Proceedings document

Global Clean Energy Action Forum 2022 (CEM13) Side Event: Global Dialogue on Long-Term Transition Pathways for Road Transport

Pittsburgh, USA — September 23rd, 2022, 11:30 AM - 12:30 PM

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Key Takeaways

1. Governments play a key role in setting long-term goals for the transport sector and developing energy scenarios to guide the transition to low-carbon transport. These goals can take into account a range of factors, including climate action, clean air, social inclusivity, competitiveness, and infrastructure development.
2. To effectively plan for the future of transport, governments need to make early-stage strategic decisions and consider the potential for an integrated and multimodal transport system.
3. Infrastructure development is essential to support the widespread adoption of new-energy vehicles, and governments can use a variety of measures to encourage private sector investment, including direct investment, regulatory frameworks, and fiscal incentives.
4. While the transport sector has made significant progress in the development of new-energy technologies, there are still uncertainties surrounding the speed at which these technologies can be scaled up and the availability of charging infrastructure.
5. By engaging with a broad range of stakeholders, governments can help reduce uncertainty and build consensus around the transition to low-carbon transport. This can include working with industry, civil society, and consumers to develop and implement effective policy measures.

Programme

11:30 – 11:35 AM	Welcome remarks	**Asami Miketa** (Senior Programme Officer, Energy Planning Support, IRENA)
11:35 – 11:40 AM	Scene-setting presentation	**Nadeem Goussous** (Associate Programme Officer, Energy Planning Support, IRENA)
11:40 am – 11:50 AM	Roundtable and self-introductions	**Gereon Meyer** (Head of Department European & International Business Development, VDI/VDE Innovation + Technik GmbH, Germany) **Liu Xiaoshi** (Deputy Secretary-general, China EV100) **Rachel Henriques** (Technical Consultant, EPE/Energy Research Office, Brazil) **Rachel Muncrief** (Deputy Director, ICCT) **Stephanie Edwards** (Head of Sectors, COP26, Department for Business, Energy & Industrial Strategy, United Kingdom)
11:50 – 12:25 PM	Moderated discussion	Guiding questions • What are the key drivers for different pathways for the transport sector explored in long-term scenarios (fuels, electric vehicles, public transportation vs private car ownership, modal/behavioral shifts) • What are the key uncertainties for the long-term development of the industry (including availability of critical materials and supply chain bottlenecks)? • How can long-term scenarios serve as a guide for both decision-making in transport policy and industry? • What are the implications of these different pathways on the just transition
12:25 – 12:30 PM	Closing remarks	**David Vance Wagner** (Vice President, Strategic Partnerships, Energy Foundation China)

Summary of the event

Date and Time: September 23rd, 2022, 11:30 AM - 12:30 PM
Location: Pittsburgh, USA
Co-organizers: IRENA, China Electric Vehicle Council 100, and the Energy Foundation China
Participants: representatives from domestic and international institutions

Welcome and Introductory Remarks

The Clean Energy Ministerial (CEM) is the world's only permanent ministerial-level cooperation platform in the field of clean energy. CEM aims to support dialogue between the G20 and other countries demonstrating clean energy leadership as well as multinational companies and experts.

IRENA is an observer organization of the Clean Energy Ministerial partnership and participates in CEM conferences. It is in this context that IRENA co-organized a Side Event on long-term transition pathways for road transport in cooperation with China EV100 and the Energy Foundation China. The event featured representatives from national institutions involved in decarbonizing road transport as well as experts from international institutions.

The moderator, Asami Miketa (International Renewable Energy Agency), opened the session by emphasizing the importance of long-term energy scenarios (LTES) for setting decarbonization targets in the transportation sector. LTES can help to model different pathways and consider uncertainties surrounding raw materials, technological maturity, and infrastructure investments. Miketa asked for insights on key drivers that impact goal-setting in road transport and how scenarios can be used as an effective tool to support climate policy and market uncertainty.

