URBACT II – Electric Vehicles in Urban Europe

EVS 27 November 2013,

Sally Kneeshaw

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EVS 27 EVUE

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Introduction to URBACT and EVUE

City examples: Oslo, London

What cities need to know about Evs for future urban mobility

Introduction to FREVUE

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- **European Programme of Territorial Cooperation 2007-2013**
  (jointly financed by ERDF and Member States – budget 69 M€)
- **Main objective**
  To promote Integrated & Sustainable Urban Development
- **Operational objectives**
  - **To facilitate exchange and learning among EU cities**
  - **To draw lessons, build knowledge** based on cities' experience (capitalization) & **disseminate** good practices and lessons learnt
  - **To support policy-makers and practitioners** to improve policies for sustainable urban development (capacity building)
- **Main tool: Networks** (8-12 partners – 33 months – 800.000 €)

Why Electromobility in cities?

- Europe 2020 targets
- Air pollution
- Oil dependency
- Sustainability
- Quality of urban life

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Challenges

- Technology
- High investment cost
- Public expectations
- Incentives
- Communication
- Land use
- Mobility integration and behaviour

2009-2012 Exchange and learning programme

- City visits
- Workshops
- Case studies
- Communications
- Final reports
- City action plans

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Multi stakeholder approaches
Integration across policies
Sustainability

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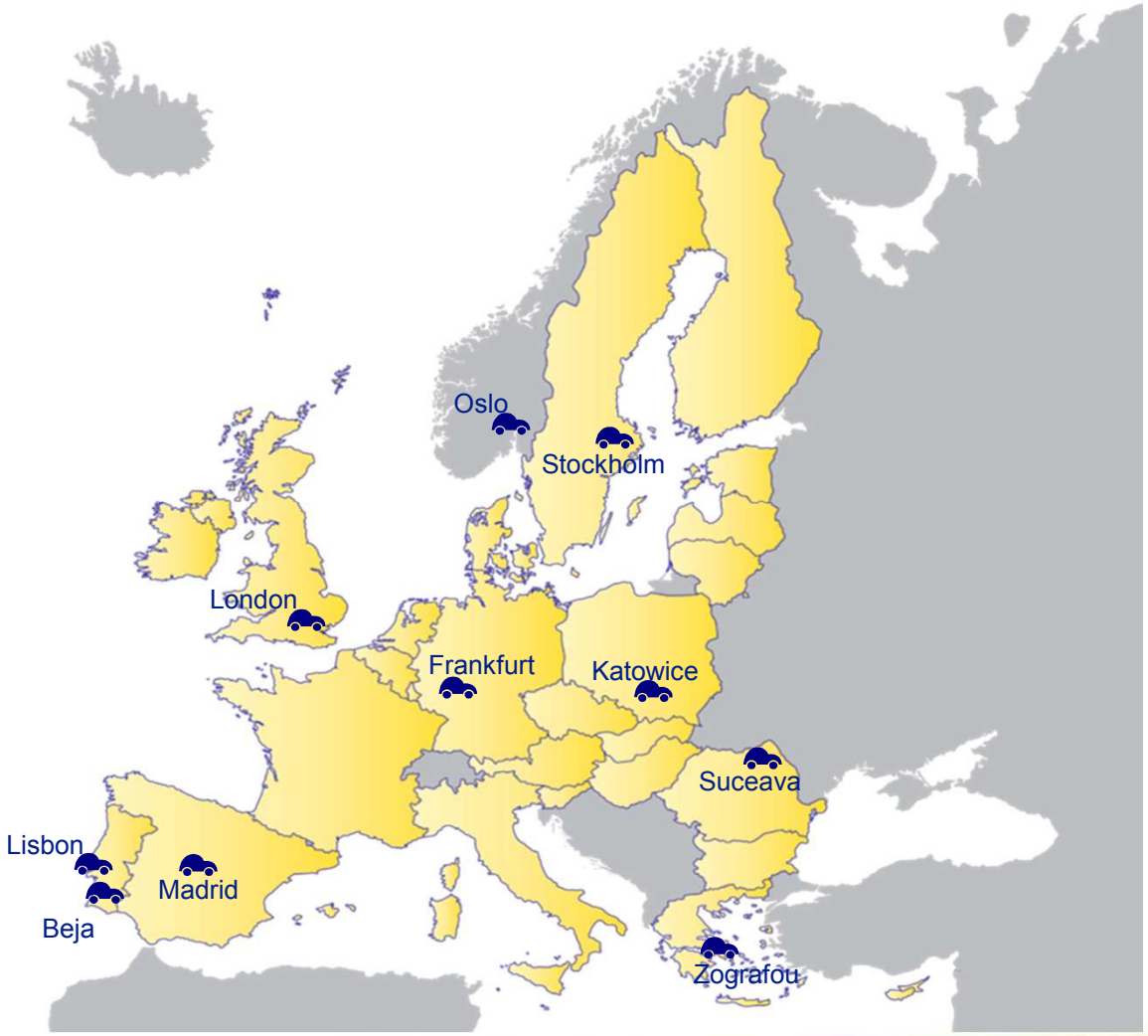
EVUE Network



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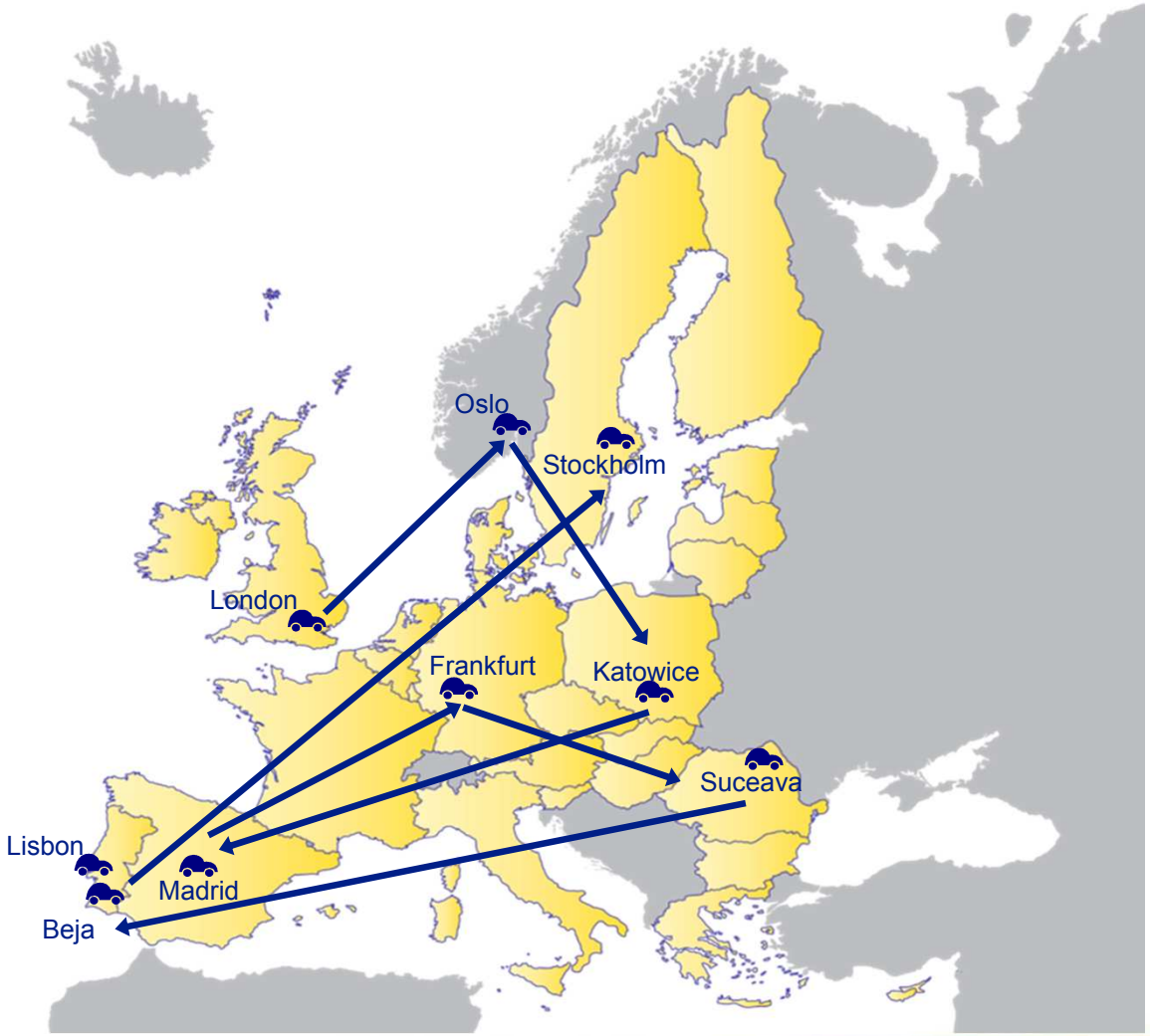
Knowledge transfer



