

WORLD SUSTAINABLE DEVELOPMENT SUMMIT 2021

REDEFINING OUR
COMMON FUTURE:
SAFE AND SECURE
ENVIRONMENT FOR ALL

February 10-12, 2021



WSDS 2021 Pre-event

COP 26 Webinar Series

Future of E-Mobility in India:
Strategies to Drive Demand

Date:

1 December 2020

Time

3.30-6.22 P.M. (IST) | 10.00-12.52 P.M. (GMT)

IN PARTNERSHIP WITH



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AGENDA

3.30 – 4.06 p.m.	Launch Session
Prior to 3.30	Film (1.22)
3.30 – 3.40	Welcome and introduction to the ‘COP26 Webinar Series’ held in partnership with the British High Commission in New Delhi: Dr Annapurna Vancheswaran, Senior Director, TERI <ul style="list-style-type: none"> • Opening Address: Ms Jan Thompson, British Deputy High Commissioner
3.40 – 3.55	Special Addresses <ul style="list-style-type: none"> • Dr Ajay Mathur, Director General, TERI • Mr Pietro Sferra Carini, Deputy Chief of Mission, Embassy of Italy
3.55 – 4.05	Keynote Address <ul style="list-style-type: none"> • Mr Ken O’Flaherty, Regional Ambassador for Asia-Pacific and South Asia for COP26
4.05 – 4.06	Making EVs Attractive: Industry Perspective Session Description: Underlying the importance of industries, both from the user as well as manufacturer side, strong growth is pertinent to achieve the targets set by the Government of India in EV adoption. Apart from fuel security, positive health externalities on account of reduced exposure to ambient air pollution, especially involving marginalized communities, makes it important for greater EV adoption. In this context, it is important to identify areas of concerns and solutions for EV penetration – increased deployment of charging infrastructure, more EV options to the customers, improved battery technology adoption, lower cost, etc. How the future economic growth and transportation scenarios unfold will have significant impacts on the demand for EVs in India.
4:06 – 4:08	Introduction <ul style="list-style-type: none"> • Ms Haimanti Poddar, Senior Energy, Climate Change & Urban Adviser, COP 26 Zero Emission Vehicle Transition India Campaign Lead, British Deputy High Commission, Kolkata
4.08 – 4.09	Film (0.43)
4.09 – 4.14	Special Addresses <ul style="list-style-type: none"> • Mr Sudhendu J Sinha, Adviser, Transport, NITI Aayog
4.14 – 5.10	Panel Discussion
4.14 – 4.16	Moderator <ul style="list-style-type: none"> • Ms Priya Shankar, India Director, Environment and Climate Program, Bloomberg Philanthropies
4.16 – 5.00	Panellists: <ul style="list-style-type: none"> • Mr Mahesh Babu, Managing Director & CEO, Mahindra Electric • Mr Rajeev Chaba, Managing Director, MG Motors • Mr Sohinder Gill, CEO, Hero Electric Vehicles India • Mr Vedantha Kumar, COP26 Transport Lead, UK • Mr James Quinn, CEO, Faradion
5.00 – 5.10	Q/A session led by the Moderator
5.10 – 6.15 p.m.	Supporting EV Adoption: Policy Perspective Session Description: Supporting EV Adoption: Policy Perspective Session Description: India recognizes the shift to electric mobility presents both environmental and socio-economic benefits and provides the unique opportunity to create new jobs while responding to the challenges of air pollution and energy security. The session explores the relationship between Policies and Schemes by the Central and State Governments to boost EV deployment in the country, and the uptake of EVs by the users. It will also try to explore innovative national and international strategies to boost demand for EVs in order to meet India’s ambitious target for the adoption of EVs.
5.10 – 5.12	Welcome Address <ul style="list-style-type: none"> • Ms Natalie Toms, Economic Counsellor, British High Commission, New Delhi
5.20 – 6.15	Panel Discussion

5.20 – 5.21	Moderator <ul style="list-style-type: none"> • Ms Natalie Toms, Economic Counsellor, British High Commission, New Delhi
5.21 – 5.50	Panellists: <ul style="list-style-type: none"> • Mr O.P. Agarwal, CEO, World Resources Institute (WRI) India • Dr Ravi Gadepalli, Consultant, UITP and the World Bank • Ms Natasha Robinson, Deputy Director, UK's Office of Low Emission Vehicles
5.50 – 6.00	Q/A session led by the Moderator
6.00 – 6.05	Concluding remarks <ul style="list-style-type: none"> • Dr Daniel Bradley, First Secretary, Energy and Low Carbon Growth, British High Commission, New Delhi
6.05 – 6.20	Valedictory Address: <ul style="list-style-type: none"> • Mr Amitabh Kant, CEO, NITI Aayog
6.20 – 6.22	Vote of Thanks <ul style="list-style-type: none"> • Ms Haimanti Poddar, Senior Energy, Climate Change & Urban Adviser, COP 26 Zero Emission Vehicle Transition India Campaign Lead, British Deputy High Commission, Kolkata

As part of the COP26 webinar series, a virtual dialogue on the 'Future of E-Mobility in India: Strategies to Drive Demand' was organized on December 1, 2020 at the World Sustainable Development Summit (WSDS) 2021, in partnership with the British High Commission in India. The WSDS is the annual flagship event of The Energy and Resources Institute (TERI) and its 2021 edition addressing the theme of 'Redefining Our Common Future: Safe and Secure Environment for All' will be hosted virtually from 10th to 12th February 2021. The edition will focus on the current crisis and the roadmap that nations need to adopt for a greener recovery.

