

Highlights from EVER Monaco 2022

BY MARC-OLIVIER METAIS, RÉMI LAUVERGNE AND CHRISTOPHE BONNERY

The EVER¹ Monaco 2022 Symposium was the place to share, test and study new opportunities for electromobility, with a perspective from academics, industry and politicians view points.

Thanks to an agreement with the International Association of Energy Economics (IAEE), and in collaboration with the FNCCR, the Renewable Energies Association (SER), AVERE France and the CCI Nice Côte d'Azur, the EVER 2022 symposium will be a space of dialogue for researchers, decision makers and industry partners. This symposium was structured over 2 days (May 27 & 28, 2022). Five round tables and two lunch debates will give the floor to renowned speakers.

The Programme can be viewed at: <https://www.fae.fr/en/89-conferences.html#/conf/278>

The global decarbonization of our economy is one of the major challenges of the 21st century, while our current lifestyles are the cause of the emission of more than 10 tons of CO₂ per person, largely due to the use of fossil fuels. As underlined by **Laura Cozzi**, International Energy Agency, during the opening remarks, the 2020s should therefore be years of massive clean energy expansion, with, for the first time ever, decreasing our CO₂ emissions while ensuring global economic growth.

In this context of urgent reduction of greenhouse gas emissions, EVER Monaco and the International Association of Energy Economists have brought together, under the patronage of His Serene Highness Prince Albert II of Monaco, public, industrial and academic actors to discuss the decarbonization of transport systems, which alone account for nearly a quarter of global CO₂ emissions.

These round tables, which were held in the Club House of A.S Monaco, dealt with a variety of subjects relating to electromobility and the territories:

- Infrastructure deployment
- Grid services
- Heavy mobility
- Economy, accessibility and employment

Charging infrastructure: From rational decision to local feedback

In order to electrify our mobility ecosystem, it is essential to deploy a charging infrastructure that allows for the serene use of electric vehicles. But as

explained by **Mr. Jean-Paul Faure**, President of AVEM, deploying a charging infrastructure is not that simple: there is a need for charging stations for drivers to switch to electric vehicles, but there is a need for electric vehi-

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cles for it to be interesting to build charging stations. There is a major problem of visibility and management of infrastructure deployment planning, which can be solved with an intelligent allocation of resources and by considering the needs of users first, according to **Marc-Olivier Metais**, researcher at Institut Vedecom. **Mr. Jean-Noel Loury**, President of the FNCCR, emphasized that local authorities have a very important role to play in this deployment, while in France 60% of public charging stations are installed under the impulse of these authorities. **Ms. Virginie Haché Vincenot**, from the Mission for Energy Transition, confirms this vision by underlining the important investments made by the Principality of Monaco in the field of energy transition, and in particular in the field of electric mobility: no



place in the principality is more than 200m away from a charging station.

She also notes that two-wheelers seem to be driving the electromobility market upwards, and that it is important that they also have access to public charging infrastructures.

Vehicle-to-grid (V2G): Assessment of experiments and possible development paths

The arrival of hundreds of thousands of electric vehicles over the next few years represents a major upheaval in the energy sector. It is both a challenge, since these vehicles must be supplied with electric energy, but also a great opportunity to rethink our access to energy. Indeed, as **Professor Yannick Perez**, of University of Paris-Saclay, explains, electric vehicles store much more energy than is needed for everyday use. Parked electric vehicles, as is the case 95% of the time on average for a vehicle according to **Philippe Adam** of ABB Group, therefore represent a resource to contribute to the flexibility of the electricity network, via Distributed Storage Services, under the essential condition of cooperation between car manufacturers and energy sector players. In a long-term impact study on the development of such services, led by EDF in the Occitanie region, Ms **Virginie Monnier-Mang** confirms the interest of such a device, allowing in their test case to reduce the capping of the production of renewable energies by 90% thanks to load management and energy storage in a fleet of electric vehicles, in addition to allowing to further reduce the share of fossil fuels in our electricity mix.

Economy and accessibility of mobility solutions for consumers

As Mr. **Jean-Noël Loury**, vice-president FNCCR, points out, many initiatives in favor of new means of mobility are very focused on specific territories, rural or urban, but few unite the different types of territories. Mr. **Stéphane Semeria**, president of FFAUVE, explains that the emphasis placed on the deployment of new mobility solutions can bring economic growth and attractiveness to the territories, as well as the strengthening of already existing solutions such as carpooling,

a practice that Mr. **François Fantin**, regional development director at Klaxit, encourages to develop by introducing a financial reward system in order to develop this still marginal practice

EV coupling - Photovoltaic production: Assessment of possible options and tests

In the same vein as V2G, the advent of electric mobility can help to integrate photovoltaic production into the current energy mix, which is currently complicated, thanks to the coupling of electric vehicles and photovoltaic energy production. According to **Olivier Bechu** of Sun and Go, two parking spaces in southeastern France receive the equivalent of the energy needed to drive 30,000 kilometers a year, or twice the average annual mileage of a car. This decentralized production can have a strong positive impact on the network. Provided there is a good EV/PV synergy, which necessarily requires a global communication protocol valid for all charging stations, according to **Gerald Seiler** of ChargeAngels, it can considerably reduce the number of additional transformers that need to be added to the network to be able to accommodate new electric vehicles.

