out to the Steering group in August. **GS** notes that this will hopefully help the IWG9 secure a spot at the SET Plan plenary conference in November.

GS raises topic of the European Hydrogen strategy, presented on 8 July, and notes that a threshold-driven approach should be privileged to clarify the definitions and terminology to use. This should be clearly highlighted in ZEP positions and communication. **GS** believes that this approach will ultimately determine the policy actions that the Commission will need to undertake. The use of technology neutral thresholds to determine which actions are to be taken was not highlighted in the strategy.

ZEP contingency planning

POG informs that the ZEP grant comes to the end of its programme next year, at the end of April 2021, that the CCUS SET-plan grant ends in April 2022 and that the CCUS Projects Network has received a prolongation with one year to the end of 2021, but without any

additional budget. He also highlights that there is a discussion going on in the Commission regarding the succession of these three programs.

POG mentions that he will prepare documentation for approval by the AC regarding the contingency planning for ZEP during 2021 and he highlights that ZEP will have a surplus of around €200,000 at the end of 2020. **POG** will follow this up with **LW**. **GS** says that the contingency planning, including by whom and how the reserves should be spent, should be raised with AC in September. He proposes contingency time to continue to operate and notes that ZEP could manage the rest of 2021 under those circumstances.

General updates

Yesterday's (13 July) IOGP meeting, where ZEP participated, was mentioned. There was a good exchange of views and ZEP gave an overview of the ZEP reports and papers. It seems that many companies are now waking up and realising that the Sustainable Taxonomy is for real and will have an influential role. **HB** adds that funding for this IOGP informal network will end and that ZEP may have a role to play here. **POG** highlights that ZEP can continue its organic development. **JH** notes that also the GCCSI has a potential interest here.

Referring to the increasingly prevalent issue of methane leakage, **GS** highlights that the ZEP can take action once the Commission's proposed strategy is out.

Since many will not be able to attend the planned ACEC meeting on 12 August, it is proposed to move it to the last week in August. **GS** suggests seeing what attendance would be like on two possible dates to decide a final date. The Secretariat will send out a doodle.

Chair closes the meeting.

List of participants

Graeme Sweeney	Chair
Jonas Helseth	Proxy from Vice-Chair Frederick Hauge
Lamberto Eldering	Vice-Chair (Proxy to Graeme Sweeney)
Nils Røkke	Vice-Chair (Proxy to Graeme Sweeney)
Charles Soothill	Vice-Chair (Proxy to Graeme Sweeney)
Helen Bray	ERG Co-chair
Giorgia Bozzini	ZEP Secretariat
Per-Olof Granström	ZEP Secretariat
Meghann Kissane	ZEP Secretariat
Luke Warren	CCSA
Chris Gent	CCSA

1.e. ACEC August draft meeting minutes

Draft minutes
25 August 2020, 9:00-11:00
Online meeting

1. Introduction

Chair (**GS**) welcomes all the participants to the meeting, verifies the quorum and reports back regarding proxies. The participant list, including proxies, is included below.

Chair reminds of meeting instructions and asks to adopt the proposed meeting agenda. The agenda being approved, he moves on to the first agenda point. Chair asks to approve the draft minutes of ACEC meeting in July, the minutes are approved.

Chair gives a short presentation of the AC64 meeting agenda, asking for feedback and comments. On the proposed meeting agenda, **HB** asks to clarify which elements of the EU ETS are considered and whether ZEP intends to support the carbon removal certification work kicked off by DG CLIMA. Chair suggests taking the question under point 7.c. *'feedback from meeting with Arthur Runge-Metzger'*.

2. ZEP contingency planning for 2021

Chair gives the floor to **POG** for an introduction on the contingency planning for 2021, who gives a background and outlines a proposed plan on how to continue the strong drive of ZEP while considering the existing risks. He highlights the need for an extension and goes through the risks and the funds available in the ZEP grant and the surplus built up by ZEP-C. **POG** also highlights that the Commission may want to make changes to the R&I programmes and indicates changes to the ZEP structure in order to make ZEP an even better partner for the Commission by introducing a ZEP Network for Projects in the official ZEP structure.

POG asks the ACEC to endorse this and informs that it will be brought to the AC64 for approval/recommendations. Chair states that ZEP should prepare for 2021 as usual. The questions on the extension of the grant and the length of the gap between the old and new grants remain open and will need an answer from the European Commission. He also makes a remark on the relation between IWGs and ETIPs, noting that ZEP is well positioned to provide strong and robust input to the European Commission.

NR asks what the status is for discussion with Commission. He shares experience from managing other grants and asks to engage fast with the Commission. He also welcomes the idea of including a new network on projects. He stresses the importance of membership also for funding purposes in the contingency plan.

The ACEC supports the proposed planning for 2021 that will be brought to the AC64 in September.

3. Clean Hydrogen Alliance

Chair gives the floor to **GB** for a background update on the clean hydrogen strategy and the alliance. Referring to the pre-read, **POG** proposes that ZEP should seek membership in the Clean Hydrogen Alliance and highlights why this is important, especially highlighting the input needed on the proposed definitions and types of 'hydrogen'. ZEP will seek clarity from DG GROW regarding with which entity ZEP will seek membership.

LE comments on the proposed definitions in the Commission strategy, highlighting that more clarity is needed on the carbon footprint along the production chain. His comments are echoed by **NR**.

The ACEC supports ZEP's application to the Clean Hydrogen Alliance.

4. European Taxonomy for Sustainable Finance

Chair gives an update on the Taxonomy and informs that he has applied to join the Taxonomy Platform, operational by October 2020. **MB** highlights that she has also applied. Chair reminds of the work that ZEP has done so far, including giving input on CO2 transport and the manufacturing of hydrogen and aluminium, and refers to the pre-read.

The discussion moves on to the outstanding matters of biomass (BECCS) and Waste-to-Energy. Chair stresses that ZEP is well placed to provide input on the two matters and address the current shortcomings of the report. He notes that the input will be needed when the Platform becomes operational. **NR** notes that the Waste-to-Energy arguments can be strengthened on the role of decarbonising cities. **CS** asks how ZEP will work on the matters and **FN** explains that the issues will be taken up by TWGs CDR and that the CCU matters will be handled within the CCU Sink Factor TWG. The groups will start working to provide input by September. Results regarding BECCS and Waste-to-Energy will be integrated in the upcoming CDR report.

Chair notes that the Platform may ask ZEP to take up the matter of methane leakage for pipelines but suggests waiting until there is a clear task for ZEP.

Input to the Taxonomy Platform on CCU will be prepared by the CCU Sink Factor TWG and regarding the BECCS and Waste-to-Energy, prepared by the CDR TWG.

5. CCS/CCU in the recovery plan

Chair shares his remarks and comments from the meeting with EVP Timmermans and informs that ZEP received an invitation to a follow-up meeting in 6 months.

Moving on to the ZEP input for the SET-Plan Steering committee, Chair stresses that strong support from the ZEP and ACEC members will be well received by the IWG9. He gives the floor to **POG** for background and information on the paper. In the following round of comments, **LE** suggests some small editorial updates, e.g. using CCS and CCU instead of CCUS, he will

send these comments to the Secretariat. **HB** asks to mention the London protocol in the paper and stresses that ZEP should keep a positive narrative throughout the document. She will give direct input to the secretariat.

Given the comments highlighted during the meeting, the ACEC endorses the document to be discussed with the IWG9 co-chairs for an email-approval and submitted to the SET-Plan steering committee.

6. CCS&CCU R&I

Chair gives the floor to **POG** and recalls that strong endorsement from the ACEC members is welcomed. **POG** gives a short background and presentation of the SRIA CCUS input paper and of the input on the CETTIR document from DG ENER, also highlighting a written input from **JH**. He asks for endorsement from the ACEC on the two papers.

Commenting on the SRIA process and the CCUS input paper, **LE** notes very good developments on the work and support for the paper. **MB** notes that the process of coordinating the paper has been good and that it has driven further positive cooperation between EERA and ZEP.

On the DG ENER document, **HB** would like an addition regarding carbon contracts for differences. She will contact the Secretariat separately.

All ACEC members are invited to send further input/give approval to the CCUS input paper by Thursday. After this, the document will be considered as endorsed. Regarding the input to DG ENER, the ACEC members agree to send this to DG ENER today.

7. Updates from the Networks and ERG

Chair gives the floor to **FN** for an update from NWT. **FN** notes that the reports have been concluded and disseminated. He informs that the TWG CDR will begin to work on a new report on CDR, as well as contributing to the Taxonomy work. He also mentions that the TWG Collaboration across the CCS chain work should be finalised in the next months. He notes that a specific taskforce within the NWT has given input on the CETP and that there .

LE gives short update regarding the NWPE. **GB** gives an update on the ongoing consultations and the work done over summer. It is concluded that ZEP will draft a response to the REDII roadmap.

POG gives an update on the ERG activities, recalling that the next meeting will be on 4 September. He mentions among other things the CCUS Annual Forum, Q3-Q4 engagements and the plan to form a group to exchange information and coordinate communication/outreach activities in Brussels.

Finally, Chair gives feedback from the meeting with Arthur Runge-Metzger, referring to the note in the pre-reads. Following a short discussion and comments from other ACEC members, he stresses that the follow-up meeting with DG CLIMA Director-General Mauro Petriccione

will be essential to highlight how ZEP can contribute to their work and provide valuable input for the revision of the EU ETS.

8. Closing remarks

Chair reminds of the next meeting dates and thanks all the participants for a good meeting. The meeting is closed at 11.00.

Participants

Graeme Sweeney	Chair
Nils Røkke	Vice-Chair, attending from 9-10.
Marie Bysveen	<i>Has a proxy from Nils Røkke, attending from 10-11</i>
Lamberto Eldering	Vice-Chair
Frederic Hauge	<i>Unable to attend. Gives proxy to Graeme Sweeney.</i>
Charles Soothill	Vice-Chair
Rob van der Meer	Vice-Chair
Filip Neele	NWT Co-chair
Arthur Heberle	NWT Co-chair
Helen Bray	ERG Co-chair
Per-Olof Granström	ZEP Secretariat
Giorgia Bozzini	ZEP Secretariat
Chris Gent	ZEP Secretariat

Agenda Item 2: Secretariat update

2.a. Finance update

Appended to this paper is the ZEP finance update.

2.b. ZEP-C financial report

Appended to this paper is the ZEP-C financial report.

2.c. Open call for ZEP ERG co-chair

A position is open as ZEP co-chair of the External Relations Group (ERG) – for ZEP members.

The ERG manages the regular external communications and has the mandate to execute the communications plans as agreed by the AC. The ERG reports to the ACEC and has regular meetings every sixth week.

A call for applications – inviting nominations from AC members of all constituencies – will be circulated to the AC members during next week.

2.d. Follow up on actions from ZEP AC63

Update on the JRC clean energy infrastructure project as it progresses

This is a 3-year JRC project – “The Energy & Industry Geography Lab – A mapping tool that supports the industrial transition to climate-neutrality” – led by Andreas UIHLEIN. The aim is to create a tool for analyses of energy infrastructure. The project will start to take shape in October 2020 and ZEP will give updates from this work as it progresses.

Set up a small group of experts to follow the standardisation as cross-border CO2 infrastructure projects are developing (link to the ISO work)

The basis for this work is to:

- To keep track of the progress in the ISO/CEN groups on CCS standardisation and highlighting when important issues arise.
- To gather “standardisation issues” arising from the cross-border CO2 infrastructure projects (PCIs), determine how to handle them and channel to a ISO/CEN group, Taxonomy, etc. depending on the issue at hand.

During the autumn ZEP will set up a small group under NWT to meet twice per year and when important issues arise. This group would consist of Rob van der Meer (link to standardisation), experts and representatives from companies involved in cross-border CO2 infrastructure projects.

Prepare input on the Innovation fund to DG CLIMA regarding CCS projects, emission-factor zero on electricity and disconnect/lack of alignment between the IF and Taxonomy

ZEP has provided [input to DG CLIMA on the Innovation Fund – “challenges for CCS projects and lack of alignment with the Taxonomy”](#) to highlight important issues and propose solutions:

- The cross-chain CCS risks (counterparty risks) between the different parts of the project chain (production, capture, transport, storage) is unresolved
- The lack of alignment between the Innovation Fund and the Taxonomy, particularly that the Fund has defined the emissions factor for electricity input as zero.

