Electrifying the Amsterdam Metropolitan Region

Current practices from The Netherlands

Hamburg - November 28, 2012

Dr. Peter van Deventer MPA

Provincie
Noord-Holland

PRESENTATION

What is going in the Amsterdam Metropolitan Region?

Which opportunities do we see for the e-mobility sector?

Which conclusions can be made?

What advise for e-Hamburg?

Questions and discussion

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What is going on?

No auto shows without E-cars

More than just fancy e-cars...

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Investments: charging, parking, funds

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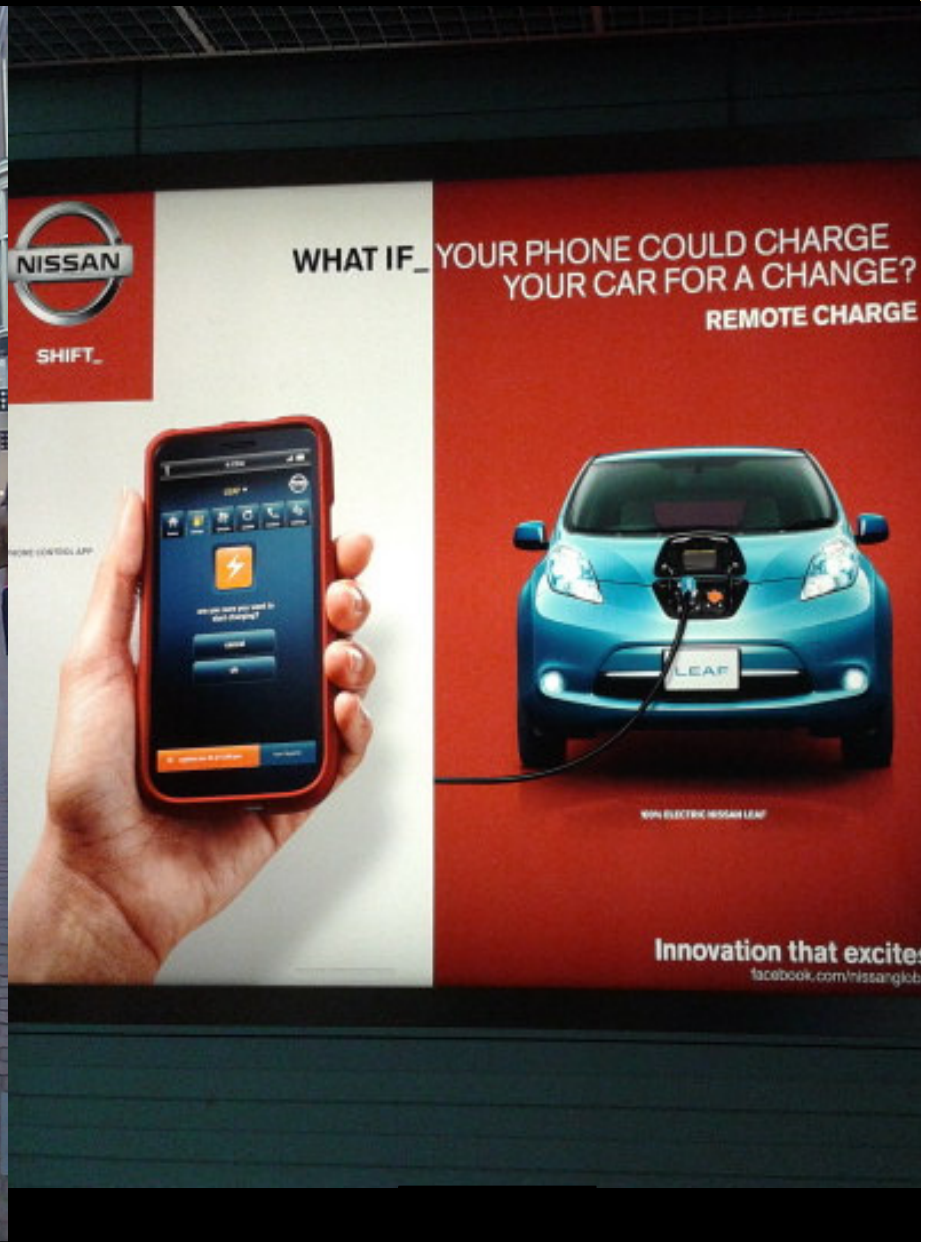
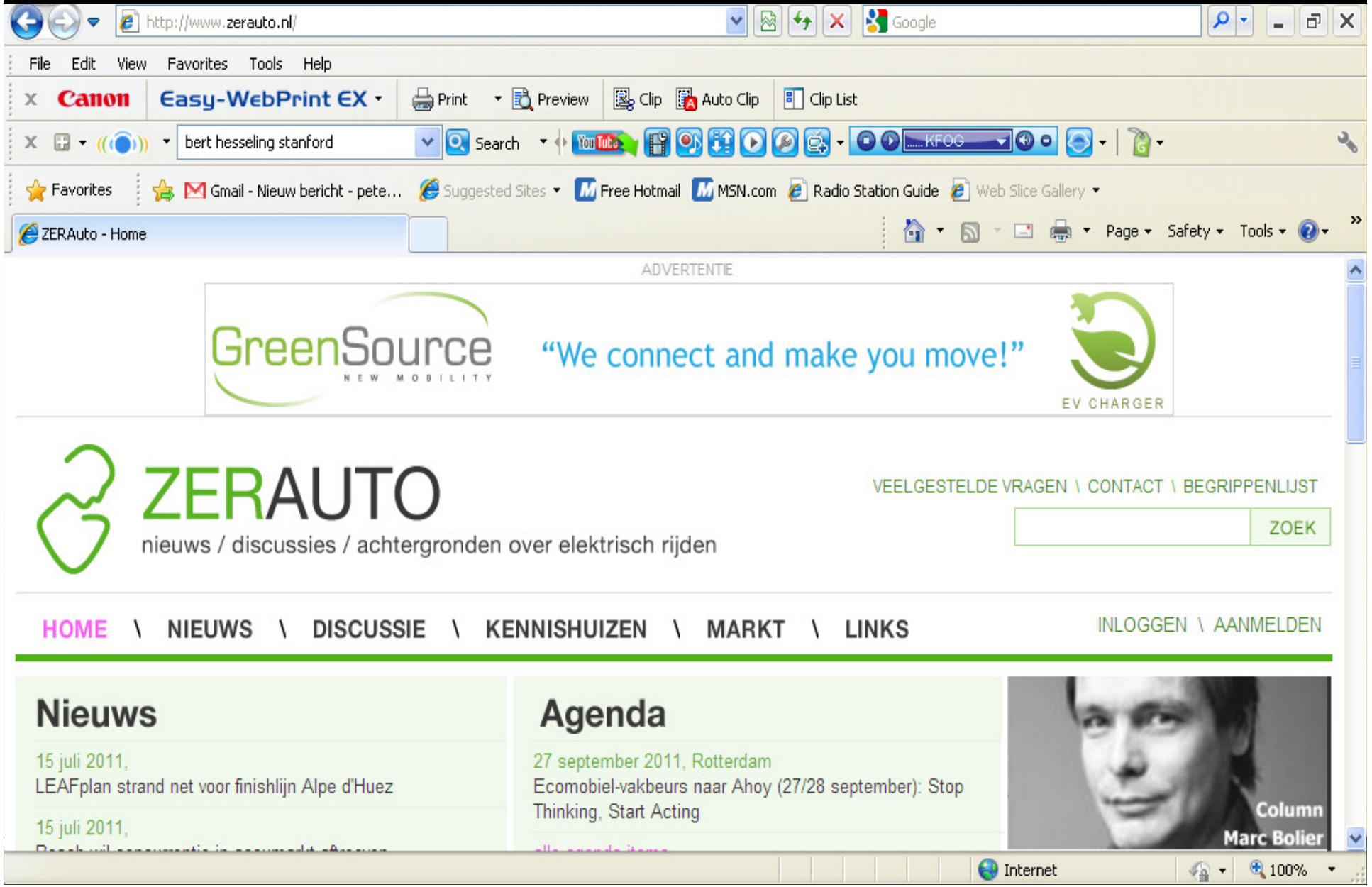
Bill Boards everywhere