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URBACT Local Support Groups in each city

- City
- Region
- Energy companies
- Grid operators
- Carmakers/OEMs
- Businesses
- NGOs
- Universities/knowledge institutions

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Urban E-mobility: 4 key themes

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AWARENESS

INFRASTRUCTURE

BUSINESS MODELS

PROCUREMENT

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Large cities: Frankfurt, London, Madrid, Oslo, Stockholm

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vehículo eléctrico
ACS
endesa
electric

Learning points:

- New and evolving business models

- Moving from ownership to mobility services (the sharing city)

  - EVs can be part of this

- Private sector partnership is key

Smaller cities: Katowice, Beja, Suceava Expert seminars

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Learning points:

- Smaller cities can see opportunities too
- Regional approaches
- Multi stakeholder model can be transferred to other policy areas

Learning points:

- Media interest in electro-mobility
- Grid operators getting involved
- Private sector interest
- Low cost first steps

EVUE communications

- Committee of the Regions video message to Rio20+

EVUE communications

EVUE

- Electric Vehicle Symposium 26
- Los Angeles 2012

Legacy projects:
FREVUE demonstration of logistics
Pilot URBACT delivery

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Reports, case studies, experiences

- www.urbact.eu/evue

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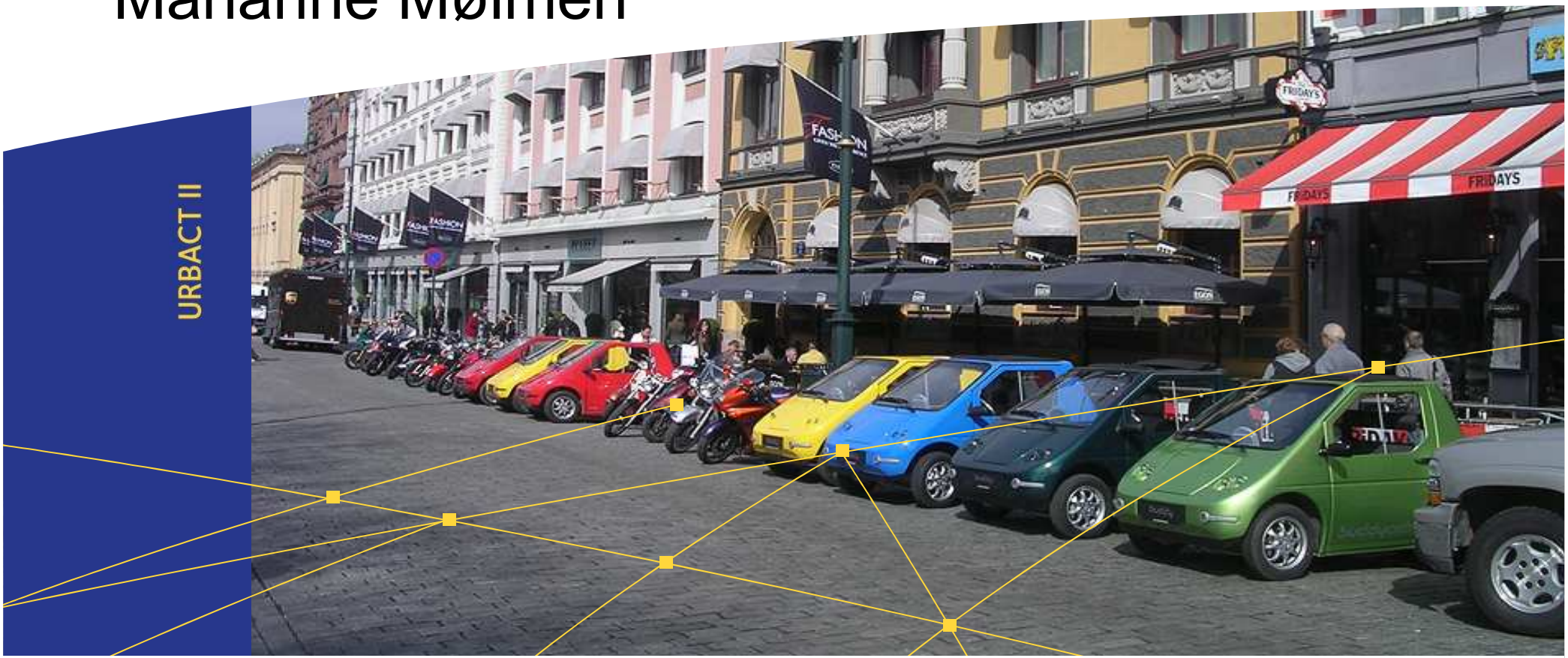
Oslo

Marianne Mølmen



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London
Matthew Noon

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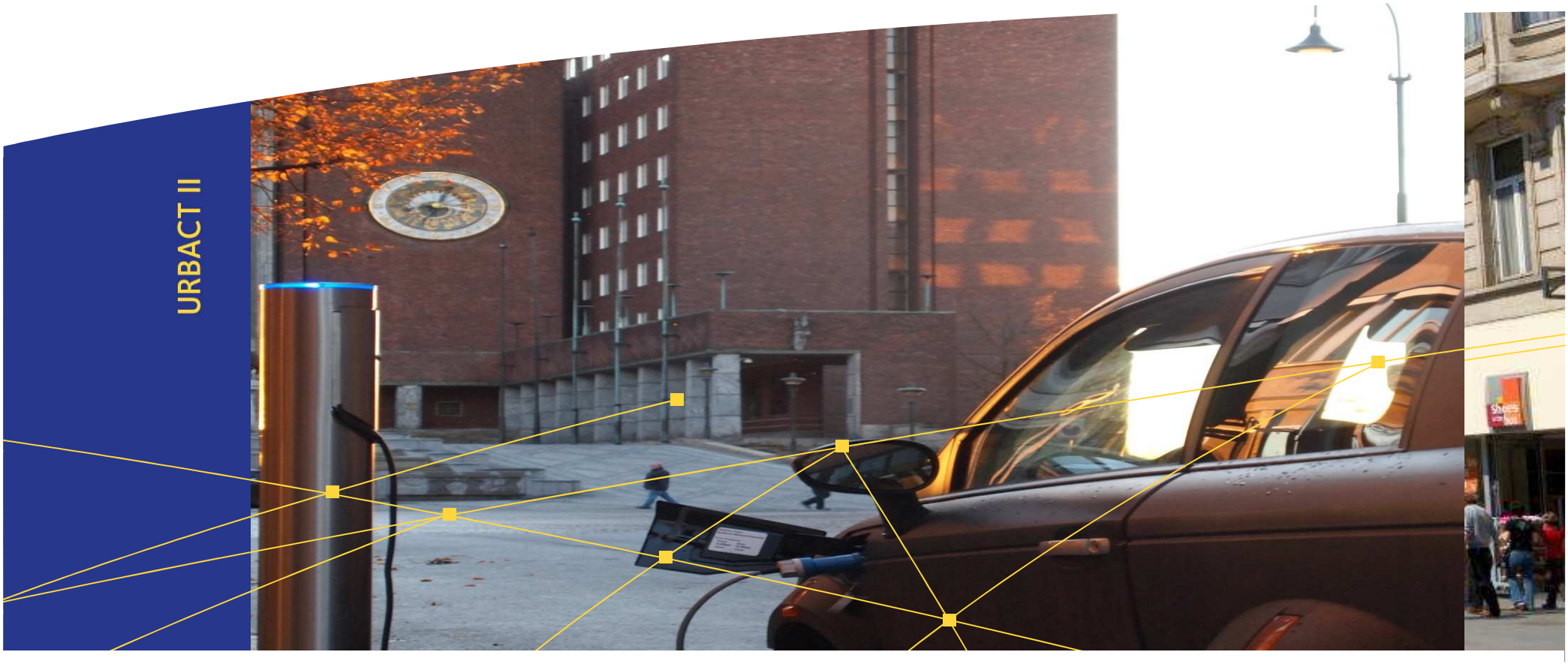
Oslo – successful example of an early adaptor of electric cars