ZEP also had the opportunity to highlight these concerns when it met with Executive Vice President of the European Commission Frans Timmermans and Directors-General Mauro Petriccione of DG CLIMA and Ditte Juul-Jørgensen of DG ENER on 9 July. ZEP have also had follow-up meetings with DG CLIMA's Deputy Director General, Clara de la Torre and DG CLIMA Director Artur Runge-Metzger.

Agenda item 2: Secretariat Update

2.a. Finance Update

Attached to this note is the 31 August ZEP-Communications financial management report. This covering note provides commentary on developments since the AC63.

2020 ZEP-C Budget

- ZEP-C started 2020 with a net equity position of €125,787.
- The budgeted income for 2020 is €187,500 (updated with increased income due to increased member contributions).
- The budgeted expenditure is €169,992. Due to Covid-19, the expenditure is much lower than budgeted.
- The expected equity position at the end of 2020 is approx. €200,000.

Budget management: Expenditure against 2020 budget

Activity	Contractor	Budget 2020	Comments	To date Spent	Comments	To Date Committed	Comments
Administration / Auditing	Adams accountants / Vandelanotte	€ 8 000		€ 1 835			
Website maintenance		€ 1 000		€ 0			
Legal advice	Law Square CVBA	€ 4 000		€ 6 544			
Chair	Ardnacraggan Energy Services	€ 67 992		€ 45 328			
Contingency		€ 4 000		€ 1 438			
Communications and events		€ 85 000		€ 0			
Total		€ 169 992		€ 55 144		€ 0	

Spent: Actually paid or contractually due for delivered work
 Committed: Based on signed contracts, yet to be approved invoices or founded estimates

Spent + Committed € 55 144
 Remaining total budget € 114 848

Forecast 2020

€ 125 787	Starting point 2020 (= Left over budget 2019)
2020 Total Spend	Comments Relative to budget
€ 8 000	
€ 1 000	
€ 4 000	
€ 67 992	
€ 4 000	
€ 85 000	
€ 169 992	Total budget spent 2019

Cash management of ZEP Communications VZW / ASBL

Category	Source	Issued invoices	Comments	Pending invoices	Comments	Received payments	Comments
2020 contributions	O&G		Total	€ 90 000	BP, Shell, Equinor, Total	€ 30 000	
	OEM						
	Others (confirmed)			€ 15 000	Heidelberg, Gassnova, Port of Rotterdam, EBN	€ 47 500	
	Others (Potential)			€ 5 000	Sponsorship		

General	VAT return	€ 180	VAT declar 2020/08	€ 309	Invoices 2020 to be rec.	€ 2 309	REIMBURS 2020 Q 2
Total outstanding / pending ZEP-C		€ 180		€ 110 309			

Cash situation (of 8 Sept 2020)

Current account (KBC - Business compact rekening)		€ 167 734
Savings account (KBC - Spaarrekening)		€ 101
Actual cash at bank and in hand		€ 167 835

Expenditure situation

Source	Outstanding invoices	Comments	Pending invoices	Comments
Short term creditors	€ 1 470		€ 1 779	VDL + CA
Outstanding invoices in spent to date, to be paid	€ 1 470		€ 1 779	

Cash boundaries

Minimum virtual financial position (all creditors paid, no more income) € 164 587
 Maximum virtual financial position (all creditors paid, all income realised) € 275 075

€ 187 500	Total forecasted income 2020
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143 294,74	Forecasted Left over budget 2020
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Agenda Item 3: ZEP planning for 2021

3. ZEP planning for 2021 – for approval

The ZEP grant comes to an end in April 2021 and the planning for ZEP activities throughout 2021 is crucial. There will most probably be an extensive gap before “the new” ZEP grant agreement can be in place.

Background

The importance of contingency planning beyond the current grant agreement was highlighted by the near seven months’ gap in the beginning of the current ZEP grant period (when CCSA took on the risk and was substantially economically exposed) and by an even more extensive gap at the beginning of a previous grant period (causing an extensive hit to ZEP’s finances, which took a number of years to resolve).

ZEP has a long-standing, highly-regarded reputation and, during the last year, has extensively increased its activity level, visibility and impact within the Brussels CCUS community, receiving positive feedback from members, other stakeholders and not least the European Commission. The coming years will be crucial for the development of CCS and CCU in the EU, and we can anticipate high levels of activity stemming from the many initiatives that the European Commission will undertake (new and up for revision based on the European Green Deal).

Therefore, thorough planning for 2021 is crucial in order for ZEP to secure enough funding, manage the risks and at the same time continue its strong and impactful development – attracting members and good resources, while taking into account a gap between the current and a future grant agreement and the risks involved.

Managing the gap before the new ZEP grant agreement is in place

To manage this gap, several precautions have already been taken:

- *ZEP-C funding* – The ZEP Advisory Council has already taken action to mitigate the gap-risk and ZEP-C has built up financial reserves for this reason. With increased member contributions and a decreased use of funds due to Covid-19 during 2020, the total funds are further increasing and a surplus of approximately €200,000 is expected at the end of 2020. If the ZEP-C approves the proposed use of the funds, there will be enough funds to cover the activities during a possible eight-month gap from May until December 2021.
- *ZEP grant funding* – Based on present forecasts and plans, the funds from the current ZEP grant agreement (approximately €300,000 per annum pro rata) will leave more than €150,000 of surplus when the grant agreement ends in April 2021. Following approval to extend the ZEP project, these funds can be made available.

- There is a possibility to apply for an extension of the ZEP project. Since the process to extend the project will involve extensive administrative work and time, contact has already been made with the Commission to start the extension process.

With unchanged or increased ZEP member contributions (as several companies are in discussions to become members), given the figures outlined above and the European Commission's approval to extend the project, we have a good starting point for ZEP to manage the gap/extension and the included risks, and we can continue ZEP's strong and impactful work throughout 2021.

Preparing for the next ZEP grant

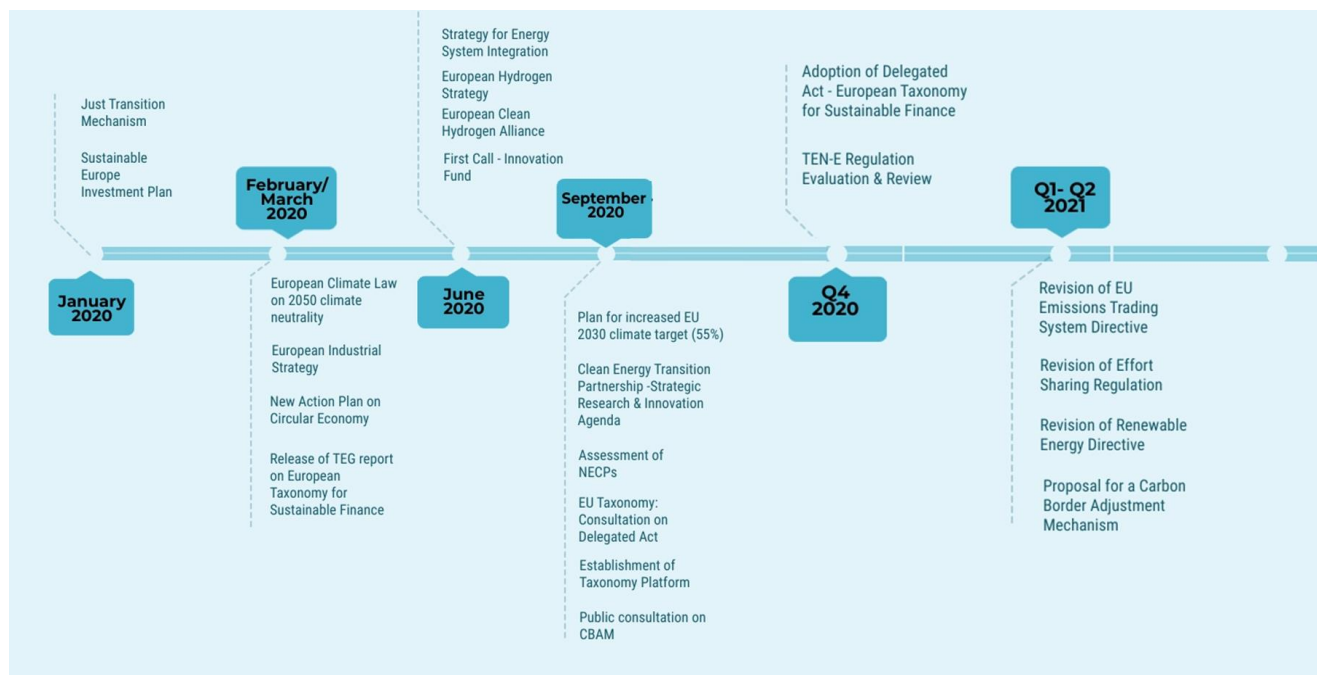
With a new Commission's mandate and the introduction of the new Horizon Europe programme, the Commission will most likely keep discussing the structure of the Horizon Europe and possibly make changes compared to the previous programme (Horizon 2020). However, from what we can understand so far, both ZEP and the SET-Plan IWG9 will be included in Horizon Europe calls, which will be issued by the European Commission in 2021.

With the European Green Deal and the target of climate neutrality by 2050, there really is positive momentum for CCS and CCU. Since many European large-scale CCS and CCU projects are now becoming market-ready and given the increasing interest shown for these projects from the European Commission and national governments in their economic recovery plans, it is proposed that ZEP introduces a Network on Projects, in parallel to the Networks Technology and Policy & Economics. It should also be mentioned that ZEP demonstrated its strength in this area, gathering organisations with market-ready projects within and beyond ZEP membership, for the meeting with EVP Timmermans in July.

Proposed endorsements from the AC

- To continue the contingency planning, including applying for an extension of the ZEP project, as proposed above.
- To prepare a proposed budget in accordance with the plan outlined above for the AC65 in December.
- To prepare related amendments to the ZEP bylaws for endorsement at the AC65 in December in order to introduce a Network for Projects in the ZEP structure.

Agenda Item 4: EU Recovery plan



European Climate law

In March 2020, the European Commission proposed a [European climate law](#) that would make it a legal requirement for the EU to become climate-neutral by 2050. This follows the December 2019 European Council decision to endorse the 2050 climate-neutrality objective.

European Parliament's debate

The ENVI Committee adopted [their report on the EU climate law](#), supporting the EU climate law's overall aim to enshrine the climate neutrality goal by 2050 in EU legislation. The report will be presented at the plenary in October for a vote. In the report, the Committee put forward the following requests:

- A more ambitious 2030 target, calling for emissions to be reduced by 60% in 2030 compared to 1990, instead of [“at least 50% towards 55%”](#), as the Commission proposed.
- An interim target for 2040 to be proposed by the Commission following an impact assessment, to ensure the EU is on track to reach its 2050 target.
- Contrary to the Commission's proposal, ENVI MEPs asked that both the EU and all member states individually become climate-neutral by 2050 and call for sufficient EU and member state financing to do so.
- MEPs call on the Commission to propose by 31 May 2023 a trajectory at EU level on how to reach carbon neutrality by 2050.

- Other MEPs also request that the Commission assesses and proposes amendments to all relevant EU legislation that contributes to reducing greenhouse gas emissions.
- Every two years, the Commission should issue a report on the progress made by the EU as a whole and individual member states towards achieving the climate targets.
- An independent scientific body should also be created to monitor progress.

The text still needs the approval of the entire Parliament and the 27 EU member states before becoming law, and it would commit Europe to reduce greenhouse gas emissions by 60% compared to 1990 levels, up from 40% currently.

Other Committees gave their opinion on the report. Specifically, the [ITRE](#) Committee:

- backed a target of 55% GHG emissions reduction by 2030.
- stated that contributions from all ETS and non-ETS sectors are needed.
- called on the Commission to establish guidance for key sectors on indicative trajectories for GHG emission reduction in those sectors at Union level. This would provide them with the certainty to take the appropriate measures and to plan the necessary investments and would also foster sectors' engagement in the pursuit of climate neutrality solutions.
- Asked to continue an institutionalised dialogue and information exchange between the Commission and key stakeholders such as business representatives, trade unions, civil society, and in close cooperation with the member states.
- stressed the importance of deploying best available and cost-efficient technology, assess the socioeconomic footprint, competitiveness of the sectors, investment efforts undertaken, as well as understand the environmental footprint of decarbonising technologies used.

