

Towards an interoperability solution

The French electrical industry is favourable to an electric-vehicle recharging solution that will **guarantee interoperability at European level**.

This requirement is also the subject of Mandate M468 (4 June 2010), which the European Commission sent to the European standardization bodies.

Before achieving any mid-term objectives, we need to take immediate, simple interoperability measures taking into account the gradual implementation of the market. This will enable immediate European mobility especially for border areas so that all drivers in Europe can charge their vehicle in any country at public stations. It should be noted, however that such cases of cross border mobility will be rare in 2012.

These measures must respect the following constraints:

- Strict compliance with to the regulations in force concerning electrical installations in buildings (commercial and residential) in the different countries of the European Community. This is an essential pillar of electrical safety.
- Provide consistent solutions for charge at home and in public places around.
- Take into consideration the different connection solutions that will be used on the vehicle.





Assessment of current situation (Infrastructure side)

The IEC 61851-1 international standard, published in 2010 (second edition), defines the different types of charging modes that will serve as reference for the entire industry.

The choice of a single standardized plug & socket for the infrastructure is not possible in the short term, [conclusion reached by the CEN CENELEC Focus Group]. But other solutions exist to guarantee immediate interoperability and preserve options for a convergence in the mid-term.

Reference position

For buildings, **Mode 3** is the preferred charging mode. It is **open to future** to enable intelligent energy management (Smart Grid).

Recommended

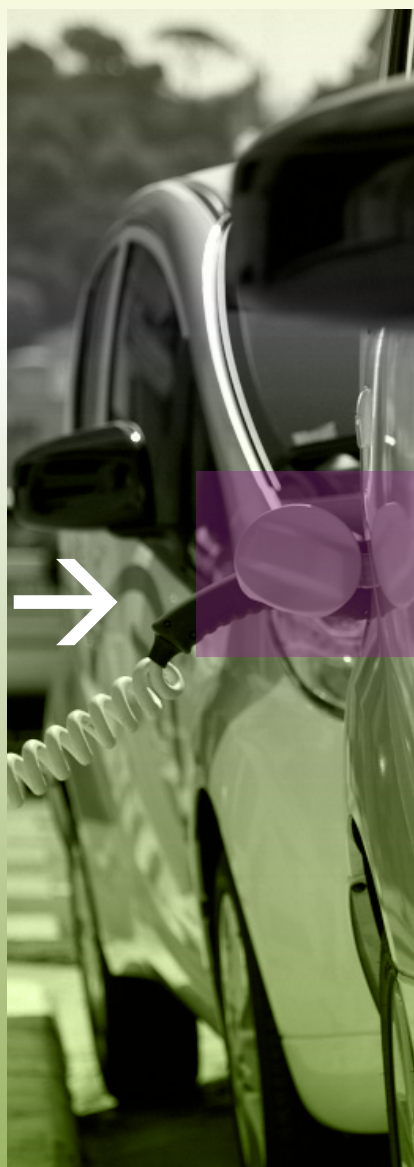
Consequently interoperability should be built in a step by step way:

→ 2017

- a transitional solution, from now until 2017. Cross-border travellers could use public charging stations equipped with a permanent available connection cable adapted to the socket used in the country. In addition, this free cable would allow for fast charge at 22 kW and help those who forgot their charge cable at home.

- after 2017 (target date set by european automotive industry for convergence of connector on car side), this free cable may easily evolve into a permanently connected cable. Other options may appear depending on technological progress made during the transition period.

2017



KLEBER project
in Strasbourg
(France)



The electrical industry
also recommends to make
a distinction between
charging on public
installations (fully new
designed installations) and
buildings and residential
applications for charging
(existing electrical
installations in a very
varied environment).

Public installations

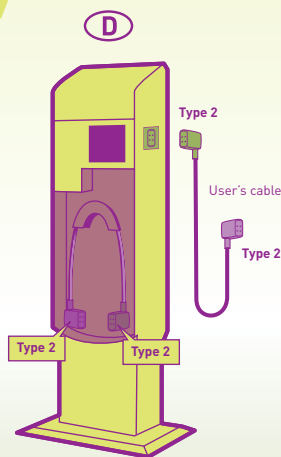
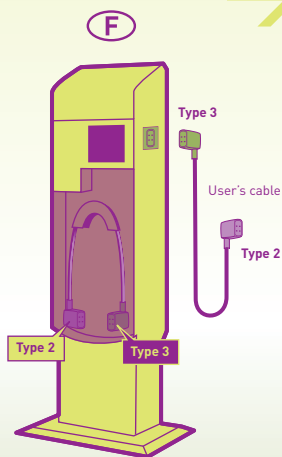
It is essential to insure
interoperability on roadways
via an autonomous
system (independent of
the cable supplied with
the vehicle – which
is necessary for
domestic charging).

This interoperability can
be possible immediately,
provided the charging
station is equipped with
additional detachable,
protected cable available
for users (with means to
avoid theft). This solution
was successfully adopted
by AUTOLIB in Paris and
Auto Bleue in Nice.

This system offers a high
degree of modularity
and allows for a smooth
transition towards a
solution for the target
date of 2017 with a
permanently connected
cable if desired by operator.

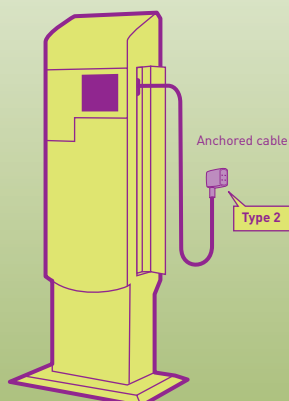
solutions

→ 2017



The diagrams show possible
example of scenarios
in France and Germany
before and after 2017.

2017 →



Auto Bleue
infrastructure
in Nice (France)



Buildings & homes

In Homes and buildings, very strict regulations have been put in place for electrical installations throughout countries to provide maximum safety. These regulations, which are based on years of industry best practices, standardization and feedback of experience, must not be downgraded or turned around.

Giving up the safety measures (in the short and mid-term) that have been adopted for protection of basic users against direct electrical shock would entail heavy liability for the whole electrical industry (manufacturers and installers).

However interoperability in buildings is possible since the owner (residential, hotel, offices, etc.) of the private charging spot may provide his customers and transiting visitors with an adapted cable. In addition, for transition period, most vehicles will have a Mode 2 cable enabling charging in domestic sockets.

Consequently, electrical industry recommends that the different national regulations in force continue being strictly applied. Mode 3 charging spots, either with Type 2 or Type 3 plugs & sockets, must conform with these respective national regulations.



Main public installations projects located in France

(involving member companies of Gimélec)