Marianne Mølmen, Partner Oslo, EVUE

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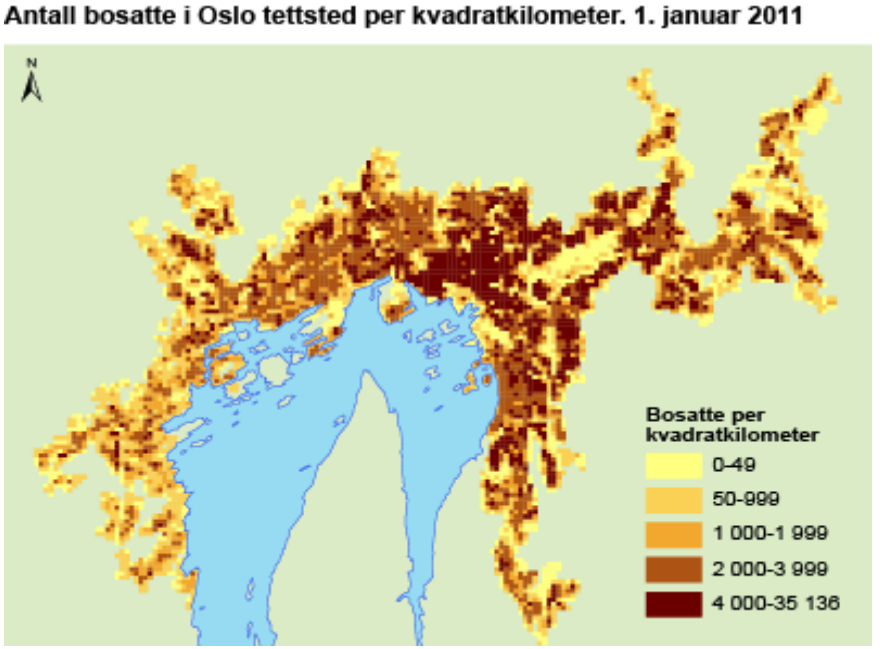
Oslo

- The largest metropolitan area in Norway, 23% of all Norwegians live in the Oslo metropolitan area

- Population: 600.000



Ladbare biler i Norge

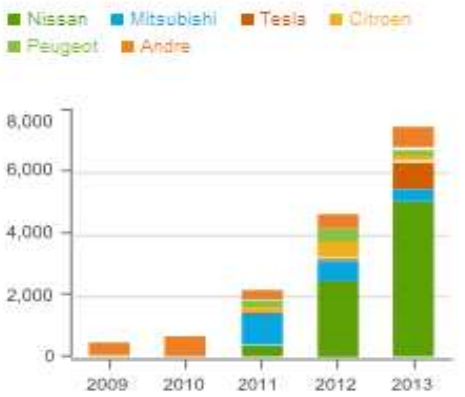
Nøkkeltall pr. 2013

Fylke	Antall biler	Utv. siste kvart.
Akershus	3556	9.6%
Aust-Agder	153	10.9%
Buskerud	734	13.1%
Finnmark	27	8%
Hedmark	80	15.9%
Hordaland	1548	21.7%
Møre og Romsdal	414	16.3%
Nord-Trøndelag	128	16.4%
Nordland	151	-0.7%
Oppland	70	16.7%
Oslo	2792	12.2%
Rogaland	1111	15.4%
Sogn og Fjordane	48	20%
Sør-Trøndelag	1017	16.5%
Telemark	81	19.1%
Troms	98	-5.8%
Vest-Agder	383	22.8%
Vestfold	369	22.2%
Østfold	233	17.7%
Totalt	**12993**	**13.7%**

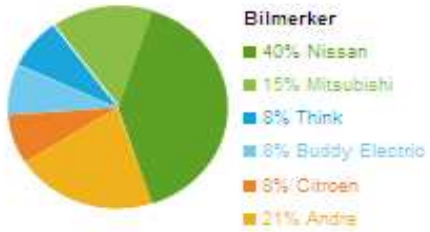
Kilde: OFV

Utvikling ladbare biler pr. 2013

Salgstall pr. 2013



Fordeling bilmerker pr. 2013



Fordeling eiere pr. 2013

Oslo: 2792 EV's, 977 Charging points
Akershus: 3556 EV's, 771 Charging points
Norway total: 12993 EV's, 4029 normal CP – 127 fast CP

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Why so many electric cars?

Incentives - purchase

- High taxes on fossil fuel cars
- 25% Value Added Tax (VAT)
- «One-time registration fee» calculated on the basis of:
  - the weight of the vehicle
  - the emissions (CO2 and NOX)
  - the engine size (ccm) or effect (hp)
- Electric vehicles have NO TAXES OR FEES

- Price example in Euro:
- Sweden:

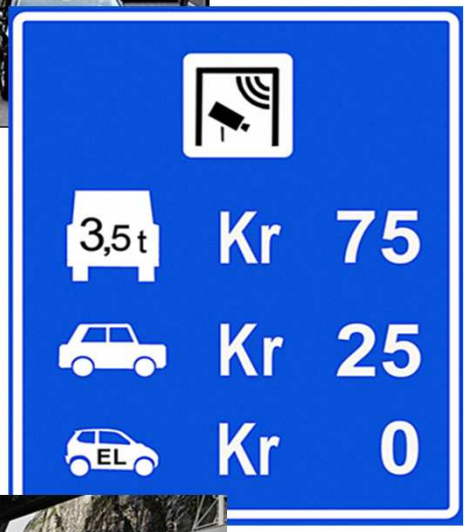
Nissan Leaf	27 450
Nissan Qashqai	20 700

- Norway:

Nissan Leaf	28 500
Nissan Qashqai	28 700

Incentives - use

- Free access on toll roads (1997)
  In Oslo € 3,5 – 5,
  National roads and tunnels up to
  € 20.
- Free parking (1999)
  € 2 – 5 per hour
- Access to use bus and taxi lanes (2003)
  10 min -1 hour per day
- Free transport on ferries (2009)
  € 12 – 24 each way



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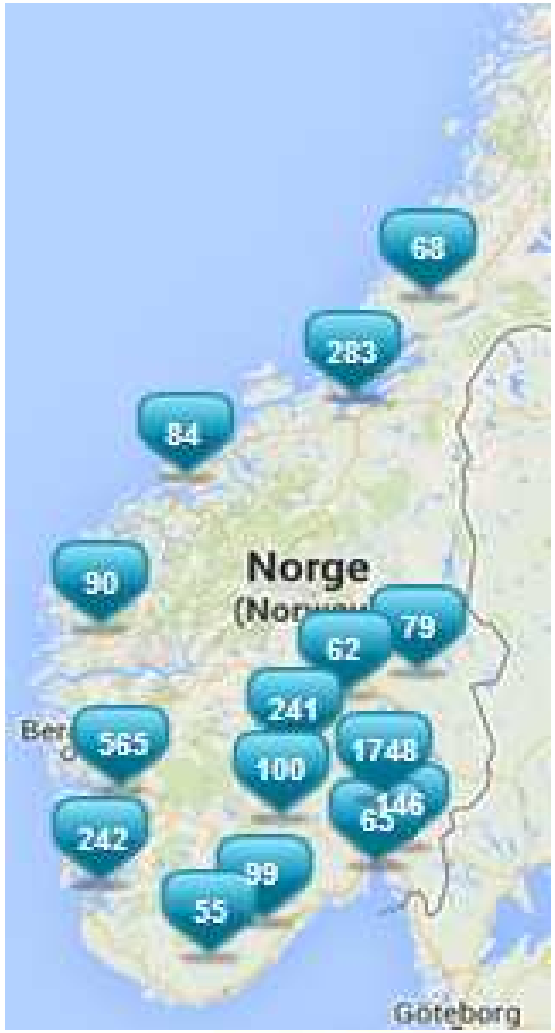
Public charging infrastructure

- City of Oslo 2008:
  900 public on-street charging points by end of 2014
- 500 established by today
- Norwegian government 2009:
  Launched the Transnova fund and fast charging scheme



High number of EV's

- Available electric cars since early 2000
- Electric car producers in Norway has led to even better conditions and incentives for EV's
- Incentives marketed towards consumers
- Enthusiastic EV community for early-adopters
- Visible cars and users help gain attention
- Good network of charging points nation-wide
- Fast chargers being established
- High taxes on ICE cars
- Only 50% taxable benefit if used as a company car

Are public charging stations being used?