Next steps:

- Vote in the Parliament on the ENVI report: 5-8 October 2020.
- Discussions in European Council: 15-16 October 2020.
- Working Party on Environment: work is ongoing.

2030 climate target plan

The European Commission presented a [plan](#) to increase GHG emissions reduction until 55% by 2030 and push for higher shares of renewable energy as part of an ambitious plan to achieve net-zero emissions by mid-century. The EU Commission has indicated that carbon capture, utilisation and storage (CCUS) technologies will play an important role in ensuring that a 55% reduction in emissions can be met, particularly as a solution for the industrial transition towards net-zero. View [ZEP's press release](#).

The document's takeaways are summarised below:

- 55% GHG emissions reduction will require raising the EU's ambitions in all areas.
 - [Specifically](#), the share of renewable energies in the energy mix will have to rise to 38-40% by 2030, up from a current target of 32%.

- Overall annual investments in clean energy will have to increase by around €350 billion per year.
- A proposal to protect our industry against carbon leakage will need to be outlined.

With the Climate Law Regulation aiming to enshrine into EU law the 2050 climate-neutrality target, the Commission proposed to include the revised 2030 target in the Regulation, which is currently being discussed by the European Parliament and Council.

The Commission also presented an [Impact Assessment](#), thoroughly examining the economic, societal and environmental effects reducing emissions by 50% to 55% by 2030, compared to 1990 levels. The Impact Assessment has considered the mix of policy instruments available and how each sector of the economy can contribute to these targets. The conclusion is that a balanced, realistic, and prudent pathway to climate neutrality by 2050 requires an emissions reduction target of at least 55% by 2030.

Alongside the 2030 Climate Target Plan and its Impact Assessment, the Commission has also adopted today [an assessment of Member States' National Energy and Climate Plans](#) for 2021-2030. The Commission's Assessment shows that the EU is on track to surpass its current 2030 emissions reduction target of at least 40. To reach the new goal of 55%, the EU will have to further increase energy efficiency and the share of renewable energy. This will now be subject to further consultation and analysis before legislative proposals are presented by the Commission in June 2021.

As set out in the European Green Deal and in today's communication, the Commission will review all relevant climate and energy policy instruments to achieve the emission reductions and make proposals by June 2021.

The proposal will now be forwarded for discussion and approval by the European Parliament and the EU Council of Ministers, representing the 27 EU member states. Some member states – Bulgaria, Czechia, Hungary, Poland, Romania and Slovakia – have released a [letter](#) to EVP Timmermans, asking the Commission to take into account the different starting points for decarbonisation.

Next steps:

- Debates within the European Parliament and the Council. The timeline has not been communicated yet.

Industrial strategy

As part of the European Industrial Strategy, the Commission is expected to launch several initiatives such as:

- European Clean Hydrogen Alliance, bringing together industries, governments, and research organisations for the development of a hydrogen supply chain in Europe
- European Alliance for Low-carbon Industry, initially scheduled for Q3 2020, it will be closely connected to the Clean Hydrogen Alliance.

The European Parliament's own-initiative report on 'A new long-term strategy for Europe's industrial future' has been presented to the ITRE committee for debate. The rapporteur on the report is MEP Carlo Calenda (S&D, ITA), who was to prepare an initial draft for debate. The text was presented to the ITRE Committee members in May and a later debate is expected to take place within the committee in June, with the aim to adopt it in the European Parliament's September plenary meeting. Other committees will also release their opinion on the draft report, which will feed into the original proposed text.

Main features of the [European Parliament's own-initiative report](#) are:

- It recognises the role of a sustainable and green recovery to enhance the European Union's growth and green transition.
- It recognises the potential for low-carbon technologies and sustainable products across the whole industrial value chain, including for energy-intensive industries.
- It underlines that natural gas is important in the energy transition and hydrogen is a potential breakthrough technology.
- It calls on the European Commission to scale up and to facilitate the commercialisation of breakthrough technologies, supporting early-stage development and deployment of climate-neutral technologies and products.
- It acknowledges the importance of R&I activities carried out under Horizon Europe.

Next steps:

- Debate and vote on the draft report 'A new long-term strategy for Europe's industrial future': October 2020.
- Vote in the plenary: November 2020.

4.a. The role of CCS/CCU in EU recovery plan

As the current long-term EU budget is running out on 31 December 2020, the EU needs a new budgetary plan for the next seven years. Following an initial proposal by the European Commission in 2018, on 21 July 2020 EU leaders agreed on a [comprehensive package](#) of €1,824.3 billion, which combines the **multiannual financial framework (MFF)** and an extraordinary recovery effort under the **Next Generation EU (NGEU)**.

The multiannual financial framework, reinforced by the Next Generation EU, will be the main instrument for implementing the recovery package to tackle the socio-economic consequences of the COVID-19 pandemic. It will also help transform the EU through its major policies, particularly the European Green Deal, the digital revolution and resilience. Trilateral negotiations between Parliament, Council and Commission consequently started on 27 August.

Next Generation EU

The plan for European recovery will need massive public and private investment at European level to create jobs and support the EU's green and digital priorities. To this end, the Commission will borrow funds on behalf of the Union on the capital markets.

The Next Generation EU recovery instrument will enable the transfer of the total of **€750 billion** raised to EU programmes as follows:

- Recovery and Resilience Facility: €672.5 billion (loans: €360 billion, grants: €312.5 billion)
- ReactEU: €47.5 billion
- Horizon Europe: €5 billion
- InvestEU: €5.6 billion
- Rural Development: €7.5 billion
- Just Transition Fund (JTF): €10 billion
- RescEU: €1.9 billion

To allow for the Commission to borrow the funds on the capital markets, the European Parliament held a [vote](#) in mid-September on the consultative [opinion](#) on the Own [Resources Decision](#). At the end of an accelerated procedure, MEPs gave their green light to the beginning of the ratification process. In its report, the Parliament has designed a gradual implementation of new EU-wide streams of revenue, or 'own resources', intended to repay common European borrowing, in line with the political agreement reached by the Heads of State and Government on 21 July. Those own resources notably include a Carbon Border Adjustment Mechanism and the proceeds from the Emissions Trading System.

Following the vote of the European Parliament, it is now up to the Council and the national parliaments of the 27 member states to give their approval to the Own Resources Decision so that the recovery plan can start on 1 January 2021.

Long-term EU budget

The new multiannual financial framework (MFF) will cover the period of 2021-2027. The MFF, **€1,074.3 billion**, will cover the following main [spending areas](#):

- single market, innovation and digital: €132.8 billion
- cohesion, resilience and values: €377.8 billion
- natural resources and the environment: €356.4 billion
- migration and border management: €22.7 billion
- security and defence: €13.2 billion
- neighbourhood and the world: €98.4 billion
- European public administration: €73.1 billion

The ongoing discussions focus on the design of the €1,074 billion MFF and the governance of the Recovery and Resilience Facility, the main pillar of the €750 billion recovery fund. EU leaders confirmed their commitment to ensure that 30% of the funds be dedicated to climate-related projects. With the Council conclusions as they stand, programmes like Horizon Europe will see a drop in funding.

The German presidency, which started in July, declared that the Multiannual Financial Framework and the EU recovery programme should substantially contribute to the environment and climate goals of the EU. The environment ministers urge that the lessons from the current crisis be used to support the resilient and sustainable development of

economy and society. Reforms to strengthen growth and competitiveness, to maintain and create good jobs, and to foster the development of new skills must go hand in hand with ambitious and effective climate action and environmental protection measures.

Next steps:

- By the end of September: Council is expected to formally adopt its position and will submit it to the Parliament on 1 October.
- 15-16 October: Discussions at European Council.
- By 13 November: The European Parliament is expected to adopt its amendments to the Council's position.
- 17 November: If the Council's and the Parliament's positions diverge, a three-week conciliation period will start.
- December 2020:
 - Adoption of the revised Multiannual Financial Framework 2021-2027 (European Parliament's consent).
 - Adoption of the Own Resources Decision (Ratification by all member states in line with their constitutional requirements).
- January 2021: Multiannual Financial Framework 2021-2027 implementation starts

4.b. Follow-up on meeting with EVP Timmermans

On 9 July, ZEP met with Executive Vice-President of the European Commission Frans Timmermans, Director-General Mauro Petriccione of DG CLIMA and Director-General Ditte Juul-Jørgensen of DG ENER. The aim of the discussion was to emphasise how shovel-ready CCS projects, CO₂ infrastructure, and clean hydrogen can play an important role in decarbonising Europe and contribute to the European economic recovery. The narrative is described in the ZEP paper "[A CCS industry to support a low-carbon European economic recovery and deliver sustainable growth](#)". High-level representatives from ZEP membership and beyond participated and presented their projects.

In the meeting, a number of policy asks were presented to the Commission, based on the message that CCS is necessary for the EU to reach climate-neutrality by 2050 and within these areas:

- Recognition and political support for common European CO₂ infrastructure.
- An enabling policy framework, making it economically feasible for companies to invest in the whole value chain of CCS.
- CCS can kick-start a clean hydrogen economy.
- The current funding instruments need to be deployed in pursuit of the European Green Deal and the green recovery.
- Include CCS in the economic recovery stimulus – shovel-ready projects can make a difference.

View the [press release](#).

EVP Timmermans agreed to a follow-up meeting with ZEP to take place in six months' time to revisit the topics that were addressed, including the presented shovel-ready projects. In the meantime, ZEP is aiming to secure meetings with representatives from the Commission, including Directors-General Petriccione and Juul-Jørgensen.

The agenda of the meeting is copied hereafter:

Agenda 9 July: “Capturing the clean growth opportunities – why a CCS industry is vital for European economic recovery and climate-neutrality”

14.00 Introduction by Executive Vice-President Frans Timmermans

14.05 Introduction by Zero Emissions Platform

- ***A net-zero European Union in 2050*** – Graeme Sweeney, Chairman, Zero Emissions Platform
- ***Moderator*** – Per-Olof Granström, Zero Emissions Platform

14.10 European CO₂ transport and storage infrastructure

- ***CO₂ infrastructure: a no-regret investment opportunity to decarbonise industry across Europe*** – Equinor
- ***One infrastructure, several purposes: delivering clean hydrogen and industrial decarbonisation*** – Port of Rotterdam
- ***Energizing the transition in Europe; the case for CO₂ storage infrastructure coordination*** – EBN
- ***CO₂ storage: the foundation of the European green recovery plan*** – Total

14.27 CCS – key in the industrial transition

- ***Industry getting serious: CCS for carbon-neutral cement*** – HeidelbergCement
- ***Shaping climate-neutral city infrastructure: waste-to-energy, district heating and CHP*** – Fortum Oslo Värme
- ***Going further: negative emissions for industries and cities*** – Stockholm Exergi

14.41 Kickstarting a clean hydrogen economy

- ***Compatible and competitive: paving the way for a clean hydrogen economy for Europe*** – Shell
- ***Keep it (technology) neutral: clean hydrogen for industry*** – BP
- ***Moving forward: the close connection between CO₂ and H₂ strategies*** – Linde Group

14.55 Conclusions

4.c. Input to SET-Plan conference

The [SET-Plan conference](#) is scheduled for 23-24 November 2020 in Berlin. Upon request of the SET-Plan Steering Committee, the IWG9 has provided input on “[The role of CCS and CCU in an Integrated Energy System](#)”, with a focus on CO₂ infrastructure, and based on the ZEP paper prepared for EVP Timmermans in May.

Ahead of the SET-Plan conference in November, the Steering Group has also requested a general list of [market-ready projects](#) that could be financed through the Recovery and Resilience Fund. The list has been circulated in previous ACEC meetings and within the IWG9 consortium. After receiving the endorsement from the Co-chairs of IWG9, the list was submitted to the SET-Plan Secretariat.

Agenda Item 5: Hydrogen Strategy and Clean Hydrogen Alliance

5.a. Status and input

In July, the Commission presented two strategies:

- [Strategy for Energy System Integration](#)
- [Hydrogen Strategy](#)

ZEP produced a note to summarise the main takeaways from the two strategies, appended hereafter. Both strategies will follow the ordinary legislative procedure, i.e. the European Parliament and Council of EU will discuss the strategies and eventually find a compromise. Currently, no date has been confirmed for a first debate at the Parliament.

Briefing

Strategy for Energy System Integration

What: The [strategy](#) sets out a vision on how to accelerate the transition towards a more integrated energy system to achieve an effective, affordable and deep decarbonisation of the European economy.