Delivering the opening address, **Ms Jan Thompson, British Deputy High Commissioner** said, "this is an important time as we mark one year left until COP26 in Glasgow. This would be a pivotal moment for the world to come together to accelerate climate action, navigate a green recovery to the global pandemic we are going through now. We know that action cannot wait. As we prepare for COP26, we are taking an inclusive approach to be sure that our voices are heard." He highlighted that the day's debate on the future of electric mobility in India is really relevant in this scenario.

Dr Ajay Mathur, Director-General, TERI emphasized that it is a time of great anxiety as well as of great opportunity. He said, "anxiety because of the mounting pressures due to the increasing amount of CO₂ in the atmosphere, forcing us to take actions now. Opportunity because these actions help to release a huge reservoir of actions which while addressing carbon emissions also address the issues of economic growth, job creation, and opportunities for tomorrow. Therefore, looking at a broad picture of ways to move ahead towards low-carbon future, this has to be built on the shoulders of benefits that people get." He mentioned that the benefits could be very different, for example, economic or social benefits. To elaborate, he said, "for cleaner air quality as per our discussion today on e-mobility, we look at nature-based solutions

and adaption and resilience to get benefits we want from development inputs and they are not accentuated by the negative impacts of climate change." He informed that at TERI focus is given on these options in a cascade of how societies look at them, adopt them, and then embrace energy efficiency.

Further, he discussed about decarbonization of the electricity sector in pursuit of carbon-free future. He suggested that electrification of every aspect where fossil energy is being used is necessary. In this case, he asked, "then how do we move from fossil fuels and petroleum fuels to electric mobility?" He continued by saying that we cannot afford to wait for electric mobility to start only after there is zero-carbon electricity. He said, "by the time e-mobility takes off, we will have a large amount of decarbonized electricity, for completion of what we believe are hard to abate sectors today. We either do not have the technologies or we have technologies at the nascent level, which are looking at zero emissions from these areas."

Digitization of Electric Grids to Reduce Emissions and Enhance Efficiency

Highlighting the importance of promoting sustainable and resilient recovery from the COVID-19 crisis, **Mr Pietro Sferri Carini, Deputy Chief of Mission, Embassy of Italy** talked about the Italian G20 presidency's actions towards environment sustainability. He said, "the transition to renewable energies is one of the pillars of our action for environmental sustainability; and the digitization of electric grids will be an essential tool to reduce emissions and enhance efficiency. This is where e-mobility fits in; since the old concept of zero-carbon transport revolves around the idea of an infrastructure network and grids that go hand in hand with the production of e-vehicles."

He mentioned that the presidency will focus on the 3Ps, which are people, planet, and prosperity. He said, "it is the second pillar, the planet, for which

Italy will be committed to work towards climate action. We need to take care of humanity through an integrated approach. And this approach has to ensure a strong and greener economic recovery which is also inclusive, resilient, and sustainable. So, all these transitions are needed and will be of a very high cost. But the cost of non-action will be higher and that is the reason why Italy and the UK are committed in this endeavour in 2021.” In order to fulfil the commitments, he emphasized on the importance of relentless international coordination. Furthermore, he said, “COP26 marks the unity of the earth on a path to a zero-carbon economy. It is the time when we need to build back greener from COVID-19. So, we are literally at a turning point for our planet and our health.”

There is an emerging consensus among countries and companies that future has to be powered and fuelled in clean and sustainable ways. Deliberating on this, **Mr Ken O’Flaherty, Regional Ambassador for Asia-Pacific and South Asia for COP26** said, “it is the only viable and sustainable long-term solution that will power our economies and meet the needs of our citizens in ways that are good for people and the planet.” Discussing about the UK–India partnership in dealing with the situation, he mentioned that both the countries showcase strong commitments and actions. He praised India for having built substantial wind and solar capacity over the last decade, for Indian Railways that pledged to achieve net-zero emissions by 2030, and for the enterprises, businesses, and investors who are really taking actions in this direction. Furthermore, he discussed about the UK’s commitment to cut emissions to net zero by 2050. He mentioned that from 1990 to 2018, the country nearly halved its emissions by 43% while its economy grew by 75%. He said, “we are committed to doubling our international climate finance to at least 11.6 billion pounds over the next 5 years to help developing countries to take action. Our Prime Minister announced the UK’s ambitious plan for green industrial revolution with its 10-point plan. This will be a big investment for the government – over three-times the private

sector investment by 2030 to build green jobs and industries.” He mentioned that the UK is going to be the first G7 country to decarbonize its road transport sector. He said, “for road transport, the promise of cheaper, cleaner technology is real. Electric vehicles are already cheaper to run than fossil fuel cars and they are expected to be cheaper to buy within the next few years. So, the faster we invest and switch into electric mobility, the faster this cost will fall for everyone along with the production of carbon emissions and air pollution.” Further, he emphasized that to meet the collective Paris Agreement goals, all new vehicles need to be zero-emission by then. In other words, he said that the pace of the current global transition needs to be doubled, and to achieve the same he suggested all governments and businesses need to work together. Talking about the EV ecosystem in India, he said that the country has a great foundation, strong commitment, and environment for the same. He said, “the UK and India have a range of existing and pipeline collaboration activities. The UK companies are opening their operations in India and expanding their businesses including EV charging. We are confident that by working together, both the countries can have economic benefits and help the green transition.”

