RESULT REPORT

14th Strategic Energy Technology Plan (SET Plan) Conference
Making the SET Plan fit for the EU Green Recovery
23–24 November 2020

Agenda SET Plan Virtual Conference 2020

Day 1 23.11.2020	Topic
13:30 - 14:00	Opening Session
14:00 - 15:00	Session 1: Ministerial Session – The SET Plan as innovation catalyst for the EU Green Recovery (High Level Panel Discussion)
15:00 - 15:15	Coffee Break
15:15 - 16:15	Session 2: R&I serving a competitive European clean tech industry
16:15 - 16:30	Coffee Break
16:30 - 17:30	Session 3: Fostering the clean energy innovation ecosystem: Making the leap from research to market (Project pitch + Panel discussion)

Day 2 24.11.2020	Topic
09:00 - 10:00	Session 4: Clean Energy Transition for Europe's green recovery
10:00 - 10:15	Coffee Break
10:15 - 11:15	Session 5: Integration of renewable energy into the electricity system
11:15 - 11:30	Coffee Break
11:30 - 12:30	Session 6: Hydrogen: Creating a clean fuel and feedstock supply chain
12:30 - 13:30	Lunch Break
13:30 - 14:30	Session 7: Off-shore Renewables: Looking at the future
14:30 - 14:45	Coffee Break
14:45 - 15:45	Session 8: Renovation Wave: Making it happen
15:45 - 16:00	Coffee Break
16:00 - 16:30	Session 9: Closing session - Shaping the SET Plan beyond 2020

DAY 1: MONDAY, 23 NOVEMBER 2020

Opening Session Time 13:30 – 14:00

Master of Ceremony: ***Monika Jones****, Professional Moderator*

- ***State Secretary Andeas Feicht***
  Federal Minister for Economic Affairs and Energy of Germany
- ***Commissioner Kadri Simson***
  EU-Commissioner for Energy
- ***Jean-Eric Paquet***
  Director-General for Research and Innovation

Session 1: Time 14:00 – 15:00

Ministerial Session – The SET Plan as innovation catalyst for the EU Green Recovery (High Level Panel Discussion)

This high-level session will discuss the clean energy transition path in the context of the European recovery as well as the importance of research and innovation to boost competitiveness and keep Europe at the forefront of clean energy technologies, while at the same time striving for a transition to a climate-neutral and sustainable economy which leaves no one behind.
Government representatives will provide insights into the Recovery and Resilience Facility plans under development and their link to the National Energy and Climate Plans and the European Green Deal objectives. Ministers will highlight the contribution of the SET Plan in enhancing cooperation across Europe between governments, industry and research institutes to align R&I priorities and strengthen joint funding programmes. In this new context, the EU also plays a central role in the international landscape, through relevant fora such as COP26, G20, CEM or MI, by positioning itself as a global frontrunner on climate action and as a leader in clean energy technologies.

- ***State Secretary Andreas Feicht***
  Federal Minister for Economic Affairs and Energy of Germany
- ***Commissioner Kadri Simson***
  EU-Commissioner for Energy
- ***Minister João Pedro Matos Fernandes***
  Minister for Environment and Climate Action of Portugal
- ***Minister Tinne Van der Straeten***
  Minister of Energy of Belgium
- ***Minister Ivo Milatić***
  State Secretary for Energy of Croatia

Central thesis:

The transition of the European energy sector is a big challenge. Important energy related developments have to be faced now, such as the Renovation Wave, to reduce the energy demand, boosting the use of renewable energy sources to decarbonise energy supply. However, we also have to modernise national and European energy infrastructures to speed up electrification in relevant sectors of society and for the use of new and alternative fuels such as hydrogen.
The SET Plan supports the demands of transition as a platform for coordination and cooperation for all relevant actors. The SET Plan will also function as a bridge for recovery and resilience plans at national and European levels. This will ensure to stabilize the European economy, to support the global competitiveness of the European industry and to influence growth of labour markets.

Core messages of the discussion:

The role of R&I competences and capacities in Europe is very important for the process of the deep transformation. The EU is already a frontrunner in some technology sectors, such as wind energy. Further engagement will strengthen the EU's role in global competition. However, technology is not the only playing field. Other sectors are important as well. Establishing norms and standards for markets for example or developing efficient regulation processes have also a strong impact. Likewise, a stronger participation of societal groups is crucial for the acceptance for new solutions. Last but not least, education on all levels from school to university and even in training on the job will improve the process.

