Financing Electro Mobility in the Netherlands

2014, March 27th

Anton Wolthuis
Bram van der Wees

Introduction

Ir. AWJM Wolthuis

Director & Owner

AW Projects bv

“making strategy happen“

Drs AAJ van der Wees

Senior project manager Sustainable Energy
& Coordinator Green Deal Charging Infrastructure

Ministery of
Economic Affairs

Target TCO (E) Mobility

Objective
valuation
of economical
and societal costs

People

The Netherlands…

a perfect environment for e-mobility because of a high degree of urbanization and traffic density. Co-operation between research institutes, business and public authorities. Pilots are set up, both national and international.

Technology

The Netherlands…

state-of-the-art technology in the field of components and systems of Dutch tier 1 and 2 suppliers. Holland has a high research and education level in automotive technology.

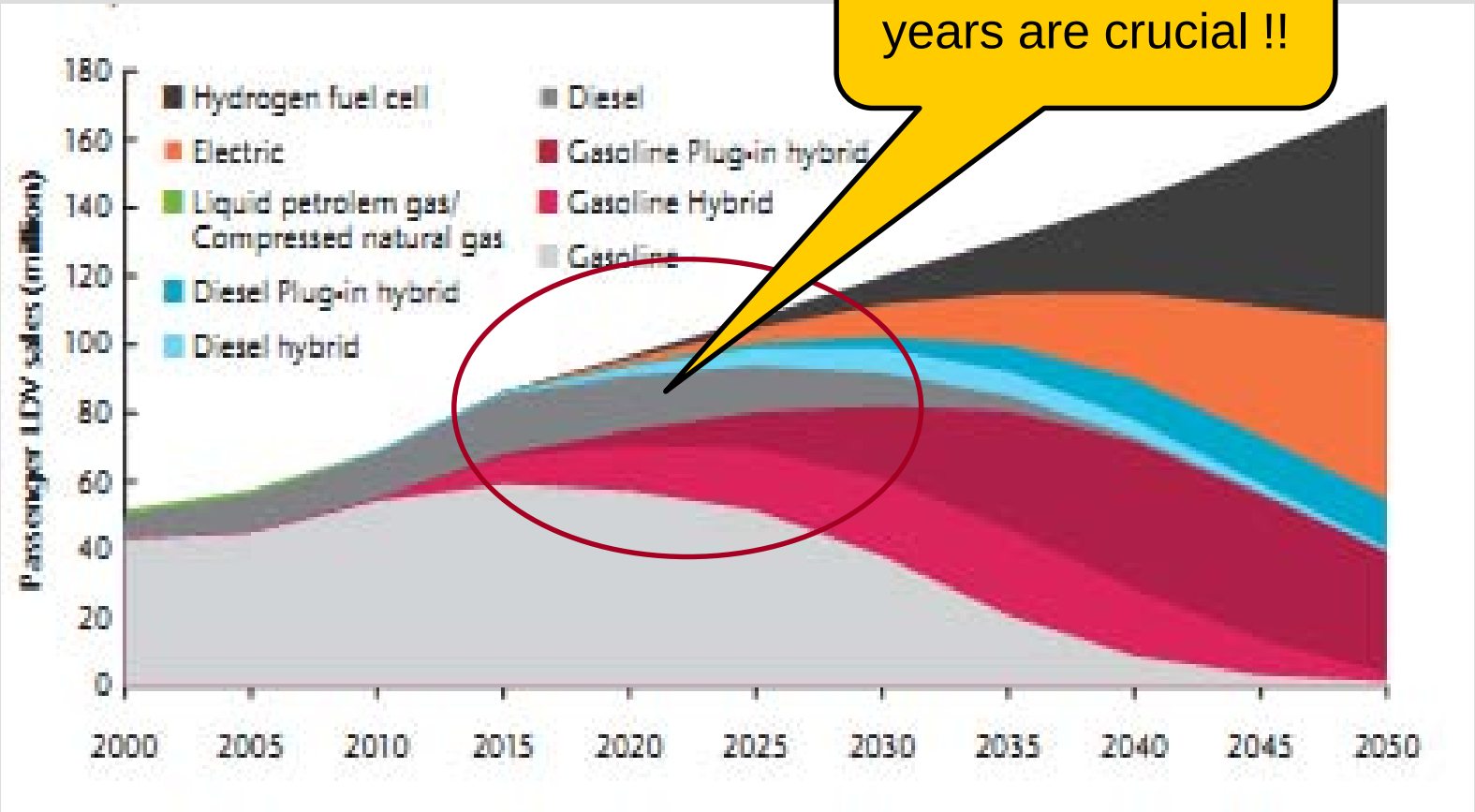
Infrastructure

The Netherlands.

a good infrastructure and possibilities for smart grids in e-mobility, with a hotspot in the Brainport Region and the province Noord-Brabant.

