

ZEP Advisory Council 58 – 07th March 2019

Draft Minutes

Attendance

Advisory Council members

Graeme Sweeney	ZEP Chairman
Isabelle Czernichowski (alternate)	BRGM
Jonas Helseth (alternate)	Bellona
Kim Bye Bruun	Shell
Lamberto Eldering	Equinor
Nils Røkke	SINTEF
Rob van der Meer	HeidelbergCement
Stuart Haszeldine	University of Edinburgh / SCCS
Ward Goldthorpe	Sustainable Decisions

Observers and other attendees

Amélie Carron	Air Liquide
Charlotte Elvsaas	Ministry of Petroleum and Energy, Government of Norway
Christian Schwarck	IOGP
Claudia Vivalda	Vivalda Scientific
Egil Kåre Meisingset	Ministry of Petroleum and Energy, Government of Norway
Eve Tamme	GCCSI
Eric de Coninck	ArcelorMittal
Filip Neele	TNO
Florence Delprat-Jannaud	IFP Energies Nouvelles
Henrik Solgaard Andersen	Equinor
John Oakey	Cranfield University
Keith Whiriskey	Bellona
Martijn Van de Sande	Netherlands Enterprise Agency
Nora Hansen	IOGP
Samuela Vercelli	Sapienza University of Rome, CERI
Samy Porteron	Ramboll
Ståle Aakenes	Gassnova
Theo Mitchell	Enerfair Engagement / Bellona
Valentin Moëns	European Turbine Network
Virgilijus Petuska	UAB Minijos Nafta

ZEP Secretariat

Chris Gent	ZEP Secretariat
Luke Warren	ZEP Secretariat
Marine d'Elloy	ZEP Secretariat

Commission

Maria Velkova	DG CLIMA
Peter Horvath	DG ENER
Vassilios Kougionas	DG RTD

Item 1: Introduction

GS welcomed AC members and observers. The agenda for the meeting was adopted and the minutes from AC57 were approved subject to a minor alteration suggested by LE.

There were no matters arising from the January and February ACEC minutes.

Chair's update

GS noted that currently, and over the last 6 weeks resources have been stretched due to inundation of work, especially the sustainable taxonomy work.

GS attended the 4th EU-NOR conference on the 5th of February. The European Commissioner was very positive about CCUS which is not quite reflected in the LTS.

GS Set-Plan IWG9 has completed its restructuring and engaged with the coordinated service action which supports the overall process. Work has been proposed to optimise the coordination of the various CCUS outboards i.e. IWG9, ZEP and others. The next Plenary in will be 26th March, which clashes with Sustainable Finance Taxonomy meeting. GS stressed the Set-Plan work has the scope to be effective in the overall delivery due to its direct interaction with the Member States.

EU Sustainable Finance for Green Taxonomy update (see Slides):

GS has been selected as an expert for second phase of taxonomy work. The goal of this work is to define criteria to enable the categorisation of processes which can inform a 'sustainable project' to investors. It is much better to be considered qualified as sustainable now, rather than retro-arguing inclusion. CCU may not have the same set of qualifications as CCS and will need to be approached in a different way. The work will continue through to the end of Q2 2019, with the 26th March 2019 Plenary meeting of the Expert Groups a key date to discuss progress.

If CCUS technologies do not define themselves in each work stream, then going forward CCUS may not be defined as a sustainable investment, it could make CCUS potentially illegible for EU funding and initiatives.

There is a separate cross-cutting group to assess if activities do or don't do harm, we are not represented in this group; however we will try to influence its process.

GS sits on the chemicals, natural gas, nuclear group and the Bio-energy sub-groups. Meanwhile in the manufacturing hydrogen group, Equinor submitted a draft document ahead of the 6th March deadline. There are very tight deadlines ahead of the Plenary on the 26th March, input will need to be quick and responsive. The ACEC have made a comment on the paper, this will form a basis of input to other sub-groups.

GS has asked for a placeholder in the hydrogen group to enable the future amendments of criteria, especially around life-cycle emission analysis, and the consideration of pilot activities. An approach to deal with projects relying on other sectors of the chain is needed, for example a capture plant relies on a storage site to be online, how is this defined? How imminent does the second phase (storage) have to be before an activity decision is made? The definition for hydrogen production is around the direct production, however the far uses of hydrogen across many sectors such as heat and steel will lead to different criteria for different uses – this is a large scope of work which must be stressed to be done in due course.