Coupling of the recovery process with processes and targets in climate and energy policy will open big chances for the EU. The Green Deal already supports this line. A modernised EU economy will have less industrial emissions, be it in the building sector or on the demand side. At the same time, a higher rate of renewables will also reduce dependency from energy imports.

Establishing and extending of financing tools is also needed to enhance the transition speed. This is the case for big investment projects and for stimulating activities by the SME sector to create disruptive technologies and thus more jobs. Inducing more engagement of private investment is essential too. Risk covering by means of financing tools helps products or processes to cross the "valley of death" to reach a bankable status for faster market innovation. From the demand side, a stronger participation of citizens will secure a smoother introduction of these new technologies

Conclusions:

Acting as a team with common rules we can be faster and achieve much more. The general energy and climate targets for 2030 and 2050 have been set. Now agreements on the best roads to reach these targets will pave the way for the actors. Strengthening of alliances between the different actors involved will help to speed up the transition process. For this, SET plan is the relevant platform to coordinate capabilities between member states, European Commission and other actors from industry, science and society.

Session 2: Time 15:15 – 16:15

R&I serving a competitive European clean tech industry (Panel discussion)

This session will present and discuss the state of the Energy Union in 2020, in particular the Competitiveness Progress report and its detailed analysis in the Clean Energy Transition - Technologies and Innovations Report. This new tool provides an overview of the competitiveness of the EU's clean energy technology industry, based on an assessment of the technology and innovation needs for 2030 and 2050. The current status of these technologies, their value chains, and the global market perspective are compared against the Green Deal objectives.
Clean technologies are crucial for competitiveness, economic development, energy sovereignty and security. Investing in R&I is of strategic importance in order to reach the European Green Deal objectives. In view of the declining national budgets allocated to R&I and the small share of private-sector revenue currently spent on R&I (especially in those sectors where large-scale deployment of low-carbon technologies is needed), further efforts are required to ensure that the European economy remains competitive in the longer term. The discussion will highlight the steps in R&I that need to be taken in the near future.

- ***Moderator: Hans van Steen***
  Acting Director on Renewables, Research, Innovation and Energy Efficiency in the Directorate General for Energy in the European Commission
- ***Roland Roesch***
  Deputy Director at the Innovation and Technology Center of the International Renewable Energy Agency (IRENA)
- ***Michael Lippert***
  Chair of Batteries Europe, Director Innovations and Solutions for Energy, Saft Batteries
- ***Mechthild Wörsdörfer***
  Director Sustainability, Technology and Outlooks, International Energy Agency (IEA)
- ***Nigel Jollands***
  Associate Director Energy Efficiency and Climate Change, EBRD

Central thesis:

The aim of a carbon-neutral Europe in 2050 is ambitious for the whole society. Industry has to develop and implement various new and clean technologies to attain this target. To overcome key barriers, knowledge transfer between actors on all levels is of utmost importance. Aligning with technology development, clear policy strategies will help to give a clear orientation. And support by adequate financing tools will enable a fast and successful transition.

Core messages of the discussion:

The intensified use of renewable energy resources (RES, e.g. offshore wind, solar energy, geothermal energy) will play a main role in reaching the agreed targets. Creation of synergies with additional economy sectors will lead to economic viability faster, e.g. ocean energy and fishery or aquacultures. Very important is the integration of RES and different new energy carriers into

energy systems at all levels and in a comprehensive way. For the research and innovation processes, it is important to cover the whole value chain from material research up to market introduction, including final decommissioning processes with the recycling of materials.

The policy sector should set up clear visions and roadmaps on EU level focussing on a long-lasting horizon – but also for intermediate steps. This has already been done for the hydrogen and battery sectors, but improvement for further areas is needed. Adequate financing tools for green investment provided by the finance sector will strengthen the innovation process. This is important for market leaders as well as for the SME sector and start-ups.

Acting in a strong alliance of policy, technology developers, the finance, the end-use sector, and the public sector in general will speed up the innovation processes. This will shorten time to market. Not least, international cooperation and exchange on EU level as well as on the global level (e.g. PRC, CAN, JAP, KOR) will help the European Union to improve. In this context, harmonisation of standards and regulatory structures (e.g. ETS) should create international, global “level playing fields”.