Making EVs Attractive: Industry Perspective

Underlying the importance of industries, both from the user as well as manufacturer side, strong growth is pertinent to achieve the targets set by the Government of India in EV adoption. Apart from fuel security, positive health externalities on account of reduced exposure to ambient air pollution, especially involving marginalized communities, makes it important for greater EV adoption. In this context, it is important to identify areas of concerns and solutions for EV penetration – increased deployment of charging infrastructure, more EV options to the customers, improved battery technology adoption, lower cost, etc.

Talking about the future of EVs in India, **Mr Sudhendu J Sinha, Adviser, Transport, NITI Aayog**, said, “September 7, 2018 is a historic day for e-mobility in the country, as on this day, the Prime Minister while inaugurating the Global Mobility Summit laid out broad contours of future mobility in India. He highlighted upon the seven Cs – common, connected, convenient, congestion-free, charge, clean, and cutting edge. The first four Cs concentrate on the user part, to those who are either inside or outside of a vehicle. And the second part of this group, that is, charge, clean, and cutting edge emphasize upon technological support which should ensure the integrated mobility in India.” He emphasized that e-mobility is an answer to the problems related to pollution, health externalities, climate, or energy security, especially in the Indian context, as according to the estimates 193 plus million tonnes of petroleum products are being used in India per year, with diesel at 43%, petroleum 12%, and LPG 9%. Talking about how to drive the EV demand, he said, “we should first have an understanding of what is holding the demand that is the point of inertia, which is related to ‘C, D, and E’. C stands for charging, that is the duration of charging and allied aspects of charging. D is the driving range and E is the expense. With the technological interventions in recent times especially in batteries, there has been a phenomenal change in the last decade. There are mainly two kinds of gaps if we talk about driving EV demands in India, which are affordability gap between price and cost and sentiment gap, which exists between choice and confidence with respect to charging, driving range, etc.” India is constantly trying to take forward electric mobility to fulfil its NDCs. In this context, Mr Sinha discussed about the five kinds of thrust areas where India is concentrating, which are manufacturing, specification and standards, fiscal incentives, regulatory framework, and research and development. He said, “we are trying to provide policy support and coordination for the offtake of e-vehicles. The entire mobility becomes clean and sustained, with Make in India being there.” He

also talked about several achievements including institutional achievement of creating a National Mission on Transport Mobility and Battery Storage in March 2019 and the creation of production link incentive of ₹ 18,100 crores for 5 years, sanctioned for manufacturing in this sector.

Moderating the panel discussion on ‘Making EVs attractive: Industry Perspective’ **Ms Priya Shankar, India Director, Bloomberg Philanthropies** said that globally road transport accounts for over 10% of greenhouse gas emissions. And, the share has been rising.” Road transport is a major contributor to air pollution having enormous impacts on health, well-being, and economic productivity. She suggested that to overcome the impacts it is important to shift to public and active transport, develop mobility solutions, and transition to electric vehicles. She discussed that to drive the green mobility agenda, electric vehicles fuelled by renewable energy can bring benefits in terms of global warming, local air pollution, energy security, and job creation. However, governments and businesses in different parts of the world are already working in this direction. She expounded the on-going transition by mentioning that sales of internal combustion engine passenger vehicles peaked in 2017 and is on a declining trajectory; 30% of global two-wheeler sales are already electric; and, based on the current trends, it is predicted that by 2040, 31% of the world’s passenger cars will be electric. She mentioned that 13 countries and over 30 sub-national governments have either committed to or are in the process of committing to phasing out internal combustion engine vehicles by 2030 or 2040, and many companies are committing to shift to a fully electric fleet by 2030. She also talked about India’s Fame-II scheme and some other interesting state-level electric vehicle policies.

