Project CROME: Our Contribution for an E-Mobility World without Frontiers

Stephan Wunnerlich, EnBW Vertrieb GmbH

Ertan Karakoc, EnBW Vertrieb GmbH

Main EnBW Achievements of the Project

- Installation of 25 CROME-specific interoperable charging stations

- Administration and management of the CROME local energy suppliers (Stadtwerke Karlsruhe, E-Werk Mittelbaden, Stadtwerke Baden-Baden & star.Energiewerke Rastatt) including EDF in the EnBW Back-End-System

- Development of an RFID-Card System (EnBW / local suppliers) for customer and partner billing

- Development of differentiated tariffs for partners and customers

- Development and implementation of a roaming system and display of the corresponding tariff on the charging station

- Authorization of French RFID-Cards on German charging stations and consumption information of the charging processes

Geographical Focus on Karlsruhe and Southern Rhine Valley

Roll out regions

- The market entry occurred in regions in which charging stations are already installed (about 300 stations in the regions Stuttgart, Karlsruhe) with extension to southern Rhine valley

- Further development takes place successively in other charging infrastructure development projects throughout Baden-Württemberg

Main components EnBW: RFID-Card

CROME RFID-Cards

Elektronauten
Ladekarte

EnBW

Max Mustermann

Kartennummer: 123456789   Gültig bis: 12/12

STADTWERKE KARLSRUHE

Stadtwerke BADEN BADEN

E-Werk Mittelbaden

star. ENERGIEWERKE

Main contents

- The RFID card grants independence and security: it allows accessing currently about 300 charging stations in Baden-Württemberg with around 600 charging points. One of the largest charging networks in Germany.

- The card can be used for access and payment at the charging stations. The client receives a monthly bill for all charging sessions

- Every local supplier can provide his own RFID-Card with its specific branding

Main components EnBW: RFID Card – Post Paid

Elektronauten Ladekarte für 4-Räder

Grundpreis		9,90 €/Monat
Ladekosten	🔌	🔌
Spar-Zone	max. 1 €/h	max. 15 Cent/h
Basis-Zone	2 €/h	50 Cent/h
Hot-Spot-Zone	3 €/h	75 Cent/h
Upgrade – Viel-Lader Option	Für 5 € im Monat ab der 5. Anschluss-Stunde nur noch 25 ct/h	Für 5 € im Monat ab der 7. Anschluss-Stunde nur noch 25 ct/h

Erstlaufzeit 12 Monate, danach monatliches Kündigungsrecht

Main components EnBW: RFID Card - Prepaid

Prepaid RFID-Card

- **No registration needed**
- **Easy to use**

Main contents

- Access to all EnBW- and authorized EDF-/ CROME charging stations

- Prepaid-Card with up to 50€ credit

- Full cost control

- No specific contractual obligations

- Prepaid-Card is available in all EnBW- outlets and online

- Developed in the e-mobility project iZEUS and usable in CROME

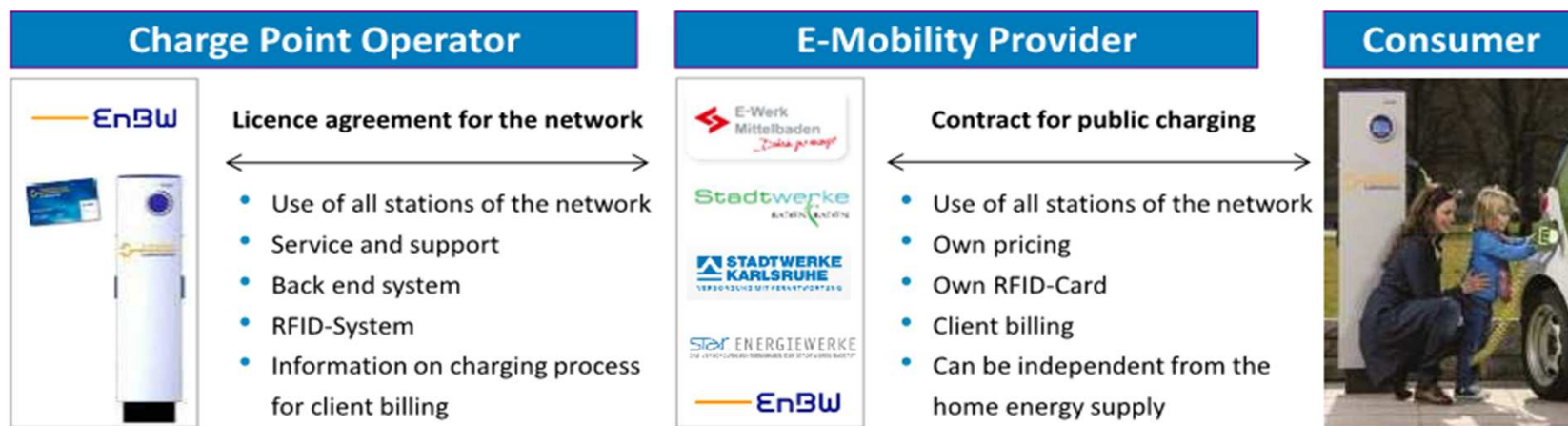# Main components EnBW: Backend System

Charge Point Operator	E-Mobility Provider	Consumer

Licence agreement for the network

- Use of all stations of the network
- Service and support
- Back end system
- RFID-System
- Information on charging process for client billing