Developing IT/charging industry

Fast charging at the dealer

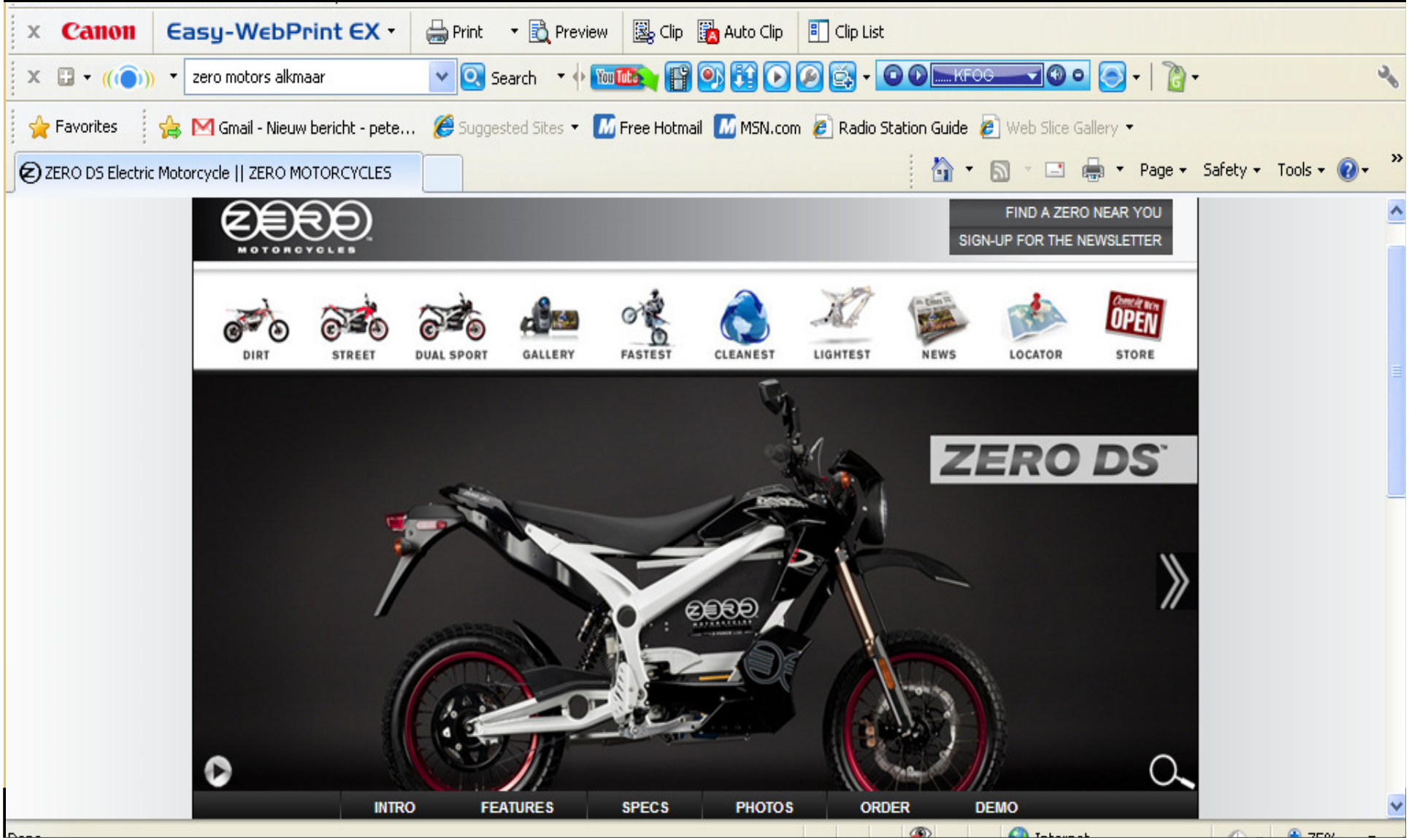
Knowledge sharing via social media



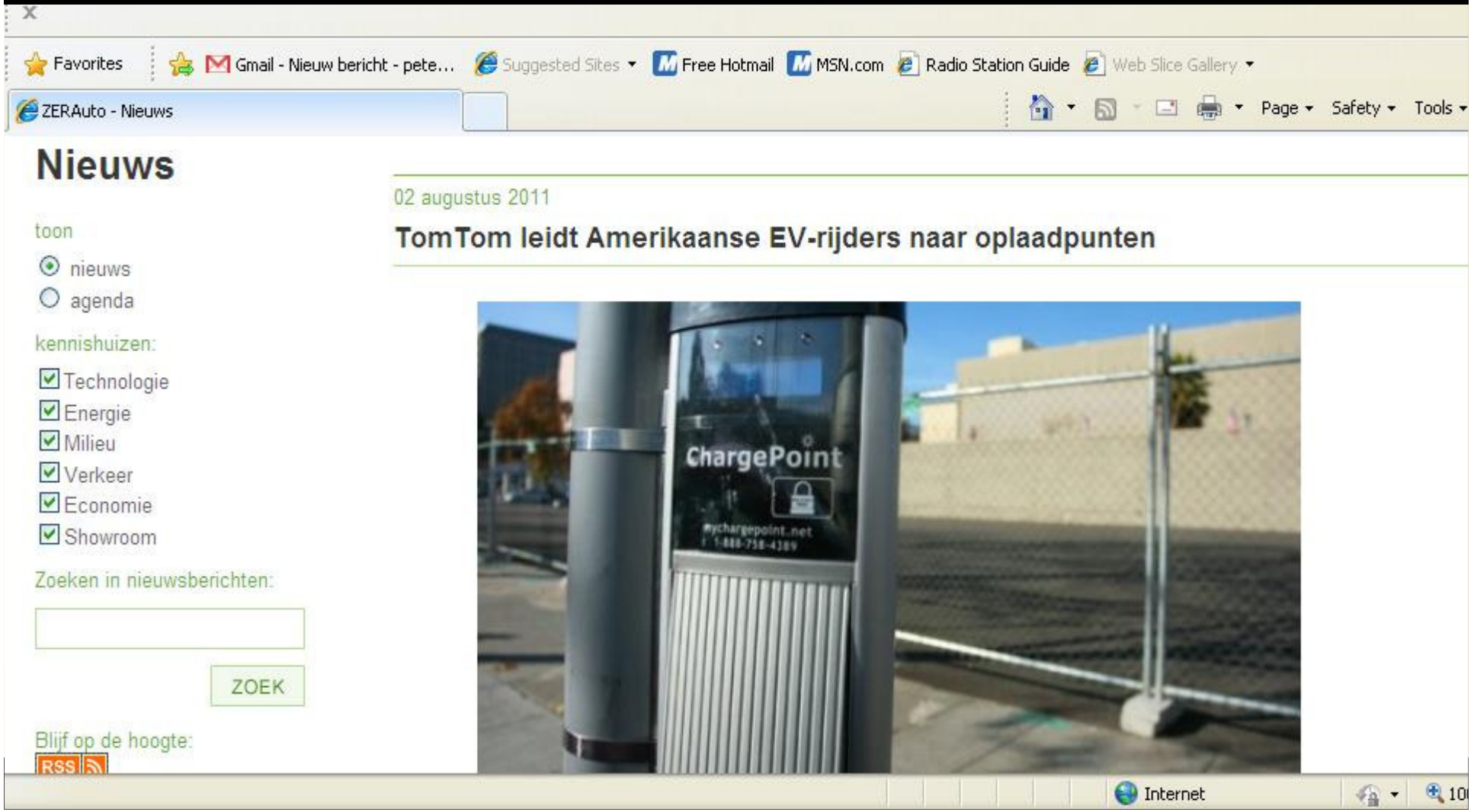
Integrated e-car concepts

Done

European headquarters in NL (e.g. ZERO invests 5M$ per year)



NL investments abroad (e.g. navigation innovations)



Ecomobiel 2012: Industry/governments “growing up”

September 14, 2012:
World Record: 270+ EV Rally!

However: barriers and uncertainties

- **Technology:** batteries, range, safety?
- **Social impact:** job loss, only for the rich?
- **Infrastructure:** public charging, strong grid, building process home charging quick enough?
- **Environmental impact:** more power plants, clean energy, well2wheel, battery recycling?
- **Cost:** electricity price, tax increase?
- **Market:** enough choice, will they produce?

→ **Policy games:** Wait and see? First mover advantage?

EV-policy complexity

technological complexity

multi actor complexity	low	high
low	implement	study hard
high	negotiate, network management	wicked policy problem; strategic complexity

Governance strategies for transition

Which opportunities for e-mobility sector?

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Value Chain = ±$250 billion (2020)

World Bank says "new global electric vehicle value chain" worth $250 billion by 2020

Unsurprisingly, China will play a huge role

By Sebastian Blanco
Posted May 5th 2011 7:48PM

Comments 7

"When you do some of the back-of-the-envelope calculations, it really points to a massive shift."

That's the takeaway point from a new study – "The China New Energy Vehicles Program: Challenges and Opportunities" – released by the World Bank Transport Office and global management consulting firm PRTM. We recently had the chance to talk to PRTM's Oliver Hazimeh, who said the study shows that there's really no chance that plug-in vehicles are *not* going to make a huge impact in the coming decade. One way is through a new global value chain for electric vehicles that is estimated to reach $250 billion by 2020.