Embarking on the discussion, **Mr Mahesh Babu, Managing Director & CEO, Mahindra Electric**, said, “the mobility requirement of India is different from the mobility requirements of the UK and other parts of the world. India has a population of over 1 billion, and the car penetration here is much lower at 20–25 cars per thousand compared

to much higher numbers in the UK. Hence, India needs adoption of EV in multi-model transport, that is, two-wheelers, three-wheelers, four-wheelers, and even personal cars.” He discussed that in India, to cope up with the challenges of energy distribution and the adoption of EVs need close coordination between industry, policymakers, and government. He informed that Mahindra has done about 250 million kilometres of electric mobility in India in the past decade which was mainly focused on fleets. He said, “we talk of fleet because it makes economic sense, and we want to adapt where EVs make economic sense, where people can drive about 100–150 kilometres. And, when you run more in electric vehicles, the fleet operators earn more since the operating cost is less and pollution comes down as these are all the latest vehicles which run more per day. As per our calculations, if we induce 250 million kilometres by selling only personal cars, we would be selling four-times what we have sold now. The same impact would be on the environment and fuel consumption.” He asserted that areas including freight, three-wheelers, and two-wheelers should be focussed for electrification, as they consume a lot of fuel and their usage is very high in India. Furthermore, he discussed about different needs of different regions in a country like India, where Delhi faces different challenges than Chennai. He said, “the clean mobility solutions to local urban areas will be different from the solutions to the rural areas. In this context, the industry is looking at a stable policy framework. India started a three-year FAME scheme, which consists of consistent support and clear vision for 10–20-year period. We start with 30% electrification in 2030 but as we move forward, we need consensus and develop further.”

Taking forward the discussion, **Mr Rajeev Chaba, Managing Director, MG Motors**, said, “within cars segment in India, there are sub-segments. And, infrastructure is an issue for four-wheelers where the government is prioritizing by selecting a few cities.” Talking about the OEMs, he said, “our role is to educate the customers on the benefits and busting myth about the charging range and also in

terms of charging infrastructure.” He mentioned that 80% of charging of e-cars will be done at homes. Thus, we need to have the solution of last-mile activity along with good mobility solutions for consumers. He said that as the government is talking about how the cost of battery and the cars can be separated, different innovative financial solutions with regard to batteries can be provided to customers, and they can be educated on the total cost of ownership. Moreover, he emphasized on the need to develop an ecosystem of partners, as no single agency alone can do the job. Therefore, the charging companies, battery management, OEMs, and government, all are required to do their part.

In India, people stress on affordability than value for money. Deliberating on this, **Mr Sohinder Gill, CEO, Hero Electric Vehicles India** said that around the world, there is 30% adoption of electric two-wheelers, whereas in India it is less than 2%. So how to accelerate the process, he asked. For this, he suggested a few solutions. He said, “as we have long-term policies in place, these should be broken in to short-term implementable stages to allow for feedback and modifications based on the same. For the second solution he suggested that a batch of a few million EVs should be put on road with the help of policymakers and OEMs to motivate people to believe in and adopt EVs. He talked about incentives and penalties. Incentives to adopt EVs, and penalties in form of paying principles if one does not adopt it. Another way he suggested is to make it mandatory for businesses to convert to EVs. He said, “once we have a considerable amount of EVs already on road, people would start believing in EVs.

Mr Vedantha Kumar, COP26 Transport Lead, UK discussed about the country’s zero-emission vehicle campaign which is one of the priorities for the COP26 presidency. He said, “the campaign involves three pillars. The first pillar is calling for ambitious statements or commitments or actions to support the overarching goal of doubling the pace of transition globally. The second pillar is collective action by countries all over the world. It is quite clear that if one country moves strongly towards

electric mobility that is not going to make a massive impact. It has to be for many countries that will help in making the transition globally. The third pillar is countries helping each other.” He also talked about the importance of domestic interventions and domestic policies for the transition.

Mr James Quinn, CEO, Faradion discussed about the importance of learning from the past. He mentioned that there have been many transitions in in the past in the USA, for example, from kerosene to electricity, from electric cars to gas-powered cars, from gasoline to hydrogen, etc. He said “infrastructure and its availability is the most important for any such transition to happen.” Furthermore, he said, “we need next-generation technology to gain energy security, which means environment security as well as national security. We need policies for end-to-end strategies to manufacture and create demand for the new green technologies.”

Supporting EV Adoption: Policy Perspective

India recognizes the shift to electric mobility presents both environmental and socio-economic benefits and provides the unique opportunity to create new jobs while responding to the challenges of air pollution and energy security. The session explores the relationship between Policies and Schemes by the Central and State Governments to boost EV deployment in the country, and the uptake of EVs by the users. It will also try to explore innovative national and international strategies to boost demand for EVs in order to meet India’s ambitious target for the adoption of EVs.

Commencing the second panel discussion on ‘Supporting EV Adoption: Policy Perspective’ **Mr O P Agarwal, CEO, World Resources Institute (WRI) India** emphasized on the importance of strong policy framework for supporting EV adoption. He said, “we hear a lot about electric mobility and there is a subsidy scheme by the government, but simply offering subsidies to some

vehicles is not enough. The policy needs to indicate a long-term horizon, the period up to which internal combustion engine vehicles are going to be allowed and how electric vehicles or zero-emission vehicles are going to be phased in.” Thus, a road map needs to be articulated covering a long period to shape things for future.

Mr RVS Kapur, IAS, Managing Director, West Bengal Transport Corporation opined that right now it is most important to create a perfect ecosystem. He said, “the efforts we are putting in are very fragmented. We are either focusing on demand or supply or giving incentives to the battery producer. But even today we have not been able to create a perfect ecosystem.” Taking an example of mobile phones, he said that though mobile phones came in the early 90s, but it was only in the late 2000s that the internet became cheap, mobiles became cheap, data plan became accessible, and technology became helpful. Thus, in case of EVs, it is the mileage for which a customer is bothered; environment value is for the policymakers.” He emphasized on the need of IEC (information, education, and awareness) which can help in persuading people to switch to EVs.