- Average occupancy 2009:
  Day: 37%
  Night: 6%

  Average occupancy 2012:
- Day: 70%
- Night: 39%

- Up to 110% at the most popular locations during daytime.

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Turning London Electric

Targets and strategies for E-mobility

Matthew Noon, Lead Partner EVUE

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London Context

- **London**
  - the largest metropolitan area in the UK and the largest urban zone in the Europe
  - Population: 8.5 million
  - Complex governance arrangements
    - 1 Mayor of London (Boris Johnson) responsible for regional planning and transport
    - 33 local authorities, responsible for local services

Highest CO_2 footprint of all UK major cities

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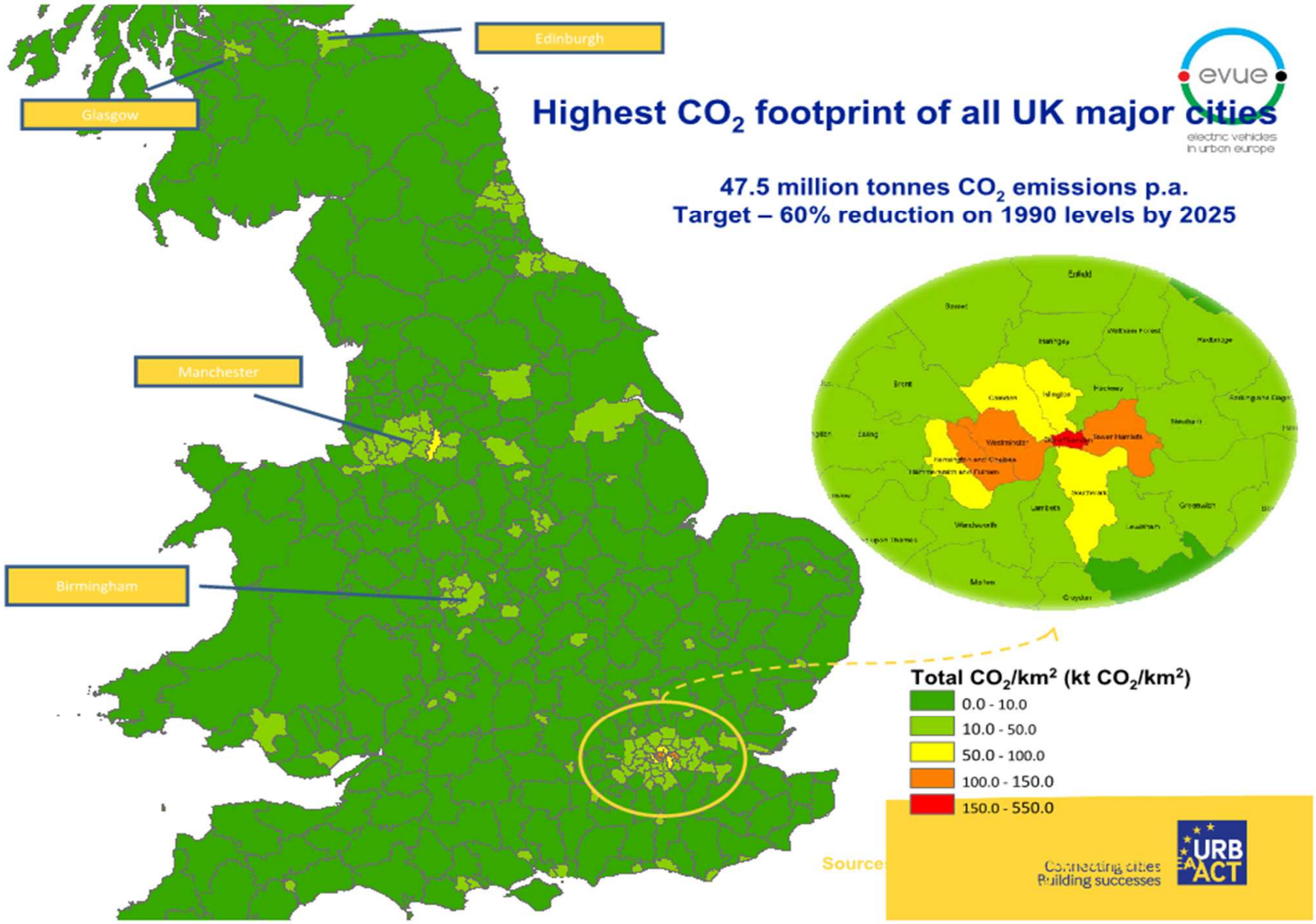
47.5 million tonnes CO_2 emissions p.a.
Target – 60% reduction on 1990 levels by 2025



National EV Incentives

- Plug-In Car Grant: Contributes up to 25% of EV purchase price to a maximum of £5,000
- Vehicles that emit less than 100g/km of CO_2 are showroom and road tax exempt
- Vehicles that emit less than 110g/km CO_2 receive 100% capital allowance in year 1 (~20—26% reductions in purchase cost)
- Benefit in Kind tax: 0% for EVs

Delivering in London

- **Integrated Planning and Delivery Strategies**
  - London Plan
  - London EV Delivery Plan
  - EV Infrastructure Strategy

Vehicles

Charging Infrastructure

Marketing and Incentives

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London's EV Delivery Plan

Vehicles

Charging Infrastructure

Marketing and Incentives

- **Target: 100,000 EVs in London as soon as possible**
  - 5% of all London fleet to be electric
  - Champion adoption by councils, businesses, car clubs and Londoners
  - TfL delivering a procurement framework to enable the public sector to purchase up to 1,300 EVs
  - GLA Group aspires to have up to 1,000 EVs in its own fleet.

