ZEP Advisory Council 50

22nd March 2017

Agenda Item 1: Introduction

1.a. AC50 Agenda

Appended to this paper is the agenda for the 50th meeting of the Advisory Council.

1.b. AC49 Draft Minutes

Appended to this paper are the draft minutes for the 49th meeting of the Advisory Council, which took place on 14th December 2016.

The Advisory Council are invited to approve the minutes of the last meeting.

1.c. ACEC January Meeting Minutes

Appended to this paper are the minutes for the January meeting of the ACEC.

1.d. ACEC February Draft Meeting Minutes

Appended to this paper are the minutes for the February meeting of the ACEC.

1.e. Chair's update

The ZEP Chair and Secretariat have recently participated in a number of meetings with external stakeholders and processes. Appended to this paper are summaries of the following meetings and letters:

- Letters from Graeme Sweeney to Artur Runge-Metzger, Dominique Ristori, Jos Delbeke and Silvia Bartolini re the EU Innovation Fund and response from Jos Delbeke – February/March 2017 (letter appended as pre-read 1.e.i).

- Meeting with Kelsey Van Maris and Elise Van Gerven, Members of Cabinet to Bart Tommelein, Vice Minister-President and Minister for Finance, Budget and Energy in the Government of Flanders, 13 December 2016

- Meeting with Lineke den Ouden and Bastiaan Hassing, Energy Attaché and Environment Attaché at the Permanent Representation of the Netherlands to the EU, 14 December 2016

- Meeting with Dominique Ristori, Director-General DG ENER, European Commission, and Agnija Rasa, Assistant to the Director-General, 14 December 2016

- Meeting with Silvia Bartolini, Member of the Cabinet of Commissioner Miguel Arias Canete, DG ENER/CLIMA, 15 December 2016

- Meeting with Robert Schröder, Member of Cabinet of Commissioner Carlos Moedas, DG RTD, 15 December 2016

- Letters from Graeme Sweeney and Marie Bysveen regarding the ZEP and EERA feedback on the Horizon 2020 draft Energy Work Programme for 2018/19 (letter appended as pre-read 1.c.ii).

ZEP Advisory Council 50

Draft Meeting Agenda: 22nd March

Room 5.A066, 5th floor, DG RTD
Orban Square / Frère Orban, 8
1040 – Bruxelles

10:30 – 17:00 CET

Item		Lead Presenter	Time
1	Introduction and welcome: • Safety notices • Adoption of Agenda • Approval of AC49 minutes and review of actions • Chair's update	Graeme Sweeney	10:30 – 10:50
2	Secretariat Update	Luke Warren	10:50 – 11:00
3	Presentation on EC perspectives on CCU	Ruta Baltause, DG ENER	11:00 – 11:45
4	Commission updates: • DG RTD • DG CLIMA • DG ENER	 Vassilios Kougionas Maria Velkova Michael Schuetz	11:45 – 12:30
	Lunch		12:30 – 13:15
5	Guest presentation: CO2GeoNet	Ton Wildenborg	13:15 – 13:30
6	SET-Plan Action 9 "Renewing efforts to demonstrate carbon capture and storage in the EU and developing sustainable solutions for carbon capture and use"	Harriet Howe	13:30 – 14:30
7	2017 Work Priorities	Luke Warren	14:30 – 15:00
8	Network Policy and Economics update: • Market Economics 5 • Policy and Funding • CCU Policy	Lamberto Eldering / Angus Gillespie / Jonas Helseth	15:00 – 15:45
9	Network Technology update: • Fast Track T&S	Filip Neele / Arthur Heberle	15:45 – 16:15
10	External Relations Group (ERG) update	Mark Downes / Jonas Helseth	16:15 – 16:50
11	Any other business & closing remarks		16:50 – 17:00

Attendance

Advisory Council members

Lamberto Eldering (alternate)	Statoil
Angus Gillespie	Shell
Ward Goldthorpe	Sustainable Decisions
Jonas Helseth (alternate)	Bellona
Emmanouil Kakaras	Mitsubishi Hitachi Power Systems Europe
Philippa Parmiter (alternate)	Scottish CCS
Charles Soothill	ZEP Vice Chairman
Graeme Sweeney	ZEP Chairman
Rob Van Der Meer	HeidelbergCement
Ton Wildenborg (alternate)	TNO

Observers and other attendees

Bruce Adderley	UKCCSRC
Ruta Baltause	European Commission
Sonia Baron	EU Turbines
Thomas Berly	IEA
Anne Margrete Blaker	Gassnova
Didier Bonijoly	BRGM
Mark Downes	Shell
Andrea Forabosco	Shell
Giorgi Komakhidze	EPPSA
Vassilios Kougionas	European Commission
Caterina de Matteis	IOGP
Jean-Xavier Morin	CO2 - H2
Filip Neele	TNO
Niels Peter Christensen	Gassnova
Patrick Clerens	EPPSA
Eric De Coninck	Arcelor Mittal
Dominique Copin	Total
Fedora Quattrocchi	INGV
Andy Read	ROAD
Michael Schuetz	European Commission
Maria Velkova	European Commission
Constantin Sava	National Institute of Marine Geology and Geoecology, Romania
John Scowcroft	GCCSI
Stig Svenningsen	The Norwegian Ministry of Petroleum and Energy
Peter Zweigel	Statoil

ZEP Secretariat

Harriet Howe	CCSA
Theo Mitchell	CCSA
Luke Warren	CCSA

ZEP Advisory Council 50

Draft AC49 Minutes

Attendance

Advisory Council members

Tim Bertels	Shell
Didier Bonijoly (alternate)	BRGM
Lamberto Eldering (alternate)	Statoil
Jonas Helseth (alternate)	Bellona
Arthur Heberle (alternate)	Mitsubishi Hitachi Power Systems
Philippa Parmiter (alternate)	Scottish CCS
Nils Røkke	Sintef
Charles Soothill	GE
Graeme Sweeney	ZEP Chairman
Olav Skalmeraas	Statoil
Ton Wildenborg (alternate)	TNO

Observers and other attendees

Heinz Bergmann	IZ-KLIMA
Gerdi Breembroek	Netherlands Enterprise Agency
Karl Buttiens	Arcelor Mittal
Marie Bysveen	Sintef
Claude Heller	Air Liquide
Vassilios Kougionas	European Commission
Guido Magneschi	GCCSI
Caterina de Matteis	IOGP
Lord Oxburgh	UK House of Lords
Andy Read	ROAD
Michael Schuetz	European Commission
Ugo Simeoni	European Turbine Network
Maria Velkova	European Commission
Keith Whiriskey	Bellona
Jean-Xavier Morin	CO2 - H2

Attending via Teleconference

Owain Tucker	Shell
Mark Downes	Shell

ZEP Secretariat

Harriet Howe	CCSA
Theo Mitchell	CCSA
Luke Warren	CCSA

Item 1: Introduction

The AC adopted the agenda for the meeting (pre-read 1a) and approved the minutes of AC48 (pre-read 1b). It was noted that an agenda item on ZEP 2017 priorities would be held at the AC50.