Dr Ravi Gadepalli, Consultant, UITP and the World Bank shared a few concerns related to public transport. He said, “public transport in India is a mix of different modes which includes formal city bus services, auto-rickshaws, minivans, taxis, etc., and there is absolutely no understanding of how do they operate, what are their economics, their operating characteristics, vehicle technology, etc. So, the lack of knowledge on the informal transport in one key backlog that we have.” Another point he raised was about formal public transport, for which he said that there is lack of coherence between the national-level vision of what we want to achieve versus what the state-level or city-level bus operator or transport departments want.

The change is already happening and it just needs to happen quicker. Deliberating on this, **Dr Daniel Bradley, First Secretary, Energy and Low Carbon Growth, British High Commission, New Delhi** said that there is a clear consensus for EVs to stay

for clean transport. It is just that we need to expedite the transition to fulfil our Paris Agreements. For doing so, he mentioned about five key points. The first point is about leadership. He said, “there should be leadership in setting clear and high policy targets, under which businesses should be given a clear direction. And, a road map with long-term horizon should be created.” The second point is about action. He said, “this is critical for the global car market to move in a coordinated way to make change happen and it is great that we have seen so many countries and ministries coming together to try and help mobilize the global market.” The third point is the cost, for which he said, “though the operating cost of EVs is less and pollution is low, their upfront cost needs to be lowered, and for which the aspect of investments in this sector should be explored well.”

The fourth point is to raise awareness and provide enough information to consumers. The fifth is technology, for which he said, “we heard about how technology can drive improvements – the smart grids that we need to absorb and charge EVs,

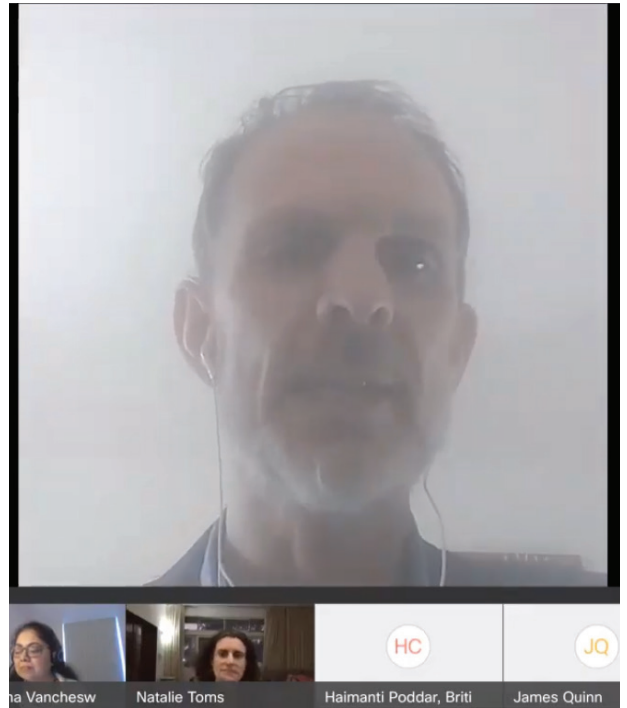
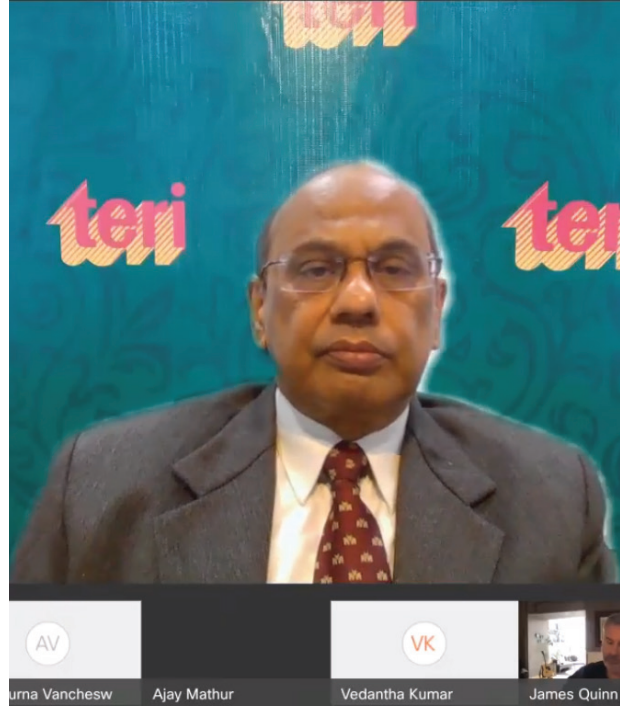
the advanced material to drive trains over different components, batteries, etc. Next-generation technologies need to be built.” And, finally he talked about collaboration and adaptation. He said, “we have the importance of linking government and business together with research innovations and sharing lessons and learnings as we go ahead to adapt to correct policy and technology.”