Development of powertrains

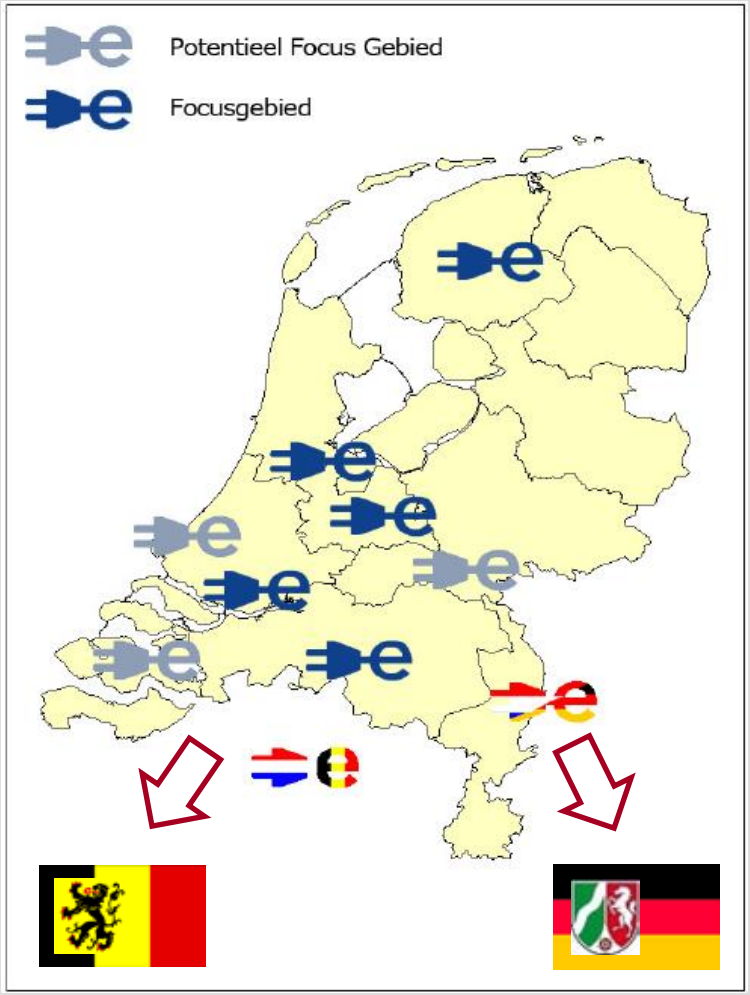
(ERTRAC, 2012)



