

CROME Infrastructure



Development and Customer acceptance study

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Development of the infra.



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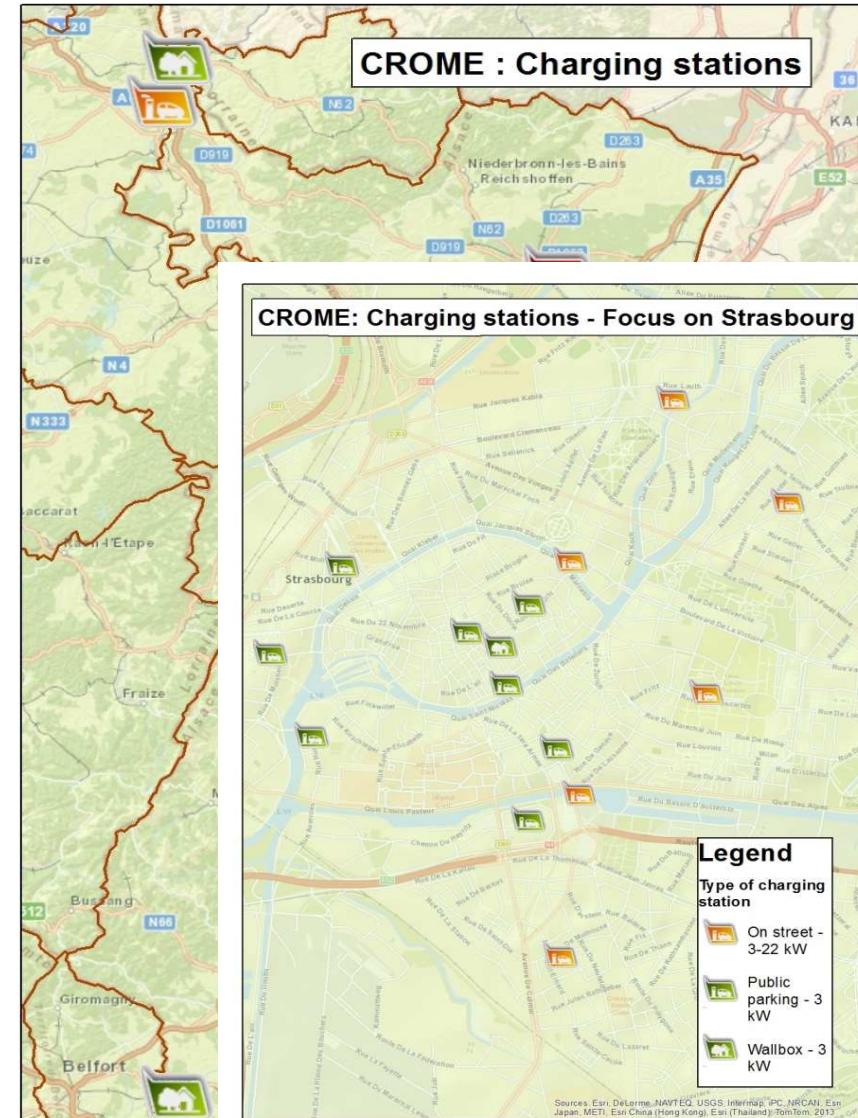
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Commission

**16 CROME public stations in operation
(32 charging spots) + 5 installed ones**

- 8 „22 kW“ + 3 „3 kW“ (retrofitted from Kleber) in Strasbourg
- 1 „22 kW“ in Sarreguemines (Hambach)
- 1 „22 kW“ in Thionville
- 3 „22 kW“ in Forbach (parking)
- 5 „22 kW“ installed by Colmar (operation pending in Q4 2013)



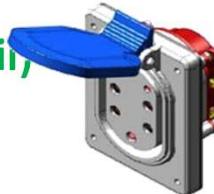
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- Ability to charge all EVs and PHEVs (CROME, Kleber, meregioMobil)
 - « mode 3 » connection , 3/22 kW AC
 - « mode 3 » type 3 and type 2 socket-outlets
 - Household E/F (mode 2) socket-outlets
- Compliancy with the technical requests of the CROME EV makers in order to upgrade mode 3 charging
 - « mode 3 » over-layers from Renault, PSA, Daimler, Porsche
e.g. RCD 30 mA, A Type, D curve
- Access to the 43 kW fast charging stations from « Corridor Energétique Alsace » (Nissan/Cora/EDF)
 - CHAdeMO DC (Ion/C0, Leaf, ...)
 - AC tiphasé (ZOE)