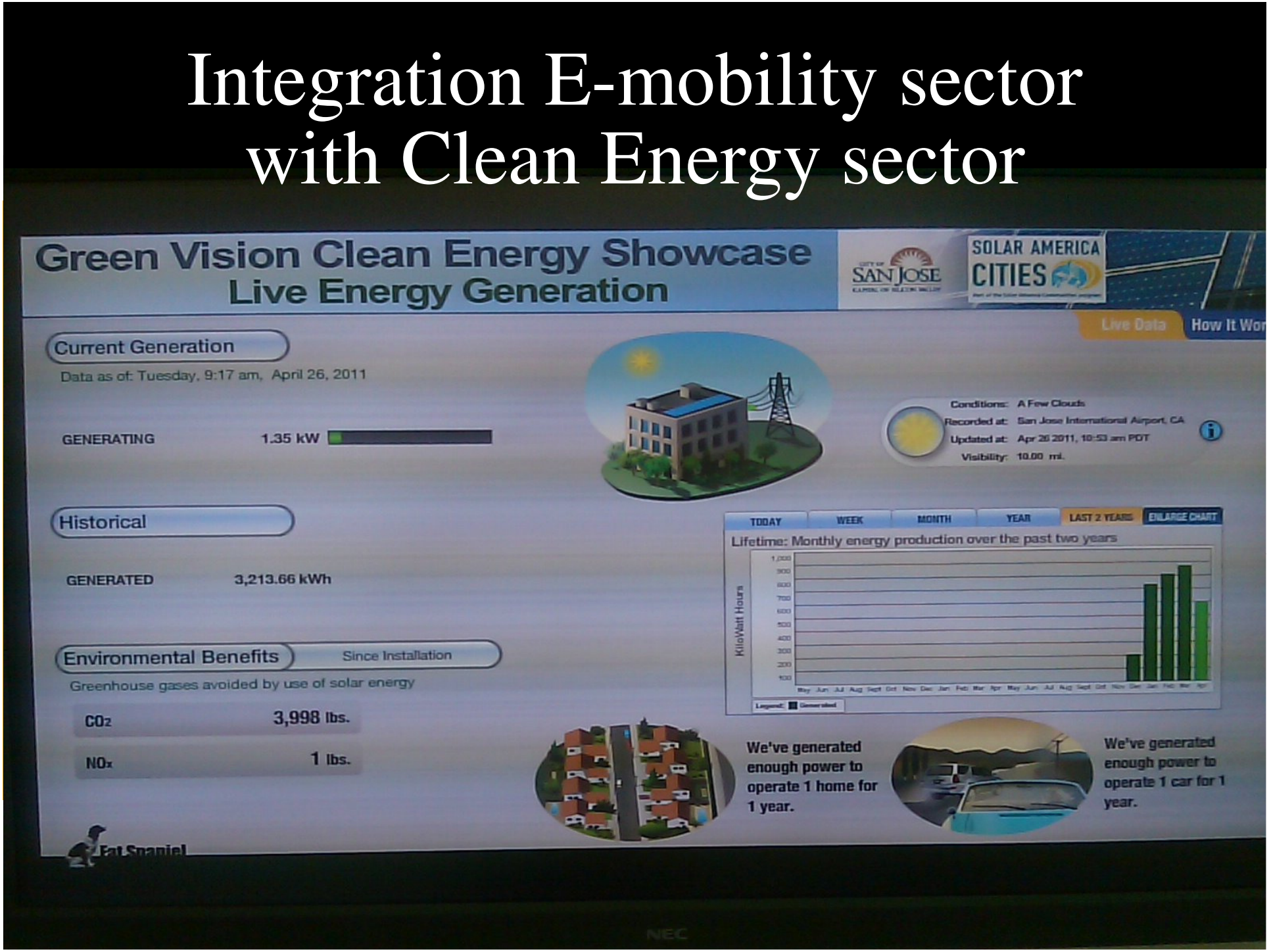
People's crystal balls differ, but Hazimeh believes that it is "more than doable" and "likely" that somewhere between nine and ten percent of the vehicles sold in 2020 will be plug-ins. Add up all the different pieces that make up these vehicles (especially batteries) and things like the associated expansion at utilities due to a smart grid, and you get to the study's $250 billion headline number:

> *Given what we see the OEMs committing to, given the cost curves and what we expect from ICE technology and fuel costs, the trends point to a direction where the economics will create enough pull for that number.*

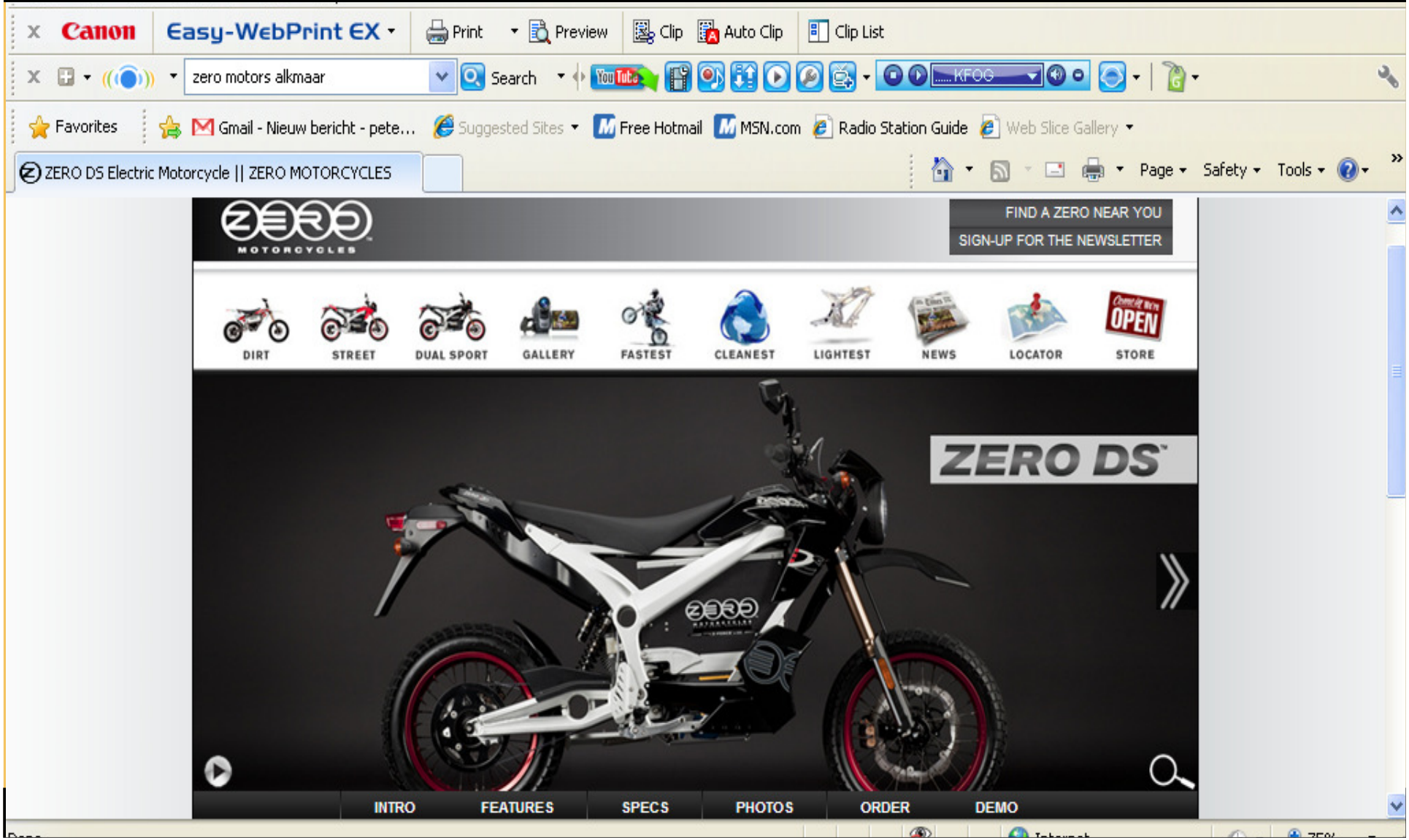
The study authors didn't need to use outrageous oil prices for 2020 – just $120 a barrel – to get to the 10 percent number. If the real price of oil hits $150 or $160, something Hazimeh said was "more likely," then some of the pressures get applied even stronger. "When it starts making economic sense, then we think it's more than the early adopters – the two or three percent – who will buy these things," he said.