The Chair introduced the meeting and provided an update on his external engagement activities (pre-read 1c). He noted the importance of the SET-Plan Temporary Working Group 9 CCUS and highlighted the opportunity to consider how unspent NER300 funds might support future CCS projects. It will be important for NW P&E to consider this and provide ZEP input to this discussion.

Angus Gillespie (Shell) was unanimously appointed to the Advisory Council and as Co-chair for the Network Policy and Economics, replacing Tim Bertels who will be stepped down from both positions in December. The AC formally acknowledged the contribution made by Tim Bertels to ZEP and the AC and wished him well for the future.

Item 2: Secretariat update

LW provided an update on the ZEP Secretariat. Meetings of the AC and ACEC for 2017 were reviewed at the November ACEC teleconference and these were approved by the AC.

LW then gave the ZEP-C finance update (pre-read 2b) and outlined the situation regarding membership.

GB provided an update of the activities of the ZEP Government Group (pre-read 2c). GB explained that she had been appointed as the Government Group's Permanent Observer to the AC on an interim basis and that the Government Group would be formally appointing an observer at its next meeting on 3rd March 2017.

Item 3: SET-Plan Action 9

LW and VK provided an update on the SET Plan Action 9 TWG CCUS (pre-read 3). Submissions are being invited from interested parties to outline how ongoing actions could contribute towards the newly-adopted specific targets for CCUS under the SET Plan. These actions will then be discussed at the next meeting of the TWG9 in The Hague (15th February), gaps will be identified and an Implementation Plan will be developed by Q1/Q2 2017.

Item 4: Commission updates

The AC received presentations from;

- Maria Velkova (MV) – DG CLIMA
- Michael Schuetz (MS) – DG ENERGY
- Vassilios Kougionas (VK) – DG RESEARCH

DG CLIMA
It was noted that there have been discussions with the Member States on the unspent NER300 funds though the Climate Change Committee. This relates to €550 mn of funds from the first call of the NER300 process. Four options on reallocation of the funds have been presented to MS with the objective of the money being made available very quickly. It is expected that a proposed way forward witll be presented at the next meeting of MSs in February 2017.

DG ENERGY
MS noted that ROAD has had its grant agreement extended by the EC until end-2019 which is a big step forward.

MS also provided a comprehensive overview of the "Clean Energy for All Europeans"-package published by the Commission on 30th November. The package includes a number of new regulations and legislative proposals relevant to CCS, including governance proposals and the introduction of an Emissions Performance Standard at 550gCO2/KWh for European capacity markets. The ZEP Chair noted the significance of the package and it was agreed that the NWPE would consider how ZEP might respond at its next meeting.

There was a discussion on the proposed inclusion of waste derived fuels in the Renewable Energy Union Directive. It was agreed that this was an important issue that needs to be considered further by ZEP. It was agreed that this should be on the agenda for the AC50.

The presentation slides used by MS can be found appended.

DG RESEARCH

VK updated the meeting on activities - other than TWG9 – relevant to CCS. Of note was the action to align actions under H2020 with Mission Innovation actions. It is expected that there will a Mission Innovation Workshop in Beijing on CCUS. There is also a process to increase cooperation between China and EU under H2020. Finally VK requested that he be sent for final report of the Future CCS Technologies report.

Item 5: Guest presentation: Lowest Cost Decarbonisation for the UK: The Critical Role of CCS

The AC received a presentation by Lord Oxburgh, Chair of the Parliamentary Advisory Group on CCS, outlining the findings from the Group's recent report: Lowest Cost Decarbonisation for the UK: The Critical Role of CCS, published in September 2016 (pre-read 5).

Item 6: Guest Presentation: CCU at ArcelorMittal: The circular carbon economy

The AC received a presentation by Karl Buttiens outlining the work ArcelorMittal are currently undertaking in the production of bio-ethanol from waste CO_2 emissions from steel production.

Following the presentation there was discussion regarding the lifecycle analysis for synthetic fuels products, and it was noted that this issue ties in closely with ZEP's recent response to the EU ETS reform.

Item 7: Network Technology update

Arthur Heberle (AH) led the update on progress within Network Technology (NWT) and its subsidiary working groups as per pre-read 7a. This was followed by a discussion on each of the Temporary Working Groups (TWGs).

TW provided a brief overview of the work of the TWG Future CCS Technologies. A final draft version of the report was presented to the AC (pre-read 7b), which was approved.

CH gave a presentation, providing an overview of the work of the TWG Clean Hydrogen and a summary of the key findings in the report. A final draft version of the report was presented to the AC (pre-read 7c). The AC approved the report, but suggested amendments be made to a number of the images to improve clarity and to the text, including the use of "Clean H_2" and "Green H_2".

Following completion of minor editing and amendments suggested by the AC the ZEP ERG and Weber Shandwick will be provided with copies of the final approved Future CCS Technologies and Clean Hydrogen reports, from which a plan for media engagement activities and dissemination will be produced. Additionally a number of the recommendations from both reports will be used as input for the SET-Plan TWG9 on CCUS.

HH provided an overview of the key recommendations from the report by the TWG Fast Track Transport and Storage. The recommendations were approved by the Advisory Council, with the intention to use them as input to the ZEP General Assembly and SET-Plan TWG9 on CCUS. A final draft version of the report will be presented to the ACEC meeting in February, and subsequently the AC meeting in March for approval.

Item 8: Network Policy & Economics update

LE provided a brief update on the Network Policy and Economics and its subsidiary working groups as per pre-read 8 a. It was agreed that Angus Gillespie will replace Tim Bertels as Co-chair of the Network.

A new TWG CCU Policy will be established to respond to the inclusion of CCU in the form of alternative fuels in the Renewable Energy Directive, and will be chaired by Rob Van der Meer (Heidelberg Cement). The TWG will be made up of members of both the NWPE and NWT and the group will produce its report by Q1 2017.

CS gave a presentation outlining the results of the final modelling work of TWG Market Economics, and a summary of the reports key findings (as per pre-read 8b). A draft version of the report was approved by the AC, subject to some minor amendments. It was noted that the report may benefit

from the inclusion of the key model assumptions and limitations within the introduction. Weber Shandwick will be provided with a final copy of the report, and with support from the ZEP ERG, will devise a plan for dissemination and engagement activities. The importance of ensuring robust communications and messaging was noted given the complex nature of the report and its underlying assumptions.

LE provided a read-out of a recent meeting of the CO_2 Thematic Area under which the Commission is developing a draft template and assessment criteria for CO_2 transport Projects of Common Interest. Given tight deadlines, LE explained that the TWG PCI is developing input to the Commission based on existing ZEP messages and the agreed ToR for the TWG, and the AC provided delegated approval for the co-chairs of the TWG to submit feedback to the Commission.

