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## EDF launches DREEV, its new subsidiary to turn innovative smart charging solutions into a reality

DREEV is a joint venture set up between EDF Pulse Croissance and Californian start-up NUVVE. The principle behind the new brand was announced when EDF's Electric Mobility Plan was launched in October 2018. This Plan is designed to make the EDF group a leader in the electric mobility market, particularly in the field of "smart charging", in its four main markets in Europe: France, the United Kingdom, Italy and Belgium.



Dreev is a joint-venture by  EDF and  NUVVE

The core business of the new subsidiary DREEV is the development of solutions based on "Vehicle-to-Grid" (V2G) technology, which is the most innovative as well as the most promising aspect of "smart charging". The technology currently proposed by DREEV has been developed by the start-up NUVVE and has already been trialled around the world. DREEV is currently aimed at fleets of businesses and communities.

"Smart charging" refers to the technologies designed to optimise the charging and discharging of an electric vehicle flexibly and economically. Controlling the charging of electric vehicles mainly involves controlling the time and speed of the charge, from the grid to the vehicle. Thanks to V2G technologies, the energy collected in the batteries of electric vehicles can also be used to provide energy to a building, a neighbourhood or the grid when required. This turns the vehicle into an active component in the grid: it helps give the electricity system some balance. It thus contributes to the development of renewable energies, as the number of kWh produced in this way and not "consumed" immediately can be stored.

Benefiting from the EDF Group and NUVVE's expertise, DREEV works in various areas:

- Smart management of charging and discharging vehicles, in particular on the basis of signals sent by the grid.
- Introducing energy flexibility services, made possible thanks to storage, to help establish a balance between supply and demand. The value created by this process is then shared with the customer.
- Customer experience that helps users guarantee their needs in terms of mobility, and thus benefit from the best possible remuneration in return for drawing electricity from their vehicles when they are not in use.

These solutions will be marketed via different channels, in particular by IZIVIA, a subsidiary 100% owned by the EDF group, specialising in charging facilities.

DREEV already has a number of achievements under its belt:

- The installation of V2G terminals on the premises of Hotravail in the Bordeaux region, allowing the company to receive up to 20 Euros of V2G savings per vehicle per month, thus covering the electricity bill associated with its mobility needs.

- Work currently under way to install V2G terminals at the Civaux nuclear production site. This site is particularly involved in the field of low-carbon mobility, and illustrates EDF's desire to roll out DREEV's technology at its own installations.

As well as this, V2G is an area in which the Group has already invested:

- In the United Kingdom, EDF Energy has already started working with NUVVE to develop solutions where users will be able to charge their vehicles at the best prices. One of EDF Energy's sites is already equipped with NUVVE's V2G chargers. The creation of DREEV will help speed up these developments.
- Working with the Renault Group, EDF has launched a trial on Réunion where 150 vehicles will be able to take part in a large-scale trial to test the benefits of "smart charging" and V2G from network signals.

Yannick Duport, the EDF Group's Electric Mobility Director, said: *"Within the context of its Electric Mobility Plan, the EDF Group is making "smart charging" one of its main priorities for development in Europe. We are convinced that the development of electric vehicles requires innovative solutions. V2G is a winner three times over: economical for the customer, low carbon for the planet and excellent for the grid. For EDF, electric mobility is everywhere and for everyone."*

Eric Mevellec, DREEV's Managing Director, said: *"The first commercial products are a start, and illustrate our desire to roll out several hundred terminals, starting this year. We are drawing on a tried and tested technical solution, and we now need to remove the obstacles to rolling it out commercially."*

Gregory Poilasne, CEO of Nuvve Corporation, said: *"The creation of DREEV in collaboration with EDF will speed up access to the market and help lots of customers benefit from V2G technology, which we have been developing and rolling out internationally since 2010."*

#### **About NUVVE Corporation:**

NUVVE is a Californian start-up based in San Diego, specialising in the aggregation and harnessing of flexible solutions for energy markets associated with the charging of electric vehicles. The GIVe™ (Grid Integrated Vehicle) platform, invented in 1996 at the University of Delaware by Professor Willett Kempton (also NUVVE's Technical Director), was the world's first Vehicle-to-Grid (V2G) system. Since it was set up in 2010, NUVVE has rolled out many V2G projects on 5 continents, and now plans to extend its services on an international scale. EDF Renewables North America owns a minority share in NUVVE.

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A key player in energy transition, the EDF Group is an integrated electricity company, active in all areas of the business: generation, transmission, distribution, energy supply and trading, energy services. A global leader in low-carbon energies, the Group has developed a diversified generation mix based on nuclear power, hydropower, new renewable energies and thermal energy. The Group is involved in supplying energy and services to approximately 39.8 million customers<sup>(1)</sup>, including 29.7 million in France. The Group generated consolidated sales of €69 billion in 2018. EDF is listed on the Paris Stock Exchange.

(1) Customer numbers for the close of year 2018 are provided per delivery point. One customer may have two delivery points: one for electricity and another for gas.

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