To open the second day of round tables, H.E. **Bernard Fautrier**, Plenipotentiary Minister Monaco, reminded the audience of Monaco's commitment to the



electrification of mobility, in particular through incentives such as a strong network of charging stations as well as the free use of part of the local public charging network, which allows the recharging of Monegasques, but also of tourists and French and Italian workers. For the future, the electrification of other segments than light mobility are to be planned to continue to decarbonize the transport sector.

The Plenipotentiary Minister, as well as Mr. **Christophe Bonnelly**, IAAE President 2019, also underlined the interest of organizing events bringing together industrials, politicians and academics, while welcoming the diversity of topics on the program of the roundtable sessions.

Electric trucks and public transport, the expectations of communities for what uses?

This session, dedicated to the development of alternative solutions to oil for heavy mobility (buses and trucks), provided an opportunity to hear both academic, industrial and political views on this topic. To begin with, Mr. **Rémi Lauvergne**, PhD student at CentraleSupélec and RTE presented the variety of interactions between transport and electric system, identifying that the electric transport sector can represent up to 12% of the total electric consumption by 2050, and that the recharging of these vehicles constitutes a good solution of demand-side flexibility. The value of this flexibility depends on various parameters, including the marginal thermal production costs of the electrical system, the charging mode adopted (tariff, smart charging or V2G) and the connection frequency. Although light vehicles seems to be the vehicles for which charging is the most flexible, there is also a potential for flexibility for buses and trucks, depending on the charging modes adopted (at the depot or by pantograph during the journey). Then, Mr. **Alain Gaggero**, in charge of the Enedis electric mobility mission and deputy mayor of Cagnes-Sur-Mer, underlined that for freight transport, even if there are still uncertainties about the technologies that will be deployed (battery electric, hydrogen or biofuels), master plans with bans on the circulation of trucks powered by fossil fuels are under discussion in some areas of southern France. It was also pointed out that it is important to match trucks charging with regulatory rest for drivers. Finally, for Enedis, the reuse of vehicle batteries in second life is also seen as a potential static storage for the network. Afterwards, Mr. **Jérôme Flassayer**, Director of Electromobility at Volvo Trucks, reminded the audience that the number of trucks on the road in France has been constantly growing over the last decades, and therefore it seems unrealistic to reach the emission reduction targets for heavy mobility without developing alternative solutions to fossil fuels.

Different technologies seem to be suitable for different areas of road transport: all-electric for local distribution and utility vehicles, biofuels and hydrogen for very long distance, and a mix of technologies (as well as hybrids) for regional transport. Volvo Trucks is already marketing electric trucks equipped with 540 kWh batteries and is the European market leader for electric trucks, and has ambitions to develop hydrogen trucks in the 2030s. To close this round table, Mr. **Jean-Luc Dupont**, mayor of Chinon, president of the SIEL (Syndicat d'énergie Indre-et-Loire) and vice-president of the FNCCR indicated that the role of local authorities is to build master plans for the installation of charging stations in order to ensure the objectives of development



of charging stations set by the Ministry. By 2022, the sum of publicly accessible EV charging points reaches 1.5 GW. However, the model is still very loss-making and requires subsidies (from ADEME and local authorities), but the aim is to achieve budgetary balance in the medium term.

Acceptability: adaptation of technologies and users

The session on acceptability and the evolution of uses began with the intervention of Ms. **Maeva Tholance**, head of the transport and mobility department at ADEME, who presented the 4 scenarios of the last prospective study of this institute.

Opinion polls indicate that a proportion of French people are ready to reduce their use of the car, through carpooling, public transport and cycling. To this end, the different stages of a change in behavior (contemplation, preparation, action and maintenance) for a modal shift were described, as well as the initiatives of ADEME to support them, whether financial (sustainable mobility package) or not ('label employeur pro vélo', mobility challenge ...). Afterwards, Mr. **Gilles Bernard**, president of AFIREV, presented the monitoring center for the reliability of charging stations built by his asso-



ciation, based on the fact that a majority of EV users have already encountered an out of order charging station. This platform allows users to report directly on the points of the territory requiring a better quality of service for the charging infrastructure. From the users' point of view, the main areas for improvement are better interoperability and more clarity on the charging tariffs. To conclude the session, Ms. **Laurence Vanin**, holder of the smart-city, philosophy and ethics chair at the University of Nice, presented from a philosophical point of view the attachment of users to their objects and what are the mechanisms used to increase the acceptability to change behavior and object. For manufacturers, planned obsolescence is a key element to push to change objects. Industrialization and robotization have caused an increased distancing between objects and users, due to the fact that objects become more abstract and almost never manufactured by the user himself.

