

Brett Hauser



e-mobility NSR



E-Mobility NSR Conference “Policy, Practice and Profitability”





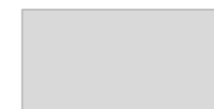
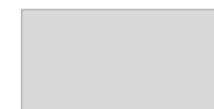
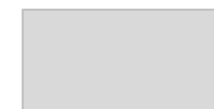
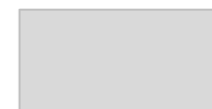
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North American EV Adoption: Lessons Learned from the Dutch on Infrastructure Interoperability North Sea Region Electric Mobility Network (E- Mobility NSR)

Brett Hauser, President - Greenlots

E-mobility Conference, “Policy, Practice and Profitability”

Haarlem, The Netherlands - 10 October 2013



Open Charge Alliance & Greenlots

Global consortium of public and private electric car infrastructure leaders united to promote open standards through the adoption of the Open Charge Point Protocol (OCPP)

The Greenlots SKY™ platform, based on Open Charge Point Protocol (OCPP), provides interoperability solutions for electric car charging solutions



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Multiple Definitions of Interoperability

OPEN STANDARDS



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Comparison of EV Adoption in California and the US

	California	United States	% of total US market
No. Public L2 Deployed	1, 374	6, 516	21%
No. Public DCFC Deployed	43	199	21%
Total PEV sold since 2010	54, 678	136, 695	40%

Alternative Fuels Data Center, Department of Energy, http://www.afdc.energy.gov/fuels/electricity_locations.html
http://www.afdc.energy.gov/fuels/electricity_locations.html

Electric Drive Transportation Association, <http://electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952>





New Californian Legislation

Regulatory Initiatives are making progress towards responding to the needs of drivers and site hosts:

SB 454

- Will create the Electric Vehicle Charging Stations Open Access Act
- Mandates the opening of access to Charge Stations to drivers without subscriptions
- Mandates multiple payment methods

AB 8

- Continues State's clean vehicles and fuel incentives through to 2023
- Provides more than \$2 billion in funding to help fleets and consumers purchase clean and low carbon cars, trucks and buses

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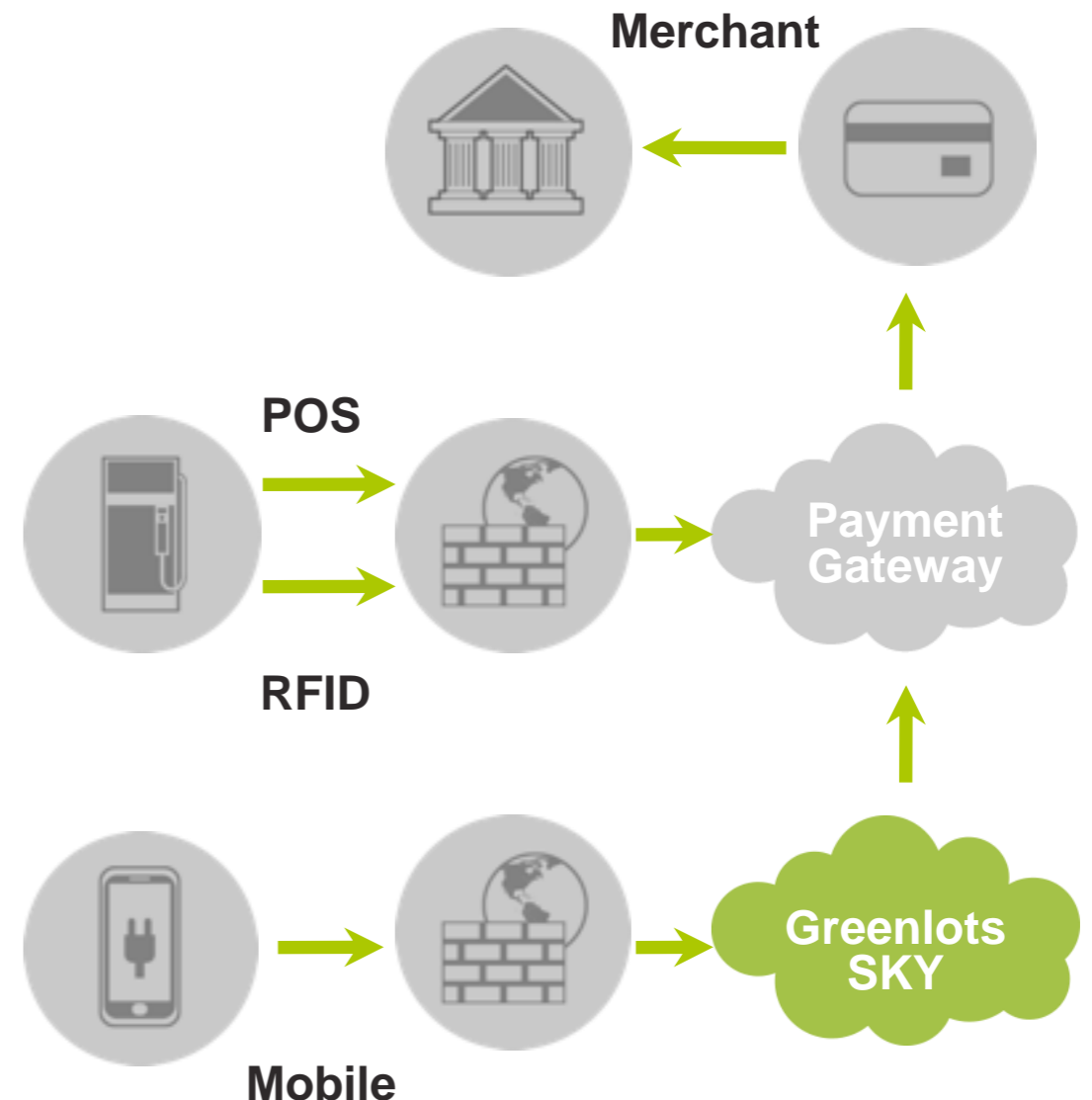


