



paradigma:

**é fácil electrificar
um carro ?
(intelligent já é,
bastante)**



**Benz Motorwagen
1889**





REVA



The new zero emission era

Nissan will launch the world's first affordable EV
in Japan, US and Europe in late 2010.



Leaf will be mass marketed globally by 2012





paradigm:

**utilities and other
(new) players**

AVERE





Can the Grid Cope ?

António Vidigal – EDP - Portugal

Origin: SmartGarage Report



Öffentliche Ladesäulen und Batterietauschkonzepte sind wirtschaftlich relativ unattraktiv

Wirtschaftlichkeit von verschiedenen Ladeinfrastrukturkonzepten

ABSCHÄTZUNG

Ladeinfrastruktur	Ladeleistung	Abrechnung	Kosten pro Ladeeinheit (in €, ohne Wiederbeschaffung)	Infrastrukturkosten pro Fahrzeug (in €)	Auf Strom umgelegte Kosten (in c€/kWh)
Privater Anschluss	3,7 kW	Nein	200 - 300	200 - 300	1,0
	11 kW or 22 kW		600 - 750	600 - 750	3,0 - 3,8
Halböffentlicher Anschluss	11 kW or 22 kW	Ja	1.050 - 1.250	1.050 - 1.250	5,3 - 6,4
		Nein	1.450 - 2.250	483 - 750	3,3 - 5,1
Öffentliche Ladesäule	11 kW or 22 kW	Ja	4.050 - 10.450	450 - 1.161	4,2 - 10,8
	63 kW		7.850 - 17.000	654 - 1.417	6,1 - 13,2
Batterietauschkonzept		Ja	~ 750.000 + 1.450.000 (Batterien)	~ 800€	~ 8,0



Fraunhofer Institut System- und Innovationsforschung





paradigma:

que tecnologías

**para os transportes
públicos colectivos ?**



LRT or TRAM ?

León (MST Almada)





BRT

TRANSMILENIO

Bogotá





2008 04 24+25 BTR Madrid





paradigma:

the “London one”



MAYOR FO LONDON



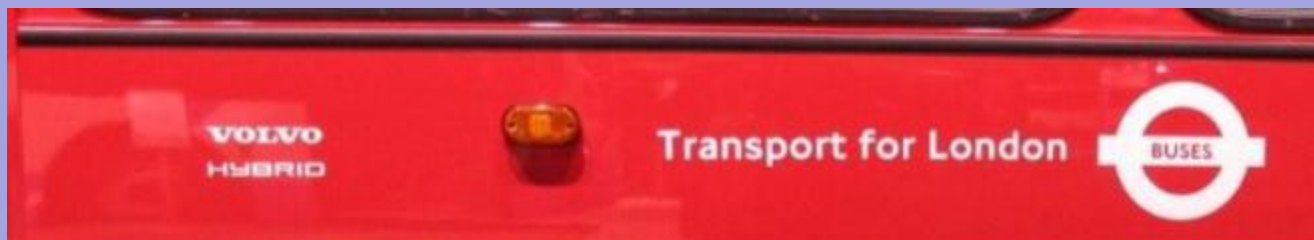


THE MESSAGE - branding





what OMG's what OPERATORS ?





however always.....

Transport for London



INTEGRATOR



pergunta:

