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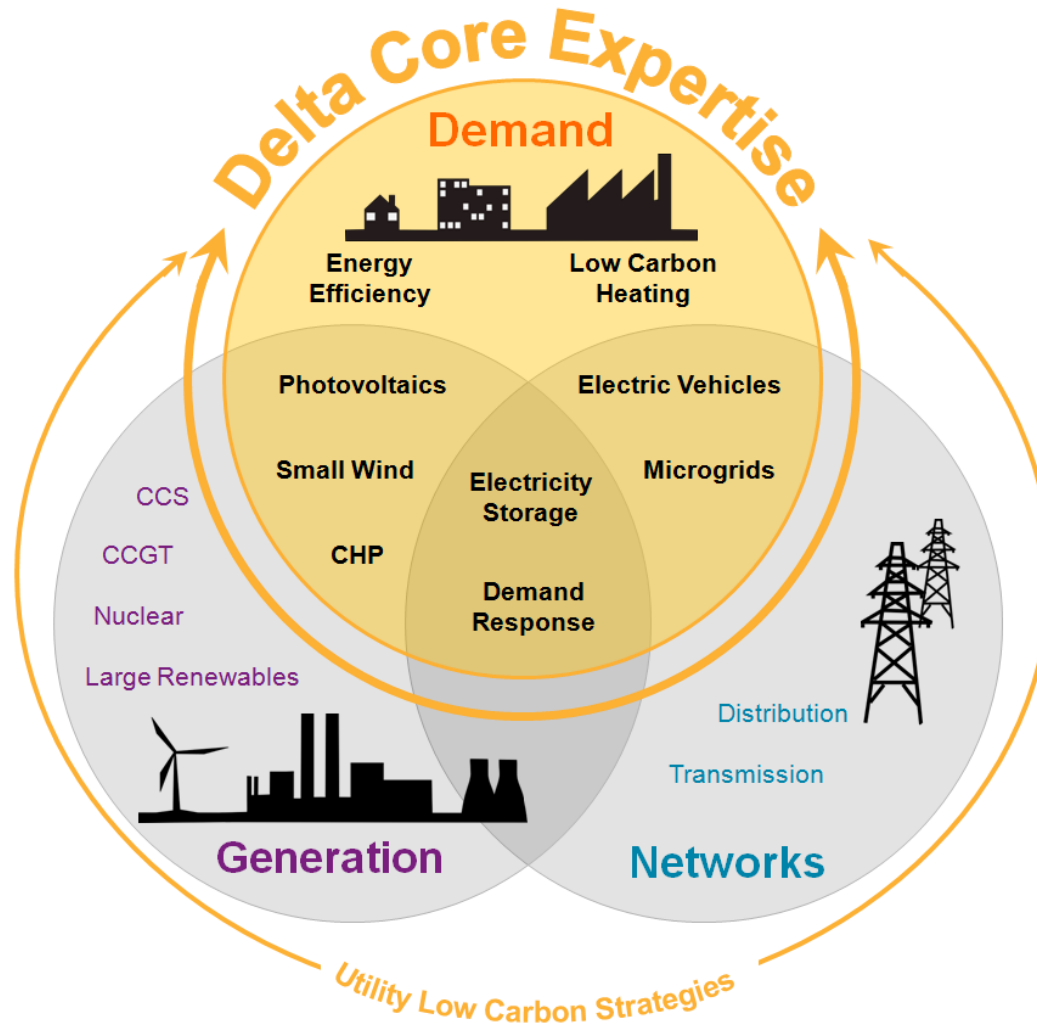


Electric Vehicles: An Opportunity or Headache For Electricity Utilities?

UK Trade & Investment, Electric Vehicles Workshop
18 March 2010

Stephen Harkin
Delta Energy and Environment





- ▶ Key opportunities for utilities

- ▶ Utility engagement in Europe
 - Key EV rollouts
 - Motivations

- ▶ Huge challenges facing utilities
 - Infrastructure selection and expense
 - Finding the right business model
 - Where should the value go?