London's EV Delivery Plan

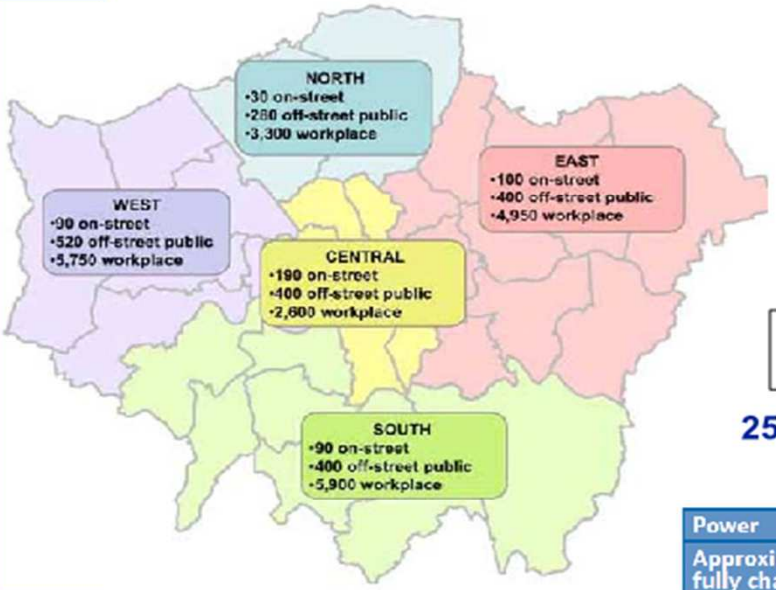
Vehicles

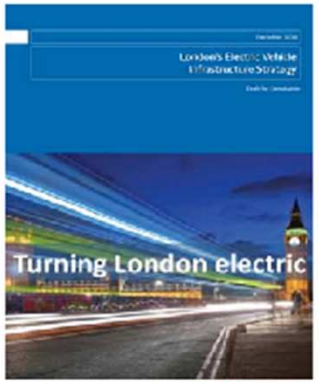
Charging Infrastructure

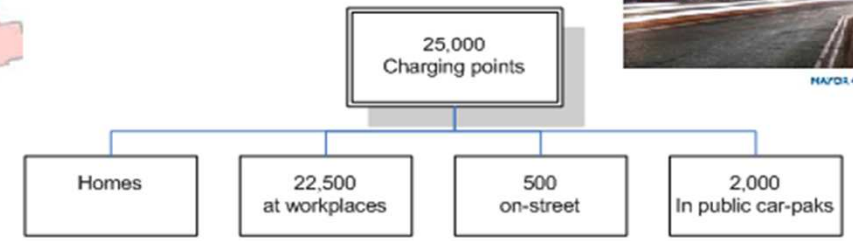
Marketing and Incentives

- **25,000 charging points across London by 2015**
  - Employee car parks to offer workplace charging points
  - TfL procurement framework to enable purchase of £30M of charging infrastructure (Plugged in Places)
  - A network of publically accessible charge points across the city
    1 in 5 new development parking spaces to have an EV charging point (London Plan)

EV Infrastructure 2015







25,000 publically accessible EV charging posts by 2015

	Standard Charging	Fast Charging	Rapid Charging
Power	3kW	7kW-43kW	50-250kW
Approximate time to fully charge an EV	6-8 hours	30 minutes – 3 hours	15-20 minutes
Approximate unit cost	£0 – £3,500	£3,500 – £5,000	£25,000-£50,000
Typical locations	Homes, workplaces, train stations	Supermarkets, town centres, entertainment venues	Motorway service stations, supermarket car parks
Driver behaviour	Leave vehicle and return after several hours	Leave vehicle and return after short time	Remain with vehicle; charging point may be supervised by operator

Source: GLA

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London's EV Delivery Plan

Vehicles

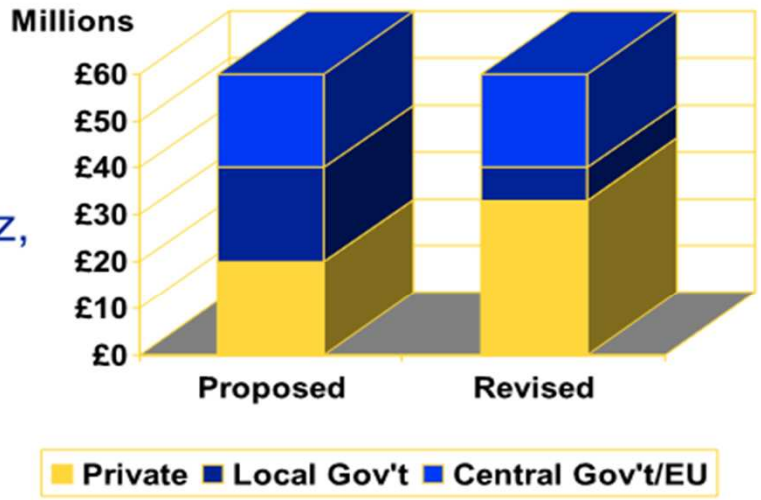
Charging Infrastructure

Marketing and Incentives

- Pan London brand will highlight charging infrastructure, pan-London scheme, website and information across London
- Incentives: No congestion charge
- Communication strategy aimed at likely early adopters and businesses

Funding

- Public / private consortium led by TfL includes Asda, BAA, EDF, Europecar, Hertz, Nissan, Sainsbury's, Siemens, SSE and Tesco



- £9.3m grant awarded by UK Government provides 50% match funding for TfL and private sector investment in publically accessible charging infrastructure
- Some 1,300 publicly accessible charge points by 2013

A Pan-London Network

- All points in public spaces networked with smart cards
- Annual membership fee (£100) allows you free access any of the charge points across London
  - Electricity is free at the point of use to members
  - Location, and availability will be viewable from one website
  - Call centre for help and advice and to report any issues
  - Maintenance and emergency call out co-ordinated across the city

Source London

www.SourceLondon.net

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Grazie Thanks
Danke Merci Gracias
Ευχαριστώ mulțumesc
Takk dziękuję dakujem hvala
Obrigado dziękować
tänan kiitos köszönöm aciu
Tack děkuji paldies
niżżik ħajr dank u wel
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The role of electric vehicles in sustainable cities

Tools for the city

AWARENESS

BUSINESS MODELS

INFRASTRUCTURE

PROCUREMENT

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Tools for the city

AWARENESS

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Calibrate the installation of charging points with market development and consumer uptake.

Infrastructure

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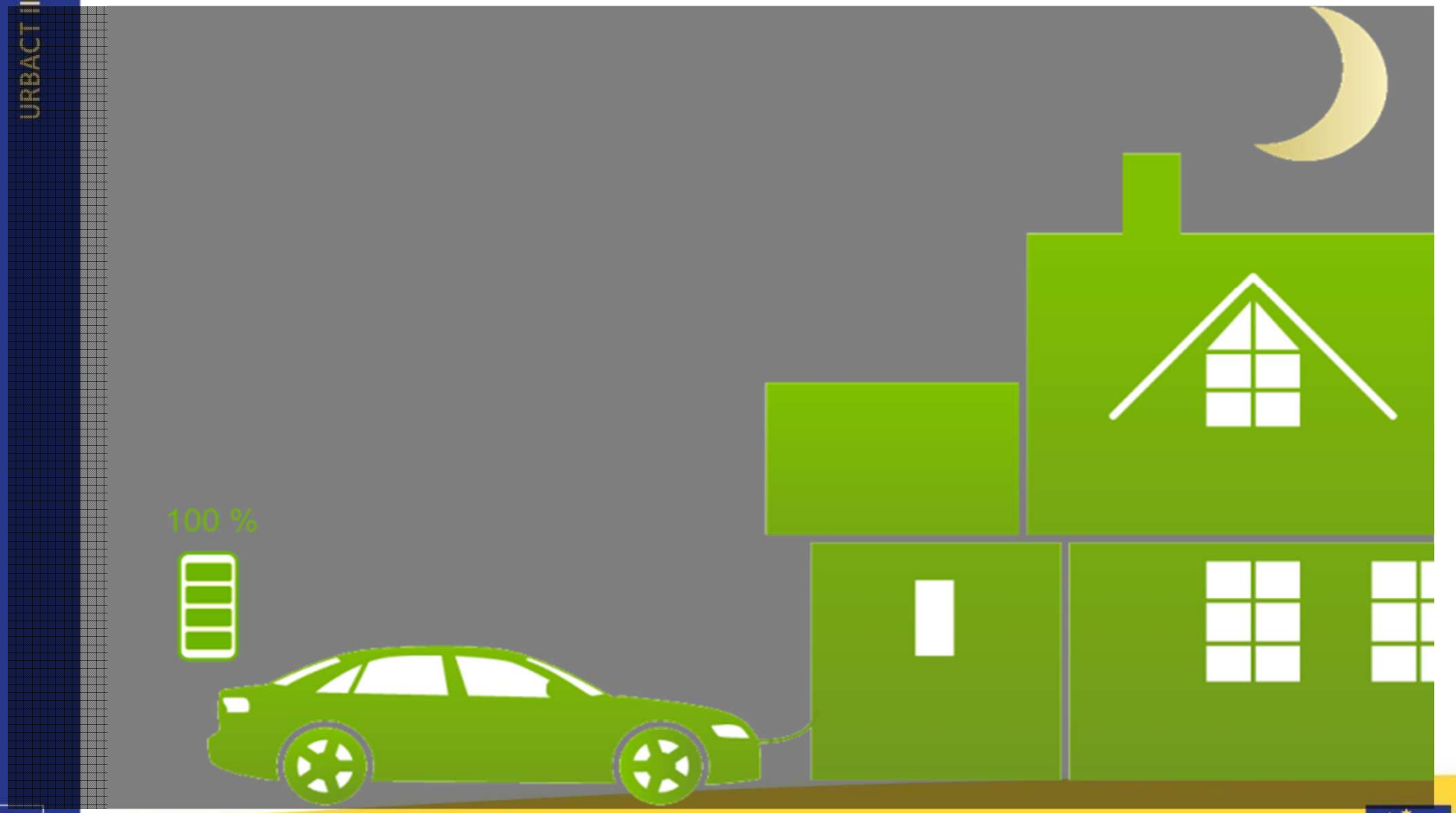
Locate charging infrastructure where cars park regularly, especially at or near home overnight.