GS wrote to argue a case for cross-cutting group for CCUS, however was denied. ZEP will prepare a paper which is applicable for several NACE codes and submit it to relevant groups with minor



relevant tweaks. A draft will be completed tomorrow (8th March) ahead of review (Monday 11th March) for submission to energy group by 14th of March – this is a very short deadline.

LW Mentioned that a Temporary Working Group (TWG) has been formed which contains around 4-5 members, he welcome additional input from both networks for future work into June and beyond following this piece of work.

JH Thanked the Chairman for his significant time commitments tracking and inputting to this important piece of work.

RvdM Confirmed that Heidelberg cement are active in the cement group and can provide input with ZEP recommendations. RvdM also expressed concerns that the speed and short deadlines of the work is inefficient for such an important piece of work.

GS stressed that looking forward it is important to recommend a mechanism for an improvement process after the first initial submissions.

SH asked if the metrics are on site or life cycle emissions? GS confirmed that this is up to the work streams to propose what is appropriate, for example this is a current issue for discussion in the Chemicals industry subgroup, whether a life-cycle or ETS definition is more suitable.

LE asked a clarification questions. Which financial institutes will be bound by the outcome of this work, EIB, Member States banks? GS confirmed that financing and funding streams will be operated by the EU itself. There is an intention to persuade private market actors to behave alongside the EIB and EU investment banks. GS reiterated that if you are not qualified on this list, it may be more difficult to secure financing.

WG – There is scope for a lot of uncertainty if there aren't additional processes following on from this work to deal with the 'How' rather than the 'What'. There needs to be a consideration for financing at the early stages of this piece of taxonomy work. Conversely GS said in his opinion this mechanism encourages the flow of capital rather than discourages or re-directs capital flow.

NR asked if there has been any mention or discussion on carbon negative actions and stressed its importance. GS confirmed that this will be included in the CCS paper as no one else is covering it.

ET stressed how important this is for CCUS to be included in this taxonomy and asked how can the time between now and the Plenary be used most efficiently across different groups, and how can we be sure the ZEP input will have impact in each work-stream? GS stated that the CCUS paper has been requested by leader of Energy and manufacture of Gas groups; within which Equinor, Imperial College London and the EC sit. We will look into membership of each manufacturing group to see if our network has an entry into these groups, or will need to outreach to groups to propose ZEPs opinion. The group leaders will be encouraged to back the cross-cutting call for CCUS.

Item 2: Secretariat update

Actions from AC 57

LW provided an update on actions from the last AC meeting.

All actions from previous meetings have been completed, including the Survey Results, Forward Work Plan, and work on capture rates. TWG cross collaboration report has been peer-reviewed, and by the end of March a draft report should be prepared ready for sign off by the AC in June.

2019 ZEP-C budget

ZEP-C started 2018 with a net equity position of **-€36,650** and returned to a budget surplus of €46,854 by year end. The 2018 audit for ZEP-C was undertaken by Vandelanotte and the auditors are satisfied. At the ZEP-C AGM the audit report will be approved ahead of the AC meeting on the 5th June 2019.

ACEC agreed two additional budgets:

- To build a total target reserve of c.€200,000 by running an annual surplus of €50,000 in 2019 and 2020.
- To allocate €45,000 to increased communication activity for example; outreach and engagement with the impending New European Parliament; or funds for coordinated communication activities with other initiatives.

LE observed a software error in the budget spreadsheet presented in the pre-reads concerning Equinor's 2018 contribution. LW confirmed it was a software error.

GS Confirmed the negative equity has been eliminated, thanks to the efforts of LW and the CCSA. With the grant secured for 3 years, forward planning can now include out-reach comfortably. The AC approved the ACEC proposals for budgets.

Future AC/ACEC dates

LW outlined the future meeting dates (in the pre-reads) the ACEC have received invites for all AC and ACEC events. The AC will receive invites for all events shortly.

The 59th Advisory Council meeting will be on Wednesday 5th June.

Item 3: Madrid Forum Analysis on the Potential of CCS and CCU

CS Presented the IOGP lead work for the Madrid Forum on analysis of CCS and CCU and the European gas networks (see Slides). More specifically CS asked how can the current rules in gas markets and tools in regulation of gas networks be transferred to the promotion of CO₂ transportation infrastructure. This is viewed as a whole value chain sector and what barriers can tackle these.

There is ongoing discussion as to how gas regulators from Member States (eg Ofgem, or DA) to enable to transmission offshore as well as onshore.

The report draft will be prepared by the 10th of April ahead of the 2nd Workshop on the 16th of April, there is an open invite to members of ZEP.