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- **Unified and simplified access to all the CROME charging stations with contactless ID cards (RFID) in France and Germany**
 - Standards : Mifare Desfire EVI/Ultralight/Classic , NFC ...
 - Possible use of « transportation network » cards
- **Communication between the charging stations and the operator's IT system**
 - Availability
 - State of order, remote maintenance, ...
 - Different standards : OCPP,
- **Simplified customer-oriented billing/payment**
 - Pre-paid card: Kiwhi Pass (France)
 - « Roaming » between cross-border operators



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INTEROPERABLE CHARGING INFRASTRUCTURE

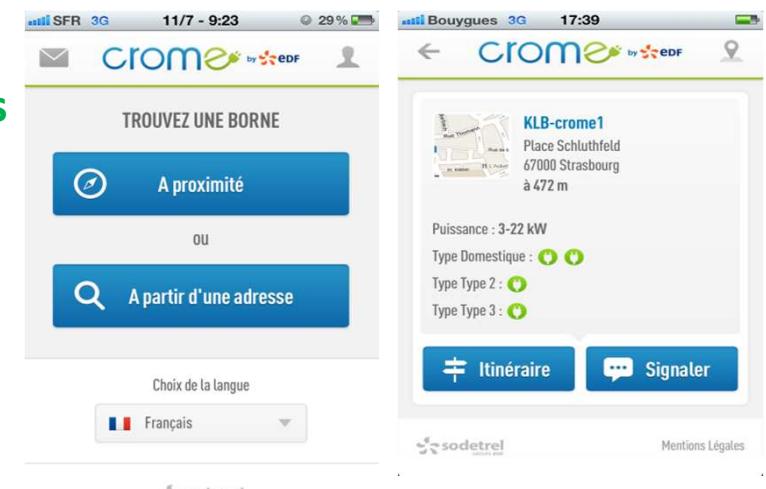
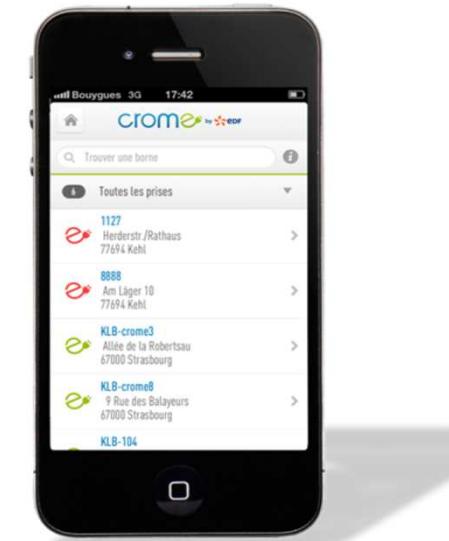
- **Customer-oriented « smartphone » and « Web » apps**

- Charging spot description
- localisation
- Availability
- Smart phone apps in Beta testing :

URL : <http://m.sodetrel.fr/crome/>

- **A Market Place between charging infrastructure operators and mobility service operators**

- No data is stored (broadcast approach)
- Responsibility and property remains at the data owner
- Routing and Brokering is controlled by defined agreements