Infrastructure



Harness renewable energy.

Work with the grid operators and energy companies to manage future load and develop smart grids.

Infrastructure

Facilitate private sector partnerships in infrastructure development.

Infrastructure

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4 key themes

AWARENESS

INFRASTRUCTURE

BUSINESS MODELS

PROCUREMENT

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Facilitate bulk or group procurement
(in public, private sectors and joint ventures) to
attract the market and
create efficiencies.

Procurement

Use public procurement to make fleets cleaner.

Include clauses relating to C02 levels to encourage suppliers to increase cleaner vehicles in fleets.

Procurement

4 key themes

AWARENESS

INFRASTRUCTURE

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PROCUREMENT

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Business models

Be open to new partnerships, new ways of working, a new mobility.

Be a reliable partner for the private sector by creating stable regulation.

Business models

Include EVs in the move towards mobility services, car and bike-renting/sharing, integration of public transport systems.

Business models

Encourage new business start-ups/growth in electric mobility.

4 key themes

AWARENESS

INFRASTRUCTURE

BUSINESS MODELS

PROCUREMENT

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Lead by example!

Awareness

Create high visibility for EVs

Make use of branding, celebrity endorsement and lighthouse projects.

Awareness

Get people to touch, feel, try out, to see how great EVs are.

Awareness

EVs are fun and efficient

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City policy toolkit

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City policy toolkit

- Regulation
- Zero emission zones
- Use of bus lanes
- Free parking and charging
- Procurement
- Promotion
- Building regulations
- *All to be well monitored, communicated, especially transition measures that will be phased out as EV volumes grow*

City policies

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City policies need:

- Long-term vision for the marathon to a low carbon economy
- Stable conditions to encourage the market

Innovate

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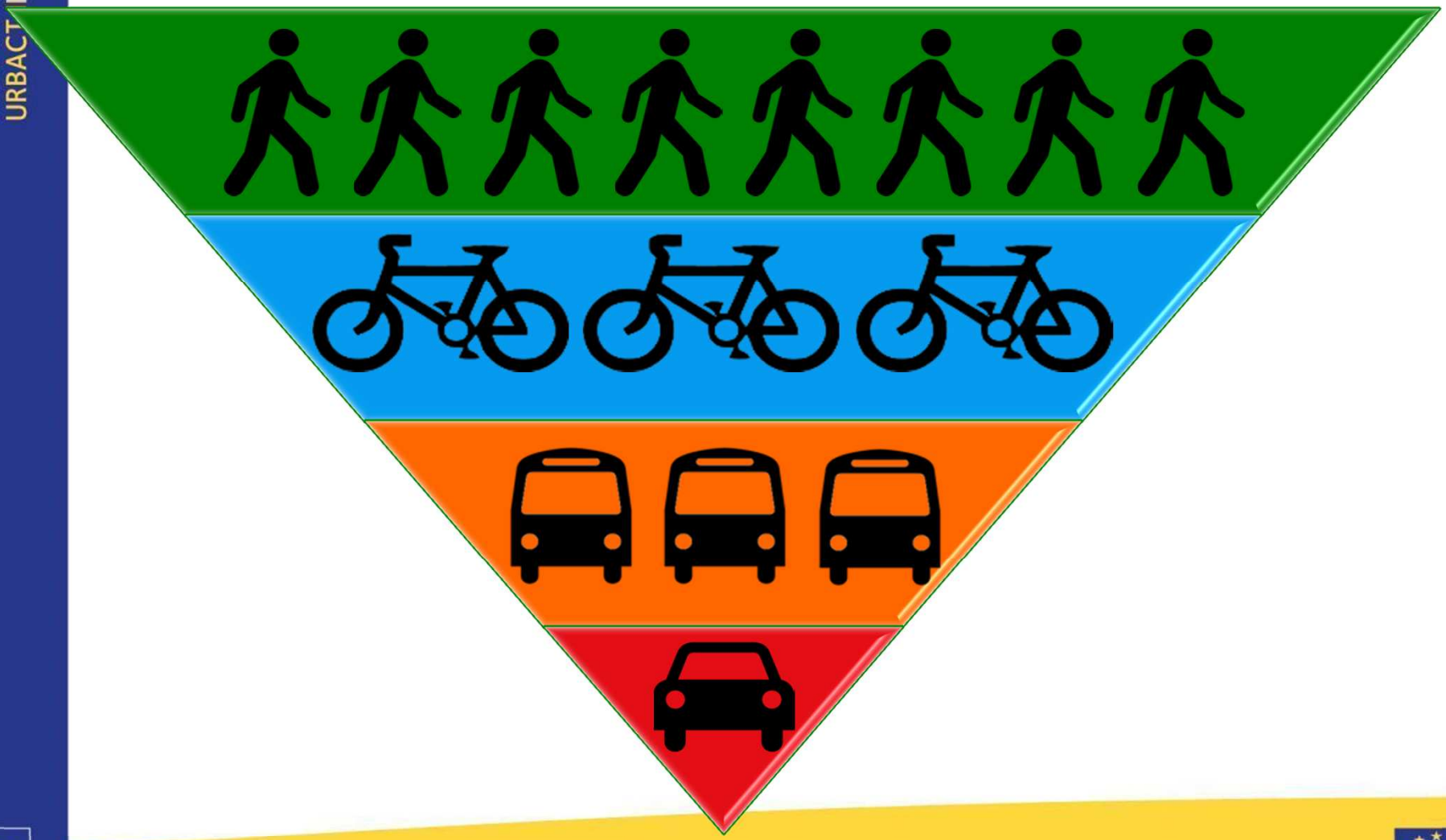
Innovate

- Turn mobility thinking on its head
- Encourage open dialogue and integration between city departments and stakeholders

Respect the hierarchies!