Item 9: External Relations Group

JH provided an update on the activities of the ERG (pre-read 9 a), including a brief summary of external engagements (as per pre-read 9 b).

Weber Shandwick has a scheduled pause in their contract during January 2017, resuming activities the following month in February. During this period the ZEP Secretariat will be responsible for maintaining the ZEP Twitter feed. The monthly meeting of the ERG group will take place in January.

Item 10: Any Other Business (AOB)

The Chair noted that there was no other business and the meeting was closed.

Actions

Action		Owner	Deadline
1a	Agenda item on ZEP 2017 priorities would be held at the AC50	LW	AC50
1b	NW P&E to consider options for recycling of NER300 funds this and provide ZEP input to this discussion	TM	ASAP
4a	NWPE would consider how ZEP might respond to EPS proposal	TM	ASAP
4b	The policy treatment of waste-derived fuels should be on the agenda for the AC50	LW	AC50
4c	Send final report Future CCS Technologies report to VK	HH	ASAP
7b	Filip Neele, Chair of the TWG Future CCS Technologies to provide WS and the ZEP ERG with a final copy of the approved report.	FN	Completed
7c	CH Chair of the TWG Clean Hydrogen to update images from the Clean Hydrogen and make some amendent to the text including the use of “Clean H_2” and “Green H_2”. . Following the completion the report will be handed to WS and the ZEP ERG for dissemination.	CH	
8b	Minor amendments to be made to the report; Market Economics. Following the completion of these amendments the report is to be handed over to the ZEP ERG and WS for dissemination.	CS	Meeting of the TWG planned for January
8c	TWG PCI to input to the EC based on existing ZEP messages and the agreed ToR for the TWG. AC provided delegated approval for the co-chairs of the TWG to submit feedback to the EC.	LE	Completed

ZEP Advisory Council 50

ACEC Minutes: 17th January 2017

Attendance

Mark Downes	Shell
Lamberto Eldering	Statoil
Arthur Heberle	Mitsubishi Hitachi Power Systems
Jonas Helseth **	Bellona
Gardiner Hill	BP
Filip Neele	TNO
Nils Rokke	Sintef
Charles Soothill	GE
Graeme Sweeney	Ardnacraggan Energy Services Ltd. (Chair)
Rob Van Der Meer	HeidelbergCement
Luke Warren	ZEP Secretariat
Theo Mitchell	ZEP Secretariat

** Jonas Helseth acted as Frederic Hauge's (Bellona) proxy.

Introduction and general update (open session)

The Agenda for the meeting, appended to these Minutes, was adopted unanimously.

Following a review of the minutes and actions arising from the December Advisory Council meeting, the following comments/changes were agreed:

- The draft minutes would be amended to capture discussions around ZEP's input to Horizon 2020;
- The draft minutes would be amended to include remarks from DG Energy that the EEPR grant to the Don Valley project (UK) had been cancelled;
- Discussions around the ZEP secretariat potentially bidding to provide support to DG Energy on international knowledge sharing (e.g. providing secretariat services to the Project Network) should be included in the minutes. It was agreed by the AC that this proposal had merit and further discussions should be pursued.

It was agreed that LW would report back to the ACEC at its February 2017 call on discussions concerning international knowledge sharing and the EU CCS Project Network.

Network and Temporary Working Group updates (open session)

<u>Market Economics 5</u>

CS provided an overview of discussions at the December Advisory Council meeting, including the following updates:

- The modelling is being updated to reflect new inputs on the amount of available sustainable biomass
- Modelling for Norway continues to produce unfamiliar results – this is being considered further with input from Gassnova and Statoil
- The model is being updated to allow countries to go beyond an indicative 85% emissions reduction from the four main sectors being modelled (power, industry, heat and transport)
- Model runs including CCS show greater emissions reductions and lower costs to society

The ACEC provided its approval for the revisions to the modelling and commented that the work was looking promising. It was agreed that a link should be made in the report to emerging discussions around an Emissions Performance Standard (EPS) for EU Capacity Markets and the relative roles for biomass and CCS.

CS invited the ACEC to provide further input on messaging and communications relating to the report and it was agreed that the ERG would attend a meeting of the TWG to discuss this further.

Network Technology

FN provided an overarching update on Network Technology, including progress under each of the Temporary Working Groups (TWGs). FN noted that the next meeting was planned to take place in April 2017, following the March AC meeting. This would allow for the Network to consider the 2017 priorities of the AC more fully and for TWGs to be established to work on particular priority areas.

FN was pleased to report that the Future Technologies report had been published and that the Clean Hydrogen report was due to be published in February. It was, however, noted that further amendments were needed on the hydrogen report to reflect discussions at the AC regarding terminology of “clean” versus “green” hydrogen.

FN reported that the Fast Track T&S report was looking very good and that it would be presented to the ACEC in February ahead of submission to the Advisory Council in March.

In terms of other ongoing activities:

- The TWG Energy Intensive Industries was now being considered as part of a wider discussion around CCU Policy and the future of EnIIs. This TWG is being chaired by RvdM and will begin work shortly. GS thanked RvdM for agreeing to lead this work.
- The Network co-chairs have been working with NR and the secretariat to draft input to DG Research on H2020 priorities and the forthcoming 2018/19 Work Programme. It was agreed that this work should be coordinated with the CCS EERA where possible and that it should be cognisant of ongoing discussions around potential use of unspent NER300 funds, the SET Plan TWG9 and discussions with DG Research around a ‘smart funding pathway’ for CCS.

Network Policy and Economics

Building on the update on ME5 provided by CS, LE discussed other ongoing activities within Network Policy and Economics. It was noted, in particular, that the TWG Policy and Funding had been tasked with developing three written submissions:

- A discussion paper for the SET Plan TWG9 and EU Climate Change Committee on the unspent NER300 funds (this was circulated as a pre-read ahead of the teleconference)
- A smart funding pathway for DG Research, demonstrating how projects can scale up from early research funding to demonstration and deployment
- Feedback to DG Energy on the Capacity Market proposals and how an EPS could be designed effectively.

The ACEC provided no comments on the draft discussion paper for the SET Plan TWG9 so it was agreed that any written comments should be sent to the secretariat by Monday 23rd January. The co-chairs of TWGP&F (TM and JH) agreed to arrange a teleconference with the TWG P&F to initiate work on the EPS/Capacity Market task; the ACEC agreed that the smart funding pathway would be developed on the basis of pre-agreed ZEP positions contained in the Executable Plan and around unspent NER 300 funds.

LE provided an update on TWGPCI and indicated that the next meeting of the Thematic Area was being arranged for 13th February. The Application Template and detail on the accompanying Cost Benefit Analysis are expected to be published shortly thereafter. The North Sea Basin Taskforce will also publish its CO_2 Infrastructure Plan in Q1 2017.