Conclusions:

Clear policy strategies on important issues of the energy and climate sector with long-term perspectives (visions and roadmaps) are essential to improve the transition process to climate-neutral regions. To reach the ambitious targets for 2030 and 2050, the EU needs enhanced engagement. A stronger cooperation is necessary, involving all actors in technological development and system integration on regional, national and international level. An adequate financial ecosystem will enable the engaged actors to reach sufficient progress. First experiences with new supporting instruments on EU Level like IPCEI have already shown good results.

Session 3: Time 16:30 – 17:30

Fostering the clean energy innovation ecosystem: making the leap from research to market (Project pitch + Panel discussion)

Although several technologies have already been successfully developed, they face challenges when it comes to accessing the market and creating acceptance and demand at consumer level. In order to encourage demand on the customer side, trust in these technologies is needed. Only when these new technologies create a perceptible added value on the customer side will there be a chance for a wide-ranging and successful deployment.
This session focuses on the gap between technologies at research and market level, seeking new ideas on how to bridge this gap. A number of European projects will pitch their idea/product, followed by a lively discussion on how to help these products/technologies to access the market and be commercialised.

- ***Moderator: Wolfgang Langen***
  Head of Unit - Energy Research Project Funding International, Federal Ministry for Economic Affairs and Energy in Germany
- ***Project 1: Jens Tübke***
  Director Applied Electrochemistry, Fraunhofer Research Factory for battery cells
- ***Project 2: Rene Kerkmeester***
  Program Director of Equigy, the Crowd Balancing Platform
- ***Markus Kratz***
  Head of Unit Energy System: End-Use at Forschungszentrum Jülich GmbH, PtJ
- ***Diego Pavia***
  CEO, KIC InnoEnergy
- ***Katerina Borunska***
  Policy Officer at European Commission DG RTD

Central thesis:

- New ideas / formats are needed in order to fasten things up concerning market launches for new green / carbon-free technologies.
- In order to achieve a successful transformation, we need to get the civil society on board so they can follow new technologies and ideas: make it transparent for everybody.

Core messages of the discussion:

New ideas to bring new technologies into the market more effectively:

- Jens Tübke (Director Applied Electrochemistry, Fraunhofer Research Factory for battery cells), example for the battery sector / electric cars:
  Creating innovative modular and digital production lines would reduce costs and time for production; also, good business strategies as well as flexible innovation modules are necessary for the future industry.
- Rene Kerkmeester (Program Director of Equigy, the Crowd Balancing Platform), blockchains for the future:
  The technology is not ready yet, but in the future it will allow civil society to use their

techniques / facilities in a more flexible way, this will also help to stabilise the grid market; there will be lower prices in the future and blockchains can support transactions.

- Markus Kratz (Head of Unit Energy System: End-Use at Forschungszentrum Jülich GmbH, PTJ):
  With 1/3 of the overall emissions, the building sector is one of the key actors to focus on: Living Labs Europe Competition (LLEC) is a competition-based idea in order to bring new climate-neutral technologies faster into the market; within LLEC decision makers and policy, industry, research facilities, small and medium enterprises and civil society are invited to work together; the competition-frame will help to fasten things up; LLEC will create a large amount of transparency.
- Katharina Borunska (Policy Officer at European Commission DG RTD):
  Many technologies are not able to reach market level, because there are no financial resources in the so-called "valley of death" shortly before entering the market; new funding instruments are needed, also from the European Commission.
- Diego Pavia (CEO, KIC InnoEnergy):
  In order to bring technologies to the market we need not only a scale for the "technology readiness level" (TRL), but also an "innovation readiness level" (IRL) and a "societal readiness level" (SRL); market launch can only be successful if we fulfil all three readiness levels: TRL, IRL and SRL.

Conclusions:

New ideas to bring new technologies into the market more effectively:

- Working together with civil society, politics, industry, private and public research, small and medium enterprises and creating transparency for everybody will support the acceptance of new technologies at consumer level and within society (explaining the benefits from the new technologies for the society / consumers).
- In addition to the TRL there should also be an IRL and SRL in order to succeed in the market.
- The EU is open for new ideas / formats and for new technologies, it is part of the European culture.
- Establishing new and effective product lines and a clear EU regulatory framework will help new technologies to succeed.
- New funding instruments, amongst others from the European Commission, are crucial in order to overcome the "valley of death" shortly before entering the market; private funding is also crucial.
- Processes have to be digitised in order to make them more efficient.