National Plan Electro Mobility

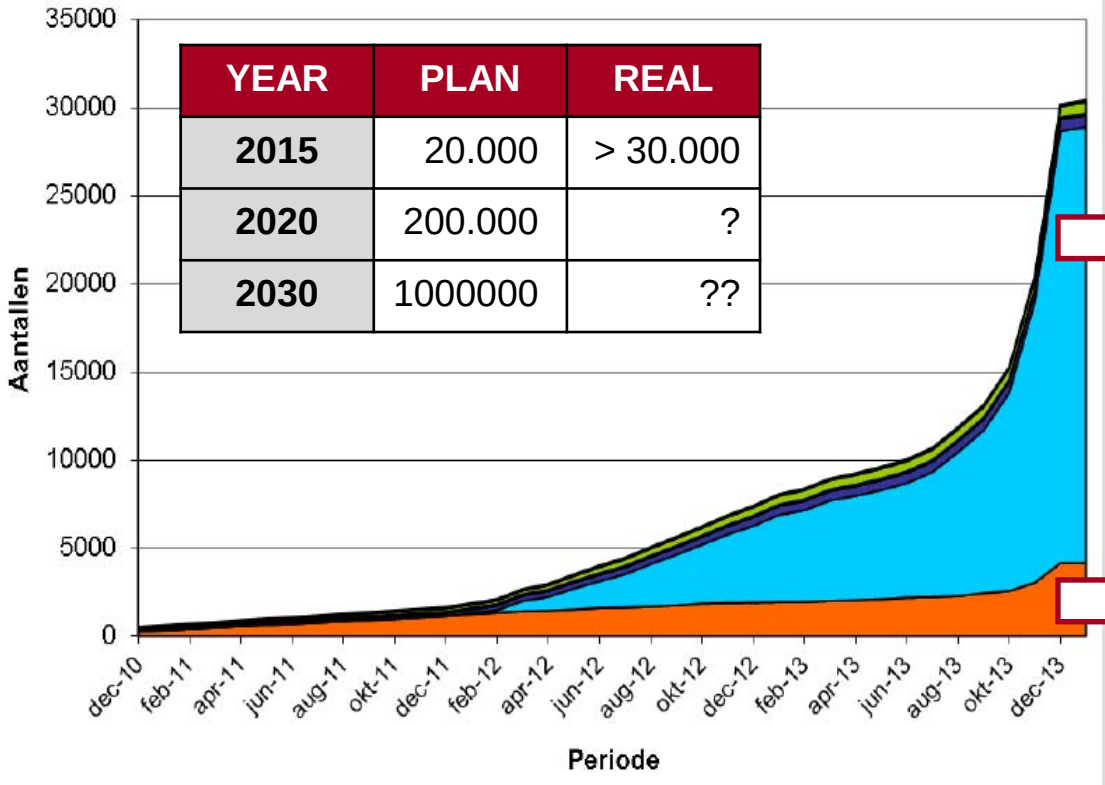
Focus on:

1. **Areas**
   - Pilot areas NL
   - **Cooperation NRW**
   - Cooperation B
2. **Vehicle markets**
   - Public transport
   - Innercity transport
   - Collective transport
   - Business cars
3. **Technology & economics**
   - Earning potential automotive sector