Employment and training to boost the energy and mobility transition

This roundtable session focused on the theme of employment in the energy transition and the transition to low-carbon mobility. First, Mr. **Adrien Fourmon**, lawyer at Jeantet indicated that from a regulatory point of view, the governmental orientations of the energy and mobility sector (through the 'PPE' at the French level and the guidelines on state aid for climate at the European level) give quite strong growth and employment perspectives. In the case of mobility, there is a wide variety of professions involved (from charging stations to batteries, including vehicles and networks), which also require a reorientation in terms of training and candidates that has not yet been fully achieved. Finally, Mr. Fourmon argues that not only the job net balance matters, but also the positive and negative consequences, which require professional reorientation. Afterwards, Ms. **Nathalie Nieson**, president of the SDED Territoire d'énergie Drôme and vice-president of the FNCCR presented the plan for 100,000 charging stations in France of the FNCCR and the associated ministries, which would make the FNCCR the first proj-

ect owner in France for charging stations for electric vehicles. In agreement with the previous speaker, it was also noted that there is a gap between the job offers in the energy transition professions and the training of young people, particularly on the subject of the installation and maintenance of charging stations.

Mr. **Cyril Carabot**, Secretary General of the French Renewable Energies Union (SER), completed these interventions by noting that the objectives in France for the development of renewable energies to at least 50% of the production requires around 100,000 jobs to be created in order to achieve the objectives of the PPE. Offshore wind energy is also identified as a sector with recruitment difficulties, because very few training courses are adapted to it. To conclude this session, Mr. **Jens Bicking**, founder and director of the recruitment firm ELATOS shared the observation of the other speakers of a strong growth in recruitment for the energy transition professions, all along the value chain, with sometimes a shortage of candidates, which can imply an increase in salary expectations. In addition, only 24% of managers in the energy transition are women in 2022. Finally, the development of training adapted to the energy transition professions, in particular through work-study programs, seems to be the solution to this lack of candidates.

The economic impact of switching from thermal towards electric vehicles

First, Mr. **Johan Ransquin**, Director of Adaptation, Development and Low Carbon Trajectories at ADEME, presented the evolutions in the field of transport of the 4 prospective scenarios of the 'Transitions 2050' study. These scenarios were then broken down according to the different parameters of the Kaya identity applied to transport (transport demand, modal shift, occupancy rate, energy efficiency and carbon intensity of energy), as well as in terms of resource consumption. Two calls for projects have been launched by ADEME on the electrification of transport: the financing of electric trucks and the financing of charging stations. Next, Ms. **Alexandra Le Ny** spoke as vice-president of the Morbihan Energies union, whose role is to develop the distribution network and the installation of charging stations for electric vehicles. With more than 200 charging stations today (nearly one per commune in the area), the primary objective is limit range anxiety for electric vehicle owners. In the particular case of a tourism zone such as Morbihan, the question of the variation in the need for charging stations between the tourist season and the off-season arises. To try to answer this question, Morbihan Energies is studying the installation of mobile charging stations, if proven financially attractive.

To complete the analyses of the other panelists on the French case, Mr. **Jan-Olaf Willums**, co-founder of ZEM and Nordic batteries, then presented the development of electromobility in Norway, a leading country in terms of sales of electric vehicles (95% of sales of full-electric or hybrid light vehicles in 2022). Norwegian public policies have been based on strong incentives to develop EVs such as tax exemption for vehicle





purchase, tolls and parking fees, thanks to a consensus of all Norwegian political parties on these issues. Finally, after the end of the sale of thermal vehicles, set for 2025, Norway also plans to convert to electricity, hydrogen or biogas trucks, buses and some boats in the next decade. To conclude this last round table session, Mr. **Daniel Kovacs**, E-mobility_expert consultant, presented the multitude of study topics on electric vehicles, in particular on corporate vehicles. Incentives for the electrification of the latter also have an effect on the private car fleet via the second-hand market with a delay of a few years. However, it should be borne in mind that plug-in hybrids in corporate vehicle fleets are still not used enough in electric mode (around 30%). Moreover, even if the total cost of ownership of electric

vehicles is now lower than those of combustion vehicles (thanks to subsidies), the transition is not really happening, because of other barriers (habits, charging infrastructure, etc.).



Conclusion by Jean-Noel Loury and Christophe Bonnery

Footnotes

¹ EVER : Electric Vehicles & Renewable Energies