Major opportunities for utilities

- New revenue stream for European utilities
 - ▶ 3 million EVs in Europe by 2020
 - ▶ €1 billion in new sales
- And EVs can enable a smarter, greener grid



Key utility projects

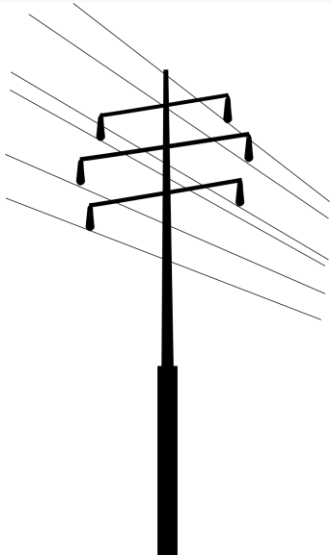
Project	Utility	Other partners	No. of EVs	No. of posts
E-mobility Berlin	RWE	Daimler	100	500
E-mobility Italy (Rome, Milan, Pisa)	ENEL	Daimler (and others)	100	400
Proyecto Piloto Movele (Barcelona, Madrid, Seville)	Endesa	Mercedes, Spanish government	Up to 2,000	550
Allied Vehicles Project (Glasgow)	Scottish Power	Allied Vehicles, Axeon, Strathclyde Uni.	40	~40