Payment Interoperability: Best Practices for North America

Pay by Mobile: Easily enable *credit card* payments with our mobile app. Users will have the option to save their credit card on their account profile and use it to pay for charging. Thru the app, users have the ability to look up charging station info, status and price.

Prepaid: Users maintain a balance from which charging costs are deducted. Users can add balance anytime. This mode of payment is supported through RFID and mobile.

Point of Sale (POS) Terminal: Users will swipe their credit card on the POS credit card reader to start charging session.





Characteristics of EV Infrastructure Deployments in North America

- Government funded deployment of L2 for public infrastructure, in hindsight this should have been DCFC
- L2 (and in some cases L1) has been focus for workplace charging due to longer dwell times
- Many types of site hosts
- Pricing dependent largely on individual site host
- Initially sold on the dream of ROI on investment in hardware

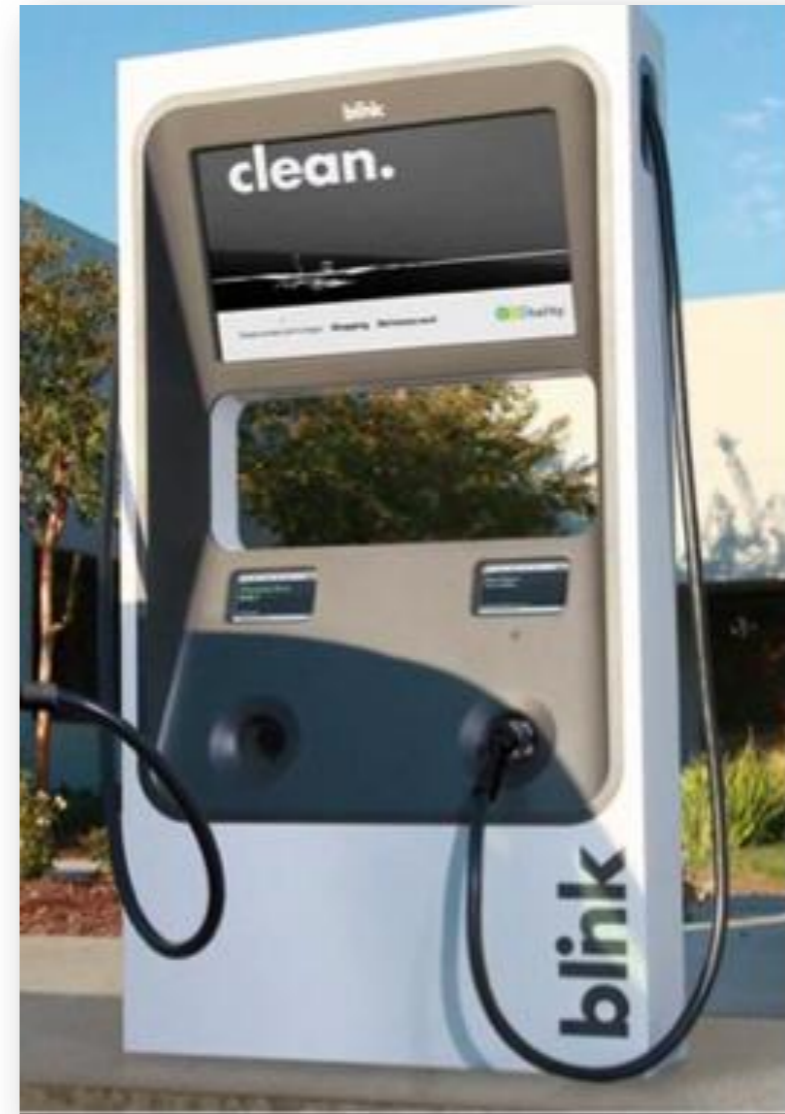
⬇ Risks of proprietary networks are already present

77 stranded assets in Maui alone



better place 

Approx. 3,200 stranded commercial assets



ecotality™



Lessons learned from The Netherlands: Open Standards are Critical to Adoption

Provides site hosts flexibility:

- Mix and match charge station vendors
- Switch network management solutions without replacing charge stations
- Eliminates risk of “stranded assets” if vendor goes out of business

Provides a level playing field:

- Hardware/software vendors compete on features and price
- Encourages innovation and new business models

OCPP is now the industry standard in EU and is being adopted across North America:

- Active in 50 countries
- Over 10,000 networked installations

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▼ Open Charge Alliance & OCPP 2.0

Open Charge Alliance in North America:

- Expansion of the OCPP Forum into North America as it gains awareness and acceptance at federal level
- Mission: open, flexible EV charging networks for the next wave of EV adoption worldwide

OCPP 2.0

- Next release of OCPP, version 2.0 to be announced imminently





The Industry is Embracing Open Standards





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