Generic takeaways:

- Low-carbon hydrogen can play a role in a transitory period.

On CCS, CCU:

- CCS is likely to play a role in a climate-neutral energy system, particularly for the decarbonisation of energy-intensive industries.
- An alternative to the permanent storage of CO₂, is CCU (synthetic fuels). Synthetic fuels can be associated with very different levels of GHG emissions depending on the origin of CO₂ (fossil, biogenic, or captured from the air), and the process used. It is of key importance to properly monitor, report, and account for the emissions and removals of CO₂ associated with the production of synthetic fuels to correctly reflect their actual carbon footprint.
- A robust carbon removal certification mechanism will allow the tracking of the CO₂ fluxes involved in CCU processes. Such certifications can allow to provide regulatory incentives for the market uptake of synthetic fuels, which will be slow due to high investment costs.

On gas, CO₂, and hydrogen infrastructure:

- The existing gas network can be retrofitted or repurposed to integrate renewable and low-carbon gases.
- Reflection is needed on the role of CO₂-dedicated infrastructure, transporting CO₂ across industrial sites for further use, or to large-scale storage facilities.
- TEN-E regulation and TYNPD will be prime indicators of how a climate-neutral, integrated energy system will be planned.

Timeline for actions:

Q2 2021	Comprehensive terminology for all renewable and low-carbon fuels and a European system of certification, based notably on GHG emission savings and sustainability criteria, building on existing provisions of the Renewable Energy Directive.
Q2 2021	Assessment of potential additional measures to support renewable and low-carbon fuels, possibly through minimum shares or quotas in specific end-use sectors (including aviation and maritime), building on sectoral targets set in the Renewable Energy Directive.
From 2021	Promotion of flagship projects of integrated, carbon-neutral industrial clusters producing and consuming renewable and low-carbon fuels (LIFE, Horizon Europe, InvestEU).
From 2021	Demonstration and scale-up of the capture of carbon for its use in the production of synthetic fuels, possibly through the Innovation Fund.
2023	Regulatory framework for the certification of carbon removals.

Hydrogen Strategy

What: The [strategy](#) outlines the European Commission's plan to ramp up the production of and demand for hydrogen as one of the enablers for decarbonising sectors such as the chemical industry, steel industry and transport. In a transitional period, low-carbon hydrogen will contribute to decarbonisation at the lowest possible cost, whilst considering industrial competitiveness and its value chain implications for the energy system. The EU will need to plan this transition carefully, considering today's starting points and infrastructure that may differ across member states.

Definitions:

- Low-carbon hydrogen:
 - Fossil-based hydrogen with CCS is hydrogen produced from fossil-fuel sources with CCS.
 - Electricity-based hydrogen is hydrogen produced through the electrolysis of water with an electrolyser, regardless of the electricity source.
- Clean hydrogen = Renewable hydrogen:
 - Hydrogen produced through the electrolysis of water with an electrolyser and where the electricity source is renewable (solar, wind).

Takeaways:

- Elements of the existing European gas infrastructure could be repurposed to provide the necessary infrastructure for large-scale, cross-border transport of hydrogen. Repurposing may provide an opportunity for a cost-effective energy transition in combination with (relatively limited) newly built, dedicated, hydrogen infrastructure.
- Infrastructure to support carbon capture use and storage may be needed to produce low-carbon hydrogen and synthetic fuels.
- Connecting Europe Facility Energy and Connecting Europe Facility Transport will be harnessed to fund dedicated infrastructure for hydrogen, the repurposing of gas networks and carbon capture projects, and to finance hydrogen refuelling stations.
- To scale up production, the Commission will propose a common low-carbon threshold for the promotion of hydrogen production installations based on their full LCA. This would include comprehensive terminology and EU-wide criteria for the certification of renewable and low-carbon hydrogen, possibly building on the existing ETS monitoring, reporting and verification and the provisions set out in the Renewable Energy Directive. This framework would be consistent with the EU taxonomy for sustainable investments.

Numbers and figures for a clean hydrogen economy

The Commission aims to reach these numbers outlined below.

	2020-2024	2025-2030	2030-2050
Low-carbon hydrogen with CCS	Retrofitting of existing hydrogen production plants with CCS. Volumes: not defined	N/A	N/A
Renewable hydrogen	Production: 1MT Capacity: 4GW	Production: 10MT Capacity: 40GW	Large-scale

For [low-carbon hydrogen](#) with CCS, the assumption is a carbon price of 55-90€/tCO₂.

Available funding and foreseen investments:

2020-2030	Renewable hydrogen: <ul style="list-style-type: none"> • €24-42bn in electrolyzers • €220-340bn for scale up of solar and wind power (80-120GW) • €65bn for hydrogen transport, distribution, storage, end-use installations
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2020-2030	Retrofitting hydrogen plants with CCS: €11bn. By 2050, total investments in low-carbon hydrogen with CCS would amount to €3-18bn
2020-2030	EU ETS Innovation Fund: €10bn for demo projects of innovative hydrogen technologies.
From 2021	Clean Hydrogen Partnership – to boost R&I and bring costs down.
2020	Clean Hydrogen Alliance – a separate communication, InvestEU, IPCEIs.

Clean Hydrogen Alliance

What: The [Clean Hydrogen Alliance](#) will pool resources to accelerate scaling up sustainable industrial hydrogen by bringing together all segments of the ecosystem (supply, demand and distribution) to get the scale for cost reductions and competitiveness. The European Clean Hydrogen Alliance will be [driven by industry](#), but it will also include all stakeholders in the hydrogen ecosystem (member states, regions, trade unions, NGOs, research, civil society).

The alliance will establish an investment agenda and support the advancement of the hydrogen value chain across Europe. An industry blueprint estimates investments of €430 billion until 2030. The alliance should support scaling up production and demand for renewable and low-carbon hydrogen, coordinate action, and provide a broad forum to engage civil society.

Takeaways

- A Governing Board (Permanent chair + representatives from each industrial pillar, regions and cities, civil society, Clean Hydrogen Partnership (FCH JU), and member states) + Commission will ensure coordination.
- Work will be organised around [six industrial pillars](#). These workstreams will be organised by Hydrogen Europe, with participation open to other stakeholders (member states, regions, civil society).
 1. Generation of clean hydrogen – Focus on renewable electricity as source.
 2. Transportation of hydrogen – Also includes truck and railway tube trailers, cargo ships and pipelines, and any carrier forms (liquefied, pressurised, LOHC, NH₃, etc.).
 3. Mobility sector – Focus on Fuel Cells and refuelling stations (heavy duty vehicles (HDVs), busses, trains, barges, seagoing vessels, etc).
 4. Industry applications – Also including steel, fertilisers, cement, needs for industrial heat, refineries, and the chemical sector.
 5. Energy sector – Also including storage of hydrogen (short and long term) and operation in the electricity grid.
 6. Housing sector – Combined Heat and Power (CHP) and other household applications.

The Commission will organise:

- An annual Hydrogen Forum to enhance collaboration and maintain the dialogue with the European Commission. The setting will be that of a plenary meeting.
- Operational roundtables for CEOs, open for all stakeholders to participate in. These roundtables will be organised based on the 6 pillars (renewable and low-carbon hydrogen production, hydrogen transmission and distribution, hydrogen in industrial applications, hydrogen for mobility, hydrogen in the energy sector, and hydrogen for residential applications).
- High-level progress meetings with representatives of the European Clean Hydrogen Alliance will be held by the Commission (DG GROW) and the Secretariat of the Alliance to steer the coordination between the workstreams.

ZEP has applied to join the Clean Hydrogen Alliance upon the advice of the ACEC. A list of members can be found [here](#).

Agenda Item 6: Innovation Fund / EU Taxonomy

6.a. Progress on the first call

The European Commission has launched the [first call](#) for proposals under the Innovation Fund. The Innovation Fund will finance breakthrough technologies for renewable energy, energy-intensive industries, energy storage, and carbon capture, use and storage. The deadline for applications is 29 October 2020.

For the first call, €1 billion of grant funding will be provided to large-scale projects for clean technologies to aid them in overcoming the risks linked to commercialisation and large-scale demonstration and will help new technologies to reach the market.

6.b. ZEP's input to the Innovation Fund

ZEP has given input to the Innovation Fund by participating in the Expert Group meetings and workshops. The latest IFEG meeting took place on 5 June. Moreover, ZEP held several meetings with DG CLIMA and submitted written input regarding challenges and further development needs.

ZEP met with Artur Runge-Metzger and Clara de la Torre to exchange on the [input](#) that ZEP submitted in July. The notes from the meetings are available under pre-read 8. *Updates from Networks and ERG.*

In the document, ZEP proposed solutions to tackle some existing challenges that arise from the current state of design of the Innovation Fund. ZEP believes that these issues are considerable and could have negative effects on the possibility to reach the EU target of net-zero GHG emissions by 2050:

- The **cross-chain CCS risks (counterparty risks)** between the different parts of the project chain (production, capture, transport, storage) are unresolved.
- The **lack of alignment between the Innovation Fund and the European Taxonomy for Sustainable Finance (Taxonomy)** – in particular, we note with some concern that the Innovation Fund has defined the emissions factor for electricity input as zero, based on the assumption that all grids across every member state will be zero-emission/net-zero by 2050.

ZEP recalled the need for a clear, evidence-based assessment/emissions accounting and life-cycle analysis (LCA), noting that the current Innovation Fund's first call does not take into account energy inputs. This might give technologies that use larger amounts of electricity an unfair advantage and will also cause problems for the projects going forward in the Innovation Fund process.

Firstly, this would send the message that electricity-intensive projects, such as CCU projects, are favoured. Secondly, it will most probably allocate resources to projects that will have very limited possibilities to qualify for the second steps under more realistic conditions. Thirdly, this would send a message to industrial stakeholders that the European Commission's funding initiatives are not aligned (see lack of alignment between Taxonomy and Innovation Fund), making it more difficult to make an informed, long-term investment decision.

ZEP recommended the alignment of the principles in the Innovation Fund with the European Taxonomy. ZEP recognises the strong need to scale up the production of hydrogen and has therefore recommended the European Commission to make an addition to the European Taxonomy's screening criteria (see *below*). This addition will enable the scale up without risking the carbon budget and the energy transition. ZEP recommends this to also be the principle for the Innovation Fund.

6.c. Consultation on the Delegated act

The Commission is finalising the [delegated acts on climate change mitigation and adaptation](#) that will come into force by December 2020. A public consultation will be launched in October-November and it aims to collect feedback from stakeholders.

6.d. ZEP input to the Taxonomy Platform

The Taxonomy Platform should be operational in November 2020. The [Taxonomy Platform](#) will support the Commission in the implementation of the Taxonomy regulation, and it will review the technical screening criteria regularly to ensure that the regulation is up to date.

In previous engagements, DG FISMA noted that the drafting of the delegated act will take into account not only the findings of the TEG and the technical annex, but it will also count on the stakeholders' feedback received in April (ZEP's feedback is hyperlinked [here](#)), as well as the expertise from other DGs. Although the fundamental principles of the Taxonomy Regulation will not change, the delegated act will consider several matters that the TEG could not settle.

ZEP has therefore taken an action to come back to DG FISMA on:

- [Manufacturing of Hydrogen](#): screening criteria for grid-connected manufacturing of hydrogen and aluminium, regardless of the technology used.
- [CO₂ Transport](#) on the eligibility of CO₂ transport infrastructure when CO₂ is transported for utilisation.

Taxonomy Platform

The [platform](#) will have up to 57 members, 50 of which will be selected through the call for applications and will include individuals appointed in personal capacity with the relevant proven knowledge and experience, individuals representing a common interest shared by stakeholders, organisations representing relevant private stakeholders, organisations representing civil society and organisations representing academia and research institutes.

This group of experts will have four main tasks:

1. Advise the Commission on the technical screening criteria for the EU Taxonomy, including on the usability of the criteria.
2. Advise the Commission on the review of the Taxonomy Regulation and on covering other sustainability objectives, including social objectives and activities that significantly harm the environment.
3. Monitor and report on capital flows towards sustainable investments.
4. Advise the Commission on sustainable finance policy more broadly.

Outstanding actions on CCU, Bio-CCS, Waste-to-Energy

Three actions on CCU, biomass with CCS, and waste-to-energy are outstanding and could not be resolved within the Technical Expert Group (TEG) that preceded the Taxonomy Platform. ZEP has outlined a plan to address these.