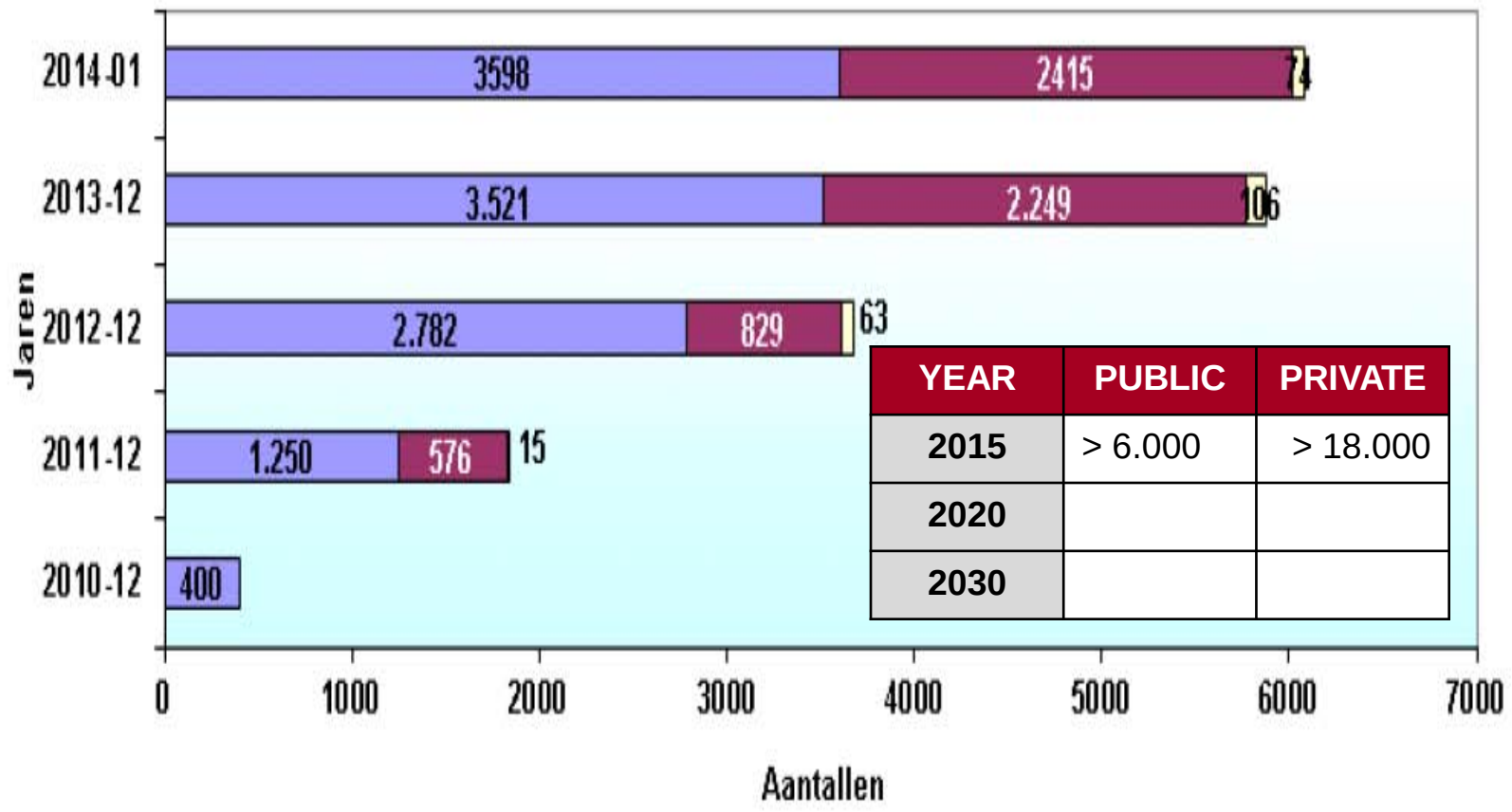


Results: 30.000 Electric cars in NL

YEAR	PLAN	REAL
2015	20.000	> 30.000
2020	200.000	?
2030	1000000	??