While addressing the session, **Mr Amitabh Kant, CEO, NITI Aayog** said, “India is the world’s largest two-wheeler, three-wheeler, and tractor manufacturer. We are the world’s second largest bus manufacturer, the third largest heavy truck manufacturer, and the fourth largest car manufacturer. The auto sector accounts for almost 7.1% of India’s GDP cut. The Indian auto component industry has witnessed strong revenue growth.” He highlighted that the world is at the crux of mobility revolution which is going to be shared and connected, leading to zero emissions. He also mentioned that aggressive technological evolution is driving the transportation revolution in the world.

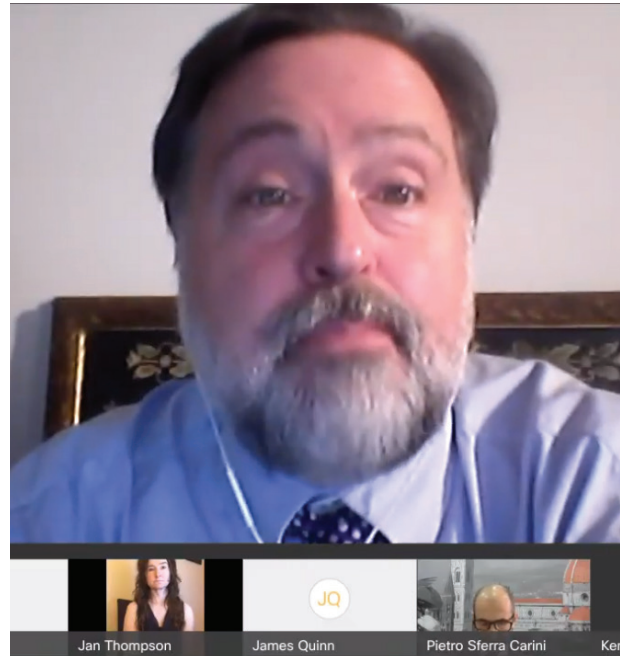
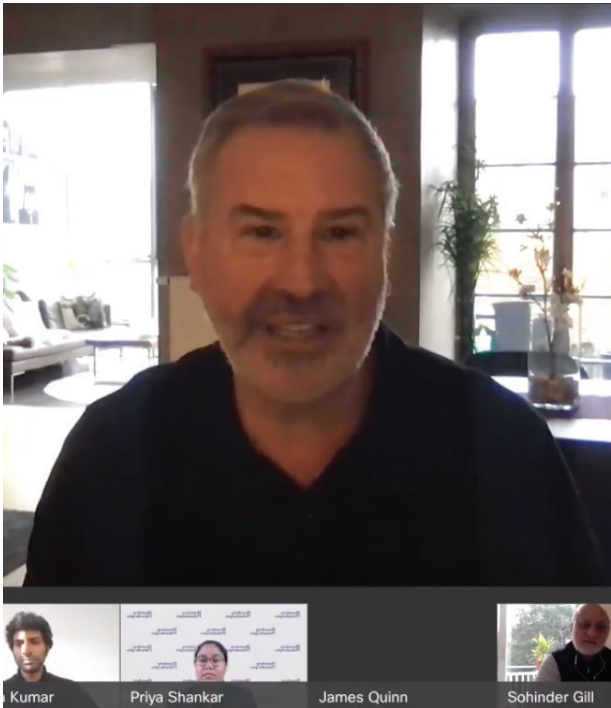
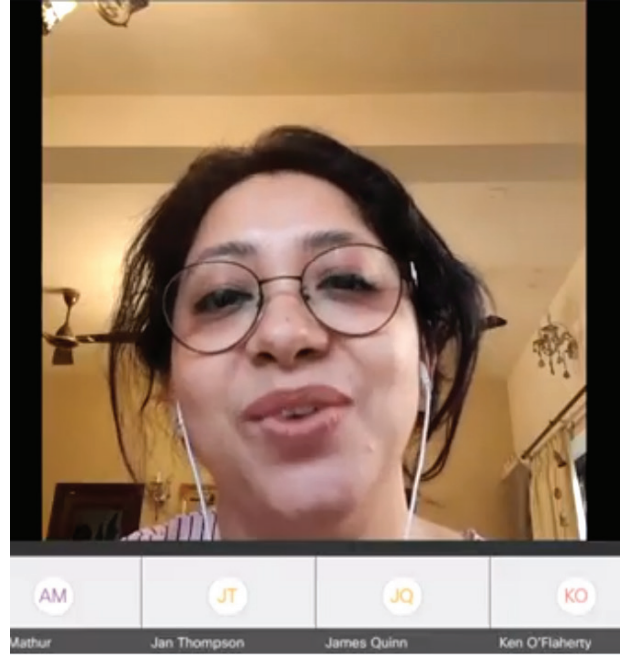
SUMMING UP

The speakers highlighted that India’s mobility scenario is very unique and within the country itself there are diverse priorities, different challenges, etc., but the key point is that there are plenty of opportunities. And, the three takeaways that emerged from the discussions are – first, all the myths around the electric mobility need to be busted, particularly for the end-users through awareness campaigns. The second is the momentum to pick up. We need the road map that sets a long-term trajectory that would give a direction to the industries as well as end-users. Third is affordability, in terms of best pricing models or business models that would work for India to move faster towards electrification of passenger cars as well as for shared mobility.