GH suggested that TWGP&F should link up more closely with ongoing work under the OGCI around potential policies to support CCS deployment. It was agreed that LE would be well-placed to provide this interface. GH also noted an upcoming meeting with UK Energy Minister, Nick Hurd MP, and requested any relevant inputs from members of the ACEC.

<u>External Relations Group (ERG)</u>

MD highlighted recent progress under the ERG including an overview of recent external engagement activities (notes appended with the pre-reads) and report publications. He provided an update on work towards a new narrative for ZEP, which is being developed by Weber Shandwick, and agreed to introduce a first draft at the February ACEC teleconference.

MD and TM jointly provided a progress update on the ZEP General Assembly / European Parliament Hearing on CCS. It was noted that a provisional date had been set of 23rd March 2017, the day following the next AC meeting and ACEC members were invited to save-the-date. The host for the GA will be Lambert Van Nistelrooij MEP.

ACEC members were invited to provide feedback on progress towards the GA and GH suggested that either the IEA or IPCC be invited to provide a presentation. TM agreed to follow-up.

ZEP Priorities 2017

TM provided an overview of progress towards delivery of ZEP's 2016 priorities as a pre-cursor to a discussion around priority activities for 2017. The ACEC agreed with the work that had been identified and a pathway to discussing 2017 priorities with the wider AC at the March meeting.

It was agreed that the ACEC would value an away day in February to discuss potential ZEP priorities and both JH and GH offered to host the meeting. LW agreed to initiate further discussions around potential dates and hosts via email.

SET Plan TWG9 CCS/CCU update (open session)

GS and LW provided an update on progress under the SET Plan TWG9 CCUS, including the following points:

- The co-chairs of the TWG9 were very pleased with the response they received from Member States and other stakeholders regarding ongoing activities towards the specific targets for CCUS contained in the Declaration of Intent
- A number of the targets can likely be delivered on the basis of current and planned activities but a number of gaps are still expected. The Implementation Plan will identify these gaps and propose actions/funding to address them.
- The draft Implementation Plan will be developed by the next meeting of the TWG9 (15th February, The Hague, NL) with the aim of completing the Plan by early Q2.
- There is uncertainty regarding the forward process after the Implementation Plan has been adopted.

GS reiterated the importance of ZEP's engagement and leadership around the SET Plan TWG9 and noted thanks also to Sintef in helping to develop the draft Implementation Plan. It was noted that the NER300 paper will be circulated once comments have been recievd from the ACEC.

AC50 Agenda

A discussion was had around the draft AC50 agenda circulated in the pre-reads for the teleconference. It was noted that the SET Plan agenda item was perhaps too short, whilst discussions around the ZEP-C AGM and the EPS/Capacity Markets were likely to be important. The ACEC agreed that the draft agenda looked too busy and LW agreed to develop a revised agenda ahead of the February ACEC teleconference.

Finances (closed session)

LW provided an update on the ZEP-C financial management report. He was pleased to report that Total had recently expressed interest in becoming a member of ZEP and discussions had been initiated around invoicing. The ZEP-C accounts are on track to be in balance by the end of 2017. It was noted that the financial statements have been forwarded to the auditors for preparation. The intention is the auditor's report and 2017 budget to be formally adopted at the AGM which will be held around the AC50.

Actions

Action		Owner	Status
1	LW to report back to the ACEC at its February 2017 call on discussions concerning international knowledge sharing and the EU CCS Project Network.	LW	
2	ME5: A link should be made in the report to emerging discussions around an Emissions Performance Standard (EPS) for EU Capacity Markets.	CS	
3	ME5: ERG to attend a meeting of the TWG to discuss this further.	CS / TM	Completed (call arranged for 7th Feb)
4	Draft Fast Track Transport and Storage report to be submitted to Feb ACEC for approval ahead of the March AC meeting.	FN / HH	
5	ZEP to submit input to DG Research on priorities for the Horizon 2020 Work Programme.	FN / TM / NR	Completed (30th Jan)
6	ACEC feedback on the draft unspent NER300 funds discussion paper to secretariat by Monday 23rd January	All	Completed (23rd Jan)
7	TWGP&F teleconference to be arranged to begin discussions on EPS proposals	TM	
8	TWGP&F to draft a smart funding pathway for DG Research	JH / TM	
9	MD to introduce draft ZEP narrative at February ACEC teleconference	MD	
10	TM to approach IEA regarding speaker for the upcoming European Parliament Hearing / ZEP General Assembly	TM	Completed (23rd Jan)
11	LW to provide proposals for an ACEC away day to discuss ZEP priorities for 2017	LW	
12	LW to revise draft AC50 agenda and present an updated version to ACEC in February	LW	

ZEP Advisory Council 50

Draft ACEC Minutes: 14th February 2017

Attendance

Mark Downes	Shell
Lamberto Eldering *	Statoil
Angus Gillespie	Shell
Chris Gittins	TAQA
Ward Goldthorpe	Crown Estate
Arthur Heberle	Mitsubishi Hitachi Power Systems
Jonas Helseth **	Bellona
Filip Neele	TNO
Nils Rokke	Sintef
Charles Soothill	
Graeme Sweeney	Ardnacraggan Energy Services Ltd. (Chair)
Rob van der Meer	HeidelbergCement
Theo Mitchell	ZEP Secretariat
Harriet Howe	ZEP Secretariat

* Lamberto Eldering acted as Gardiner Hill's (BP) proxy.
** Jonas Helseth acted as Frederic Hague's proxy

Introduction and general update (open session)

The Agenda for the meeting, appended to these Minutes, was adopted unanimously.

Minutes and actions from the January ACEC call were reviewed and adopted unanimously.

TM outlined a proposal for planning the next 2017 ACEC away day, involving 2 separate processes; an initial call setting priorities for 2017 via a teleconference, followed by a full away day in Q2 to discuss the future strategic direction of the Platform. The ACEC agreed that this was a suitable approach, and that the initial teleconference would need to be allocated a couple of hours in order to fully consider the following topics:

- Market Economics 5 progress (including any further work required now that the current work programme is coming to a close).
- Current status and next steps for SET Plan TWG9 CCUS.
- EU Knowledge Sharing Network.
- The feedback given by DG Research over the future of ZEP beyond the grant period.

Network and Temporary Working Group updates (open session)

Network Technology

FN provided an overarching update on Network Technology, including progress under each of the Temporary Working Groups (TWGs). FN noted that the next meeting was planned to take place in April 2017, following the March AC meeting. This would allow for the Network to consider the 2017 priorities of the AC more fully and for TWGs to be established to work on particular priority areas.

Clean Hydrogen

FN provided an update on the progress of the Clean Hydrogen report, which included a discussion with the ERG to amend the terminology 'green hydrogen' and 'clean hydrogen', following feedback at the December AC meeting. It had been agreed with the ERG that the term 'green hydrogen' would be replaced with 'electrolysis-derived hydrogen from renewable sources', to remove the implication that this was a preferred option for production. It was agreed that it was important to keep a distinction between both methods of hydrogen production, and whilst more 'wordy', the new term better captured this distinction. HH agreed to amend the report, as per these recommendations, and liaise with the ERG regarding publication and dissemination activities.