Results: E charging points in NL



YEAR	PUBLIC	PRIVATE
2015	> 6.000	> 18.000
2020		
2030		

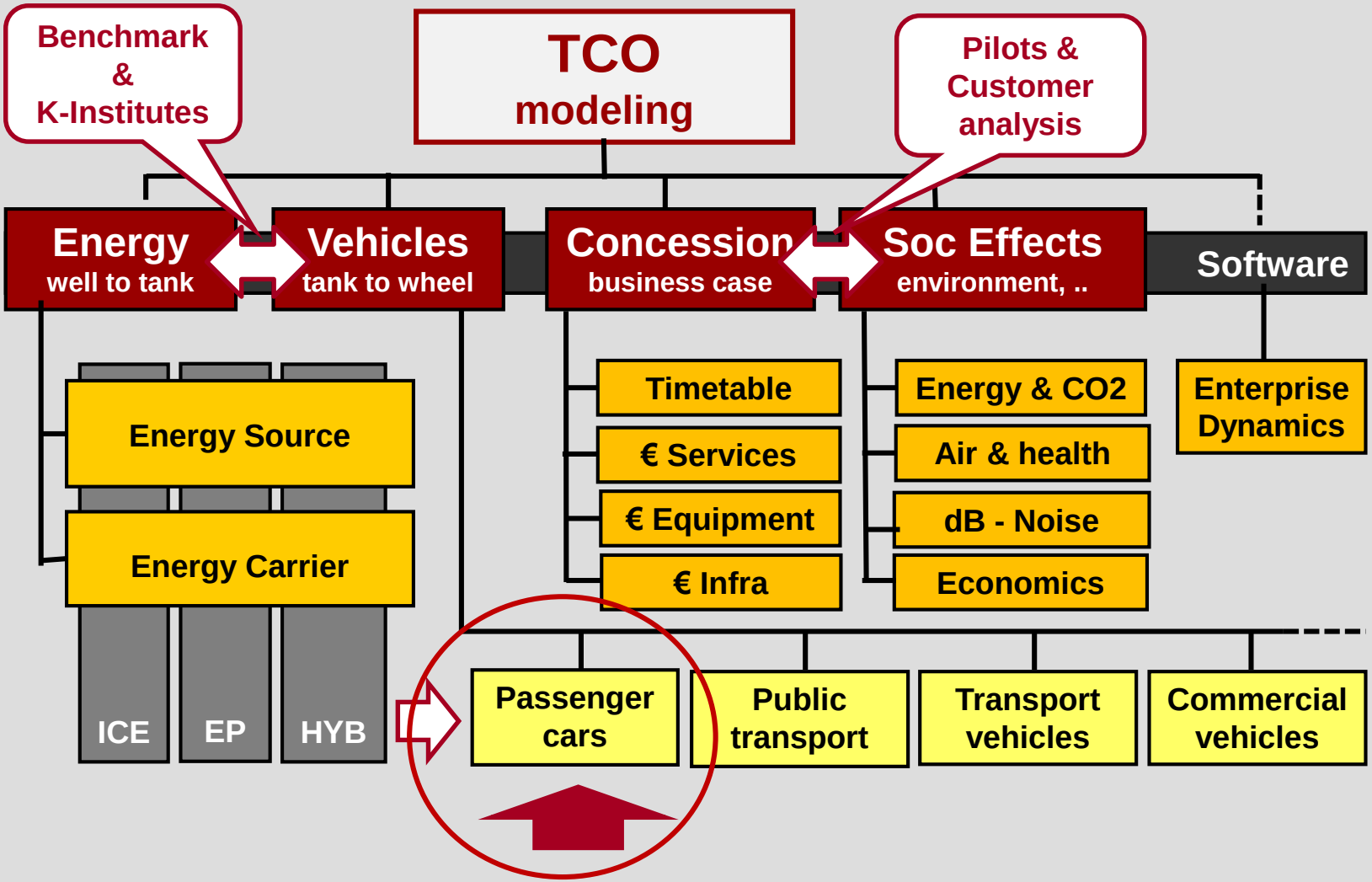
The background: It's all about money

TCO Total Cost of Ownership

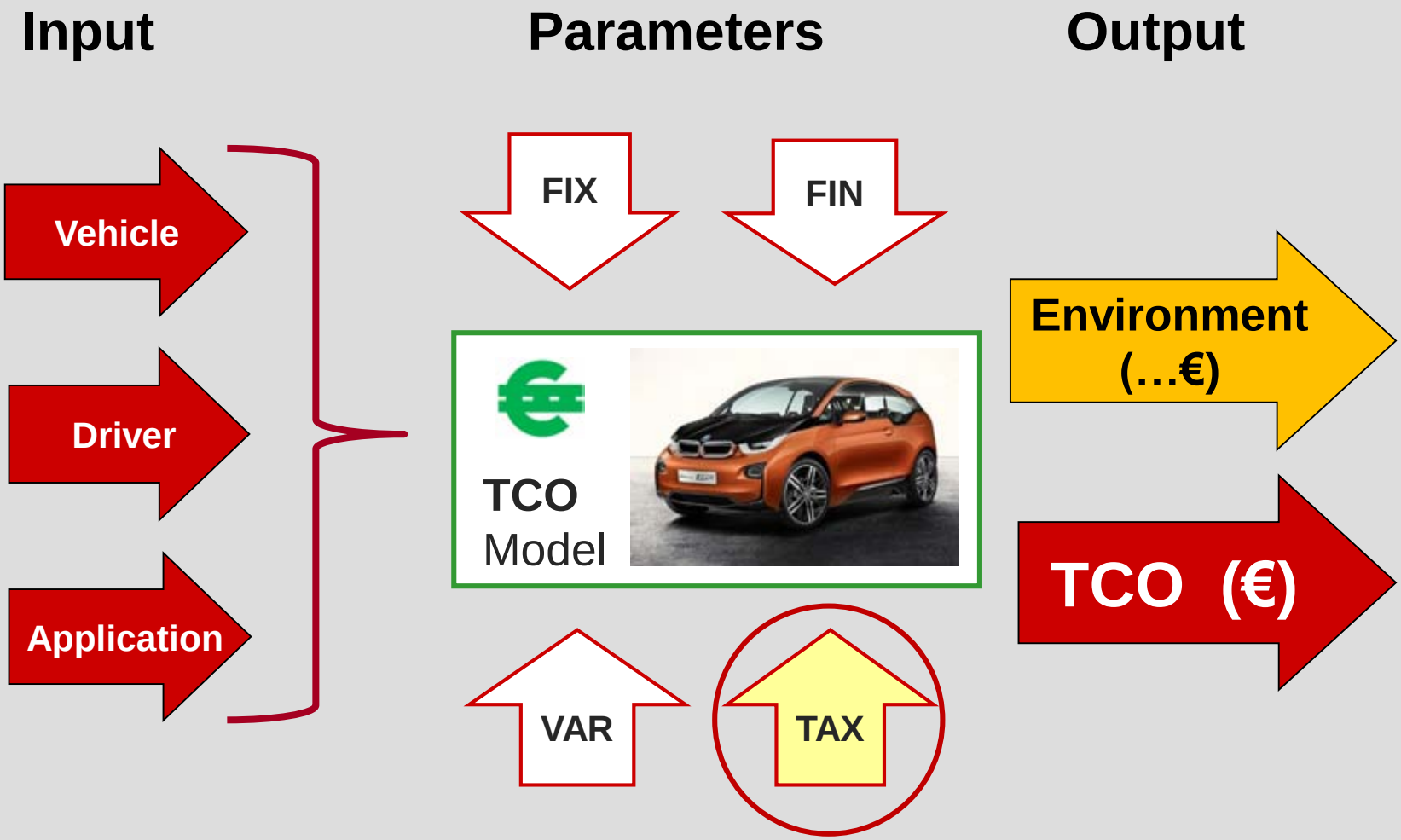
E - Vehicle

E - Infrastructure

TCO Project framework & scope



TCO Vehicle - basics



making strategy happen

influence of taxes

BPM
Investment
(CO2 g/km)

BtW
VAT on investment
(21%)

Mia
tax reduction on profit
(CO2 g/km and price)

MRB
road taxes
(CO2 and M kg)

Kia
Investment
(-15.000 profit)

Company car
salary taxes
(CO2 and salary)

Vamil
investment
(timing profit)

Fuel tax
energy taxes
(up to € 0,75/l)

BtW
VAT on fuel and
other (21%)

Not anymore
available in 2014

Example Volvo V60

Volvo V60	D2 Moment	Plug-In Hybr
Consumer price	€ 38.994	€ 63.995
Driveline	ICE Automatic	PHEV
Weight (kg)	1.456	1.859
FC (x/100km)	4.2	1.8
CO2 (g/km)	110	48
Km/ year	20.000	20.000
Period	5 years	5 years

Volvo V60	D2 Momentum		Plug-In Hybride	
	private	commercial	private	commercial
Netto Price	€ 27.646	€ 27.646	€ 52.888	€ 52.888
BtW	€ 5.806	-	€ 11.107	-
BPM	€ 5.542	€ 5.542	-	-
Sales price	€ 38.994	€ 33.188	€ 63.995	€ 52.888
Road taxes per year	€ 1.603	€ 1.603	0	0
Private Tax company car	€ 4.055	-	€ 2.329	-

TCO Volvo V60

A TCO comparison of ICE diesel and PHEV for private and commercial ownership.
5 year ownership, 20.000 km per year :

Volvo V60	D2 Momentum		Plug-In Hybride	
	private	commercial	private	commercial
Depreciation	€ 5.359	€ 4.437	€ 9.372	€ 7.745
Interest	€ 1.697	€ 1.392	€ 3.003	€ 2.481
MIA	-	-	-	- € 1.980
Energy costs	€ 1.401	€ 1.157	€ 601	€ 465
Maintenance	€ 1.444	€ 1.193	€ 1.616	€ 1.335
Road taxes	€ 1.603	€ 1.603	€ 0	€ 0