DAY 2: TUESDAY, 24 NOVEMBER 2020

Session 4: Time 09:00 – 10:00

Clean energy Transition for Europe's green recovery (Panel discussion)

Investments under Next Generation EU will strongly support the long-term vision of a green, digital, resilient and competitive EU. The EU and national R&I policies, as well as funding tools and strategies, will benefit from increasing the alignment with energy and climate objectives. The session will discuss how to finance the clean energy transition and how to ensure synergies between national and regional funding instruments targeting clean energy technologies, taking into account the upcoming initiatives of the Green Deal, the energy R&I work undertaken through the SET Plan and supported by the future Clean Energy Transition co-funded partnership, and their consistency with the Recovery and Resilience Facility national plans.

- ***Moderator: Patrick Child***
  Deputy Director General, DG Research and Innovation, European Commission
- ***Roland Schulze***
  Managerial Adviser - Low Carbon Energy Technologies, European Investment Bank (EIB)
- ***Stefano Raimondi***
  Responsible for Research & Innovation Energy sector, Ministry of Economic Development
- ***Lisa Ryan***
  Professor in energy economics at University College Dublin (UCD) and Board member of Sustainable Energy Authority of Ireland (SEAI)
- ***Ewout Visser***
  MT member Electricity Directorate at Ministry of Economic Affairs and Climate

Core messages of the discussion:

- There was a consensus on the SET Plan´s role as a connecting instrument, enhancing close cooperation throughout Europe. This is widened to a global perspective by Mission Innovation, contributing to synergies on an international and European level. These instruments should be further strengthened by active communication towards members of the public in order to sustainably implement research and development activities in society.

- Particularly with regard to the clean energy transition, carbon taxes and the European Emissions Trading System are perceived as key elements for the transition at a member states' level. Another contributing factor is the mobilisation of the full range of national and EU funding instruments. It was agreed that public funding leveraging private investments is crucial. Making use of the full range as well as of the flexibility of all possible funding opportunities was regarded as a big chance to boost the green energy transition.

- Considering the challenge of change in general, the combination of economic recovery and a future green economy according is possible. The role of market pull in order to foster and encourage green research and innovation and the arising opportunities for a green transformation to rebuild many parts of the economy was emphasised.

- Regarding financial programmes on a national and European level as well as potential synergies, regional funding and cohesion funding might under many circumstances be more attractive because it could be considered as an easier access point. Next to the importance of competition both within Europe and on an international scale the mobility of researchers within Europe is seen as highly important in order to strengthen Europe as a place of competition. EIB´s InnoFin was mentioned in particular as an instrument capable of bridging the gap of financing for many stakeholders. Encouraging especially smaller and medium-sized companies to invest in sustainable R&I is seen as key to implementing the green energy transition in Europe.

Conclusions:

In conclusion of this panel discussion, working together is vital in order to find the best solutions for the implementation of the green energy transition. Continuously using networks like the SET Plan offers a huge potential in mobilising the R&I community. Moreover, the inclusion of society should be intensified.

Session 5: Time 10:15 – 11:15

Integration of renewable energy into the electricity system (Panel discussion)

Decarbonising energy by using clean energy everywhere will be crucial to reach both the 2030 and 2050 objectives. A high share electricity consumption covered by renewable energy is crucial, as is its better integration into the overall energy system.

This session will look at how R&I could support a systemic change in the whole energy system and an increase of competitiveness of renewable energy and energy enablers in the context of the green recovery.

- ***Moderator: Hélène Chraye***
  Head of Unit Clean Energy Transition, DG Research and Innovation, European Commission
- ***Michael Hübner***
  Chair IWG Smart resilience and Secure Energy Systems & Senior Policy Officer, Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, Austria (BMK)
- ***Naomi Chevillard***
  Senior Policy Advisor, SolarPower Europe – Leading the Energy Transition
- ***Cristina Corchero***
  Leader of the Energy Systems Analytics Research Group at Catalan Institute for Energy Research, Spain
- ***Laurent Schmitt***
  Secretary General of ENTSO-E

Core messages of the discussion:

Hélène Chraye:

- Renewable energy is at the core of decarbonisation (production and usage) and crucial for reaching the EC's objectives.
- Systemic changes in the whole energy system are needed (solutions: increasing efficiency, better integration of various parts of the energy system).
- Supporting the objectives of the Green Deal by various strategies is essential (Sector integration, Hydrogen, Renovation wave, Off-shore renewable energy)
- Sector integration strategy focuses on interlinking of energy sectors with end-user sectors, support of existing and emerging technologies and business models, circularity and sustainability

Michael Hübner:

- The energy system is getting more decentralised, participative, integrated, service-oriented and renewable.
- New companies enter the energy sector, speed up processes and lead to new business models.
- Important aspects of system integration are sector integration, regional development and intelligent energy systems.