NR noted concerns the Hydrogen Fuel Cell Joint Undertaking currently only considers hydrogen produced from renewables via electrolysis as "green", and that gas SMR+CCS is not being considered.

Joint ZEP/EERA input on H2020

FN reported on the joint EERA/ZEP input to DG Research regarding H2020 priorities and the forthcoming 2018/19 Work Programme, which had been completed and sent to Vassilios Kougionas (VK) (DG Research) two weeks prior to the call. A combined approach to submission was adopted as it was felt this would strengthen the recommendations.

NR agreed to circulate some slides from DG Research highlighting potential H2020 2018/19 calls alongside an initial assessment of implications for CCS. The ACEC will be invited to provide initial feedback so that the Secretariat can engage further with DG Research.

Fast Track Transport and Storage

CG and WG jointly provided an overview of the Fast Track Transport and Storage report, which was submitted to the meeting for approval. CG informed the ACEC that recent amendments had sought to produce consistency with previous ZEP reports, such as the executable plan, and the recently published Future CCS Technologies report. A final draft version of the report will be presented at the AC50 meeting in March for approval, following which a plan for its dissemination will be produced by the ERG. This may involve an integrated engagement programme with the Market Economics 5 report, and part of GS' intervention at the General Assembly in March. Additionally, the report will be circulated to members of the SET-Plan TWG9 CCUS to inform the next round of input on the draft Implementation Plan.

It was also agreed that key messages from the report would be integrated into the Chairman's remarks at the upcoming Climit Summit in Oslo in March 2017.

Network Policy and Economics

Projects of Common Interest

LE provided an update on the PCI meeting, coordinated by the European Commission, which took place on the 13th February. The purpose of the meeting was to discuss the draft template and interim report with stakeholders. LE noted that the Commission has been cooperative in taking on advice and introducing some flexibility in the regulations, an example being the inclusion of ship transport. It was also noted that PCI submissions should demonstrate how they might link to the NSBTF plan, which is expected to be submitted in the coming weeks. The expectation was that the NSBTF plan would be an open document, available to organisations through application.

Innovation Fund

TM provided an update on activities of the TWG Policy and Funding, including an overview of the first Innovation Fund high-level meeting, which took place on the 20th of January. The current expectation is that the Innovation Fund will be released later this year. However, it was noted that there is currently no obvious route for CCS and CCU stakeholders to engage in the process. TM suggested that ZEP supports a dedicated session on CCS, or that the final workshop include a more specific focus on CCS. TM informed the ACEC that this proposal would be discussed with the dedicated head of unit the following day and agreed to provide the ACEC with an update on progress.

Unspent NER300 funds

TM did not have any new updates on the unspent NER300 funds work, but informed the ACEC that ZEP proposals for the reuse of funds would be presented at the next SET-Plan TWG9 meeting being held on the 15th of February. GS and TM agreed that they report progress on this issue at the next Advisory Council meeting in March.

Market Economics 5

CS presented an overview of the Market Economics 5 report, including amendments which have been made, following approval by the AC in December. The report will be launched at the General Assembly meeting in March, and GS informed the group that the recommendations from both this, and the Fast Track Transport and Storage report would form part of his intervention at the event.

Energy Intensive Industries and CCU Policy

RvdM provided an update on the progress of the new TWG,, which met on Friday 10th February to discuss a Terms of Reference for activities. The TWG has identified 9 key issues which will form

the basis of a short report, with the aim to share this with the ACEC in April for approval by the AC in June.

External Relations Group (ERG)

MD provided an update on the progress of the ERG, updating the ACEC that the publication of the Clean Hydrogen report was being planned around the upcoming EMR debate, to be held in Q2 this year.

Plans for the General Assembly in March were briefly discussed, including the need to find a moderator for the event. TM updated the ACEC that he had received a list of proposed moderators from Weber Shandwick, which the secretariat would now review.

AG noted the need to frame the conversation around urgency for CCS and how this could be leveraged in Europe. It was noted that the Market Economics 5 report shows deployment in 2025, which will be a useful tool in communicating this urgency.

SET Plan TWG9 CCS/CCU update (open session)

GS provided an update on progress under the SET Plan TWG9 CCUS and the current draft of its Implementation Plan. TM outlined the structure of the Implementation Plan, and how the TWG9 seeks to address each of the 10 targets identified by the European Commission, through 8 R&I Activities. One of the targets relates to CCU, with the corresponding R&I Activity currently being drafted separately by GreenWin. TM agreed to forward this GreenWin input to the ACEC and Rob van de Meer for feedback on the CCU section.

It was noted that the members of the TWG9, which currently consists of around 10 active MSs and 30 stakeholders, have been pleased with the progress made so far on the draft Implantation Plan. This draft would be further developed at the next meeting of the TWG9 on the 15th of February in The Hague, with the aim to identify project and funding gaps in the current proposals.

The next steps for the Implementation Plan will be incorporating feedback from the next meeting of the TWG9 into a second draft. It was agreed that once this has been adopted and endorsed it would be circulated to ZEP members for further feedback.

AC50 Agenda

A discussion was held around the draft AC50 agenda circulated in the pre-reads for the teleconference. It was agreed that LE would provide an update on the PCI process, as part of the TWG PCI item. The updated AC50 agenda was otherwise approved.

Finances (closed session)

GS provided an update on the ZEP-C financial management report, circulated to the ACEC as a pre-read ahead of the meeting. He noted that he was happy with the current financial situation, with many outstanding payments to external creditors and Triarii now settled.

A discussion was held over potential new members, with Total recently expressing interest in membership. GS agreed to follow up with Emmanuel Kakaras (Mitsubishi Hitachi Power Systems) and the Port of Rotterdam, regarding membership. LE agreed to consider whether ZEP should consider approaching Eni but expressed a view that ZEP should retain its diversity between sectors and not become too oil and gas focussed.

TM provided a brief update on progress to update the ZEP website, with the proposal to move responsibility for website hosting to the IT support provided to the CCSA. Potential benefits of this proposal were discussed, including the opportunity to manage overlaps between the CCSA and ZEP Secretariat more efficiently. Additionally, as the service would cost £1400-2000 per annum, it would reduce the cost of maintenance by around £3000 per annum. This proposal was approved by the ACEC.

Further discussions were held over potential improvements to the operability of the website. TM informed the ACEC that the Secretariat had received a quote in the region of £50,000 for a complete redesign of the website, but agreed to discuss improvement possibilities with the CCSA IT Manager.

AOB (closed session)

TM offered a brief update on the CCS Project Network and discussions with Michael Shuetz at DG Energy on this issue. The plan is for the Internal Knowledge Sharing network funds to be published in Q1/2 this year, and TM agreed to provide a more detailed update on progress at the next ACEC call in April.