CCU

Challenge: How and under what conditions to include carbon capture and utilisation (CCU) technologies in different manufacturing sectors, as well as the manufacturing of such equipment.

Background: In the manufacturing sector, certain processes are difficult to reduce to very low carbon levels. The Taxonomy technical annex recognises that CCU, where the captured CO₂ is utilised as a feedstock **may** also **qualify**, if **substantial mitigation impacts** can be demonstrated **by reducing emissions** towards meeting the activity criteria.

Challenges

Regarding the inclusion of CCU in the European Taxonomy for Sustainable Finance, ZEP would like to raise some challenges and questions for the consideration of the Taxonomy Platform.

While the Regulation 2018/0178 establishing a framework to facilitate sustainable investment acknowledges ‘environmentally safe carbon capture and utilisation (CCU) and carbon capture and storage (CCS) technologies’ as technologies that make a substantial contribution to climate change mitigation and deliver a net reduction in

greenhouse gas emissions, the Technical Expert Group (TEG) could not settle matters around the life-cycle analysis and technical screening criteria, and noted the need to provide further scientific evidence to assess the potential and size of climate change mitigation delivered by CCU. Another question remains to be addressed – *whether CCU is to be treated as a mitigation activity per se or whether CCU is an economic activity that shall be applied to other economic activities to make them eligible* – is still unresolved.

How has ZEP engaged so far on the matter

ZEP has established a Temporary Working Group (TWG) on CCU and Sink Factor Methodology to provide clarifications around CCU and produced a report on the classification of technologies for climate change abatement of CCU and CCS projects.

The report introduces three criteria to measure the mitigation effect of a specific technology:

- CO₂ to atmosphere, measuring the CO₂ emitted into the atmosphere (C2A) describes the net effect on the atmosphere per tonne of CO₂, intended to be captured and subsequently used or stored permanently.
- The net-energy factor, which reflects how much extra energy needs to be added to the CCU and CCS technologies compared to the energy needed for the production process alone.
- Implementation period for deployment of CCU/CCS technologies until 2050.

The report also notes that the abatement potential of any CCS or CCU technology is dependent on other factors such as:

- The source of the CO₂: geological/fossil, biogenetic, atmospheric.
- The phase to which the CO₂ is being converted: geological storage, short-term living product, long-term living product, fuel, atmosphere, etc.
- The energy source used for the conversion.

The TWG CCU and Sink Factor assist and provide input on technical screening criteria.

Biomass with CCS to energy

Challenge: What is the lifespan that we should consider for biomass' recovery to meet the net-zero target?

Background: The TEG could not settle the matter of a life-cycle analysis for biomass. Therefore, the decision whether to deem it a 'sustainable economic activity' was deferred to the Taxonomy Platform for future deliberation.

Challenge

While producing energy from biomass is an economic activity that shall deliver substantial climate change mitigation, the TEG could not settle the matters around the biomass recovery – *can biomass deliver a positive mitigation impact by 2050?*

Carrying out an appropriate life-cycle analysis, as well as developing further technical screening criteria for the inclusion of biomass, will be vital to argue in favour of the environmental benefits of bioenergy obtained by biomass with CCS.

Once the question around the biomass is settled, the Platform shall evaluate whether Bio-CCS can deliver carbon dioxide removals – when biomass comes from biogenic sources. It will be crucial to track, monitor and account for carbon flows and emissions, as well as assess the ecosystem-service of any biomass source.

How has ZEP engaged so far on the matter

ZEP has set up a TWG on Carbon Dioxide Removal to provide input to the European Commission and the Taxonomy Platform on a life-cycle analysis, technical screening criteria. The work is ongoing.

Waste-to-Energy

Challenge: How to treat the waste, i.e. “whether this would be an appropriate environmentally sustainable activity offering a substantial contribution to climate mitigation”.

Challenge: Regarding waste-to-energy, ZEP notes that the matter of the counterfactuality of waste prevented the TEG from including WtE in the list of economic activities making a substantial contribution to climate change mitigation. ZEP notes that no agreement was found on a methodology to account for GHG emissions.

ZEP sees the need to support the European Commission and the Taxonomy Platform by providing evidence in support of the inclusion of waste-to-energy with CCS as a sustainable economic activity. In some instances, waste-to-energy with CCS may lead to carbon dioxide removals.

How has ZEP engaged so far on the matter

ZEP has set up a TWG on Carbon Dioxide Removal to provide input to the European Commission and the Taxonomy Platform on a life-cycle analysis, technical screening criteria. The work is ongoing.

Agenda Item 7: CCS/CCU pathway to 2050

Presentation, discussion

7.a. SET-Plan modelling exercise

The SET-Plan CCS and CCU Implementation Plan is currently finalising a modelling exercise to support delivery of R&I Activity 8 – *Understanding and communicating the role of CCS in meeting European and national energy and climate goals*. The outcome of this exercise will be the study “Contribution of CCS and CCU to EU Climate target”, which will elaborate on the long-term decarbonisation scenarios and highlight CCS and CCU’s role in the decarbonisation.

The objective of the study is to review the energy system models that underpin European decarbonisation scenarios to identify credible ranges of CO₂ mitigation delivered by CCS, CCU and CCS/CCU enabled negative emissions against different levels of European CO₂ emission reduction ambition. The review will also seek to understand the role that low carbon hydrogen can play in supporting decarbonisation. These models will be reviewed further to provide insights on the sectoral and geographical allocation of the CO₂ mitigation and the insights these provide on the socioeconomic impact of CCS and CCU technologies.

The team leading the study come from the University College London (UCL) Energy Institute, which has considerable experience in both running these models and understanding the wider literature. They have also undertaken substantial recent work on CCS, CCU and GGR. At the AC64, they will present their draft conclusions. The study will be finalised in October 2020.

The study is undertaking the following tasks:

1. Review a wide range of models used by international organisations, national governments, academia, and industry to analyse decarbonisation scenarios at the European, regional, and national level.
2. Identify a subset of the most influential models for further interrogation and develop a credible range of CCS and CCU enabled CO₂ mitigation for scenarios that are consistent with 80% emission reduction and net-zero by 2050. Identify milestones for expected levels of CCS and CCU enabled CO₂ mitigation for emission reductions of 40%, 50% and 55% in 2030, as well as project and associated infrastructure deployment scenarios consistent with this level of CO₂ mitigation.

3. For the scenarios selected, investigate these models to provide insights on the EU's sectoral and geographical allocation of the CO₂ mitigation, as well as the role of CCS/CCU enabled negative emission technologies and any insights these provide on the socioeconomic impact of CCS and CCU technologies.
4. For the scenarios selected, identify the underlying assumptions, data, associated quantitative sensitivities and calculations behind the results that would have an impact on the CCS and CCU projections. Explore similarities and differences, for example, in the range of technologies included, the timing of entry of various more advanced technologies and the performance data and costs applied to those technologies. Areas of interest, for example, might include: the limit on the CO₂ capture rate, CCS/CCU forecast cost reductions and associated impacts on their value to decarbonisation efforts, assumptions underpinning key alternative technologies to CCS and CCU, the impact of large scale hydrogen use, and present and future limits on biomass availability for BECCS. Identify any evidence gaps on CCS and CCU technologies that are being used as input data to the IAMs and any key uncertainties that should be addressed.
5. From the investigation undertaken, summarise the reasons for the variations in results and messaging from different models. Identify, if possible, examples of best practice, explaining clearly why those examples were selected. What lessons may be drawn from the findings by the modellers? Are there recommendations that may be made for users of the projections, e.g. for policy makers, industry, and research communities?

Agenda Item 8: Horizon Europe – partnerships

8.a. Horizon Europe

At the AC64, Vassilios Kougionas from DG RTD will give a presentation on the developments of the Horizon Europe and the calls that will be issued for 2021.

8.b. Follow-up on the Clean Energy Transition Partnership/Strategic Research and Innovation Agenda – for information

The Clean Energy Transition Partnership (CETP) is a 7-year co-funded partnership, which will be crucial to set a commercially viable basis for the industrial-scale deployment of CCS and CCU technologies, reducing costs of the technologies while raising efficiency and scaling up.

During summer, ZEP, partners within IWG9 and experts from EERA have given input to the [paper on CCUS](#) in the 'Enabling Technologies' section, which resulted in a 14-page document where challenges and R&I priorities for CCS and CCU are identified. The main challenges identified for the upscale of CCS and CCU are:

- Getting the commercial framework for CCS and CCU right
- Accelerating timely deployment at scale for CCS and CCU technologies
- Driving down costs, through R&I, learning by doing and economies of scale
- Enabling rapid scale-up to deliver on the climate goals
- Enabling EU citizens to make informed choices regarding the benefits of CCS and CCU.

Associated to the challenges, the group has identified key areas for R&I activities to be funded in the next years. After a presentation of CCS and CCU technologies, the document highlights the many applications of the technologies to deliver net removal of CO₂ from the atmosphere at industrial scale, which can be achieved with CCS through the capture of CO₂ from sustainable biomass sources. CO₂ can also be directly captured from the air through Direct Air Capture (DAC), though this is a less mature technology. Net removal may also be achieved by utilising captured CO₂ from biomass or DAC and permanently storing it through mineralisation (e.g. building materials). The development of the clean hydrogen economy is also stressed in the document, as the CO₂ transport and storage infrastructure supports the development of blue hydrogen, thereby securing timely availability of large-scale volumes of clean hydrogen.

Current technical CCUS R&I projects consider CO₂ capture, transport, storage and utilisation. Non-technical R&D focuses mostly on business models, legal issues and public perception.

Suggested R&I priorities

- Development of industrial scale CCS and CCU
- Development of European CO₂ infrastructure
- CO₂ capture development, including cost reduction
- CCS and CCU transport systems
- CO₂ storage
- Standardisation, regulatory and legal issues
- Social sciences and humanities.

Next steps

- 21 September: 1st Meeting CETP SRIA Editor & Publisher Group
- 19 October: 2nd Meeting CETP SRIA Editor & Publisher Group
- 2 November: 3rd Meeting CETP SRIA Editor & Publisher Group
- 6 November: Final written consultation with interested CETP countries
- 23-24 November: Adoption of the CETP SRIA at the SET-Plan Conference

Background

The Clean Energy Transition Partnership (CETP) / Strategic Research and Innovation Agenda (SRIA) process is ongoing. The endorsement of the SRIA is expected in November 2020 at the SET-Plan Conference and the CETP should be kicked off in Q1 2021, once the MFF is approved.

Short recap regarding the CETP – The basis for the work is [the draft proposal for a partnership on Clean Energy Transition under Horizon Europe](#), submitted by a group of countries (AT, CH, ES, IT, NL, SE, TK).

The ongoing work to produce the CETP SRIA is as you know structured around five clusters:

- *Enabling Technologies* (Concentrated Solar Power, Photovoltaics, Offshore/Onshore Wind, Geothermal Energy, Bioenergy, **CCUS** and Ocean Energy)
- *Heating and Cooling*
- *System Integration*
- *Storage and Fuels*
- *Cross-cutting*

Each cluster (and each technology under Enabling Technologies) is preparing an input paper, highlighting challenges and descriptions leading to R&I priorities. The “Enabling Technologies” paper (a compilation of the input papers per technology) will be combined with the papers from the other clusters into one document. This final document, to be finalised in mid-September, is then supposed to “be the basis” for the SRIA.

Agenda Item 9: Updates from Networks and ERG

9.a. Network Policy and Economics update

NWT and NWPE held virtual meetings in June to discuss ongoing work and a workplan for the rest of the year.

Under **NWPE**, a new TWG on CO₂ infrastructure has been established, co-chaired by Shell and E3G. The TWG CO₂ infrastructure was first engaged for a response to the targeted TEN-E Regulation consultation, which was submitted in mid-July. The response can be found [here](#).

Members of the NWPE have also been engaged in developing input for DG CLIMA on the design of the first call of the Innovation Fund. A document with ZEP's [feedback](#) was sent to the European Commission in the beginning of July, highlighting ongoing concerns such as the lack of alignment of the first call with the European Taxonomy for Sustainable Finance and setting the electricity emissions factor to zero. ZEP has since brought these matters up in engagement meetings with DG CLIMA Deputy Director-General, Clara de la Torre, and DG CLIMA Director, Artur Runge-Metzger. Notes can be found under 9.c.i (See point).

Further consultations include:

- EU ETS monitoring and reporting regulation. ZEP's response is available [here](#).