- Regional requirements are important --> engagement and interlinking regional innovation ecosystems.

Naomi Chevillard:

- There is a growing capacity of solar energy and with that a change in the integration approach (decentralisation).
- 100% renewable energy by 2050 is possible --> we need innovations (practises, frameworks, technologies), a higher visibility of the power grids's needs and oriented investments in R&I.

Cristina Corchero:

- The electrification of the mobility sector should be a high priority of decarbonisation policiesChallenges of the integration of electric vehicles in the energy system are: suitable design of electric vehicles, infrastructure, changes in regulations and market designs, engagement of stakeholders.

Laurent Schmitt:

- We need an increase of renewable energy by 2035 to near 100% for reaching net-zero emissions in 2050.
- There is an increased need of flexibility in the energy system.
- We need to rethink integration of offshore renewable energy and connection to the grid , a better interconnected approach
- Innovation and demonstration needed to bring leadership in this sector to Europe.

<u>How can the SET Plan help with sector integration?</u>

Taking regional requirements into account is important and the regional innovation ecosystems should be more engaged and interlinked. Furthermore, the needs for technical innovation and demonstration have to be identified and the integration of end-users, not only private users, should be intensified.

Breaking silos on local, regional and pan-European level with a deregulation of bureaucratic obstacles is an important step towards more interconnections of systems.

<u>How could the SET Plan help to increase competitiveness of renewable energy?</u>

By smart integration a better balance between supply and demand can be obtained and overinvestment can be prevented. Competitiveness can be achieved by an increase of interoperationality, optimised price signals and optimised network planning practices with a more effective use of synergies. It is also decisive to bring solution makers together.

<u>How important will be the role of demand response and flexibility in a highly renewable environment?</u>

Flexibility is one key aspects for the energy system integration of prosumers, to decentralise the systems and to guarantee stability.

Conclusions

The integration of various and different systems can only be achieved with the help of digitalisation tools. Cooperation on all functional levels and linking demand and production is of great importance.
Strong improvements in the framework and adjustments to the international environment are needed, i.e. infrastructure, regulation frame etc..
In addition to the reduction of costs, a strong interoperationality is important to tackle the volatility of a renewable energy system.

Session 6: Time 11:30 – 12:30

Hydrogen: creating a clean fuel and feedstock supply chain (Panel discussion)

The session will discuss the potential contribution of the SET Plan to joint efforts in research and innovation to develop and deploy green hydrogen across Europe.

The recent European Communication on hydrogen sets out a vision of how the EU can turn clean hydrogen into a viable solution to decarbonise different sectors over time, including carbon-intensive industrial processes and hard-to-abate transport systems. To ensure a full hydrogen supply chain to serve the European economy, further research and innovation efforts are required as well as a structured collaboration between public authorities, industry and civil society. The new European Hydrogen Alliance will develop an investment agenda and a pipeline of concrete projects to make hydrogen more cost-effective and competitive.

- ***Moderator: Ulrich Benterbusch***
  Deputy Director-General Efficiency and heat in industry and households, sustainable mobility, Federal Ministry for Economic Affairs and Energy
- ***Mathilde Cadic***
  Auvergne-Rhône-Alpes region in France, Hydrogen Valley
- ***Katharina Rechberger***
  Senior Project Manager, H2FUTURE, K1-MET
- ***Alexandru Floristean***
  Legal Manager, Hydrogen Europe
- ***Taia Kronborg***
  LHyf

Core messages of the discussion:

Alexandru Floristean:

- The ambitous objectives of the EU, net zero-emissions and decarbonisation can only be achieved with hydrogen. The main advantage of hydrogen is its versatility: It can be a replacement of all types of fossil fuels in a wide range of applications (energy, mobility, industry, etc.).
- There are many projects in the pipeline, and they have to become reality soon.
- Policy makers have the task to provide the right framework for a swift transition

Katharina Rechberger:

- The development of efficient electrolysers and a scale-up of electrolyser technologies for green hydrogen is essential.
- Demonstration of stable operations, long term as well as in different modes is needed.
- The quality of hydrogen must be ensured and the production costs over all operation modes need to be competitive.