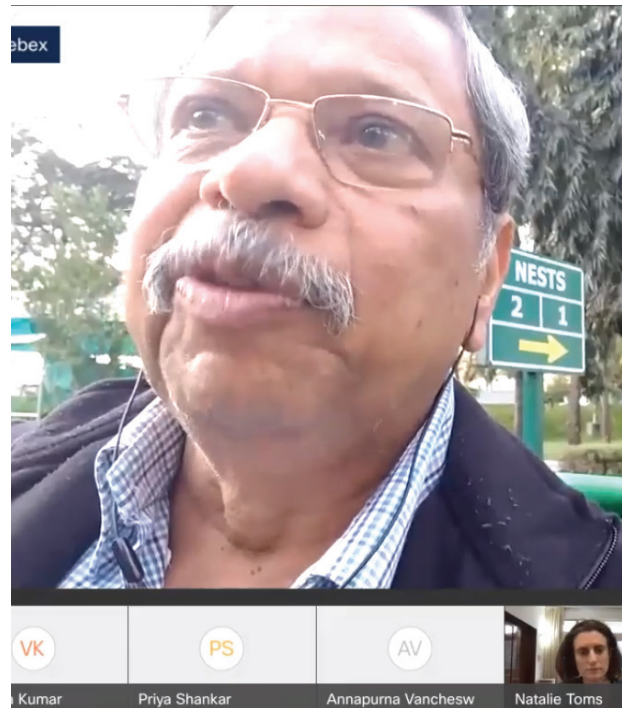
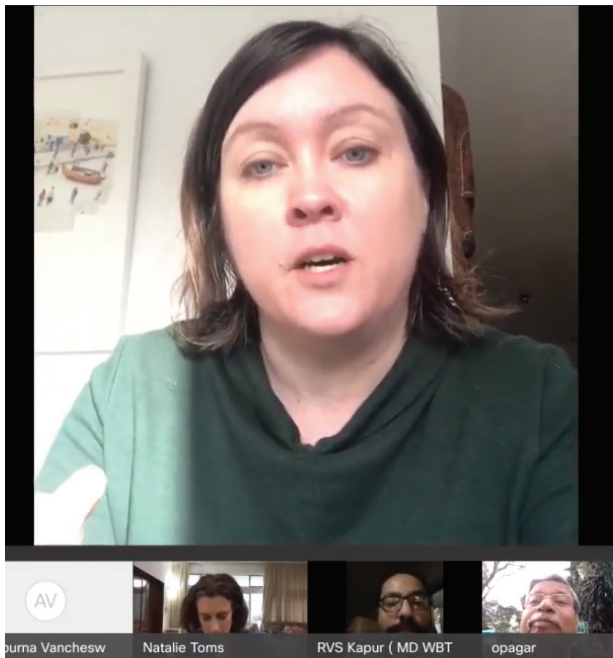
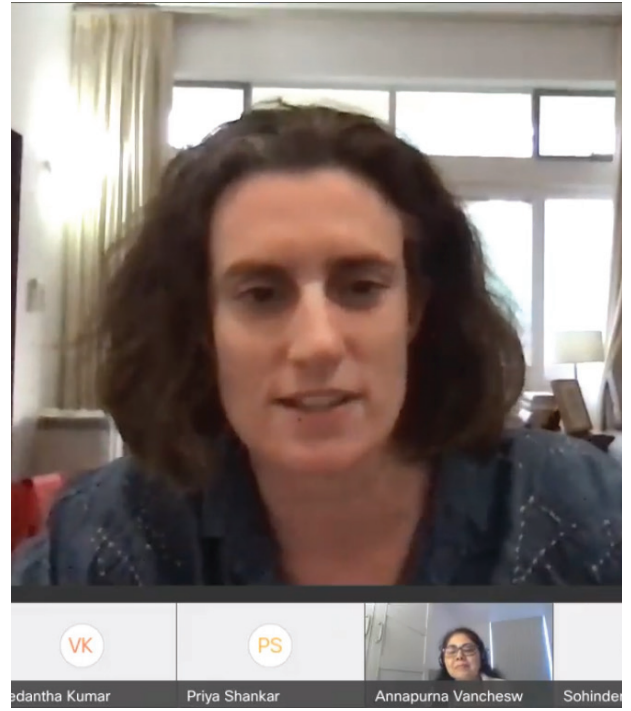
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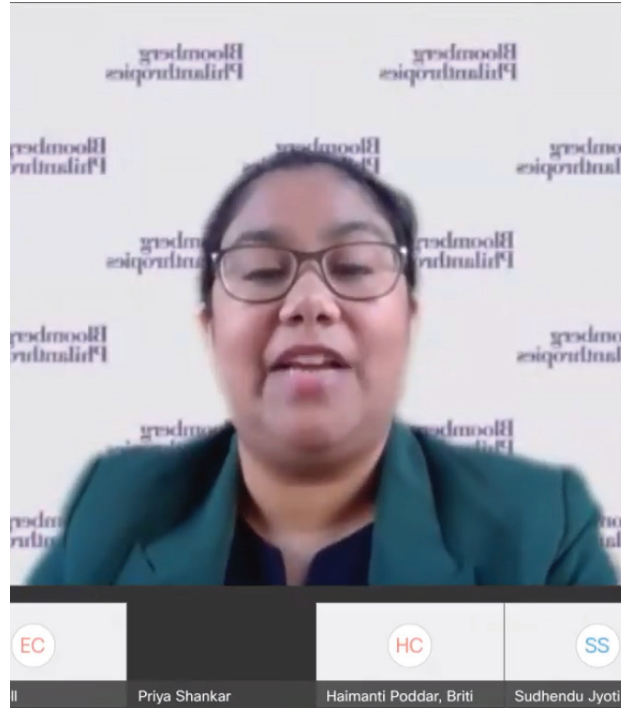