Source: Daimler AG, 2008

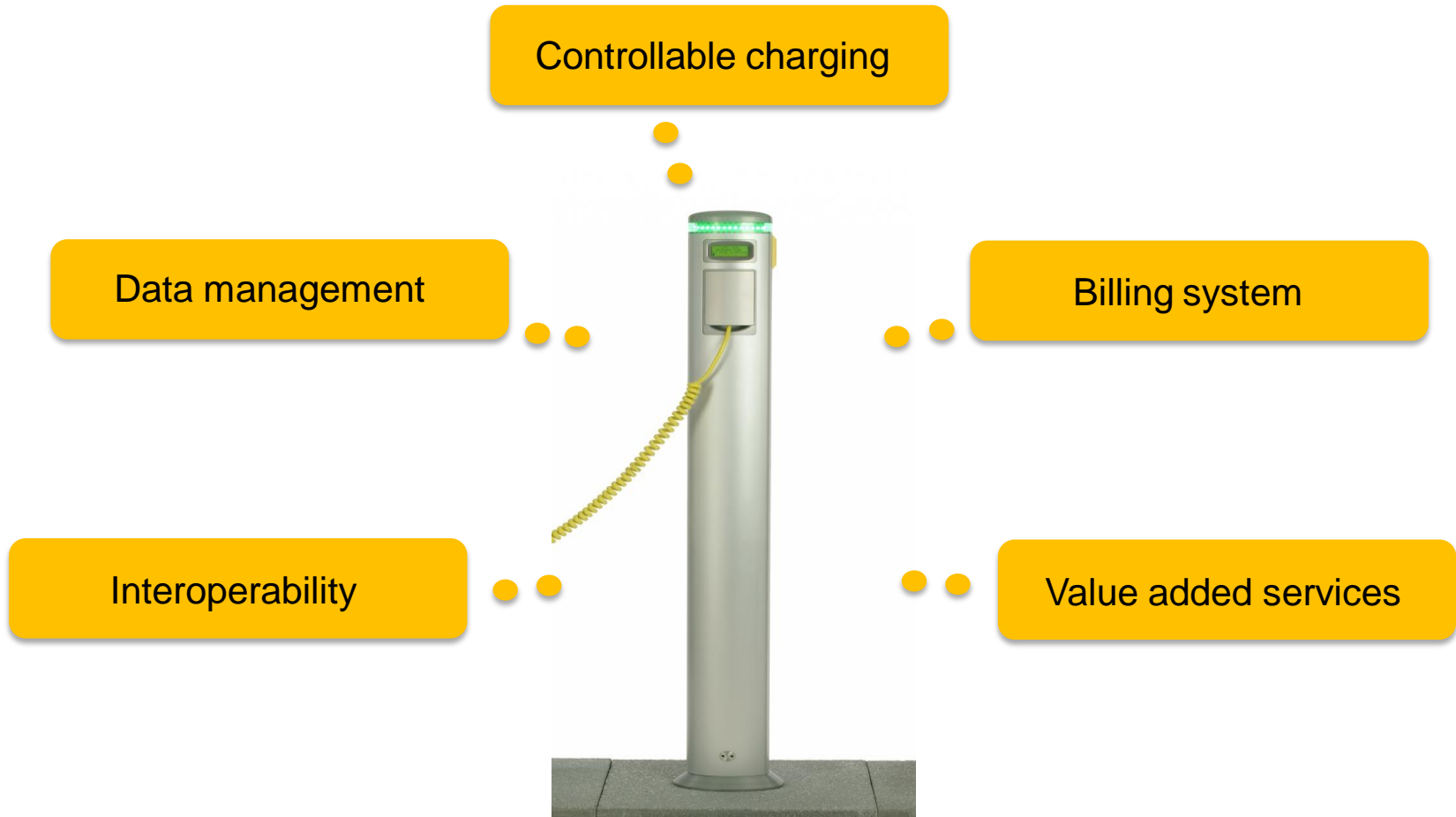


Motivations for utility rollouts



A range of infrastructure options...

Variety of functionalities (and cost) makes choosing the best infrastructure a challenge.



...offers an array of customer solutions

On-street charging point in Westminster



Maximising fleet vehicle productivity



EV Slow Charging

EV Ultra Fast Charging

- 16 hours
- 100 km

- 22,5 hours
- 300 km



The Mc Charger

Is there a business case?

- Great opportunity for utilities, but how best can they exploit this?



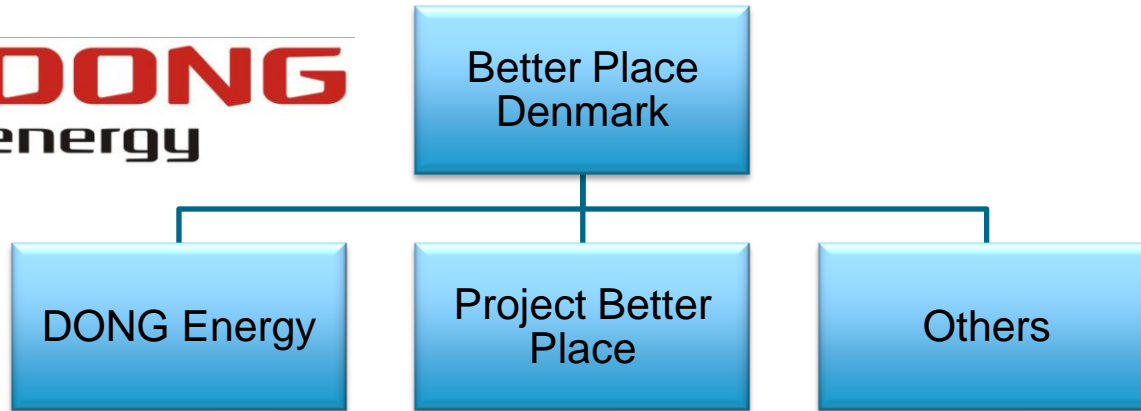
- Charging point costs €10,000
- Visited on 150 days in a year
- One charge per day, 30 €c per charge
- Revenue of €45 in 1 year