**Quantas rodas tem
um veículo eléctrico ?**



O carro eléctrico



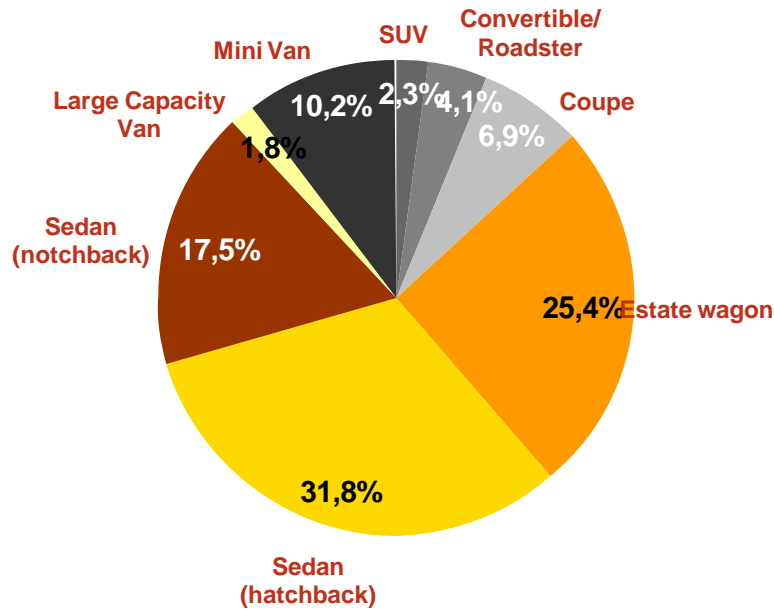
*é o segundo
automóvel ?*



Body Type

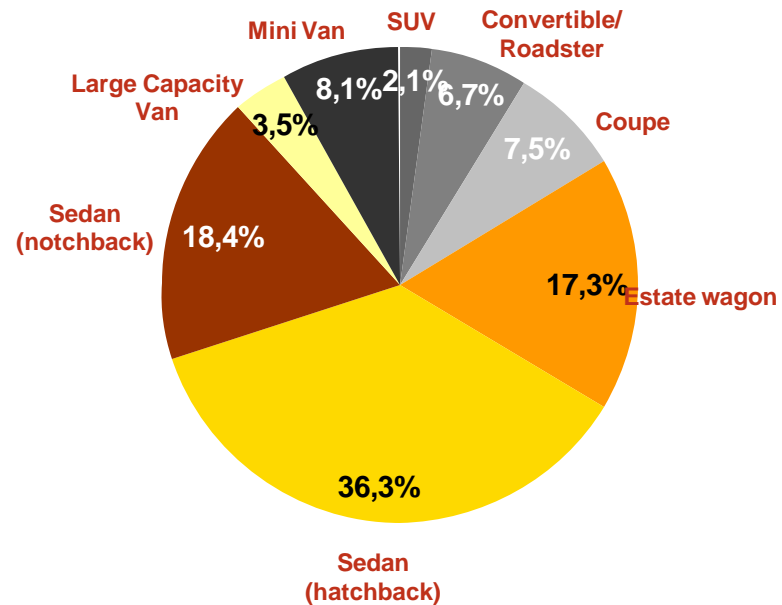
As details on models per segment show, sedan is the mostly sold body type in Germany, but also estate wagons are of importance.

First Car



(N=1042)

Second Car



(N=479)



*Car pooling
(auto partage)*



*Car sharing
(covoiturage)*



before
introducing clean cars...



after
introducing clean cars...



LAND USE CHOICES

developer's or citizen's choice?



LAND USE CHOICES

developer's or citizen's choice?



LAND USE CHOICES

politician's or citizen's choice?