The last Network Policy and Economic meeting took place on 30 June:

- A new temporary working group on CO₂ infrastructure has been established, with the aim to give input to several processes, such as the revision of the TEN-E regulation, the Strategy for Energy System Integration and Hydrogen strategy
- Policy input for the carbon dioxide report and the hydrogen report is needed.
- ZEP took actions to provide input and feedback to DG CLIMA and DG FISMA on the Innovation Fund and the European Taxonomy, following the publication of the first call for large-scale projects (see above).
- An update on UK projects was provided.

The next meeting will take place on 15 October 2020, 9.00-11.30 CET over Microsoft Teams.

Finally, the European Parliament's ENVI Committee is leading the work in drafting a report on the 'Circular Economy Action Plan', presented in March by the European Commission. The ENVI committee will develop high-level recommendations on the environmental side of the plan, focusing on the importance of circularity and

sustainability of European economic growth. The ITRE committee has been granted special competences on the business aspects of the report, therefore making recommendations on how to develop business models and technologies for circularity, sustainability, and emissions reductions. Upon guidance from the ACEC, the reports “Europe needs a definition of carbon dioxide removal” and “A method to calculate the positive effects of CCS and CCU on climate” have been sent as input to the lead MEPs in the ENVI and ITRE Committees.

Consultations

In June and July, ZEP has responded to:

- [TEN-E roadmap](#)
- [Hydrogen roadmap](#)
- Strategy for [Energy System Integration roadmap](#)
- Consultation on [EU ETS MRR](#)

The following roadmaps have opened. The secretariat has circulated a response for comments on the Inception Impact Assessment on the revision of the REDII directive, whose deadline is on 21 September. The text is also appended below for further input.

The following initiatives are also open:

- Energy Efficiency Directive, until 21 September.
- Consultation on Carbon Border Adjustment Mechanism, until 28 October.

The Commission is consulting with an open roadmap about the possible need for revision of the **Renewable Energy Directive II** (2018/2001) in light of climate neutrality and the European Green Deal. ZEP response has been circulated for feedback and it is available below for comments until 21 September. It highlights the need to draw a net-zero compliant pathway for all pieces of legislation related to the European Green Deal. It will be uploaded to the ZEP website upon final submission.

ZEP is following the review of the **Energy Efficiency Directive** but will not respond to the roadmap.

On the **Carbon Border Adjustment Mechanism** (CBAM), the European Commission has opened a public consultation on the design of the mechanism, which aims to identify opportunities and challenges in relation to the future Carbon Border Adjustment Mechanism (CBAM). A CBAM would ensure that the price of imports reflects more accurately their carbon content. This measure will be designed to comply with World Trade Organization rules and other international obligations of the EU. This measure would be an alternative to the current free allocation of allowances or compensation for the increase in electricity costs that address the risk of carbon leakage, because of carbon pricing in the EU's Emissions Trading System (ETS). The European Commission is expected to present a proposal in June 2021. ZEP is preparing a draft reply for

comments of the NWPE on the basis of the response submitted to the previous roadmap. The response will also be discussed at the next NWPE meeting.

If you have any further comments, please send them to the secretariat by Monday 21 September.

REDII inception impact assessment

The Zero Emissions Platform (ZEP) welcomes the opportunity to provide feedback on the inception impact assessment of the Renewable Energy Directive II (2018/2001). ZEP is a European Technology and Innovation Platform (ETIP) under the Commission's Strategic Energy Technology 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) under Horizon2020 R&I programme (grant agreement 826051).

ZEP supports the European Union's commitment to reach climate neutrality by 2050, defined as net-zero greenhouse gas (GHG) emissions by 2050. To this end, CCS and CCU technologies play a crucial role¹. These technologies represent a readily available, cost-efficient pathway for the decarbonisation of industrial and energy sectors in the European Union.

About the revision

With the European Green Deal and the clear objective of climate neutrality by 2050, the European Commission has a possibility to review all related pieces of legislation. This creates an opportunity to remove overlaps or contradictions between existing policies and to fully focus on the net-zero target and GHG emissions reduction. By introducing legislation that is directly compatible with net-zero and focused on GHG/CO₂ threshold-driven measures, the energy and climate transition will be more cost-efficient, providing a clearer framework for industry and EU regions to plan and realise their decarbonisation pathways. Considering that carbon dioxide removals will play an increasingly important role to achieve the EU's climate objectives, the Commission should also provide a policy and regulatory framework to incentivise them.

ZEP notes that the Commission should also provide further clarity regarding how the renewable electricity will be integrated with the current energy system and drive the electricity grid to net-zero by 2050. In order to give a strong signal to investors and to ensure ongoing support for CCS and CCU, there is a need to properly account for all GHG emissions from electricity inputs and make an informed decision.

In the revision, the Commission might also consider the introduction of non-regulatory measures, encompassing training and information campaigns, to raise awareness among policymakers and relevant stakeholders of the potential of low-carbon technologies such as CCS and CCU. ZEP notes that ensuring that a coordinated policy framework is put in place across the EU will be key in creating conditions for long-term investments.

ZEP believes that the European Commission should provide further clarity on the definition of sustainable biomass and a certification system for bioenergy (art 29-31), including associated GHG and sustainability

¹ European Commission, 2018. [A Clean Planet for all A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy](#); IPCC, 2019, [Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development](#), page 134

criteria, based on a robust life-cycle approach and traceability system. This approach is essential to determine which economic activities can effectively contribute to the EU's climate objective of net-zero GHG emissions by 2050.

Modelling scenarios² show that biomass with CCS has an important role to play to decarbonise energy-intensive industries as the only large-scale technology that can achieve carbon removals (in addition to any emissions reductions achieved by replacing fossil fuels with that biomass). In a previous ZEP report³, it is shown how switching to biofuels and biomass with CCS could not only help industries decarbonise, but even go carbon negative. The following items highlight a basis for further action:

- While awaiting the revision of the EU ETS, and in the absence of a higher carbon price, economic incentives for carbon dioxide removals are needed – in particular, reward carbon dioxide removals via the capture and storage of biogenic CO₂ under the EU Emissions Trading Scheme, in the same way as for fossil CCS.*
- The development of CO₂ transport and storage infrastructure is critical to deliver early, large-scale volumes of carbon dioxide removals.*
- Under the European Taxonomy for Sustainable Finance, the European Commission and Taxonomy Platform should consider including carbon dioxide removals and the related economic activities (Bioenergy with CCS, Waste-to-Energy with CCS).*
- Support and continue R&D activities, investing in innovative CO₂ capture technologies.*

Synergies with other legislation and with the European Taxonomy for Sustainable Finance

An integrated energy system will also benefit from more flexible power generation. CCS can bring flexibility to the energy system, enabling decarbonised, flexible electricity production. For European countries and cities that rely on bioenergy and waste incineration for power and heat, CCS can not only deliver mitigation, but can also remove CO₂ from the atmosphere on a large scale. Any CO₂ reduction allocation needs accurate carbon accounting covering all processes involved, including energy inputs and embedded emissions, for example.

It is important that the Commission identifies possible synergies with the recently announced strategy for Energy System Integration and Hydrogen strategy, and further develops and promotes the use of CCS and CCU for the production of low-carbon fuels, especially low-carbon hydrogen. Early, large-scale volumes of low-carbon hydrogen can be produced with CCS and can be dispatched to industries and homes within this decade. This would nonetheless require European, cross-border CO₂ transport and storage infrastructure to be in place, connecting CO₂ emitters with CO₂ storage sites.

Regarding the manufacturing of low-carbon hydrogen, ZEP would like to refer to the input⁴ submitted for the delegated act on climate change mitigation of the European Taxonomy for Sustainable Finance, where it is argued that renewable electricity should have both temporal and geographical constraints to qualify as 'renewable'. The former would be based on when the electricity is produced and when it is consumed in the manufacturing; the latter would ensure that the electricity production purchased is dispatched in the same integrated electricity grid.

² European Commission, 2019, [Biomass for Energy](#); European Commission, 2018. [A Clean Planet for all A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy](#)

³ ZEP and EBTP, 2016, [Biomass with CO₂ Capture and Storage \(Bio-CCS\)](#)

⁴ ZEP, 2020, [Making clean hydrogen and aluminium manufacturing eligible in the Sustainable Taxonomy](#)

9.b. Network Technology update

The last NWT meeting took place in June. Below some key takeaways from the meeting are outlined:

- A task force was set up to support the IWG9 work on the Clean Energy Transition Partnership Strategic Research and Innovation Agenda. The group will provide input for the research and innovation areas that should be included and highlighted in the Partnership.
- TWG Hydrogen and TWG Carbon Dioxide Removals remain active to continue the work on two new reports, building on the reports released in Q2 2020. The secretariat will ensure coordination and arrange the next meetings.
- TWG CCU and Sink Factor made progress on the report. Awaiting the final examples and input on the electricity factor, the report will be finalised and sent out for approval to AC members, as agreed during the AC meeting in June.
- The report on '[CO₂ Transportation](#)' has been finalised and sent out to policymakers.
- Following an introduction on the European Taxonomy, two actions have been identified and allocated to TWG Carbon Dioxide Removals and TWG CCU and Sink Factor to provide input to the Platform on:
 - LCA for biomass
 - LCA and screening criteria for CCU
 - The counter-factuality of waste for Waste-to-Energy.

The next meeting will take place on 5 November 2020, 9.00-11.30 CET over Microsoft Teams.

All the [reports](#) presented at the AC63 in June have been finalised and published on the ZEP website. They have been disseminated to relevant stakeholders and an outreach plan is further articulated below. Calls with the co-chairs and the TWGs will be arranged for the end of August/beginning of September.

A task force was set up and engaged to support the IWG9 work on the Clean Energy Transition Partnership Strategic Research and Innovation Agenda and provide feedback to the work done by the IWG9 so far. The group will continue to provide input for the research and innovation areas that should be included and highlighted in the Partnership.

Temporary Working Groups

TWG Carbon Dioxide Removal and Hydrogen are continuing their work on two new reports.

TWG CDR – the group held calls to discuss the outline of a new report and exchange on the outstanding challenges from the European Taxonomy work. The report outline

looks at CDR technologies that are currently available, illustrated carbon flows based on the definition introduced by Ramirez and Tanzer, and it will offer an overview on industries and projects that could potentially become carbon negative. The TWG is still looking for more examples from industries that could go carbon negative to include in the report. If you would like to contribute to the work, please reach out to the secretariat.

The report will be ready by AC65 in December.

TWG Hydrogen – a call with the group and chair was held before the summer and work is starting on a second report. The focus has been set on the scale up of hydrogen production, an overview on existing technologies (cost, scalability, maturity, volumes), timeline for operations and the vital role of both CO₂ and hydrogen infrastructure development to achieve 2030 climate targets. The group met recently to discuss the first draft which was assembled by the Chair and the secretariat, and responsibilities to populate the draft framework were assigned to working group members.

The group will meet again in October to review progress with the objective to deliver the report by AC65 in December.

A small group of experts will be set up during the autumn to follow the standardisation as cross-border CO₂ infrastructure projects are developing, to keep track of the progress on CCS standardisation and to gather standardisation issues arising from the cross-border CO₂ infrastructure PCIs.

9.c. External Relations Group update

Feedback from ERG calls

Since the AC63 meeting in June, the ERG has held three calls.

At the ERG call in June, the ERG discussed the actions arising from AC63, which centred around the Innovation Fund, Standardisation for Projects of Common Interest (PCIs), and updates on the JRC clean energy infrastructure project. In addition to this, the meeting covered EU Taxonomy, communications and outreach for the summer, and the engagement plan, including preparation for the meeting with EVP Timmermans.

In July's ERG meeting, the focus was on the outcomes from the meetings with EVP Frans Timmermans and Artur Runge-Metzger, Director of DG CLIMA.C. (Notes from the meeting with Runge-Metzger are appended as pre-read 9.c.i.) ZEP aimed to secure follow-up meetings in relation to these dialogues. The ERG also discussed the EU Taxonomy Platform, hydrogen, the EU Commission's announcement regarding the Hydrogen Strategy and Strategy for Energy System Integration, BECCS and biomass to energy, and ZEP's planning for 2021.

The ERG convened in September, following up on actions from the ACEC August meeting. Regarding a new co-chair for the ERG, an open call to members to apply will be sent out for AC64. The focus of the meeting was on the Clean Hydrogen Alliance, EU Taxonomy, the Hydrogen Strategy, CCUS Annual Forum, and further topics on the EU political agenda, such as upcoming consultations. The call also covered communications and outreach priorities, including updates to the ZEP website, upcoming reports, articles on CO₂ infrastructure and hydrogen, the engagement plan, and event opportunities.