Even 10 percent annual sales is still only two-three percent of the total fleet, but this is still a very optimistic

Integration E-mobility sector with Clean Energy sector

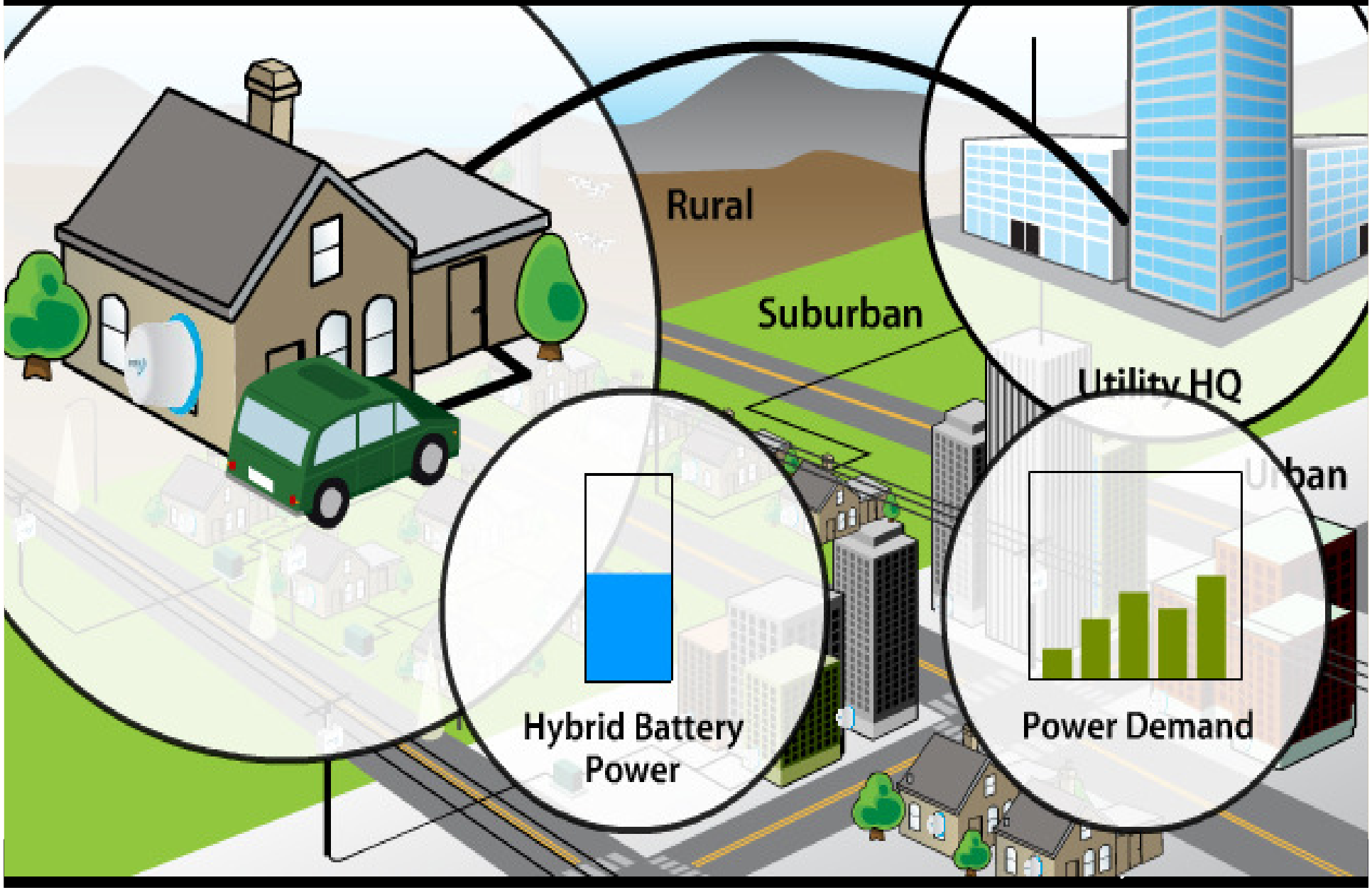


Battery Leasing Programs (ZERO ambition: 100M$ per year)