Actions

Action		Owner	Status
1	Secretariat to arrange teleconference with ACEC and Network co-chairs to discuss priorities for ZEP for 2017	LW	
2	Secretariat to circulate revised DoodlePoll to agree date for an ACEC away day in Q2 2017	LW	
3	NR to circulate draft H2020 work programme for 2018/19; ACEC to provide comments; Secretariat to communicate feedback to DG Research	All	
4	HH to update terminology in the Clean Hydrogen report, as per discussions with the ERG.	HH	
5	Fast Track Transport and Storage TWG to engage with Weber Shandwick and the ERG regarding publication and dissemination of the report.	CG/WG/HH	
6	Draft Fast Track Transport and Storage report to be submitted to the March AC meeting for approval.	FN / HH	To be completed at AC meeting in March
7	GS and TM to report on progress on ZEPs proposals for the reuse of NER300 funds at the next AC meeting in March.	GS/TM	To be completed at AC meeting in March
8	Secretariat to forward SET Plan TWG9 Draft Implementation Plan to RvdM for input on CCU actions	HH	Completed
9	TM to update ACEC on discussions with Roman Doubrava (DG CLIMA) regarding Innovation Fund	TM	
10	GS to follow up with Emmanuel Kakaras (Mitsubishi Hitachi Power Systems) and the Port of Rotterdam, regarding membership	GS	
11	Secretariat to look into how the ZEP website may be improved.	Sec	
12	Secretariat to provide a further update on the future of the EU Knowledge Sharing Network at the next ACEC meeting.	LW	

ZEP Advisory Council 50

22nd March 2017

Agenda Item 1.e: Chair's update

Letters from Graeme Sweeney to Artur Runge-Metzger, Dominique Ristori, Jos Delbeke and Silvia Bartolini re the EU Innovation Fund and response from Jos Delbeke – February/March 2017

In February 2017, Graeme Sweeney wrote to Jos Delbeke regarding the EU Innovation Fund. A response was received in March. The letter and response can be found as pre-read 1.c.i.

Similar letters were also sent to Artur Runge-Metzger, Dominique Ristori and Silvia Bartolini, however no responses have yet been received.

Meeting with Kelsey Van Maris and Elise Van Gerven, Members of Cabinet to Bart Tommelein, Vice Minister-President and Minister for Finance, Budget and Energy in the Government of Flanders, 13 December 2016

The ZEP met with Kelsey Van Maris and Elise Van Gerven, Members of Cabinet to Bart Tommelein, Vice Minister-President and Minister for Finance, Budget and Energy in the Government of Flanders, on the 13th December 2016. Present at the meeting: Kelsey Van Maris and Elise Van Gerven, Members of Cabinet; Graeme Sweeney, ZEP; Christiaan Gevers Deynoot, Weber Shandwick.

- This was an introductory meeting and the cabinet members were not yet aware of the Minister's position concerning CCS and CCU.
- KM and EG were uncertain about the division of competences for CO2 transport between the federal and regional governments.
- EG asked about the possible dangers of CO2 leakage.
- KM and EG were not aware of the ROAD project or the plans and activities around CCS and CCU in the Port of Antwerp.
- GS indicated that ZEP would welcome the input from Flanders in the Temporary Working Group (TWG) in order to help develop a plan for the remaining NER300 funding.
- CGD noted that there will be a call under the Connecting Europe Facility for Projects of Common Interest (PCI) in mid-2017. He added that this could involve a project connecting

the Port of Antwerp with the Port of Rotterdam, as also concluded in the CCS Interreg project between the Netherlands and Belgium.

- EG asked about the CCS Directive, also known as the Directive on the geological storage of CO2, and wondered whether the real problem is storage risk.
- EG asked whether the focus of CCS should be primarily on energy intensive industries.
- GS explained that CCS could also play a major role in the context of heating.
- KM suggested that ZEP also brings its activities to the attention of Flemish Environment Minister Joke Schauvliege.
- KM noted that Flanders is now in the process of finalising its regional energy and climate plan, which will feed into the federal plan.
- It was agreed to stay in close contact and reconnect in the new year.

Meeting with Lineke den Ouden and Bastiaan Hassing, Energy Attaché and Environment Attaché at the Permanent Representation of the Netherlands to the EU, 14 December 2016

The ZEP met with Lineke den Ouden and Bastiaan Hassing, Energy Attaché and Environment Attaché at the Permanent Representation of the Netherlands to the EU, on the 14th December 2016. Present at the meeting: Lineke den Ouden and Bastiaan Hassing, Permanent Representation; Graeme Sweeney, ZEP; Christiaan Gevers Deynoot, Weber Shandwick.

- This meeting focused on reconnecting with the Dutch following the departure of Herbert Kraijenbrink, predecessor of LO, and the publication of the Dutch climate plan.
- GS welcomed the new climate plan, outlining in particular the importance of seeing ROAD in a regional context, and highlighted ZEP's engagement with Dutch stakeholders in recent months.
- GS outlined the current activities under the SET Plan, referring to the Declaration of Intent adopted by research and industry stakeholders, and participating EU Member States, in the context of the EU level SET-Plan. He noted that stakeholders have agreed to prepare a detailed implementation plan to ensure delivery of the SET-Plan targets by mid-2017.
- LO and BH were not aware of the remaining NER300 funding and were in principle open to contributing to the preparation of a project proposal.
- It was agreed to stay in close contact and reconnect in the new year after ZEP has prepared a draft project proposal for the NER300 funding.

Meeting with Dominique Ristori, Director-General DG ENER, European Commission, and Agnija Rasa, Assistant to the Director-General, 14 December 2016

The ZEP met with Dominique Ristori, Director-General DG ENER, European Commission, and Agnija Rasa, Assistant to the Director-General, on the 14th December 2016. Present at the meeting: Dominique Ristori and Agnija Rasa, European Commission; Graeme Sweeny and Theo Mitchell, ZEP; Lord Ronald Oxburgh; Christiaan Gevers Deynoot, Weber Shandwick.

- AR indicated that the Commission has taken a 'rainbow approach' to the Renewable Energy Directive (RED) where it concerns transport fuels, including low carbon fuels from CO2 waste streams. AR was interested in receiving ZEP's analysis on the inclusion of CCU under the RED.

- DR agreed with the need for the emissions performance standard proposed by the Commission as part of the electricity market reform. ZEP suggested that it could drive the uptake of both biomass and CCS.

- DR stated that CCS and CCU should play a greater role in Europe's energy system and considered that this message has arrived at the highest political level.

- DR agreed on the need for a differentiated approach to CCU, based on applications that lead to abatement of emissions and applications that do not. He said that CCU should not lead to a move away from CCS.

- DR considered that support for CCUS should not be confined to the R&I funds but also benefit from EU ETS funds. He suggested that the Modernisation Fund could be used to support CCU projects.