LW mentioned that historically, gas is seen as a transition fuel and highlighted the opportunity to paint a picture around decarbonised gas as a future fuel, noting its potential to run in parallel with the High Level Energy Intensive Industry Groups as a constructive part of a low carbon economy.

CS said that there is concern from the commission on stranded gas assets due to a decreased demand of natural gas. Placement of SMRs has a greater implication on the transport network topology which is being discussed currently, especially by TSOs and DSOs such as ENTSOG.



GS suggested that there needs to be two reports; a technical report, and a hard hitting CCUS narrative to gain traction and impact. This route through DG GROW is an opportunity to revitalise CCUS in the Commission.

FN Suggested that wording of the report should be more positive and the CCUS community should learn from offshore wind and solar to not concentrate of the risk and costs of the project and paint a picture around the benefits first. After the first of a kind CCS projects have been completed many 'barriers' will be solved, including government handover for liability and monitoring.

CS reaffirmed that the barriers currently identified are very modest and that there will be work to be done on incentives, e.g. transport of CO₂ from inland Europe and how national regulators can operate offshore. In the main focus of the report, capture and storage barriers are minimal, the transport and liability of transport is the key issue.

CS asked for ZEP to speak and present the positive impactful narrative at the workshop on the 16th April.

Item 4: Update from the Norwegian Ministry for Petroleum and Energy on CCS-related Developments

EM Gave an update on the Northern Lights project, confirming with minor amendments in 2018 the project is still on-track (see Slides).

In cooperation with the IMO secretariat an interim solution has been drafted which should enable the London Protocol barrier.

The government must believe this project is the 'first of many rather than the last of few' before funding is fully accepted. Further to this there is a strong need for interest from industry and suppliers the 'pull' is needed to support the Norwegians governments 'push' to realise the project

EdC asked if CAPEX and OPEX are fully covered by the government. EM confirmed Government are in negotiation with industry; for capture, industry must commit to carbon costs and take risk, however the scope is limited and the government realise this. For storage and transport, another economic issue arises; economics of scale will need to be considered. The State will take onboard a big part of the storage and transport risk of the project, industry will support with an upfront cost, however the government will put in place a mechanism for companies to make a profit from incentives in the project.

GS said the ZEP platform could arrange for a series of connections with the network. For example, ZEP can arrange linkages with DG Grow, Madrid Forum and High Level Energy Intensive Industries Group to discuss the demand from industry for the Northern Lights Projects and Norwegian Government.

Item 5: Commission Updates

DG CLIMA MV:

Innovation Fund Update: Last week the Commission adopted the innovation fund's Delegated Act. The two month scrutiny period started last week, this could be delayed by 2 months but it isn't expected. DG CLIMA are currently undertaking work on the governance of the Innovation Fund. There is an aim to publish the fist call by the end of 2020. The essential elements of the calls will be discussed in the Expert Group represented by GS and TM. MV said the Expert Group will be maintained and most likely on a permanent basis, to advice the Commission on future calls.

A number of sectoral workshops will be organised to pull and present potential projects for the first call, and discuss essential elements, especially the selection criteria, cost calculations, monitoring report verification etc. These will be initiated in the Q4 2019 and Q1 2020 and will be presented to the expert group. The Commission said the CCS community is well organised, and welcomes the idea of a CCS joint workshop. The next Expert Group meeting will take place on 28th March.

DG RTD VK

VK said that the 4th EU-NOR conference emphasised the important role of CCUS in the future of a decarbonised Europe, including low carbon hydrogen.

SET-PLAN: the 26th March meeting coincides with the Missions Innovation Challenge 8 Hydrogen Workshop on the 26-27th March in Antwerp. This workshop will mainly be focused on renewable hydrogen. GS highlighted this as a pathway to get a profile for blue hydrogen.

Mission Innovation Challenge 3 on CCUS has its next workshop in Norway on the 19-20th June back-to-back with the TCCS (Trondheim CCS) Conference.

DG ENER PH

DG ENER are hosting a meeting next week (w/c 11th March) to understand coordination of the knowledge sharing networks with other EU-funded and CCS-related CSAs.

WG asked if there is a process to learn from previous attempts at establishing a knowledge sharing network. PH Confirmed that there is an open mind to learning from previous attempts, the meeting with ZEP and the SET-Plan members are the first steps to found the framework for the network. This is a little slower than expected, but the details and considerations will give time for an effective network.

LE urged a consultation to previous members of the network to understand to positives and negatives of the structure. For example one major positive were the information sharing workshops.