Scene setting presentation: Nadeem Goussous (International Renewable Energy Agency) — In a scene-setting presentation, Nadeem Goussous of the International Renewable Energy Agency (IRENA) highlighted findings from IRENA's 2022 World Energy Transition Outlook (WETO). According to WETO, there are six main avenues for achieving net zero emissions by 2050: expanding renewables, increasing energy efficiency, electrification, hydrogen, CCS carbon removal, and BECCS. Electrification of the transport sector is progressing at a good pace, but achieving net zero by 2050 will require twenty times the number of electric cars currently on the road. Therefore, rapid electrification and investment in charging infrastructure are critical for decarbonizing the transport sector. Other potential solutions include hydrogen and biofuels, which are primarily used in heavy-duty transport. However, the adoption of new-energy vehicles will increase demand for critical raw materials such as rare earth elements and minerals, and may require new infrastructure.

IRENA is set to publish a new report analyzing national energy and climate plans and identifying needs and goals related to electrification, energy efficiency, and more. Initial results indicate that countries included in the report model electricity infrastructure, but do not typically model e-fuel and hydrogen transmission, distribution, and end-uses. There is also a heavy focus on electric cars and electric heavy-duty transport, while biofuels are modeled more often than hydrogen and e-fuels. This raises questions about whether these data reflect deliberate choices by countries or a lack of capacity to model hydrogen and e-fuels.

Roundtable and self-introductions

Rachel Henriques (Technical Consultant, EPE/Energy Research Office, Brazil) — Rachel Henriques discussed the role of the EPE in supporting policymaking decisions for the Ministry of Mines and Energy. The EPE regularly develops long-term energy scenarios and policy documents, including those related to the transport sector. It also analyzes drivers of growth in the transport sector and identifies pathways to achieve goals set by Brazil's national government and international agreements. To diversify fuels used in the transport sector and increase synergies between different modes of transport, Brazil is investing in and prioritizing low-carbon modes such as rail and maritime transport.

Stephanie Edwards (Head of Sectors, COP26, Department for Business, Energy & Industrial Strategy, United Kingdom) — Stephanie Edwards gave an overview of the BEIS's work on international clean energy transitions. She mentioned that the BEIS participated in the organization of COP26 and that the team responsible for international engagement actively engages with actors involved in decarbonizing the transport sector globally. The BEIS is expanding its network of country and private sector partners committed to achieving 100% zero-emission vehicles by 2040 or sooner under the Accelerate to Zero campaign. Edwards previously served as the policy lead for the UK's efforts to phase out fossil fuel vehicles domestically and as the head of new-energy vehicle infrastructure in the UK.

Gereon Meyer (Head of Department European and International Business Development, VDI/VDE Innovation and Technik GmbH, Germany) — Gereon Meyer discussed the company's focus on aligning public authorities and policymakers with strategic planning in the industry sector and channeling public funds toward industrial research. VDI/VDE Innovation and Technik GmbH is an innovation management agency and consultancy firm owned by two engineer associations and funded by the German federal government. The company's main focus areas include the automobile industry and sustainable transportation.

Rachel Muncrief (Deputy Director, ICCT) — Rachel Muncrief discussed the ICCT's mission to reduce and eliminate climate and health impacts from the transport sector. The ICCT works on all modes of transportation, including road, rail, maritime, and aviation, and has offices in both high-income and low-income countries, including the US, Germany, Brazil, China, and India, as well as staff on the ground in other countries. The organization's role is to provide technical, third-party analysis to support effective policymaking and encourage long-term thinking. Recent research areas include transport infrastructure, and the ICCT also performs cost-benefit analyses for different technologies.

Liu Xiaoshi (Deputy Secretary-general, China EV100) — Liu Xiaoshi discussed the organization's role in promoting research on electric transportation in China. China EV100 is a non-profit organization with over 200 members, including ministers and government officials, top scholars in the automobile industry, and companies along the automobile value chain such as Tesla, Volkswagen, CATL, Baidu, AliBaba, and Tencel. The organization serves as a platform for discussion among these stakeholders and encourages members to work on common solutions to challenges related to electric vehicles. China EV100 ultimately develops comprehensive policy package proposals for the Chinese central government. In the past six years, the organization has successfully promoted low-carbon transportation initiatives and supported rapid growth in the industry in China.