Tudor Constantinescu:

- The energy system integration strategy and the hydrogen strategy are aiming at decarbonising the whole energy system (transition of the energy system).
- There is a need for clean and cost efficient hydrogen not only in electrification, a need for investments now to achieve tomorrow's objectives.
- The regulatory framework with its standards and certifications is essential for scaling up the systems.
- The basis to reach these targets is research and innovation, e.g. FCH JU, ETS innovation fund, Green Deal Call - 100 MW electrolyser.
- The Clean Hydrogen Alliance will initialise demo projects and scale-up in collaborations with EU and member states.

Mathilde Cadic:

- The vision of research should be hydrogen as a viable solution for industry, transport and the energy sector.
- Four challenges are crucial for this vision:
    - market development/ investment in mature technologies
    - R&I to develop and improve new technologies; use of structural and regional funds
    - improvement of skills --> trainings, hydrogen campus, up-scale of work force
    - scaling --> investment agenda, e.g. IPCEI
- In the H2 valley partnership ten working groups are working along the value chain with two overarching objectives:
    - regions as strategic players for hydrogen at European level
    - foster cooperation between regions and stakeholder, e.g. bundle for calls.

Taia Kronborg:

- In the point of view of Lhyfe, investments in renewable hydrogen production is needed.
- The focus should solely lie on green hydrogen.
- The use of onshore and offshore hydrogen production in Europe should receive greater recognition.

Conclusions:

In a long term perspective, the panelists agreed that green hydrogen is the future and that the development of green hydrogen technologies must be encouraged, especially through public funding.

Nevertheless, blue hydrogen should still be used in a transition phase to ensure the quantities of hydrogen needed and to boost infrastructure and the hydrogen market. In this way, climate-damaging technologies based on fossil fuels can be replaced in a shorter time and the scale-up of hydrogen can be accelerated.

Session 7: Time 13:30 – 14:30

Offshore Renewables: Looking at the future (Panel discussion)

This session will discuss the role of the SET Plan and in R&I in meeting the ambition of the EU Green Deal and in delivering the vision of the Offshore Renewable Energy Strategy.

The EU Green Deal puts a strong emphasis on the role of offshore renewable energies in a climate-neutral Europe. Investing in a world-leading EU offshore wind and ocean energy industry through innovation is essential for our EU industry's competitiveness. The EU Offshore Strategy is expected to frame the opportunity to expand the success of offshore wind to new European markets and develop technological leadership in new emerging technologies. Several interacting factors will influence the scale-up of the EU offshore renewable energy industry: overcoming existing technological challenges, cost competitiveness, system integration, policy support schemes and upgrades to grid and maritime infrastructure.

- ***Moderator: Stathis Peteves***
  Energy, Transport and Climate Directorate
- ***Bob Meijer***
  Director, TKI Wind op Zee
- ***Fiona Buckley***
  Senior Expert and Project Manager at Laborelec (ENGIE Group)
- ***Ulrik Stridbæk***
  Vice President for Regulatory Affairs, Ørsted
- ***Panagiotis Papastamatiou***
  Chief Executive Officer of the Hellenic Wind Energy Association, ELETAEN
- ***Isabelle Ryckbost***
  Secretary General, European Sea Ports Organisation (ESPO)

Core messages of the discussion:

Stathis Peteves:

- With the EU Offshore Strategy measures ensure that offshore renewable technologies will contribute to the Green Deal. This is to scale up offshore wind and floating PV as well as ocean tidal/wave energy.
- This should be seen as an opportunity to expand the success of offshore wind to new European markets and to develop technological leadership in the new emerging technologies.
- Still, there are several challenges to tackle for the scale-up of the offshore renewable energy industry, e.g. grid and maritime infrastructure, system integration, supply chains.
- A boost of R&I is needed especially in smart manufacturing, supply chains, circular design of components etc. and the Recovery Fund as well as private investments are an opportunity for offshore energy.

- The SET Plan contribution to the Offshore Renewable Energy strategy as published in the input paper Offshore Renewable Energy Strategy should be taken into account.

Bob Meijer:

- The EU Offshore Renewable Energy strategy shows a clear market perspective and it supports the European leadership and its global competitiveness.
- The individual requirements of the different basins in Europe have to be considered and breakthrough innovations are still required.
- Especially R&I is necessary for progressing with the strategy and the SET Plan input paper with the collaboration of six IWGs (PV, Offshore Wind, Ocean Energy, Batteries, Industries, Bioenergy and Renewable Fuels) indicates how to reach the ambitious aims.