Contract for public charging

- Use of all stations of the network
- Own pricing
- Own RFID-Card
- Client billing
- Can be independent from the home energy supply

- Each energy supplier has an exclusive contractual relationship to the client
- Each energy supplier can define its own pricing model for public charging
- Each energy supplier invoices to its own clients (EnBW provides all charging information)
- EnBW and each energy supplier subscribe a license agreement

Main components EnBW: Backend - Charging information for suppliers and customers

Stations-nummer	Ort/ Tarifzone	Stecker	Tarif	Beginn	Ende	Anschluss-dauer	Ladekosten (netto)	Ladekarten Nr.
794	EWM Freiburgerstr. 23a, / Wasserstr.Betriebsverwaltung des E-Werk Mittelbaden 77652 Offenburg Zone: Basis-Zone	Turbo-stecker	1,68 €/h	08.08.2012 09:54	08.08.2012 15:41	05:46	9,69 €	98
	Anzahl der Ladevorgänge	1			gesamt	05:46	9,69 €	

- **Real client billing system**
  Each EnBW-partner and customer receives a detailed monthly overview of all charging processes

- **Billing / roaming system with different connected energy suppliers**
  Each EnBW-partner receives a detailed overview of its own customers, no matter where the charging station is located

- **Transparent charging information**
  Pricing is displayed on the charging station

Main components EnBW: Additional services

- Development of an EnBW charging station app for iPhone (Apple iOS)
- Additional feedback channels for customer experience issues via Facebook and Twitter
- Design and development of an additional questionnaire including specific cross-border traffic related questions (launch tbd.)

Additional development: Link to Hubject
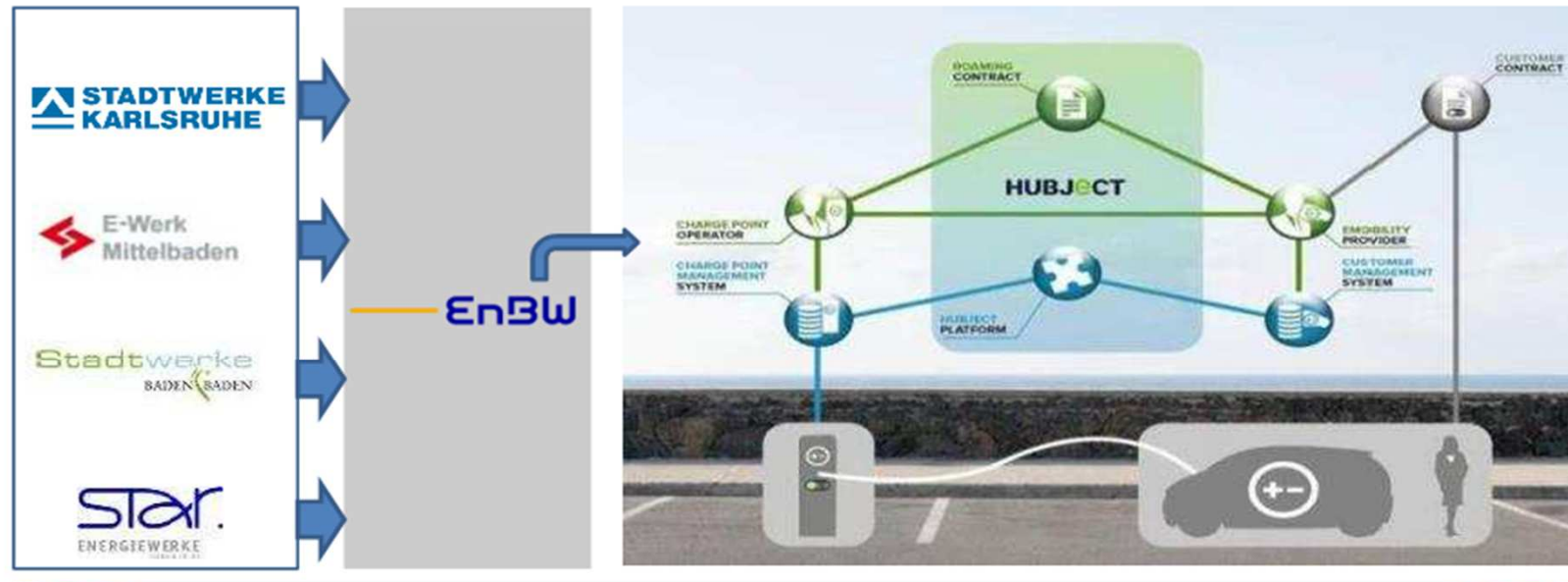

- Each Hubject customer can charge at EnBW and EnBW Partner stations
- Soon: Each EnBW and EnBW Partner Customer can charge at Hubject Charging Stations

EVS 27

EnBW CROME: Learnings & Conclusions

Learnings:

- Cross Border E-Mobility is possible and reality today
- Technology for roaming is fully functionable
- E-Mobility needs now attractive electric vehicles to break through
- Customers accept RFID card for authorization and payment
- Installation and management of public charging infrastructure is costly
- European wide standards for further deployment of e-mobility is crucial

Conclusions:

- E-Mobility will make its way to success within the next decade
- E-Mobility will not replace conventional cars, but will enrich existing vehicle mix
- Political support is needed for development of charging infrastructure
- EnBW will be at your side when developing e-mobility projects

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