Moderated discussion

Asami Miketa of the International Renewable Energy Agency (IRENA) started the discussion by asking participants to identify the key factors that drive different pathways for the transport sector in their countries.

Rachel Henriques of the Energy Research Office in Brazil noted that the country's transport sector has a unique set of characteristics, including a road and transport energy matrix that includes more than 20% renewable energy sources, and mandatory use of ethanol and biodiesel in some circumstances in the road transport sector. The Brazilian government aims to maintain a diverse range of fuel options and adopt innovative technologies, while also anticipating significant uptake of electric and hybrid vehicles in the heavy-duty transport sector. The ultimate goal is decarbonization.

Rachel Muncrief of the International Council for Clean Transportation (ICCT) identified five main drivers for government policy action in the transport sector: long-term targets like phase-out dates, strong and certain regulation, fiscal and non-fiscal incentives, investment in and development of infrastructure,

and consumer-focused policies to provide information to make informed decisions on new-energy vehicles.

Stephanie Edwards of the UK's Department for Business, Energy and Industrial Strategy (BEIS) outlined the country's plans for the road transport sector over the next 20 years, including a commitment to non-fossil fuels by 2030, a transition period from 2030 to 2035, and 100% zero-emission vehicles for cars and small vans, and 100% zero-emission heavy goods vehicles by 2040. The stable framework allows for clear planning, and the government is also focused on supporting job creation in the new-energy vehicle value chain and infrastructure roll-out, as well as using hydrogen to balance the grid and bring about a more integrated energy system.

Gereon Meyer of VDI/VDE Innovation and Technik GmbH in Germany noted that the fundamental driver of low-carbon transport is people's needs and desires for mobility, and the government's role is to balance the priorities of different stakeholders in pursuit of long-term decarbonization goals.

Liu Xiaoshi of China EV100 highlighted that the Chinese government made new-energy vehicles a national priority in 2010 due to economic development and energy security concerns. The goal was to reduce dependence on oil imports and improve domestic industrial capacity, as well as lower national emissions. By 2020, China had reached 1.3 million in product sales, demonstrating the importance of long-term planning in achieving ambitious decarbonization goals.

Asami Miketa asked the participants how governments can effectively set long-term strategy goals for the transport sector. Rachel Henriques from the EPE in Brazil explained that the government generally discusses early assumptions and goals with stakeholders and incorporates their feedback into scenarios. These scenarios, which plan for ten-year periods and extend until 2050, are based on agreed-upon milestones and drivers. The Brazilian government then executes strategies and monitors their results, soon launching a monitoring plan that will go until 2050 to coordinate technology-forcing policies that aim to promote the adoption of new-energy vehicles.

Asami Miketa then asked Gereon Meyer about the key strategic goals for innovation policy in Germany and how the German government and the European Union (EU) set priorities for the transport sector. Gereon Meyer explains that the EU and Germany are currently focused on sourcing natural gas. However, the Green Deal sets targets for 2050, with an intermediate goal of 55% additional emission reductions by 2035, similar to the EU's Fit for 55 approach. The European Council is also working on a target for zero new internal combustion engine vehicles by 2035. In setting priorities, the EU is considering a range of factors including emission reductions, social inclusivity, road transport safety, and competitiveness. The EU's current regulations support electric, hydrogen, and fuel cell vehicles, but not biofuels. Regulations may need to be revised to support all new technologies and balance the EU's goals.