WG Observed that one issue from previous networks was the lack of sufficient outreach to the broader community. PH Confirmed that this has been considered with the creation of separate work packages for external communication as well as internal communication.

The 4th EU-NO energy conference took place on the 5th February, where a high level CCS conference with the European Commission and Norwegian Government was agreed for the 5th September. This was also discussed at the ZEP Government Group meeting on the 21st of February.

Connecting Europe Facility (CEF) and Projects of Common Interest (PCIs): The results of the PCIs call in January selected 2 CO₂ transport projects; the PORTHOS and CO₂Sapling project for further funding for FEED Studies for EUR 6.5m and EUR 2.8m respectively. The fourth PCI call for applications closed on 2nd March; there are 4 proposals for CO₂ cross-border transport infrastructure which are being reviewed.

Item 6: Overview of European Parliament, Council & other relevant activities

CG gave an overview on European Parliament and Council activity and developments since December 2018 (see slides).



GS asked for a cross-reference to check nations in Set-Plan IWG9 have correspondingly represented CCUS in their NECPs. Sweden and Italy appear to not have mentioned CCUS in the NECP.

Item 7: Presentation on Leeds H21 and latest developments

HSA presented an overview of the H21 North of England report, released in November 2018. This report up-scales the Leeds H21 13 times across the North of England from Hull to Liverpool and north to Newcastle-upon-Tyne.

SH highlighted the low cost of borrowing due to the regulated asset base and asked how do you convince the managers of these RAB's that you can deliver on these targets? HSA replied by stating that a large company (such as an oil and gas company) can invest in such a business.

SH: Are there concerns that socialising the cost across customers in the rest of the nation, which do not benefit from this project, could be viewed negatively? HSA Reassured that the process of socialising cost i.e. for expensive nuclear goes on currently. GS Reminded the group that there is a story here to present H21 and hydrogen as a lower *total* cost, especially compared to electrification scenario.

GS mentioned that the argument of abatement is not the complete story. The narrative needs to be an overarching economy increase during decarbonisation, the apparent cost of abatement is a distraction to the GDP rise potential.

LW asked if the report considered negative emissions from the power sector, namely with BECCS and bio-gas. HSA – the study has considered negative emissions from bio-gas and looked at the concepts for a blue-green hydrogen scenario, including a hydrogen gasification of biogas.

GS asked how can ZEP and its members help to make progress more likely? HSA Suggested a helpful way forward would shift the narrative to value creation and positivity, as is found in wind and solar industries, rather than concentrating on risk and cost.

Item 8: Presentation on findings from the Ramboll Study on CCU Technologies

SP presented the findings from the Ramboll joint study of CCU technologies which was commissioned by DG CLIMA (see slides). A significant sector of the report concentrated on current barriers and potential reformation of the ETS to fully account for CCU technologies and processes not as a direct emission technology. SP noted that recent changes in the Renewable Energy regulation encourages CCU for fuels with CO₂ as a feedstock.

SH voiced concerns that this system is using fossil fuels to make more carbon products is not addressing a longer term storage on geological timescales which is what is required. KW asked that the definition of negative emissions should be carefully considered reiterating that the wording around negative emissions and CO₂ removal is very important.

JH asked if other regions globally are considering policy support for the production of synthetic fuels, and subsequently, are the technology advantages mentioned in the slides internal to the EU or globally modelled ? SP confirmed that the study focussed on the EU and CCU as a first mover in the field.

GS related this work to the sustainability taxonomy work, and highlighted that the timescales for CCU as storage are still undefined and the monitoring of true life cycle emissions from exported



CCU products is still very hard. SP confirmed that the difficulty is still there, for example use of calcium carbonate (from CCU) has a life cycle of years (for use as a whitener in paper) or potentially thousands of years (for use in building materials). The report should be available within one month.

Item 9: ZEP 2019-2020 Forward Work Programme

MD talked through the Forward Work Programme for the Networks and External Relations Group in response to the stakeholder survey in 2018 (see slides). The draft work plans were included in the pre-reads, this is a flexible document to guide the delivery over the forthcoming year.

MD highlighted 3 overlapping themes across the 3 working groups:

- Strategy for long-term EU greenhouse gas emissions reduction (Long-term strategy)
- National Energy and Climate Plans (NECPs)
- EU Taxonomy on Sustainable Finance.

MD invites members to provide written feedback for suggestions, comments and additions to proposed activities within the next two weeks.