Barcelona



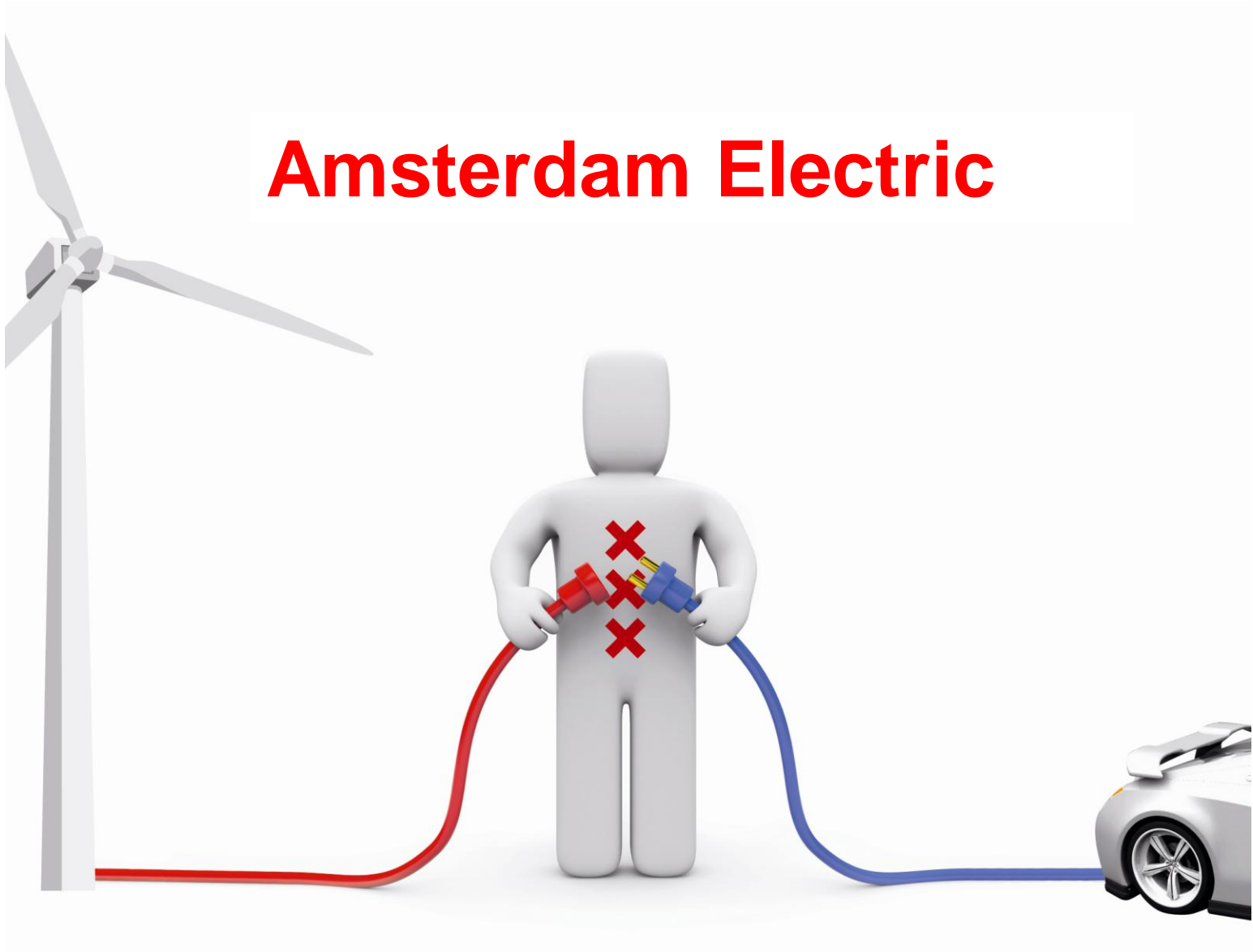


paradigma:

**a corrida das
cidades e países**



Amsterdam Electric





LIVE:

LIVE: Logistics for the Implementation of Vehicles based on Electric propulsion



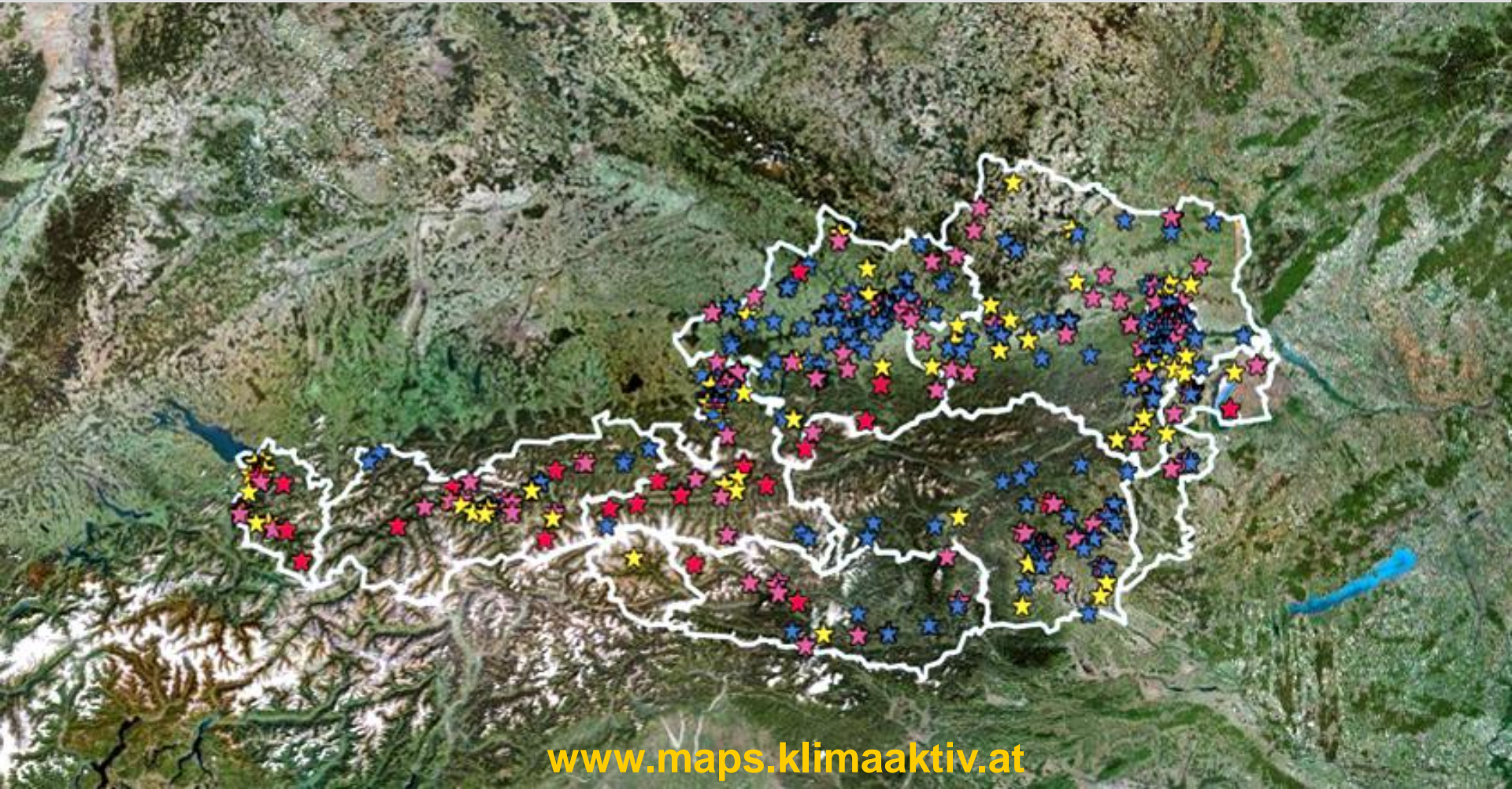
Categoría (Según Directivas 2002/24/CE y 70/156/CEE, anexo II)	Superior (20% del Precio del Vehículo)	Inferior (15% del Precio del Vehículo)
Motocicletas (L3e)	1.200 €	750 €
Cuadriciclos (L7e)	3.500 €	2.000 €
Turismo/Comercial (M1 y N1)	7.000 €	5.000 €
Microbuses y Furgones (M2 y N2 < 6.500 kg)	20.000 €	15.000 €
Híbridos enchufables (M1 y N1)	7.000 €	5.000 €