Asami Miketa asked Rachel Muncrief about the key uncertainties in the long-term development of the transport industry. Rachel Muncrief stated that the main uncertainty in the past was the availability and cost of low-carbon technologies. However, these questions have largely been answered. The current focus is on how to accelerate the deployment of new-energy vehicles to meet climate goals. One uncertainty is whether the necessary infrastructure can be scaled up quickly enough to match the pace of vehicle transition. Another uncertainty is whether the transition to a low-carbon transport sector will be global or limited to certain regions. There are also questions about ensuring that the transition is just and equitable, and about regulating new-energy vehicle supply chains and ethical mining practices. The ICCT has shifted its research to these areas of focus to examine these uncertainties.

Asami Miketa asked Stephanie Edwards to share the UK government's perspective on major uncertainties in the transport sector. Stephanie Edwards stated that the UK government is concerned about uncertainties among stakeholders that may prevent the rapid adoption of new-energy vehicles. To support the deployment of these vehicles at scale, the government believes that effective coordination between government action, long-term planning, industry willingness and financing, and public willingness is necessary. In 2016, the main driver behind the UK government's decision to ban internal combustion engines in road transport by 2040 was not climate change but clean air. The public authorities' role today is to minimize uncertainties for stakeholders and make the consequences of inaction clear to those who will be impacted by climate change.

Asami Miketa invited further insights from other speakers. Rachel Henriques provided further perspective on the importance of considering demand behavior in long-term energy scenario planning. She also pointed out that the pandemic has accelerated the adoption of online communication and remote work, but it remains uncertain how society will adapt to these changes in the long run. Henriques noted that one potential advantage of online communication is the ability for experts from around the world to collaborate and develop new solutions together.

Asami Miketa invited discussion on the infrastructure development priorities for the transport sector and the economy as a whole. Liu Xiaoshi emphasized the importance of infrastructure development, including city and expressway development, for the transport sector. He noted that the State Grid and electricity companies, as well as manufacturing companies, may be involved in the development of infrastructure for new-energy vehicles. The government can play a role in this process by providing clear policy guidelines and fiscal incentives to support companies in their efforts. Liu Xiaoshi mentioned that in China, the government is working towards a 2:1 charging station to vehicle ratio.

Asami Miketa invited final remarks from other panelists.

Gereon Meyer said that intelligent mobility is an area that governments will likely focus on in the future, and they will also be looking to multimodal transport and an increasingly integrated transport sector. Vehicles cannot be considered in isolation and are part of a connected transport, supply, and demand system. Governments can make very early-stage strategic decisions in order to develop comprehensive plans. However, while public authorities may have a clear idea of what is necessary, concerns may persist at the level of individual consumers.

Stephanie Edwards added that society is increasingly thinking about and acknowledging the need for charging infrastructure. Public acceptance in turn creates further opportunities and allows the emergence of new business models for charging infrastructure.

Rachel Muncrief highlighted that governments have an important role to play in the development of infrastructure. Firstly, governments are able to deploy funding to support the adoption of new technology and associated infrastructure. In the US, the Infrastructure Act and the Inflation Reduction Act channeled around 10 billion US dollars of funding. However, not every government has the ability to spend 10 billion on new-energy vehicle infrastructure, and even that amount isn't close to what's needed to support the transition to a low-carbon transport sector. Secondly, governments can set fiscal policy which will drive private sector investment, increasing overall market certainty. This is what the EU has accomplished with their eight-year regulation framework, which promotes the achievement of climate goals. Rachel also mentioned that deregulation of the utility sector would allow utilities to plan ahead and invest in upgrading the grid, or perhaps invest in smart charging and bidirectional charging.

Rachel Henriques added that the Brazilian government is making efforts to support private sector investment, in particular in the hydrogen and maritime fuel sectors. It is important for governments to clearly signal that they intend to support the clean energy transition.

Concluding remarks

As the session came to a close, David Vance Wagner of the Energy Foundation China highlighted the importance of the widespread adoption of zero-emission vehicles in achieving global climate goals. He emphasized the need to build consensus around climate policy tools and transition frameworks in order to unlock the market's potential for a low-carbon transition in the transportation sector.

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