Fiona Buckley:

- Ocean energy will be needed to stabilise the grid, therefore ocean energy technologies should be emphasized.
- Not only offshore wind but also other offshore technologies have to be developed.
- Strategy investment in ocean energy is highly appreciated, e.g. InvestEU, and the visibility of the ocean energy sector through the EU offshore strategy is supportive.
- The different requirements on the technologies must be aligned with the individual regions to initialise projects and "putting projects in the ocean".
- The EU has to learn from past shortcomings like in the PV industry, and the battery sector should enforce to keep the EU leadership in ocean energy.

Panagiotis Papastamatiou:

- The EU Offshore Renewable Energy strategy is a good basis with ambitious targets, it covers everything that is needed: R&I, funding and supply chains.
- From the Greek point of view the focus on floating offshore technologies is greeted, it supports the Greek targets for the development of the offshore sector.
- R&I for multi-terminal sea systems should be supported.

Ulrik Stridbaek:

- There are two pathways to highlight:
    - Cost reduction is one of the critical elements to be competitive especially with the maturity of bottom-fixed offshore wind.
    - A direct link between offshore wind and the objectives of the Green Deal e.g. kick-start / scale-up is needed.
- The offshore grid should be connected in a more integral way, e.g. DC grids, multi-terminal sea systems etc.
- It is also essential to find sites for ocean energy without intervening in biodiversity, heeding the protection of nature.

Isabelle Ryckbost:

- The ports have accepted their role as hubs of energy and central points for the supply chain of offshore technologies, and the focus on the supply and value chains in the strategy is highly welcomed.
- A special planning for the maritime area is needed regarding space, co-existing of different sectors, since save and secure navigation to the ports must be guaranteed.
- More funding for port infrastructure is needed for adaptation and reorganisation for the scale-up of offshore technologies.

Conclusions:

Investing in a world-leading EU offshore wind and ocean energy industry through innovation is essential for our EU industry's competitiveness. Bringing down the cost of mature technologies, support innovation in new technologies and the consideration of the whole value and supply chain are essential to reach the targets of the European Offshore Renewable Strategy.

Session 8: Time 14:45 – 15:45

Renovation Wave: Making it happen (Panel discussion)

The session will present the main R&I components needed to make buildings across Europe more energy-efficient. Buildings are some of the main energy consumers and are responsible for a large amount of GHG emissions. Roughly 75% of the building stock is energy-inefficient, yet almost 80% of today's buildings will still be in use in 2050.
The Renovation Wave Communication addresses current low renovation rates of around 1% across the EU and tackle the underlying barriers for improving the energy efficiency of the EU building stock. Its objective is to double the annual renovation rate of the existing building stock. This will be supported by regulatory frameworks and through financial support, such as a doubling of the sustainable infrastructure window in Invest EU, as well as the Horizon Europe programme supporting the positive energy districts and the development of smart cities.

- ***Moderator: StefanMoser***
  Head of Unit for Energy Efficiency, Buildings and Products, Directorate General for Energy, European Commission
- ***Annett Kühn***
  Chair IWG Energy Efficiency Solutions for Buildings, Projektträger Jülich/ FZJ
- ***Merit Tarta***
  SmartEnCity for City of Tartu
- ***Clara Callegaris***
  Head of the Smart City Unit and Member of Sharing Cities project, Commune di Milano
  David Denzer-Speck
  KfW Group
- ***Remon Zakaria***
  Associate Director, Lead for Intermediated Green Finance, European Bank for Reconstruction and Development (EBRD)

Core messages of the discussion:

The panellists discussed the enormous potential the renovation of cities and communities in Europe offers with regards to cutting down on CO2 emissions and costs and increasing the residents´ welfare. The continuity of renovating activities is seen as crucial. With some players putting innovative examples into practice, inspiration and replication can foster such activities throughout Europe. Mutual inspiration could also contribute to more acceptance amongst residents, since convincing owners to invest in retrofitting their buildings is seen as one of the major practical challenges. Implementing a bottom-up and / or co-design approaches in combination with continuous communication and information was concluded to be essential to reach out successfully to the often very fragmented building ownerships.

Another challenge is the old building stock many cities and communities face when trying to increase their renovation rates. Tailor-made projects considering the specific buildings to be tackled

is another practical conclusion. Energy experts as individual support can help in the decision-making process.

Digitisation plays in important role in particular, but also in general – as do all methods of assessing the building´s energy performance and facilitating auto-control.