- DR emphasised that ZEP can count on DG ENER for all support as well as for connecting with DG CLIMA and RTD.

- DR noted that he has previously promoted CCS in the context of the European Energy Programme for Recovery (EEPR) funding mechanism, adding that a voice at political level is indispensable. He noted that to facilitate this process he had asked Norway to present its CCS projects at a meeting of all 28 Director-Generals.

- DR lamented the lack of progress in Europe around CCS and stated that He said that he would prefer not to be in the situation where the most important CCS projects are happening elsewhere. He was particularly disappointed that the world's first steel CCS project was happening in the UAE and not in Europe.

- DR welcomed ZEP's suggestion to draft a project proposal for the remaining NER300 funding and indicated that he would reconnect with DG CLIMA on this matter.

- On hydrogen, DR agreed that we should not lose sight of the possibilities in heating and transport, as well as in the role of energy storage technology.

Meeting with Silvia Bartolini, Member of the Cabinet of Commissioner Miguel Arias Canete, DG ENER/CLIMA, 15 December 2016

The ZEP met with Silvia Bartolini, Member of the Cabinet of Commissioner Miguel Arias Canete, DG ENER/CLIMA, on the 15th December 2016. Present at the meeting: Silvia Bartolini, European Commission; Lord Ronald Oxburgh; Graeme Sweeney and Theo Mitchell, ZEP.

- SB asked about the current status of ZEP and how things are more generally in the world of CCS.

- GS explained that things were looking more positive for CCS given progress under the SET Plan TWG9 CCUS and recent developments in the Netherlands and Norway.

- SB said that following the publication of the Winter Package, the Commissioner had indicated that he wanted to work more on CCS and CCU and that there needs to be more of a push on this in 2017.

- She indicated that CCS and CCU had risen up the political agenda – partly touching on the points made by Marie Donnelly but also referencing the need for industrial roadmaps in the new governance plans.

- Since the inclusion of an EPS in the proposed capacity markets regulation had come at the Cabinet level, SB was also interested to understand how this had been received by stakeholders and test what impacts it could have for CCS.

- SB also indicated that CCS had risen up the agenda for the Commissioner because he had received a letter from the U.S. asking the Commission to host the next CSLF Ministerial in late 2017.

- When discussing the potential opportunity for the Commission to host the next CSLF Ministerial, SB indicated that the EU would need to have something to say and suggested that a 'medium to long-term' strategy for CCS might be needed.

- GS and TM agreed that ZEP could provide support in developing an understanding of the pathway to the CSLF Ministerial and SB requested regular working level meetings with TM to discuss this further. An initial follow up has been arranged for 12th January.

- Regarding the use of unspent NER300 funds, SB was interested in understanding what ZEP's proposals might look like and GS agreed that ZEP would share its thinking as soon as possible.

- SB indicated that the Commission is now minded to use the funds for loans and guarantees rather than grants, pending discussions between Member States in the Climate Change Committee. She suggested that Commission may look to ZEP and other stakeholders for input on how EFSI could be used to fund CCS projects later in 2017.

- Finally, SB was very interested in understanding ZEP's and Lord Oxburgh's recent engagements with the Commission. She indicated that there are a range of views on CCS within the Commission but that it continues to be supported by some senior officials.

Meeting with Robert Schröder, Member of Cabinet of Commissioner Carlos Moedas, DG RTD, 15 December 2016

The ZEP met with Robert Schröder, Member of Cabinet of Commissioner Carlos Moedas, DG RTD, on the 15th December 2016. Present at the meeting: Robert Schröder, European Commission; Graeme Sweeney, ZEP; Ursula Woodburn, Weber Shandwick.

- GS thanked RTD for the new ZEP Secretariat and stressed that the new framework and SET Plan / TWG was working well. He updated RS on the key work ZEP is doing and upcoming reports, including the Clean Hydrogen report, need to address heating, plus the work that ZEP has discussed setting in place with DG CLIMA and DG ENER around the NER300 funds. GS also referred to the work being carried out by ZEP on CCU derived fuels.

- RS noted that there is a strong interest in NER300 funds in DG RTD and that overall DG RTD is keen to ensure that funds are more flexible in the future. They are assessing whether the money can be funnelled through EFSI or Innovfin.

- RS also referred to the RTD Communication on Accelerating Clean Energy Innovation which notes that their key priorities will be to decarbonise the EU building stock by 2050, strengthen EU leadership on renewables, develop affordable and integrated energy storage solutions and ensure rapid development of electro-mobility and a more integrated urban transport system.

- However he outlined that another key priority as explored in the Communication is RTD's push to understand better how to link up the different funding streams. RS noted that they are keen to ensure better long term diffusion of the funding, better impact and the multiplier effect. They are asking how they can better build on the synergies.

- GS and RS discussed whether it could be interesting to bring together a task force from the different SET Plan Working Groups to discuss how best to achieve this. It was agreed that ZEP would prepare a smart pathway from early through to late funding initiatives from, say, recycled NER and/or H2020, through Innovation Fund, to Structural funds including EFSI.

- GS highlighted that ZEP has engaged in thinking around this topic, including proposals for an innovative funding mechanism – i.e. the "Market Maker"

- RS also referred to their "Seal of Excellence" programme which is awarded to project proposals which were submitted for funding under Horizon 2020, passed the selection and award criteria but could not be funded due to budget constraints.

- The Seal of Excellence highlights proposals which the Commission believes deserve funding from alternative sources whether public, private, national, regional, European or international. He would be interested to see how this can be picked up through structural funds.

Letters from Graeme Sweeney and Marie Bysveen to Andras Siegler, Jeroen Schuppers, Vassilios Kougionas, and Robert Schroede regarding ZEP and EERA feedback to the Horizon 2020 draft Energy Work Programme for 2018/19.

In March Graeme Sweeney and Marie Bysveen wrote to Andras Siegler, Jeroen Schuppers, Vassilios Kougionas, and Robert Schroede responding to the Commissions draft proposals for the Horizon 2020 Energy Work Programme, following initial joint ZEP and EERA input to the process in January. The letter is appended as pre-read 1.e.ii.

Other meetings

Any additional meetings held by the Chair since the drafting of these pre-reads will be reported on verbally at the AC50 meeting.

Mr Jos Delbeke
Director General for Climate Action
DG Climate Action
European Commission
B-1049 Brussels

Date: 6 February 2017

Dear Jos,

Towards the EU Innovation Fund

I understand that DG CLIMA has recently launched a roadmap towards the new Innovation Fund, including a series of sectoral workshops (see attached).

The slide implies that DG CLIMA plans no specific engagement with CCS stakeholders during this part of the process and will instead just focus on the different industrial and renewables sectors.

The Platform has been following discussions on the ETS funds in the Parliament very closely and was particularly pleased with the support MEPs have shown towards including CCS as an eligible technology under the Innovation Fund. Despite this clear steer from the Parliament, it seems there is no obvious route for the CCS and CCU communities to engage in this stage of the process and this potentially poses some very real risks to the future success of the Innovation Fund.