Item 10: Networks Update

Item 10a Network Policy and Economics Update

LE focussed on the recent postponed 20th February NWPE meeting, subsequently resulting in a small group of around 10 attendees. However, engaging discussions were had with the European Commission representatives. DG CLIMA were happy with CCUS in the long-term strategy, the network however raised concerns on the role of CCS in the strategy as a residual emissions reducer and not central to the plans.

Bill Spence was present at the meeting and gave a presentation on Learning's from the Shell Peterhead project; the Commission were very welcome of this, especially on messages around the community, governments and stakeholders engagement.

LE suggested that the network should seek to coordinate with DG CLIMA to host a workshop on release of the Innovation Fund Delegated Act.

GS asked if the network could think how it could improve reacting quickly to scenarios, i.e. the taxonomy work.

Item 10b Network Technologies Update

FN gave an update on the Network Technologies activity, firstly mentioning the TWG looking at the Ramboll CCU study can now restart very shortly following the presentation by SP at the AC (Agenda Item 8).

The other TWG looking at *Collaboration across the CCS Chain* has been active in both its work-streams:

Work-stream 1:

The report is on quantitative Storage Risk. The review has been completed, CG will be compiling and addressing the comments whilst collaborating with Halvard Høydalsvik to produce a final draft. Once completed, this final draft will be distributed to the AC ahead of discussion at the June AC.

Work-stream 2:



The work-stream will hold a second joint ERA-NET ACT & ZEP workshop on 14th March in Brussels, platform this will look at wider CCUS chain risk, risk sharing and business models.

Both work-streams should be finalised towards Q2/Q3 2019.

GS Reiterated that the sustainable taxonomy TWG covers both networks and called for members to consider additional support in the TWG. Lots of work will be needed; all work will need to be circulated for review.

Item 11: External Relations Group Update

TM gave an update via telephone on the activities of the External Relations Group, with reference to the extensive pre-reads.

Weber Shandwick services were confirmed in December 2018 and have been assisting the ERG significantly over the last 3 months.

LW gave an overview of the High Level Group for Energy Intensive Industries, highlighting in last 18-24months the group has done well to coordinate a provide a clear vision to the commission about their transition to a low-carbon economy, which CCUS provides a major input. This process has an very high and diverse commission attendance across many departments. There are a number of cross-cutting issues which are being worked on, including clean energy, CCUS and low carbon hydrogen. The meetings at the 27/28th March, LW suggests ZEP should be represented and warned that some attendees are opposed to CCUS.

TM gave an update on the progression of the long-term strategy. Since the last AC, the European Commission long-term strategy paper has been discussed which will feed into a council position to be confirmed in Sibiu in May (9th). Motions of resolution have had separate positions established by ITRE and ENVI. Inputs by the ERG to the ENVI amendments have been successful, especially the compromise amendment 27. Now, it is up for the presidents to decide on how to proceed on the resolutions from ITRE and ENVI. ERG is following this process this closely.

ZEP wrote a letter of support on the 18th January 2019 for the University of Strhyclde who are applying for funding to investigate ‘The Role of CCS in industry clusters in delivering vlue to the political economy’.

The EU Sustainable Energy Week is running from 17th-21st June 2019. ZEP along with the IOGP and Energy Technologies Europe have proposed a CCUS session titled ‘CCUS – Achieving deep decarbonisation, enabling negative emissions’. The application was sent on the 11th February, with additional support from SINTEF and IFP Energies Nouvelles. ZEP will be joint hosting the 2nd ERA-Net ACT and ZEP joint workshop on CCS Risk and Liability Sharing on the 14th March 2019 in Brussels. Interim conclusions from the NWT TWG ‘Collaboration across the CCS Chain’ work-stream 2 work will be discussed.

Actions

Item	Action	Owner	Deadline
1	ZEP to distribute slides on the Sustainable Finance Green Taxonomy to the group	Secretariat	
1	ZEP to prepare a CCUS draft template for input into the Sustainable Taxonomy Expert Group meetings	Secretariat + TWG	March 14 th

Item	Action	Owner	Deadline
3	ZEP to present policy recommendations at Madrid Forum Workshop on 16 th April	NWPE, ERG	
6	ZEP to identify SET-Plan Member States who have a minimal or no mention of CCUS in their draft NECPs	Secretariat + ERG	
9	ZEP to update a working version of the 2019/2020 Forward Work Plan before the next ACEC meeting	Secretariat	April 16 th
10	ZEP to complete and distribute TWG Collaboration across the CCS chain WS1 report ahead of discussion at the next AC	Secretariat	
10	ZEP to contact DG CLIMA for a joint workshop on the Long-term Strategy	Secretariat + NWPE	