Especially deep renovations require long-time frames, which is why timing certainly is an issue in monitoring renovation activities. The realisation of R&I measures in retrofitting activities is often confronted by the owners´ reservations against investing and by financial conservativeness. In a communicative outreach, understanding can be raised amongst the relevant stakeholders. The cooperation between private and public sectors as well as setting realistic and not too ambitious energy targets is regarded as a good means to ensure resilient results and long-term impacts. To trigger a change high-level incentives should be combined on all levels.

Conclusions:

Next to providing adequate incentives, the sharing of experiences and good practice is key. Interactive communication with the citizens can contribute to implementing renovation activities successfully and sustainably. R&I provides a lot of potential here and can be translated into practice e.g. by bringing together public and private funding. A challenge is to include smaller and medium-sized projects and to take them into account in all renovation measures.

Session 9: Time 16:00 – 16:30

Closing session - Shaping the SET Plan beyond 2020

The results of the panel discussions will help us to take stock of the SET Plan contribution to the achievement of the European climate and energy objectives and of the main energy initiatives at European and national level. They will support the reflection on the next steps to be taken, in order to maximise the impact of the SET Plan in view of the European green recovery and the 2050 decarbonisation objective.

- ***Moderator: Monika Jones***
  Master of Ceremony
- ***Katja Neumann***
  Deputy Director-General, Federal Ministry for Economic Affairs and Energy in Germany
- ***Ditte Juul Jørgensen***
  Director-General of DG Energy, European Commission
- ***Patrick Child***
  DG Research and Innovation, European Commission
- ***Stephen Quest***
  Director-General of Joint Research Center (JRC), European Commission

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- ***Tina Seršen***
  Head of Unit, Energy Directorate, Ministry of Infrastructure, Slovenia

Wrap-up of the conference guided by a two-fold question:
1st: How has the SET Plan helped to accelerate the development and access to the market of the technologies needed for the clean energy transition?
2nd: In the future, how can the SET Plan contribute to achieving the climate and energy objectives, also taking into consideration the European recovery?

Central thesis:

Research and innovation are essential components of the clean energy transition. Bringing solutions from lab to market and scaling them up is at the core of the EU Green Deal and of the green and resilient recovery in the post-Covid crisis. – And the SET Plan is the right strategy for implementation.

Core messages of the discussion:

Contributions:

- The SET Plan is a very well established framework for the collective work on the transition towards a climate-neutral energy system and for the support of low carbon technologies.
- It has become a reference for R&I in energy technology. European Commission and member states work together in a positive collaborative space, member states continuously exchange knowledge and high-level expertise.

- As a EU core instrument, it accelerates aligning, coordinating and streamlining national and European R&I priorities and funding instruments. It boosts efficiency and technology development. There are concrete projects and outcomes, e.g. in the ERA-NETs.
- Specifically, the implementation plans around key technologies and targets have made an important contribution. The involved actors have successfully built a consensus around those plans.
- SETIS provides the scientific evidence of this contribution. It helps to collect and share knowledge, to steer the SET Plan and to keep it up-to-date with policy priorities and research needs.

Perspectives:

- The SET Plan fully supports Europe's new energy and climate strategy and will help to meet the goals of the European Green Deal by further fostering close collaboration between member states.
- To achieve a successful energy system integration in the EU, it is crucial to ensure a continuation of the SET Plan activities. Implementation groups of the SET Plan could use the strategic input of member states (steering group) together with feedback from industry and research and translate this into concise actions using national funding and international instruments. Here, the new partnership instruments in Horizon Europe can play an important role.
- In working with the private sector, the SET Plan can be an enabler, show the return on investment of technologies and help shorten the innovation cycle.
- The SET Plan also offers a strong impulse to modernise EU industry sectors and supports building up reference cases for replication worldwide.
- The planned new initiatives discussed at the conference are good examples of how the integrated approach of the SET Plan can be further enforced and how to kick-start new ways of working together.
- The SET Plan can ensure consistency with the national recovery and resilience plans under preparation.
- Buildings and renovation are a central innovation challenge in the climate crisis. With living labs for the transformation, Germany has presented a new European competition format.

Conclusions:

The SET Plan has undeniably been a success so far. Impressive progress has been made. The SET Plan remains at the forefront when it comes to realising Horizon Europe. Key aspects: increasing investment in R&I, steering the community to reach the ambitious goals for 2030 and 2050, bridging the gap from research to implementation. – And in all this, collaboration remains key.

As a final step, Katja Neumann handed over to Tina Seršen:
In November 2021 the 15th SET Plan Conference will be hosted by Slovenia.