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Customer acceptance study



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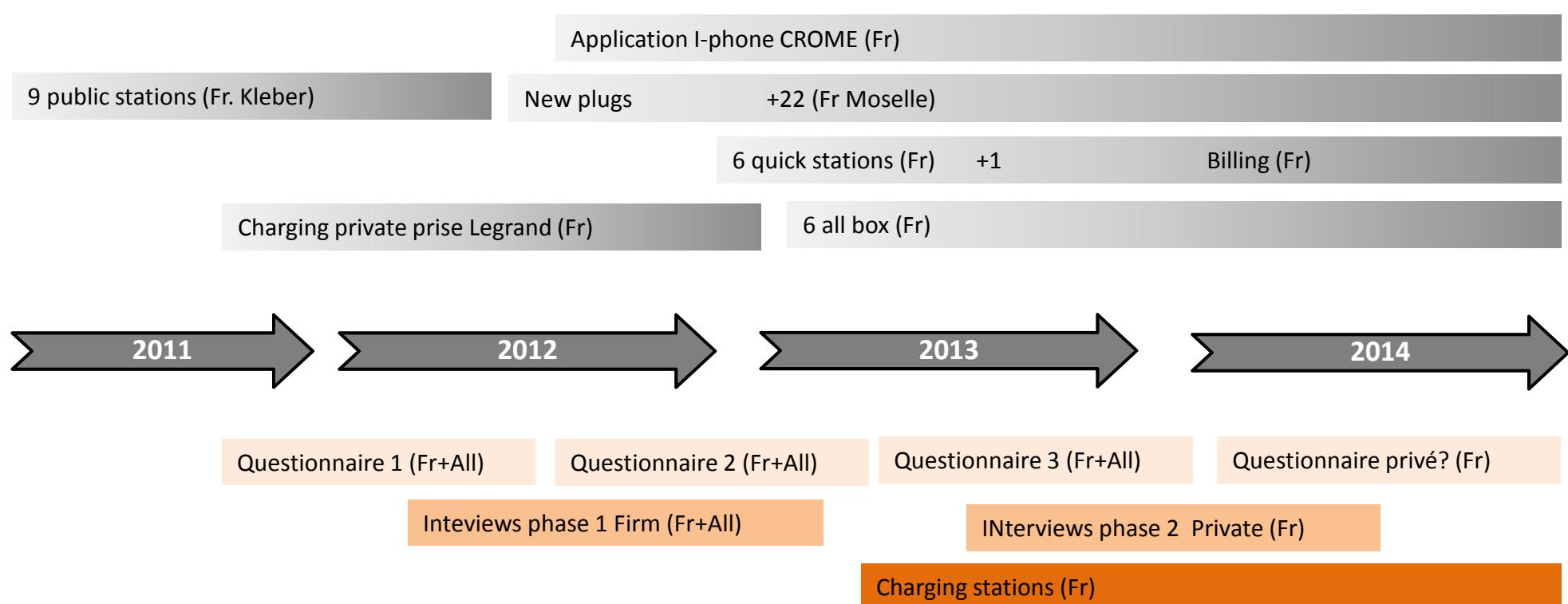


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PROGRAMME



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- Interviewed are satisfied: no fear, no complain (Moselle+BW)
 - A simplicity that is unanimously mentioned.
 - A gesture that occurs easily in the companies and administrations...
 - Away from the pomp is an advantage (smell and billing)
- The infrastructure help the image of the companies (BW)
 - One charging station for the client (marketing of the firm with logo - visibility at the entrance – reduced use – numerous reactions from client)
 - One charging station for employed at the parking place
- Information need (Moselle+BW)
 - Most of the interviews doesn't know where they may by a plug system (BW)
 - Legrand's "household" plugs have been distributed for free but the installation was not always properly done (Moselle)



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— **Charging at home is comfortable**

- The charging moments : mostly when a threshold is reached (30-40% of battery left).
- Even if they received no electricity bill for the time, people know that this cost is low.
- Particularity:
 - - Smart ED's users appreciate the charging on domestic sockets (but may charge occasionally on inappropriate plugs).
 - - Zoé's some users installed accelerated charging modes (22 KWh) and they use the application for switching the charging start (for instance during off-peak hours)

— **The price of the wall box installation was unexpected and seen as high**

- Some people would like this cost to be integrated to the car
- Other prefer to select the supplier among a various offer (local suppliers are favored)

— **All user claimed for a second cable**

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- Regular users of these public charging points really appreciate it
 - They feel concerned by the rotation of the parking
 - The standards are still seen as a problem
 - Need more information : Is fast charging good for the battery? afraid of different standards and no use of localizations tool
- First „22 kW“ feedback in Strasbourg (April to end October)
 - More than 280 charges per month (> 1980 charges)
 - 182 different users
 - 55 users with over 5 charges, 15 ones over 20 charges and 2 users with more than 100 charges, one over 155

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- **Charging at home or at the company is easy and well accepted**
 - Domestic plug can be unsaved (smart ED),
 - User wish a second cable
 - Some would be apply with a complete offer (wall box and car) other prefers they owner choice for the wall box
- **Charging on Public infrastructure: it is the beginning, the demand may increase, users need more information**

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Thank you for your attention

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