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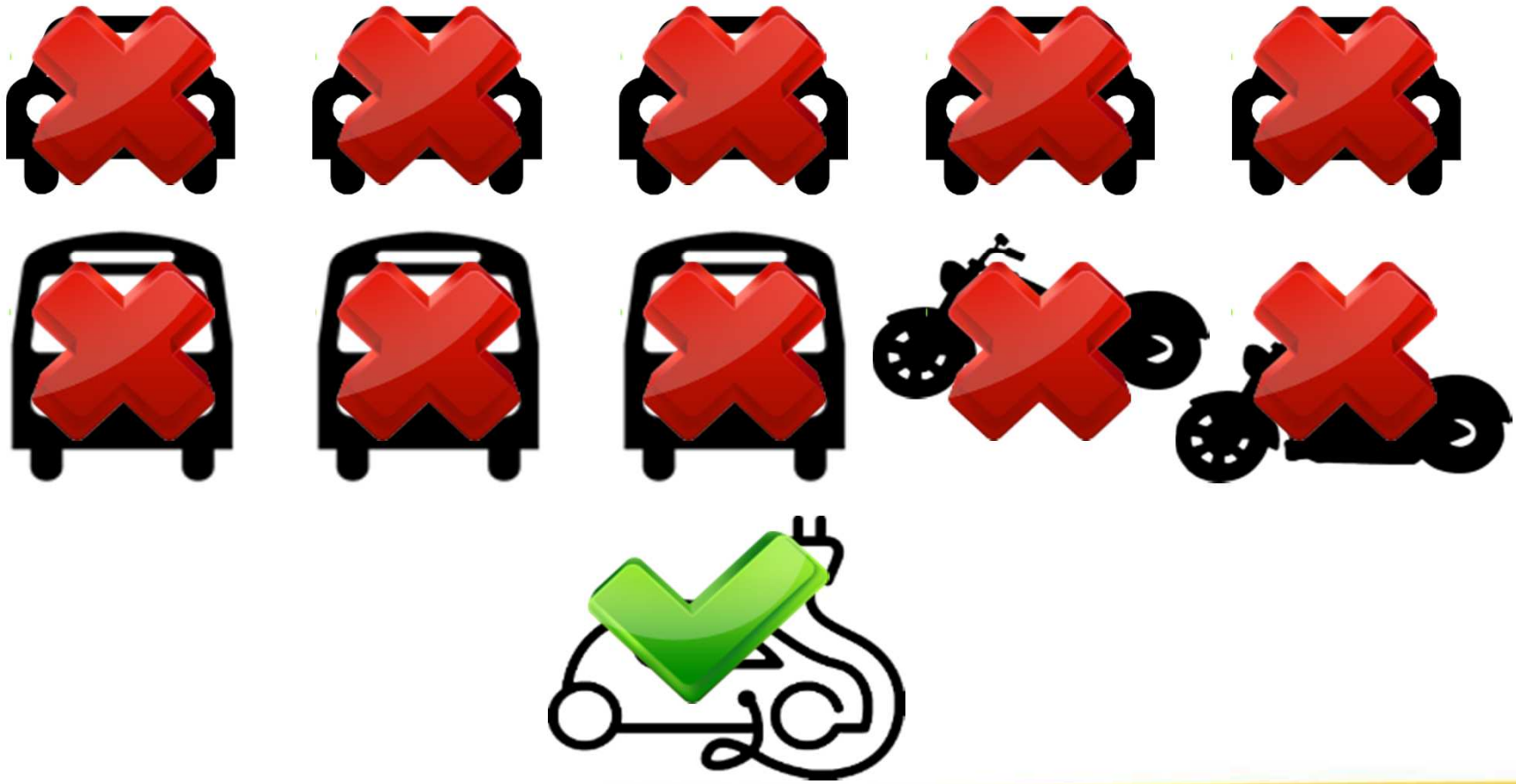
Respect the hierarchies!

- Sustainable mobility
- Parking and land use
- Avoid negative modal shift

Warning!



Warning!

- One EV should be replacing many conventional vehicles - not one for one
- The EU target is for “no conventionally fuelled cars in cities by 2050”

Warning!

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Warning!

- Finding the right niche for EVs requires balancing tricks:
  - close monitoring
  - good data
  - honesty (under-state and over-deliver)
  - open minds
  - courage
  - stamina

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FREVUE

FReight Electric Vehicles in Urban Europe

www.frevue.eu

FREVUE

8 locations across Europe: Amsterdam, Lisbon, London, Madrid, Milan, Oslo, Rotterdam and Stockholm

15 industry partners

6 research organisations

127 electric vehicles

Duration: Jan 2013 - 2018

Total budget: €14.2 m

EU Contribution (FP7): €8 m

Freight applications include a wide range of:

- Goods deliveries
- Innovative logistics systems and ICT
- Test of different vehicle types
- Diverse climate conditions

Consortium

City + Policy

CRP/ Westminster Council (Co-ordinator)

City of Amsterdam

City of Lisbon

City of Madrid

City of Milan

City of Oslo

City of Rotterdam

City of Stockholm

Swedish Transport Adm.

EMEL

Transport for London

Co-ordination and Dissemination

Hyer

Polis

Logistics

TNT

UPS

Heineken

bring EXPRESS

Grupo Leche Pascual

ARUP

SEUR

CTT CORREIOS

Research

Imperial College London

TNO (NL)

SINTEF (NO)

ICT Partners

ITENE

Atos

Vehicle Manufacturers

SMITH ELECTRIC VEHICLES

NISSAN

Grid Operators

Fortum

UK Power Networks

Amsterdam/ Rotterdam

- Municipal areas
  - Supportive environment for EVs
  - Good development in smaller segments
  - Collaborative approach

Amsterdam/ Rotterdam

- Activity
  - All electric parcel distribution centres – no ICE
  - Trialing large 18t and 12t vehicles
  - Consolidation activity in smaller retail market
  - Suitable charging facilities – induction and/or rapid

Lisbon

- Central Lisbon
  - Old city centre with traditional road layout
  - Small urban spaces with heavy congestion
  - Historic neighbourhoods with controlled access
  - Constraints on logistic movements

Lisbon

- Actions
  - ➢ Electric light goods vehicles for:
    - ➢ Municipal servicing
    - ➢ Postal services
  - ➢ ‘Smart’ on-street loading bays
  - ➢ New regulations for loading and unloading

London

- Central London
  - Very poor air quality
  - Highly congested road network
  - Inefficient freight operations
  - Constrained electricity grid
  - Strong regulatory environment

London

- Activity
  - Enhance consolidation centres through EV operation
  - Expand beneficiary pool from consolidation centres
  - Address energy grid constraints
  - Optimise existing EV logistics operations

Madrid

- Central Madrid
  - ➢ Congested Urban Centre
  - ➢ Air quality and environmental issues
  - ➢ Severe parking pressures
  - ➢ Narrow streets
  - ➢ Public realm conflicts
    - ➢ Pedestrianised areas