Further information on actions arising from the ERG meetings are detailed below.

Communications and outreach, engagement plan

The basis for ZEP's communications and outreach is the EU policy agenda and the specific policy initiatives that have an impact on CCS and CCU. ZEP has outlined the following communication and outreach priorities for the autumn:

- Engagement with Taxonomy Platform
- TEN-E Regulation
- EU Taxonomy
- Hydrogen – Clean Hydrogen Alliance
- EU ETS
- NECPs
- CETP
- EU Climate Law

The plan for the continued strong engagement program includes policymakers in the European Commission – particularly DGs ENER, FISMA, CLIMA – Parliament and Permanent Representations to discuss these priorities.

ZEP website updates

ZEP Secretariat is working on updating aspects of the ZEP [website](#), including the homepage and the CCS/CCU projects [map](#) to feature the latest projects and most up-to-date information on existing projects. Updating the homepage will ensure that the most relevant information is the first thing that people see when they visit the site. At present, illustrations take up the most space and text introducing ZEP and ZEP's activities does not take centre stage. Particularly when accessing the site via mobile phone, visitors need to scroll further to find information about who and what ZEP is.

When introducing ZEP in consultations, position papers, and reports, ZEP Secretariat is proposing to use an additional sentence underlined below:

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). ZEP supports the European Union's

target to reach climate-neutrality and net-zero greenhouse gas emissions by 2050.

In addition, a set of two-page infographics and slides are being prepared to give a brief overview of ZEP and what CCS/CCU is, corresponding to ZEP reports and position papers. The two-pager aimed for “beginners” expands on who ZEP is, what ZEP does, CCS and CCU, and the role these technologies will play in mitigating climate change. Other two-pagers and slides give an overview of ZEP’s positions and policy asks. The infographics and slides will be available on the ZEP website and will be shared on Twitter and, in future, can be used to align messaging to communicate about new reports with all contributors. Some examples of infographics are appended after this pre-read. For all future reports and position papers, corresponding infographic documents and slides will be created.

ZEP Communication Information Group

After discussions in the ACEC and the ERG, ZEP will set up an informal Communication Information Group, which aims to provide a platform to exchange information and coordinate activities relating to communications and outreach surrounding CCS and CCU. The initiative is based on the critical importance of coordinating communications and outreach in Brussels in relation to the EU institutions. The Communications Information Group will report to the ERG. This initiative seeks to gather representatives from ZEP members and observers to exchange information and coordinate outreach activities.

Interested representatives from ZEP AC members and observers are invited to make contact with the ZEP Secretariat for the participation in the communications group.

ZEP bimonthly news update for members

With the increased interest in CCS and CCU and the growing importance of their role in ensuring the EU reaches its target of net-zero GHG emissions by 2050, ZEP will make the monthly members newsletter more frequent and more concise. The bimonthly news update will contain:

- A leading story – ZEP press release/news, new ZEP report, project news, important European policy news.
- General news section – include articles about projects, reports of interest.
- Updates on EU Commission and Parliament activity – major policy news, consultations.
- ZEP’s actions and priorities – responses to consultations, position papers, important meetings/events ZEP attended.
- News and events from members – before sending each news update, member organisations will be invited to share their news, press releases, updates on projects, etc. to be included in the update. Opportunity for members to showcase their activities.

The ZEP members newsletter will be sent every second Thursday of each month and will begin in October.

9.c.i Notes from meeting with Artur Runge-Metzger, Director DG CLIMA.C – for information

On 15 July, ZEP had a meeting with Artur Runge-Metzger, Director of DG CLIMA.C – Climate Strategy, Governance and Emissions from non-trading sectors. This department covers international and EU climate strategy, waste, agriculture and forestry, carbon capture, use and storage, financial instruments for EU innovation, monitoring, reporting, and verification.

Meeting participants: Artur Runge-Metzger, Peter Zapfel, Graeme Sweeney, Jonas Helseth, Per-Olof Granström, Giorgia Bozzini.

The purpose of the meeting was to introduce ZEP's work, to clearly highlight ZEP's position on the Innovation Fund and the EU Taxonomy, and to provide input.

ZEP representatives thank Mr Runge-Metzger for the meeting and propose three areas of exchange for the meeting:

- The developments around the delegated act implementing the regulation on European Taxonomy for Sustainable Finance.
- The design of the first call of the Innovation Fund.
- The revision of the EU ETS.

Runge-Metzger welcomes the proposal. He informs that DG CLIMA is currently involved in the drafting of the delegated act on European Taxonomy for Sustainable Finance but adds that he cannot give details at the moment. The conversation moves to the Innovation Fund. ZEP presents a feedback document that they submitted to DG CLIMA, highlighting the problematic issues of setting the electricity factor to zero and the non-alignment with the Taxonomy.

In response, Runge-Metzger states that DG CLIMA had long, internal discussions on the electricity factor. DG CLIMA believes that this solution will allow projects to score high in the 'innovation' category. For technologies such as electrolyzers, he notes that DG CLIMA wanted to encourage their uptake ("*DG CLIMA is interested in first-of-a-kind technologies*"), and adds that DG CLIMA will look into the electricity factor for the second call.

On the EU ETS point - Runge-Metzger believes that the EU ETS will drive electricity emissions to zero within 15 years and that the electricity grid will be net-zero by 2050.

On a question to the Innovation Fund (*will it support operational costs other than capital expenditure?*), Runge-Metzger responds that they are aware that operating costs are very high, there would be a need for a higher carbon price. He believes that the new ETS and the next Innovation Fund calls will reflect the discussions on carbon price.

ZEP highlights the need for CO₂ storage and stresses the importance of using the Innovation Fund as a basis to develop European infrastructure.

Runge-Metzger concludes by giving an update on DG CLIMA's activities. They will propose new targets for 2030 and in September they will have a plan and a trajectory to achieve the results. All pieces of legislation will have to be considered and will likely have to be reviewed (REDII, EED, ETS).

ZEP concludes by noting that climate neutrality changed everything and reminds of the Taxonomy's approach to adopt declining thresholds for economic activities. "As there is no spare capacity now, all sectors will have to contribute".

No explicit follow-up is agreed upon.

9.c.ii Notes from meeting with Clara de la Torre, Deputy Director-General DG CLIMA – for information

On 15 September, ZEP had a meeting with Clara de la Torre, Deputy Director-General DG CLIMA.

Meeting participants: Clara de la Torre, Maria Velkova, Olivia Gippner, Graeme Sweeney, Jonas Helseth, Per-Olof Granström, Giorgia Bozzini.

De la Torre welcomes all the participants to the meeting and invites all to introduce themselves. She mentions that the Commission will present a strategy for 2030 climate target plan on 16 September and is keen to hear from ZEP how CCUS can contribute to the reaching this goal.

GS gives a short introduction to ZEP. He indicates that ZEP is one of the Chairs of IWG9 of SET-Plan and in that context, ZEP submitted a list of shovel-ready projects to the SET-Plan secretariat, which can all start soon. In this respect, the role of the EU ETS Innovation Fund is crucial to support those projects that are ready to become operational. He mentions ZEP's input to DG CLIMA, raising the issue of counterparty risk and the electricity factor set to net-zero, highlighting how this was dealt with in the European Taxonomy. He notes that ZEP has an ongoing working relationship with DG CLIMA.

De la Torre shares that discussions on CCUS have been ongoing for a long time, but the technology remains expensive. She asks to elaborate on the counterparty risk (*why is CCS a riskier technology than others?*) and invites MV to give a reply on behalf of the Innovation Fund team.

GS responds that several companies involved in the CCS chain have different sets of competences and one single company is not interested in developing the whole value chain. There is a need to connect between industries and expertise to deliver a CCS project.

Responding on the IF question, MV explains how DG CLIMA decided on the matters raised by GS. She stresses that DG CLIMA believes that the electricity grid will be net-zero by 2050. She acknowledges that the immediate project emissions might be high but highlights that the energy input will be taken into account in the second step of the application. She also stresses that innovation is an important criterium to consider and that DG CLIMA is looking for 'first of a kind' projects. This point is also echoed by De la Torre.

Following a question about what contribution CCS can make with a view to 2050, GS responds that CDR and hydrogen production can be kickstarted on CCS projects and CO₂ infrastructure, and that CCUS will make an important contribution for industrial decarbonisation. He foresees that CCUS will be an integral part of the energy system.

De la Torre asks about social acceptance. GS responds that offshore projects and offshore storage are likely to develop faster than onshore storage, due to social barriers. Nevertheless, R&I could help solve some existing barriers for public acceptance. JH highlights that the mindset regarding CCS projects and offshore storage has changed dramatically over the years and foresees interesting developments in the next years.

The final question is about the potential of CCU. GS recalls that CCU is not included in the Taxonomy mainly because there was no agreement on LCA. However, he believes that CCU could bring economic benefits and circularity to industrial activities and that the economic side of CCU is interesting to look at.

Finally, on the EU ETS, de la Torre highlights that the Commission will put forward a proposal in June 2021 and the impact assessment is starting already. She suggests following up on this topic with a meeting in the next months.

JH concludes the meeting with a mention to the REDII implementing act that is under revision within DG ENER. He informs that ZEP will follow the discussion, as it raises similar concerns on the electricity factor than those explicated previously for the Innovation Fund.

Monthly report on communications activities – for information

JUNE

Reports

- Finalised 3 new ZEP reports for publication in July, including design and layout.
- Prepared tweets to promote the reports.
- Prepared a press release for report *A Trans-European CO₂ Transportation Infrastructure for CCUS: Opportunities & Challenges*.

Meetings

- EVP Timmermans: Preparation for meeting including press release, bios of meeting attendees, meeting agenda and narrative.
- AC63: Preparing pre-reads, organising voting for new member of the AC, followed-up approval for new reports after the meeting, meeting minutes.
- ZEP-C: Prepared invitations, meeting minutes.

Consultations

- ZEP responded to several consultations:
 - [ZEP response to 'Roadmap on Strategy for Energy System Integration'](#)
 - [ZEP response to the roadmap on TEN-E regulation](#)
 - [ZEP response to the Roadmap on 'an EU Hydrogen strategy'](#)

Twitter & Media

- Twitter following increase: +37
- Updating media database: updating journalist contacts, adding media outlets.

JULY

Reports

- Published 3 new reports, which were publicised on Twitter and in the ZEP July newsletter:
 - [A Trans-European CO₂ Transportation Infrastructure for CCUS: Opportunities & Challenges](#)
 - [Europe needs a definition of Carbon Dioxide Removal](#)
 - [A method to calculate the positive effects of CCS and CCU on climate change](#)

Meetings

- ZEP held meetings with European policymakers including:

- Frans Timmermans, Executive Vice President of European Commission, European Green Deal
- Artur Runge-Metzger, Director of DG CLIMA.C

Consultations

- ZEP responded to several consultations:
 - [ZEP response to the consultation on EU Emissions Trading System](#)
 - [ZEP response to the revision of the Trans-European Energy Infrastructure \(TEN-E\) regulation](#)
 - [Input to DG CLIMA on the Innovation Fund – challenges for CCS projects and lack of alignment with the Taxonomy](#)
 - [Future-proofing the Taxonomy regulation regarding CO₂ transport infrastructure](#)
 - [Making clean hydrogen and aluminium manufacturing eligible in the Sustainable Taxonomy](#)

Twitter & Media

- Published 2 press releases:
 - [Developing cross-border CO₂ transportation and storage infrastructure in Europe is vital to deliver climate neutrality](#)
 - [Zero Emissions Platform and industry stakeholders present shovel-ready CCS projects to Executive Vice President Frans Timmermans, highlighting their role in the economic recovery](#)
 - Policy asks for EVP Timmermans: [Capturing the clean growth opportunities – Why a CCS industry is vital for European economic recovery and climate-neutrality](#)
- Followed up publication of CO₂ transport report with coordinated mailings to relevant stakeholders and policymakers in European Commission and Parliament.
- ZEP shared and promoted 3 new reports on Twitter (includes tweets in August and September):
 - CO₂ transport report: total 9 tweets
 - CDR report: total 6 tweets
 - CCU report: total 5 tweets
- Twitter following increase: +44

AUGUST

ZEP planning

- Developed plans for the update of the ZEP website and discussed with website designers. This includes an increased focus on CCS and CCU projects in Europe through the projects map, which will be updated frequently and shared on Twitter.
- Prepared two-page infographics and a number of slides corresponding to ZEP reports and position papers:
 - *A Trans-European CO₂ Transportation Infrastructure for CCUS: Opportunities & Challenges*
 - *Europe needs a definition of Carbon Dioxide Removal*
 - *A method to calculate the positive effects of CCS and CCU on climate change*
 - *Revision of the TEN-E Regulation*
 - *European Strategy for Energy System Integration*

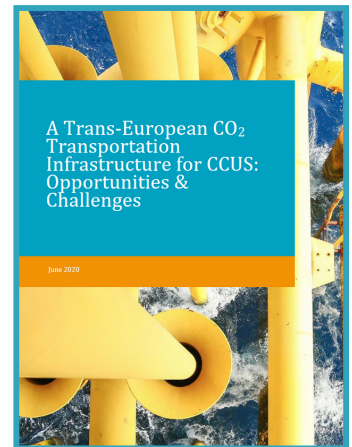
Twitter & Media

- ZEP Secretariat wrote two articles on CO₂ infrastructure and on Hydrogen and will reach out to journalists to find a channel to publish these articles. The articles will also be shared on Twitter and added to the website.
- Continued sharing ZEP reports and responses to consultations on Twitter.
- Twitter following increase: +32.