SCOTTISHPOWER

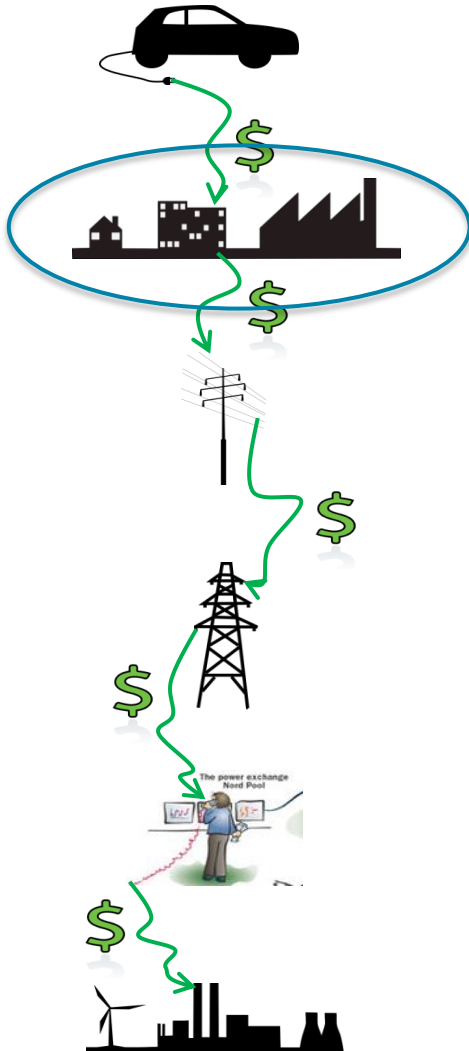
- To recover infra costs would mean customers paying ~ 45€c / kWh

Current trials



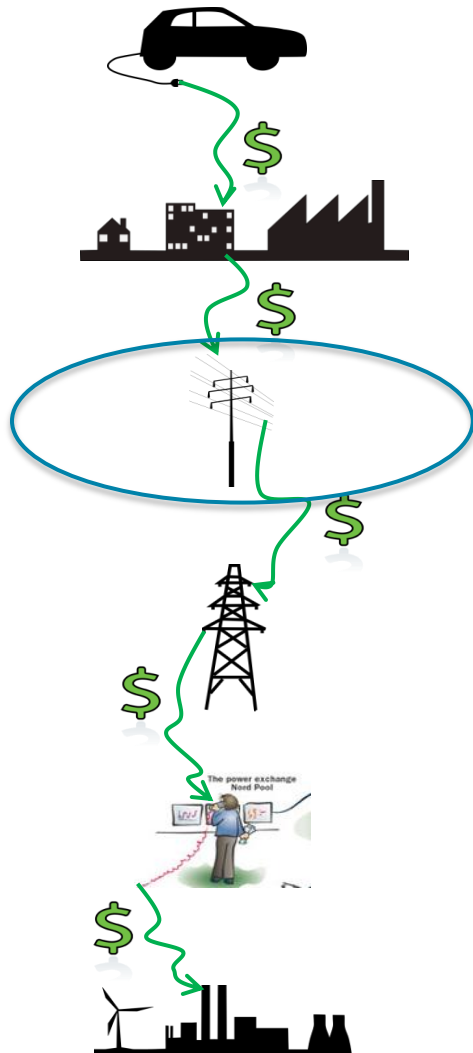
Monthly leasing rate	
Leasing rate	€ 439
Annual inspection	€ 30
Liability insurance	€ 20
Comprehensive coverage	€ 43
VVV Card (Travel card)	€ 20
Parking and charge	Free
Mobility rate per month	€ 551

Where will the value go..?



- Selling more kWh
- Retaining customers
- Value added services
- Investing in infrastructure?
- Smart charging and demand response
- Leasing batteries (or cars)
- Vehicle to grid

Where will the value be..?



- Smart charging and demand response
- Investing in infrastructure
- Leasing and owning batteries (or cars)
- Vehicle to grid

Who could invest?



- EVs present great opportunities to utilities, so utilities are looked towards to lead the way
- But it is far from clear how the most value can be derived from the electric vehicle market
- Until the pathway to value is much clearer, it is hard to see utilities being the sole driving force behind the EV market development

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