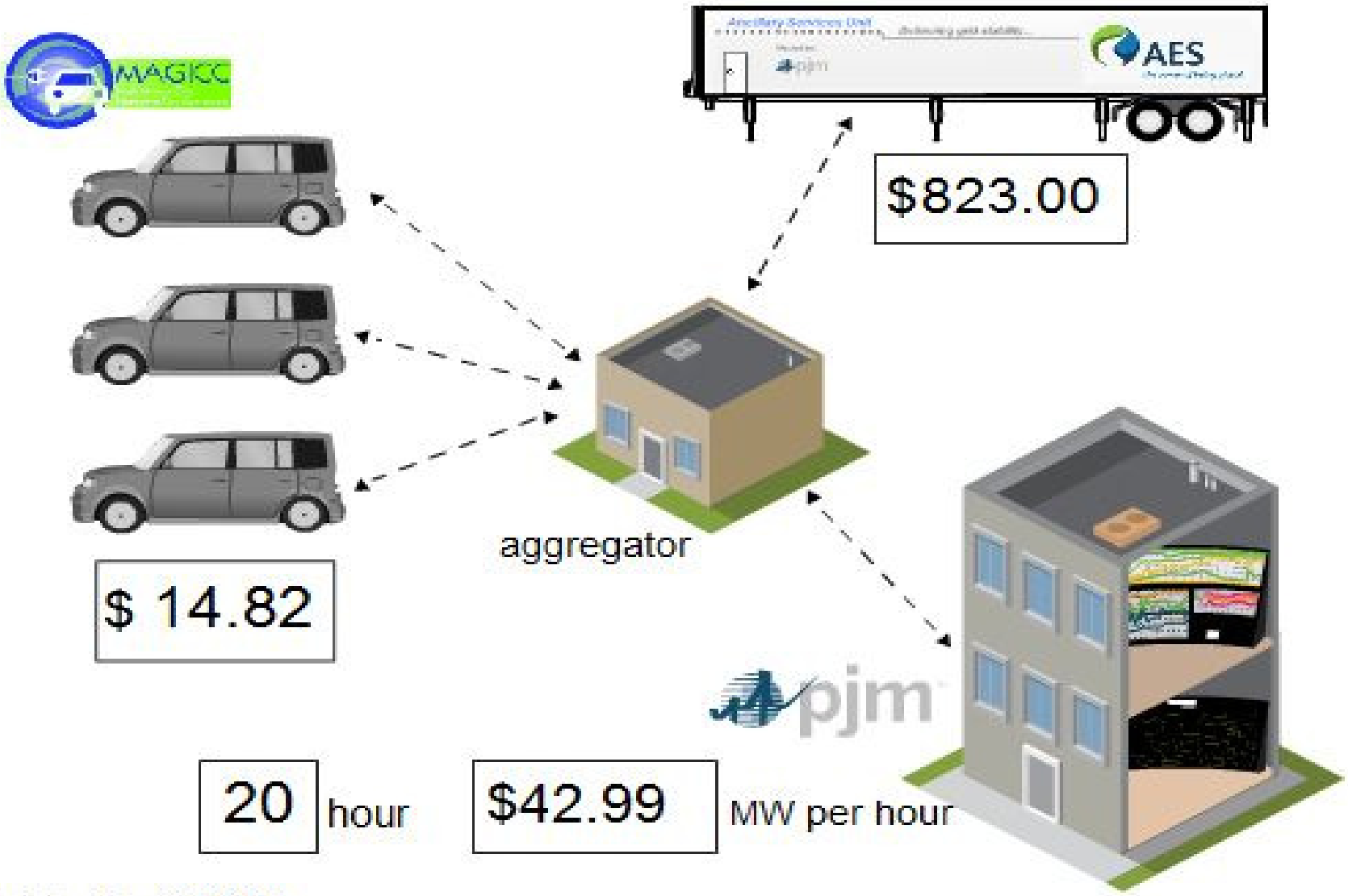


Car sharing→Mobility sharing→public space?

E-vehicle ↔ Smart-grid development



Free battery thru utility companies?