A TRANS-EUROPEAN CO₂ TRANSPORTATION INFRASTRUCTURE FOR CCUS: OPPORTUNITIES & CHALLENGES – ZEP REPORT

What does this report focus on?

- A technical overview of CO₂ transportation, particularly the use of pipeline networks in industrial clusters, but also regarding other modes of CO₂ transport, and the importance of developing dedicated business models for CO₂ transportation.
- Need for further development of the key principles underpinning the development of CO₂ transportation pipelines and large-scale deployment and identify legal barriers to CO₂ pipeline transportation.
- While the role of CCS/CCUS and its contribution towards mitigating climate are acknowledged, a strong signal in support of European cross-border CO₂ infrastructure from European policymakers will be necessary.



What are the main takeaways?

- Transportation of CO₂ is technically feasible by pipeline and ship, as demonstrated through operating and upcoming CCS projects.
- Further development of knowledge and operational experience, along with dedicated business models to encourage investment, will help optimise the design, construction, and operation of CO₂ transportation networks.
- Cross-border CO₂ transportation infrastructure has a major role to play in delivering a cost-efficient transition to a low-carbon economy.
- Developing shared, cross-border CO₂ transportation infrastructure on a large scale presents challenges from a technical, legal and economic perspective, but are essential to enable the decarbonisation of core sectors of the European economy, industry, and power generation to preserve production, safeguard jobs, and create sustainable economic growth.



What can CO₂ transportation infrastructure offer?

- Will play a key role in establishing CCUS industrial clusters as a game changer in mitigating global warming.
- Is a no-regret investment opportunity for the EU, that will enable the production of early, large volumes of low-carbon hydrogen and deliver CO₂ removal.
- Would allow the EU to become a global leader in low-carbon economic growth and pave the way for a clean hydrogen economy.



ZEP's policy recommendations

Revised TEN-E Regulation should include:

- All modes of CO₂ transport – pipelines, ship, barge, truck, and train – allowing all European regions and industries to connect to the European infrastructure.
- CO₂ storage as an essential component of a CCS/CCUS project and as part of the CO₂ infrastructure.
- The development of hydrogen pipeline networks, which will support the production and transportation of hydrogen – and support the EU's decarbonisation pathway.
- Repurposing and retrofitting of natural gas pipeline networks for the transportation of CO₂ and clean hydrogen.



Once cross-border CO₂ infrastructure is in place, the production of early volumes of low-carbon hydrogen from natural gas with CCS can be initiated, paving the way for a clean hydrogen economy by securing a stable hydrogen supply from the beginning onwards.

To create a level playing field and the conditions for long-term investments for CO₂ emitters across Europe, at the least, non-discriminatory third-party access to cross-border CO₂ transportation and storage infrastructure should be regulated.

As the revised TEN-E regulation will drive the selection of the European Projects of Common Interest (PCI), it is vital to ensure that the next PCI lists are in compliance with climate neutrality by 2050, creating opportunities for cross-border CO₂ and hydrogen infrastructure projects to be further developed and scaled up.



Download the report [A Trans-European CO₂ Transportation Infrastructure for CCUS: Opportunities & Challenges](#)

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EUROPE NEEDS A DEFINITION OF CARBON DIOXIDE REMOVAL – ZEP REPORT

The European Union has set a target to reach net-zero greenhouse gas (GHG) emissions by 2050. The legally binding European Climate Law takes into account the role of carbon dioxide removals: “while greenhouse gas emissions should be avoided at source as a priority, removals of greenhouse gases will be needed to compensate for remaining greenhouse gas from sectors where decarbonisation is the most challenging.”

What is Carbon Dioxide Removal?

Carbon Dioxide Removal involves taking CO₂ out of the atmosphere, where it contributes to climate change, and putting it in a location where it will not affect the climate for an extended period of time. The aim is to reduce the concentration of CO₂ in the atmosphere. This can be achieved through natural and technological means.



This report:

- Provides clear, concise definitions of commonly used terms around Carbon Dioxide Removal.
- Gives an overview of existing technologies and their potential for emissions reduction.
- Identifies some examples of European industrial plants that have the potential to remove carbon from the atmosphere.
- Advocates for European CO₂ transport and storage infrastructure – a real enabler for large-scale carbon dioxide removals.



Achieving net-zero emissions requires a net balance between emissions and removals from the atmosphere. There are four principles that must be met for any practice or technology to be commonly considered as achieving Carbon Dioxide Removal. (This report looks at principles 1 and 2, and a second report will address principles 3 and 4)



1. CO₂ is physically removed from the atmosphere.
2. The removed CO₂ is stored out of the atmosphere in a manner intended to be permanent.
3. Upstream and downstream GHG emissions, associated with the removal and storage process, are comprehensively estimated and included in the emission balance.
4. The total quantity of atmospheric CO₂ removed and permanently stored is greater than the total quantity of CO₂ emitted to the atmosphere.

Terminology around Carbon Dioxide Removal

The terms **Greenhouse Gas Removal (GGR)** and **Negative Emission Technology (NET)** have been used to describe the same or similar processes and are somewhat interchangeable terms.

- **Greenhouse Gas Removal** refers to the removal of all GHGs. However, the effect of CO₂ and other GHGs on the climate are not entirely 'like-for-like' and the nature of their accumulation in the atmosphere is also quite different. In addition, efforts to remove other GHGs are less clear. To avoid confusion and possible loopholes, it is best to address the removal of CO₂ on its own.
- **Negative Emissions** refers to the concept of removals – the opposite of emissions. The term does not refer specifically to any GHG.



- **Negative Emission Technologies** refers to specific technologies or processes which can be used to achieve Carbon Dioxide Removal.
- The Paris Agreement target sets out to 'achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century'. **Net-zero** represents this balance between emissions and removals. (Reducing emissions remains the absolute priority for the mitigation of climate change.)

Policy recommendations

Developing cross-border European CO₂ transport and storage infrastructure is key to reach the EU's target of net-zero GHG emissions by 2050. It will enable clean, competitive energy and industrial sectors, early large-scale clean hydrogen, and will deliver significant volumes of carbon emission reductions and removals.

A clear signal from policymakers is necessary to support and incentivise the deployment of CO₂ infrastructure. Large public investments will be needed in the initial stages, and favourable policy framework should be put in place on a European level to support industries, energy companies, and member state governments.

- Revision of the Trans-European Network for Energy (TEN-E) regulation should be based on the European Green Deal and encompass the principle of climate neutrality by 2050. It should:
 - Enable CO₂ transportation by several modalities – ship, barge, truck, rail.
 - Include CO₂ storage – an essential component of a full-chain CCS project.
- Retrofitting of existing gas pipelines should be promoted and facilitated.
 - National decarbonisation pathways outlined in the National Energy and Climate Plans (NECPs) should include deployment of CO₂ transport and storage infrastructure and align and coordinate with the European Hydrogen Strategy. Clean hydrogen produced from natural gas with CCS is a viable option for industrial decarbonisation that will require CO₂ infrastructure.

Download [Europe needs a definition of Carbon Dioxide Removal](#)

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A METHOD TO CALCULATE THE POSITIVE EFFECTS OF CCS AND CCU ON CLIMATE CHANGE - ZEP REPORT

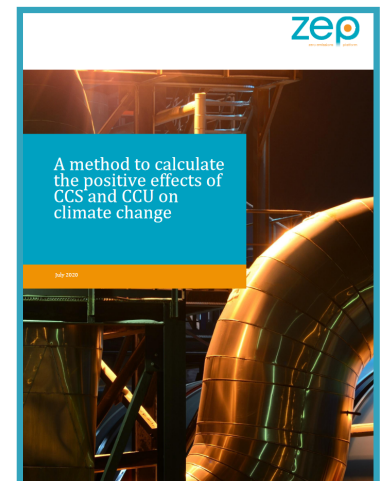
Carbon Capture and geological Storage (CCS) will play a major role in the decarbonisation of European society, especially for energy-intensive industries. The (re)use of captured CO₂ emissions (CCU) will become more important in the debate on solutions to achieve a climate-neutral Europe as further scientific evidence describing their climate mitigation potential becomes available.

This report introduces three fundamental characteristics for the classification of CCU and CCS technologies for climate change abatement. Each characteristic has its own Key Performance Indicator (KPI).

Mitigation effect: CO₂ to the Atmosphere (C2A) – This factor measures the CO₂ emitted into the atmosphere and describes the net effect on the atmosphere per tonne of CO₂, intended to be captured and subsequently used or stored permanently.

Net energy consumption: Net Energy Factor (NEF) – The net energy factor reflects how much extra energy needs to be added to the CCU and CCS technologies compared to the energy needed for the production process alone. The energy use and the linked emissions will be key.

Implementation period – Technologies that are available now can already contribute to the climate neutrality ambitions. New technologies and improvements in existing technologies will come and reduce costs and improve the energy efficiency of CCUS in the future. Four periods have been identified to characterise the timeframe to 2050.



The abatement potential of any CCS or CCU technology is dependent on:

- The source of the CO₂: geological/fossil, biogenetic, atmospheric.
- The phase to which the CO₂ is being converted: geological storage, short-term living product, long-term living product, fuel, atmosphere, etc.
- The energy source used for the conversion.

EU Taxonomy for Sustainable Finance – What is considered “green” will develop over time

The two technical KPIs (C2A and NEF) in combination, plus the time period in which the technology is to be ready for commercial implementation, indicates a development of technologies in time.

- In the first period, a few technologies will be commercially available.
- In later periods, many new technologies with better performance and the same lower Net Energy Factor will appear and the lead in carbon capture application.
- In the last period, new technologies with even higher performances and NEF will appear. Combined with a continuous reduction of the emission factor, also for the electricity need, developments will be seen.



Key message: From a sustainability perspective, an upward trend over time of the combination of C2A and NEF will be seen and should be recognised in the European Taxonomy for Sustainable Finance.

Conclusions

A simple, fast assessment of the positive effects of CCU and CCS technologies on climate change has been developed on the bases of three key performance indicators.

1. **CO₂ to Atmosphere Factor** indicates for technologies the positive contribution to climate change mitigation in units of CO₂ emissions prevented, reduced, or (permanently) sequestered.
2. The **Net Energy Factor** indicates the additional energy needed for the use of each technology.
3. The **Time Period** indicates the timeframe when commercial use is feasible.

The combination of the three factors puts each technology and its implementation in the perspective of others. Each technology has its own merits, advantages, and disadvantages.

The three KPIs combined do not indicate which technology is or is not to be used but creates an overview of all possibilities within a certain timeframe. For example, a high Net Energy Factor might be an advantage when renewable energy supplies are available at irregular times, or a higher CO₂ to Atmosphere factor is currently acceptable as other and better technologies are not available.

Download [A method to calculate the positive effects of CCS and CCU on climate change](#)

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Agenda Item 10: Closing remarks and next meeting

Next meeting dates:

- ACEC October: 21 October, 9:00-11:00
- ACEC November: 17 November, 9:00-11:00
- AC65: 16 December, 10:00-13:00