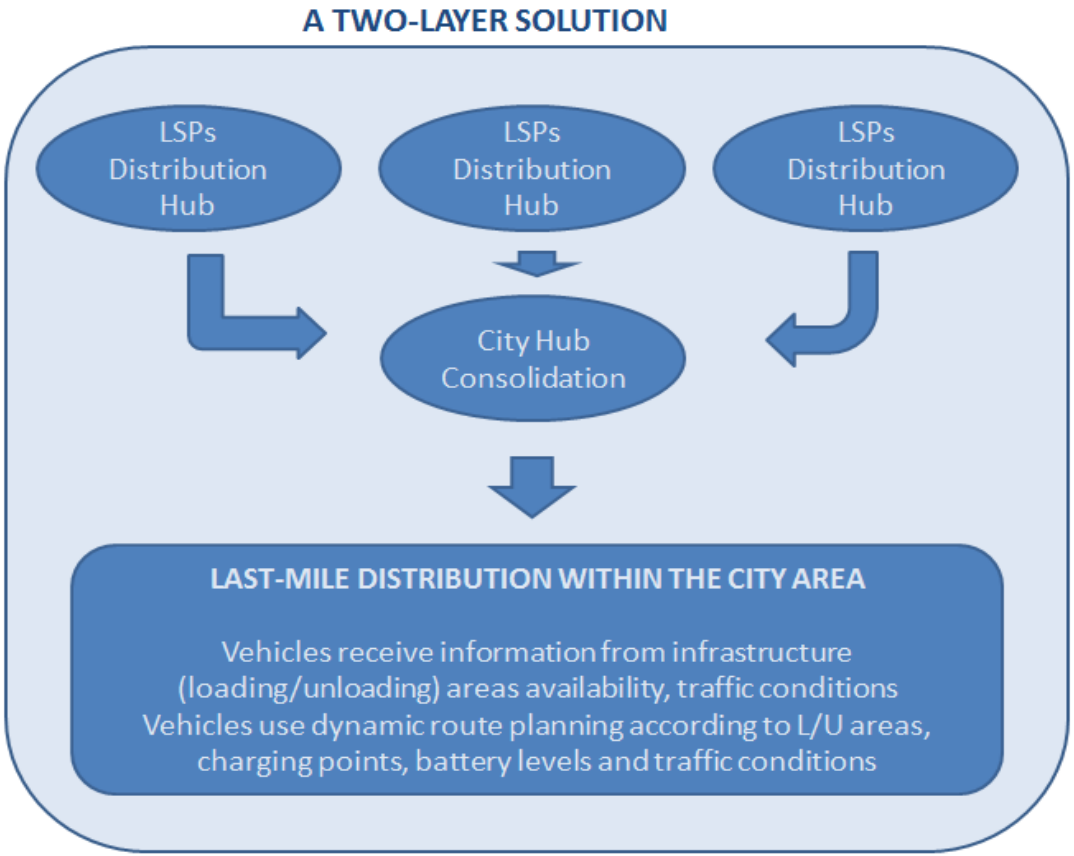
Madrid

- Activity

➢ Consolidation centre servicing food/drink, post and retail clients

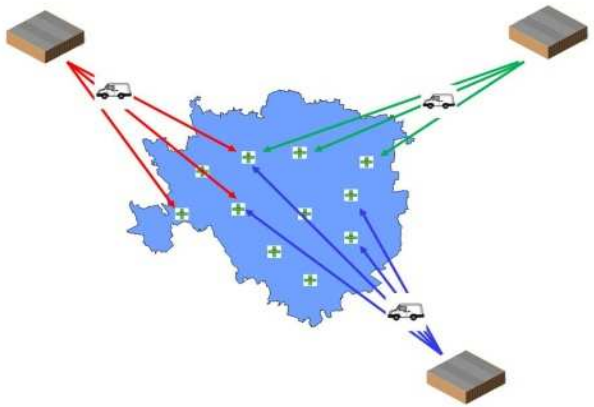
➢ Light commercial through to heavy goods vehicles

➢ Dynamic fleet management integrated with public parking/charging facilities



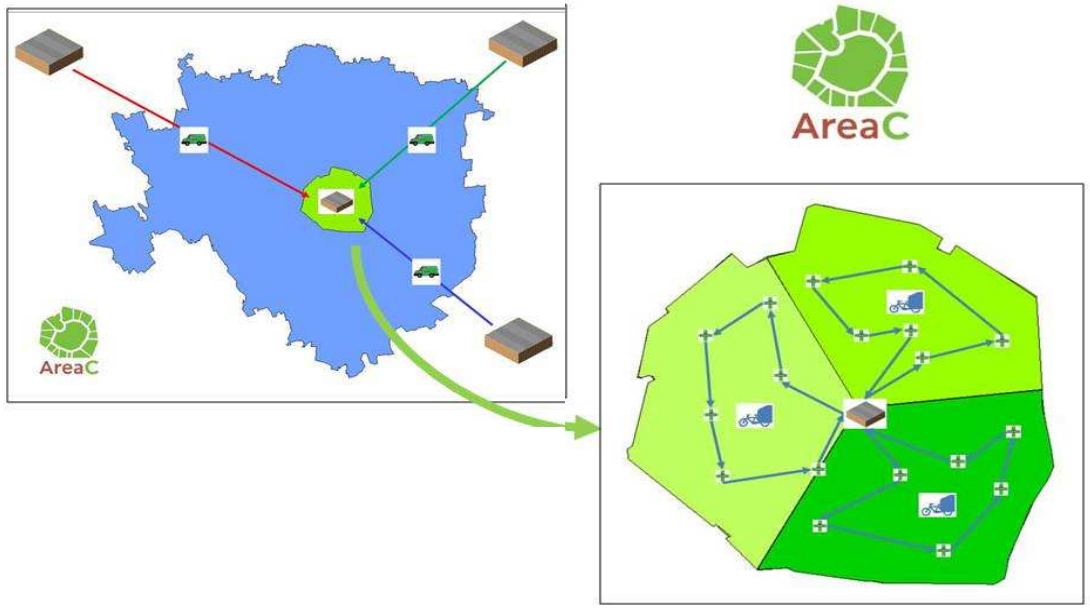
Milan

- Central Milan
  - Congested urban environment
  - High overall volume of freight traffic
  - Lack of freight management



Milan

- Activities
  - Implementation of freight consolidation centre
  - EFV linking depots to consolidation centre and en customer
  - Route and delivery regime optimised to reflect daily conditions



Oslo

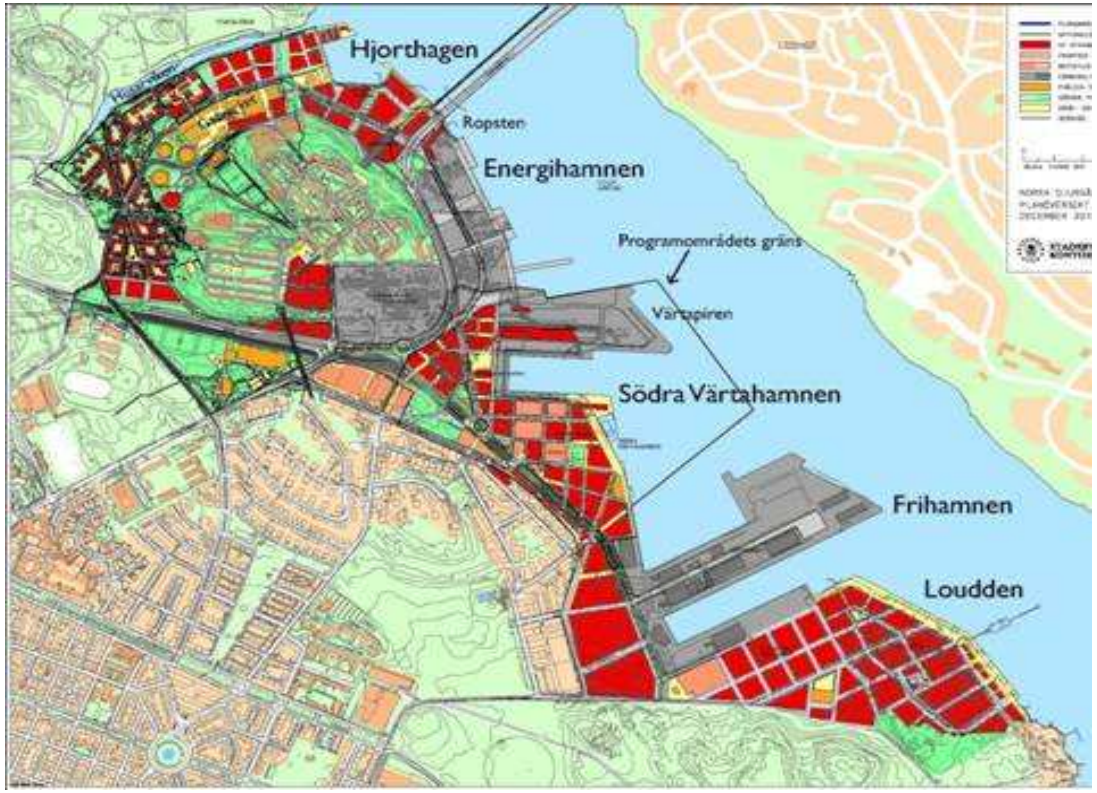
- Municipal area
  - Pollution and emission problems – particularly in winter
  - Supportive policy environment for EVs
  - City has extensive EV infrastructure programme

Oslo

- Activities
  - Large potential market for EV logistics
  - Extreme climatic conditions
  - Evaluate vehicle range and effectiveness in logistic operations
  - Manage charging requirements in 24 hour operational environment

Stockholm

- Royal Seaport Area
  - Consolidation centre during construction and when completed
  - Zero/ Low Emission Vehicles
  - Fast and standard EV charging facilities
  - ICT integration
  - Policy & Regulation



Stockholm

- Logistic centre in place
  - Pre-study on operational requirements for ALL goods commenced
- Vehicles ordered
  - Limited availability on larger vehicles

Key Challenges

- Vehicle Availability
  - Supply
    - Payload
    - Volume
    - Range
  - Maintenance and Support
    - Commercial environment
  - Residual Value

Key Challenges

- Operational Environment
  - ➢ Policy Framework
    - ➢ ‘Stick & Carrot’
    - ➢ Regulations based on ICE vehicles
  - ➢ Logistic Models
    - ➢ Optimised for ICE operations
  - ➢ Charging needs

Delivery Programme

- 2013/14
  - Assessment Framework
  - Vehicle Order and Delivery

- 2014 – 2016
  - Demonstration
  - Data Collection

- 2016 - 2017
  - Reporting and Closout

For further information

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