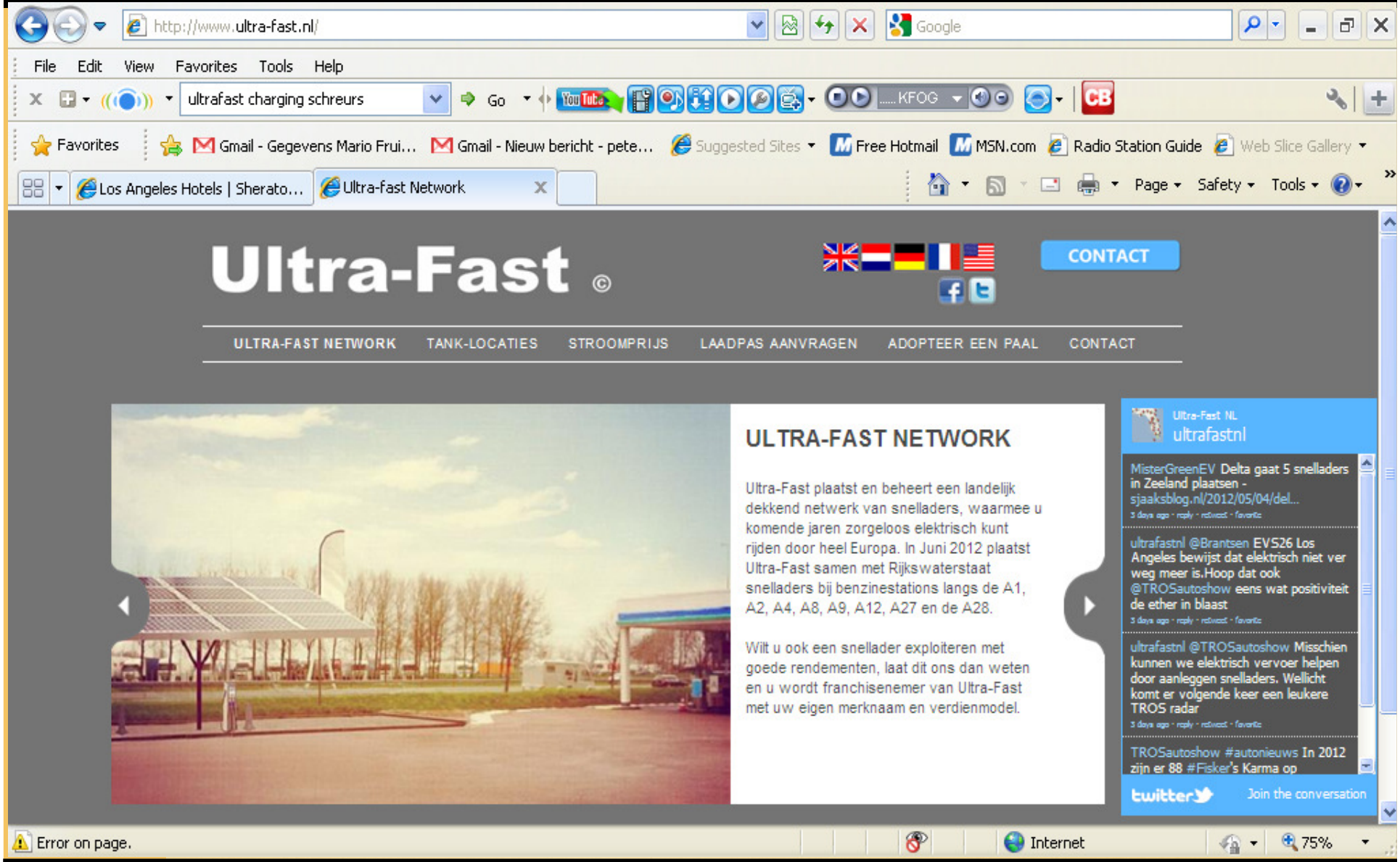
* Data taken from **01/11/10**

Innovation → viable business model

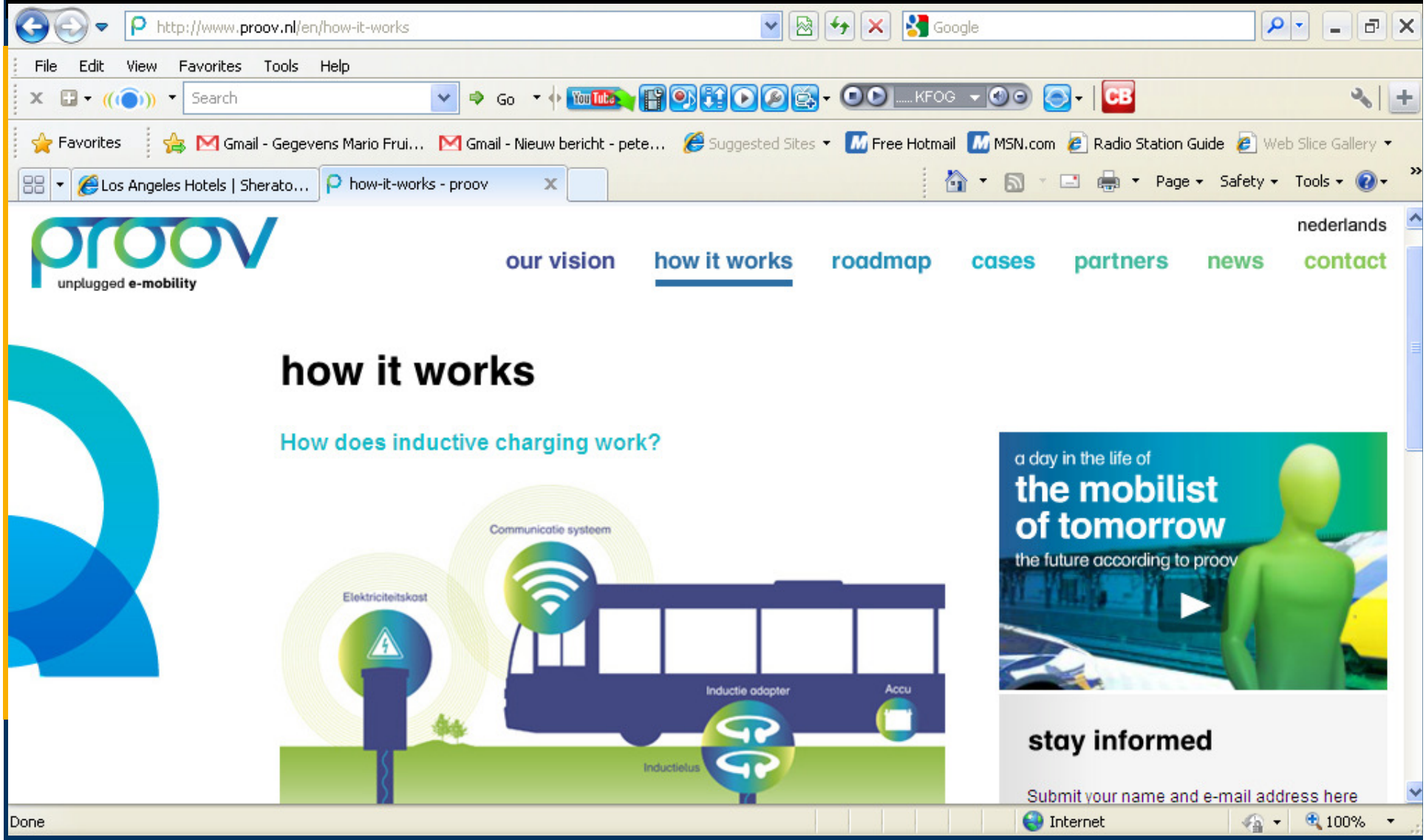
Silicon Valley

E-HUBS: integration cars, bikes, trains

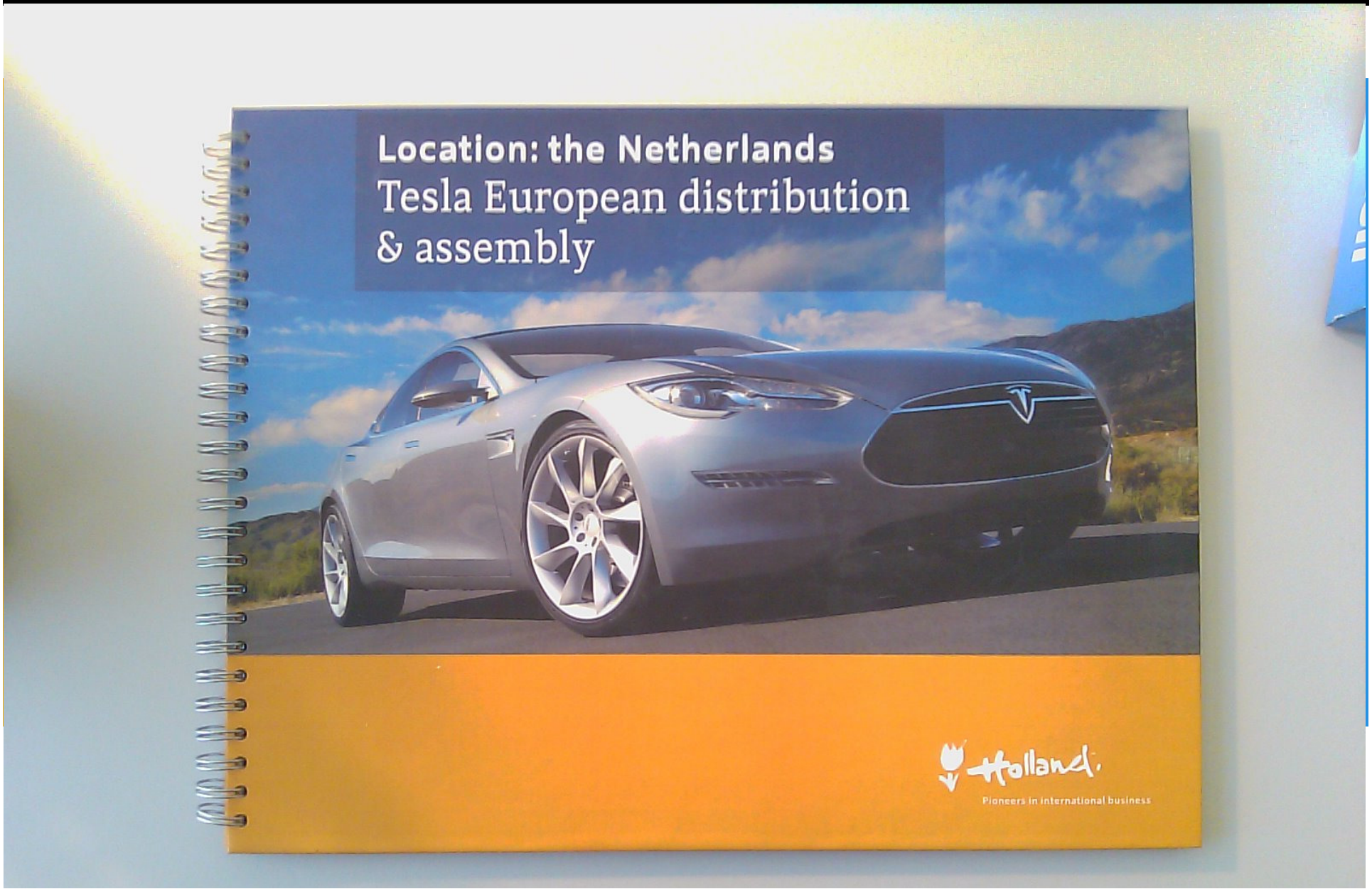
Fast Charging: range anxiety reduction



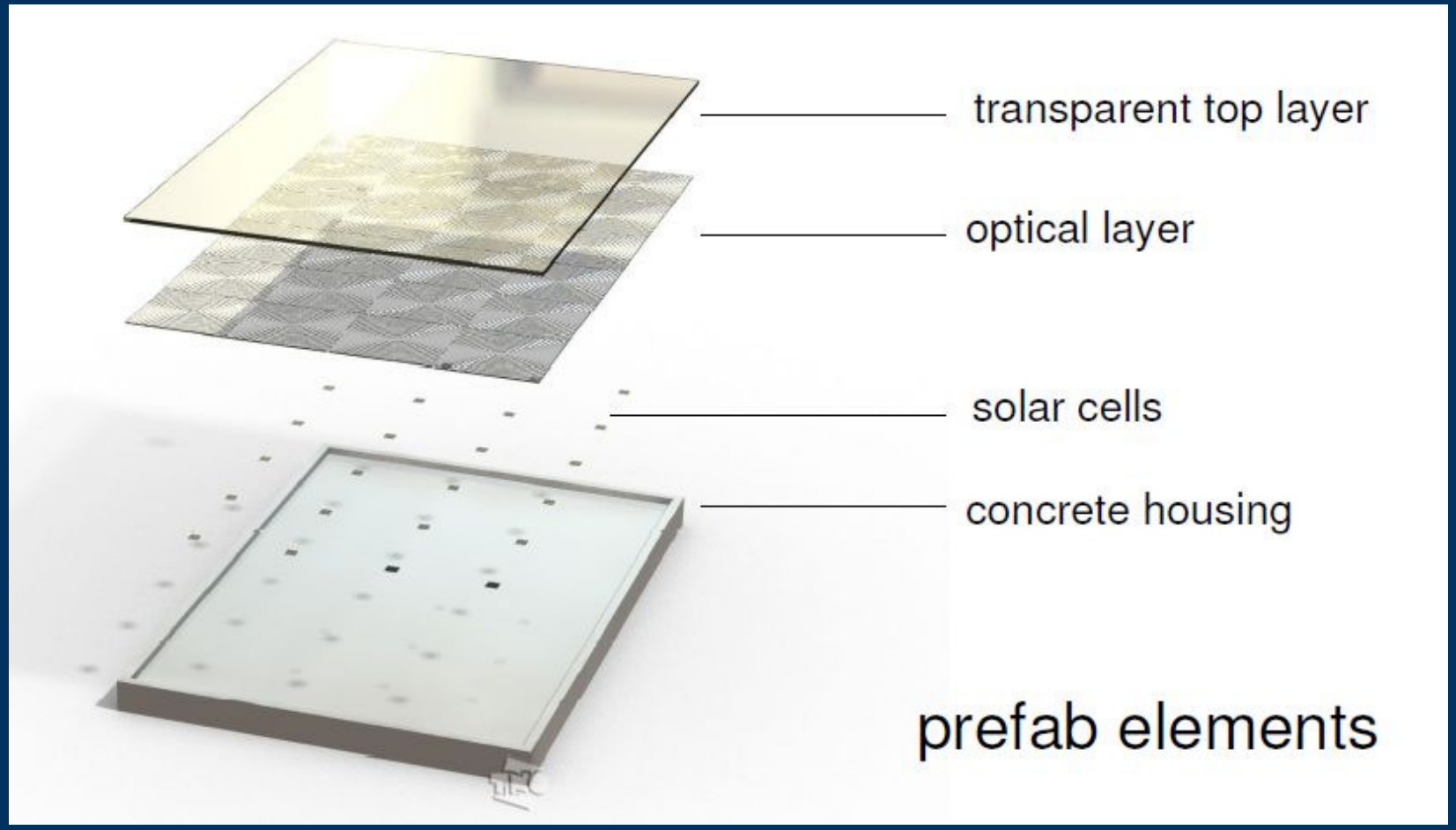
Public transport: inductive charging



Industry innovators invest in NL



SolaRoad: ‘the road that pays for itself’



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TNO innovation for life

Ooms Avenhorn Groep bv

Imtech

Conclusions

- **Total Global EV Value Chain = $250 billion PER YEAR**
- **Many uncertainties/high cost for innovation hamper full market potential**
- **Past and current policy research indicates that successful introduction depends on cooperation between regions, industry, universities**
- **To not get stuck in the "Valley of Death": opportunities for economic growth and renewal, particularly through cooperation, are essential!**

Advise for e-Hamburg

Focus on themes which best fit Hamburg (e.g.):

1. Automotive (parts & components)
2. Bio-based Materials & Light Composites
3. Charging Infrastructure & IT
4. Batteries & Energy Storage (V2G/G2V)
5. Engineering & Consulting
6. Construction & Maintenance
7. Safety & Incident Management
8. Car Sharing, Fleets and Leasing
9. Smart Mobility & Traffic Management
10. Governance & Introduction of e-mobility
11. …

Advise for e-Hamburg

Organize yourself at various levels:

Local (e.g. roundtables, fleets)

Regional (e.g. incentives, policies)

Interreg (e.g. knowledge development&exchange, symbolic links)

International (e.g. unexpected third parties, innovation)

Public private partnerships (e.g. Coast to Coast EV Connection)

Questions and discussion !

Thank you very much, Hamburg!