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Key figures 2013
- Sales: EUR 6.1 bn
- Operating profit: EUR 1.7 bn
- Capital Empl.: EUR 19.8 bn
- Personnel: 10,200
- 60% Hydro production

Charge & Drive
- Full Charging Operator since 2011
- Market Leader in Norway (and Nordic)
- We offer Charge & Drive Cloud as a service for any operator to take advantage of our experiences and development
Connecting the Nordic capitals with more than 100 rapid chargers
Fortum Charge & Drive recently entered two new cooperations to taking us to approximately 1,000 connected chargers during 2015

- 150 – 450 smart chargers 22kW at shopping malls, restaurants etc.
- Operations of 50 rapid chargers 50kW
The Charge & Drive Cloud is a business system for anyone operating 360 solutions of charging stations.

map.chargedrive.com
42,000
15%
x10 per capita
«I’ve been left standing four times without any chance to get further, and one of the times I’ve had to use road assistance…»

«there I was in 32 degrees Celsius and three children in my car…»
Customer calls Jan 2014 – Jan 2015

jan 2014 – Jan 2015

1,800
Rapid charging and payment procedures drives customer calls

Calls per charger one month

Calls per charger, 10 chargers with most calls
Major improvement potential in the customer interface and communication – we all need to improve

38% SMS initiation of charging
   - Long process make initiation time-out
   - Instructions not correct
   - Typo of SMS command by customer

22% Other
   - HW user interface not responding correctly
   - Driver not following sequence

15% End charging

8% ”Call to say it does not work”

(8) - 2% ”Help plan my route”
Immature products have caused severe amount of work to still keep EV drivers happy.
Pricing of rapid charging

- 2,50 NOK/min
- 7 NOK/10km ~ diesel
- 1,5 NOK/10km at home
By-the-Minute payment gives right incentive and our customers likes this, but First-time-Right (FTR) must improve.

**City**
- **No payment**
  - Mean 25-30 min
  - Best FTR

**City**
- **Payment /minute**
  - Mean 15-20 min
  - Worst FTR

**Countryside**
- **Payment /minute**
  - Mean 30-35 min
Summary – increase reliability and user experience

Key for rapid charging
• Quality of equipment and software on both cars and chargers need to improve to get acceptance and mass-adoption

Otherwise…
• … early majority of customers will be hesitant to EVs
• … income for charge point operators will not bear the cost of CAPEX and O&M
Please contact us for your EV program!

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