Country	National incentives offered a selected number of European Countries
Portugal	€5,000 (€6,500) cash back, corporate tax reduction (consideration of 150% of EV cost).
Norway	No car registration tax (approx €7,500 on a b-class car), no VAT (25% of retail price), no annual car tax (€345).
Denmark	No car registration tax (approx €7,500 on a b-class car), no annual car tax.
Sweden	€2,500 cash back.
Ireland	50% reduction in registration tax, which equates to 22.5-30% of price.
Spain	€6,000 cash back or 22% of retail price.
France	€5,000 cash back or 20% of retail price.
Italy	€5,000 cash back for combustion engine trade-ins.
Belgium	€4,000 EV income tax reduction at point of purchase.
Greece	No car registration or road tax.

klima:aktiv mobil

Within just 3 years, more than 700 partners have implemented projects and saved over 300.000 t CO₂/year !

How to become a climate star in Austria ?





paradigma:

tecnologias

>

novas mobilidades





AVERE



www.humanware.com



pergunta:

**Quantos carros
eléctricos, em 2020 ?**



ELECTRIC VEHICLES WILL PLAY A RELEVANT ROLE IN THE FUTURE - MOST AUTO-MAKERS AND ANALYSTS BELIEVE IN 10-20% MARKET PENETRATION BY 2020

European Electric vehicles¹⁾ market penetration in 2020, [% on total sales]

	Automakers	Analysts/Others	Selected quotes
>25%		 BAIN & COMPANY • Mid case	 RENAULT NISSAN "By 2020 EV's will account for 10% of total car sales... this is a thorough analysis based on facts about what is going on in the world today" Carlos Ghosn, CEO Renault – Nissan, October 2009
15 – 20%	 • Mid case	 Deutsche Bank	 "In 10 -12 years you are going to see a major portion of portfolio move to EV's" Alan Mulally, CEO Ford, March 2009
10 – 15%		 Roland Berger Strategy Consultants • Mid case ALPIQ iea PricewaterhouseCoopers	 "The electrification of the automobile is inevitable" Bob Lutz, Vice Chairman General Motors, January 2008
5 – 10%	 RENAULT NISSAN ²⁾	 BCG • Mid case CREDIT SUISSE • Mid case	 MAGNA "In 12 years we see 30 percent of all cars being electric" Frank Stronach, CEO Magna, June 2009
0 – 5%			

Czech Republic, 14.8% (EV 4.5%; PHEV 10.4%) , Roland Berger project forecast

- 1) Both Electric vehicles (EVs) and Plug-in-Hybrid Electric Vehicles (PHEVs)
- 2) Only EVs

FUTURE/MOTION

ENERGIE ŽITŘKA



barreiras formação



7 – Como se carregam as baterias?

Numa normal tomada doméstica de 220V e 12A. Em alternativa, o Estado português promete disponibilizar 1300 postos públicos, em 25 municípios, até meados de 2001. Mais 50 postos de carga rápida.



8 – Quanto custa?

Ainda há poucas certezas. O Nissan Leaf anuncia 30 000 euros, incluindo a bateria. O Renault Kangoo deverá ficar pelos 14 000 euros, sem baterias, que serão alugadas por 700 Euros/ano.



9 – Quanto consome?

Um carro eléctrico gasta 1/3 da energia de um carro a gasolina. Fazendo as contas ao preço da electricidade durante a noite, é possível chegar a valores inferiores a 2,0€ por 100 Km. Com cargas diurnas, o custo deverá chegar aos 3,0 €/100 Km.



10 – Qual a autonomia?

Uma bateria de 24 KW/h deverá chegar para 160 Km de autonomia, em condições óptimas. Em condições reais, dependendo da velocidade e da utilização do ar condicionado ou não, pode variar entre 70 e 200 Km.



Driving Forward: An Action Plan for the Electric Drive Era



electricdrive.org

<http://www.electricdrive.org/>



Utilidade pública ?