Can I suggest that we organise a short call in the near future to discuss this issue? The Platform is obviously concerned about the proposals as they stand and we would like to understand your perspectives on the matter.

Yours ay,

Graeme Sweeney
Chairman ETIP-ZEP

ZEP Secretariat, info@zero-emissionplatform.eu
6th Floor, 10 Dean Farrar Street, www.zeroemissionsplatform.eu
London, SW1H 0DX

Contact us at: CLIMA-IF-EXPERTGROUP@ec.europa.eu

European Commission

Kick Off Event

Sectorial Roundtables

Objectives: 1) engagement & feedback from targeted sectors; 2) reports from each roundtable (input for final report)

	Ferrous & non-ferrous metals	Oil refining, chemicals & bio-based, and pulp & paper	Cement & lime, glass, and ceramics	Renewable energy, storage, and others
AM	- *Ferrous metals*: Jean Pierre Birat - *Non-ferrous metals*: Mukund Bhagwat	- *Oil & refining*: TBC - *Chemicals & bio-based*: Marco Mensink - *Pulp & paper: Bernard de Galembert*	- *Cement & lime*: Alan Kreisberg - *Glass & Ceramics*: Fabrice Rivet	- *Renewable energies* - *Storage* - *Others (grids, transport)*
PM	- *Financial needs*	- *Financial needs*	- *Financial needs*	- *Financial needs*
	Date: 17 Feb, CCAB	*Date: 23 March, CCAB*	*Date: 6 April, CCAB*	*Date: April-May (TBC), CCAB*

Final Report

Final Event

Objectives: 1) presentation of the final report, recommendations from phase 2; 2) public debate, outreach

Date: June 2017 (TBC), place TBC

EUROPEAN COMMISSION
DIRECTORATE-GENERAL
CLIMATE ACTION

The Director-General

Brussels, 06 MARS 2017
Ares(2017) 1171561

Subject: Towards the EU Innovation Fund

Dear Dr Sweeney,

I refer to your letters of 6 February 2017 to my counterpart Mr Ristori and myself.

The legislative proposal to revise the EU Emissions Trading System (ETS) for the period after 2020, adopted in July 2015, is the first legislative step towards implementing the EU's Paris pledge. It includes a proposal for an Innovation Fund, to be endowed with 450 million allowances to support large-scale demonstration of activities in carbon capture and storage (CCS), renewable energy, and low-carbon innovation in energy intensive industries.

Against this background, my service organises a series of roundtables towards the Innovation Fund you are referring to. The roundtables are an opportunity to exchange views on which kind of innovation is needed for European industry to successfully make the transition to a low-carbon economy and what type of support could facilitate the development and quick adoption of needed innovation.

CCS and carbon capture and use (CCU) are cross cutting topics and relevant to both the energy intensive industries and the energy sector. For this reason, CCS and CCU are addressed in all roundtables. I can assure you that relevant CCS stakeholders have been/will be invited to the roundtable sessions. You may also contact directly my responsible unit (Mr Roman Doubrava, Deputy Head of Unit C3 "Land Use and Finance for Innovation").

I am looking forward to continuing the debate on low carbon innovation with the stakeholders.

Yours sincerely,

Jos DELBEKE

cc: Dominique Ristori, Director-General of the Directorate-General for Energy

Dr Graeme SWEENEY
ZEP Secretariat
6th Floor, 10 Dean Farrar Street
London, SW1 H0DX
United Kingdom

13 March 2017

Dear

Horizon 2020 Draft Energy 2018-2019 Work Programme

In January of this year EERA and ZEP provided joint input to the Horizon 2020 Work Programme call for evidence, outlining six key proposals for Carbon Capture and Storage (CCS) in Europe. Having now reviewed the draft Energy 2018/2019 Work Programme, it is clear that whilst the current proposals outline some positive steps for CCUS, in its current iteration the plan is missing some key opportunities to both drive forward its commercial deployment in Europe and to fully address a number of the ambitious targets for CCUS under the SET-Plan Action 9.

It is encouraging that the Commission has outlined support for pilot demonstration of new capture technologies for CCS, with further innovation in this area anticipated to deliver significant improvements in cost and efficiency. However, EERA JP CCS and ZEP believe that in placing a focus primarily on capture, the draft Work Programme ignores a number of the fundamental challenges currently faced by potential CCS project developers. Specifically there is a lack of attention, and resource, given to CO_2 storage, which is widely recognised as still being the more-challenging component of a CCS project, and the key enabler for reducing emissions from energy intensive industries. Whilst the ambition of NZE2 is correct that "detailed appraisal of cost-effective ('bankable') storage capacity" is needed, this cannot be delivered effectively as a Coordination and Support Action. EERA JP CCS and ZEP strongly recommends that this action should be a RIA with a significant budget (at least €10m) to reflect the investment needed to de-risk putative storage sites in Europe.

One further notable omission from the draft Work Programme is the role of CCS in supporting the growing hydrogen economy in Europe. Currently, actions under NZE2 rely solely on the production of hydrogen through renewable energy, and only refer to its application to fuel production. This is despite a growing body of evidence that suggests clean hydrogen (produced from biomass and fossil fuels with CCS) will have an important role to play in decarbonising both the heating and transport sectors. Technologies that produce hydrogen from natural gas already exist, and are operational at significantly lower costs than those involving electrolysis and renewable power. Furthermore, recent analysis by ZEP has concluded that it may take 10-25 years for electrolysis to become the more affordable of these two production methods.

Horizon 2020 funding has been an important enabler of CCS in Europe, and EERA and ZEP believe that a future Work Programme presents a timely opportunity to examine how unspent funds from NER300 may be best utilised. EERA and ZEP in their joint input recommended this be through the development of a new CCS ERA-NET or similar carve-out, which could be used to address some of the funding gaps set to be identified by the SET-Plan Temporary Working Group on Action 9, CCUS. A Secretariat has provided integral support to both the aforementioned SET-Plan activities and the ETP, and subsequently ETIP ZEP. Support for the current Secretariat is funded through Horizon 2020, to the end of 2017. EERA and ZEP wish to raise their concern that the currently draft Work Programme CC5 only indicates that stakeholder support will only be provided to renewable technologies under the SET Plan and it appears no support will be available for other SET Plan ETIPs, including CCS. This is a major

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cause for concern that we hope will be addressed in the next iteration of the Energy Work Programme.

Both the Platform and the CCS EERA Joint Programme will be providing further detailed feedback on the current iteration of the draft Energy 2018/2019 Work Programme in due course, and we look forward to further engagement with the European Commission during the development of the Energy 2018/2019 Work Programme over the coming weeks.

Yours sincerely,

Graeme Sweeney
Chairman ETIP- ZEP

Marie Bysveen
Co-ordinator EERA JP CCS