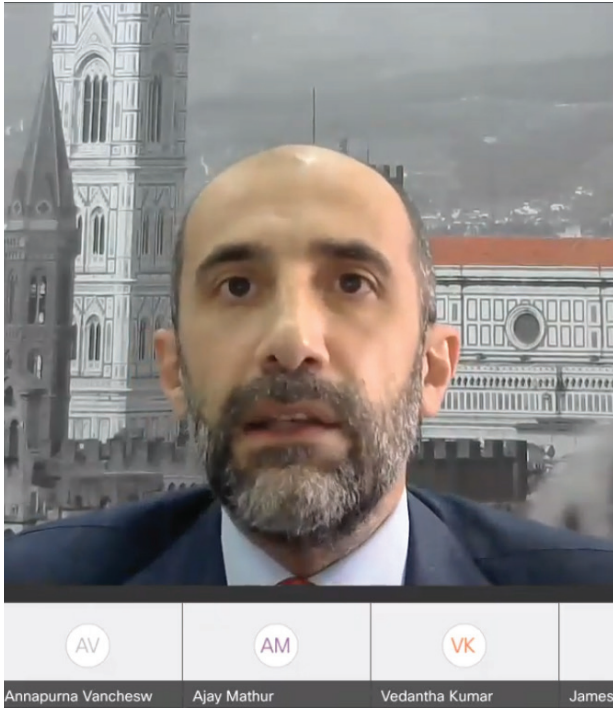
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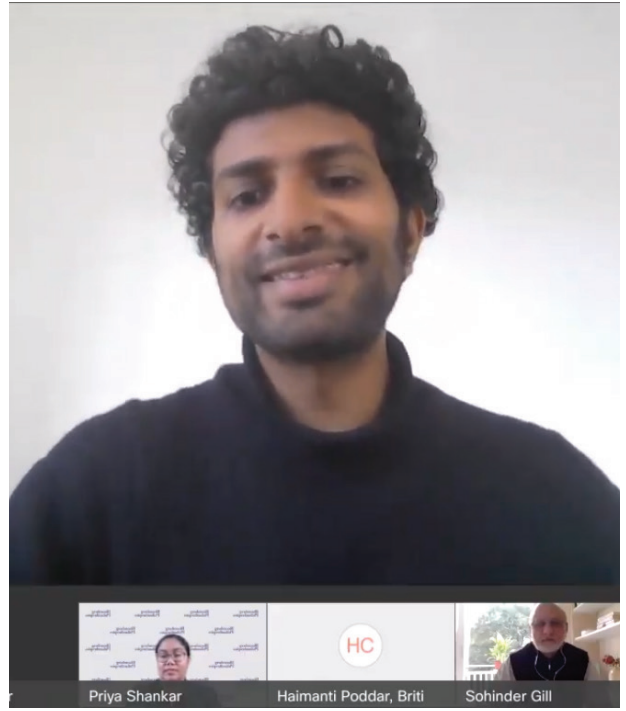
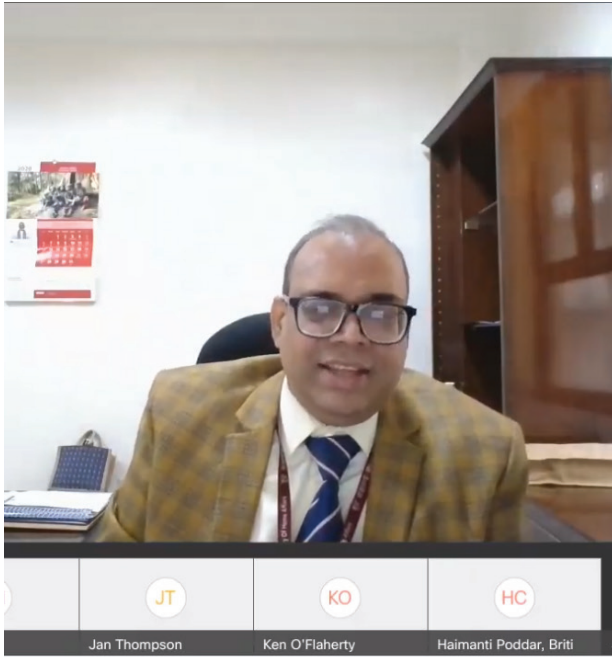
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