Insurances	€ 750	€ 750	€ 1.200	€ 1.200
TCO per year	€ 12.254	€ 10.532	€ 15.792	€ 11.246
TCO per km	€ 0,61	€ 0,53	€ 0,79	€ 0,56

Conclusions for E vehicles:

1. **TCO is dominated by**
   - **High investment of E vehicles**
   - **Taxes plays a dominant role in the TCO !**

2. **In the Netherlands this leads to**
   - **Private ownership remains far too expensive**
   - **Commercial ownership is comparable with ICE**

3. **This generates an interesting market for:**
   - **Company cars**
   - **Commercial and public innercity transport**

>> following the increasing markets for E Mobility, there is also an increasing need for electric infrastructure and charging equipment:

The development of infrastructure

The “Green Deal”

for public accessible charging infrastructure in The Netherlands

Drs AAJ van der Wees

Ministery of
Economic Affairs

‘Green Deal’ public accessible charging infrastructure

Green Deal is a public private partnership aimed at stimulating Green Growth of the Dutch economy. Sustainability and economic growth go hand in hand.

Goals Green Deal public accessible charging infrastructure (May 2014):

- Profitable business case for public charging infrastructure in 2017 by innovation programs
- Secure Roll out charging infrastructure by financing losses in business case 2014-2017.

Public Private Partnership approach:

- Market parties (operators and builders charging infrastructure)
- Vehicle importers and cardealers
- Grid operators
- Public authorities (national, regional, local)

Improving business case public charging infrastructure

Improving business case (profitable by 2017) by innovation aimed at cost reduction and development of better earning models.

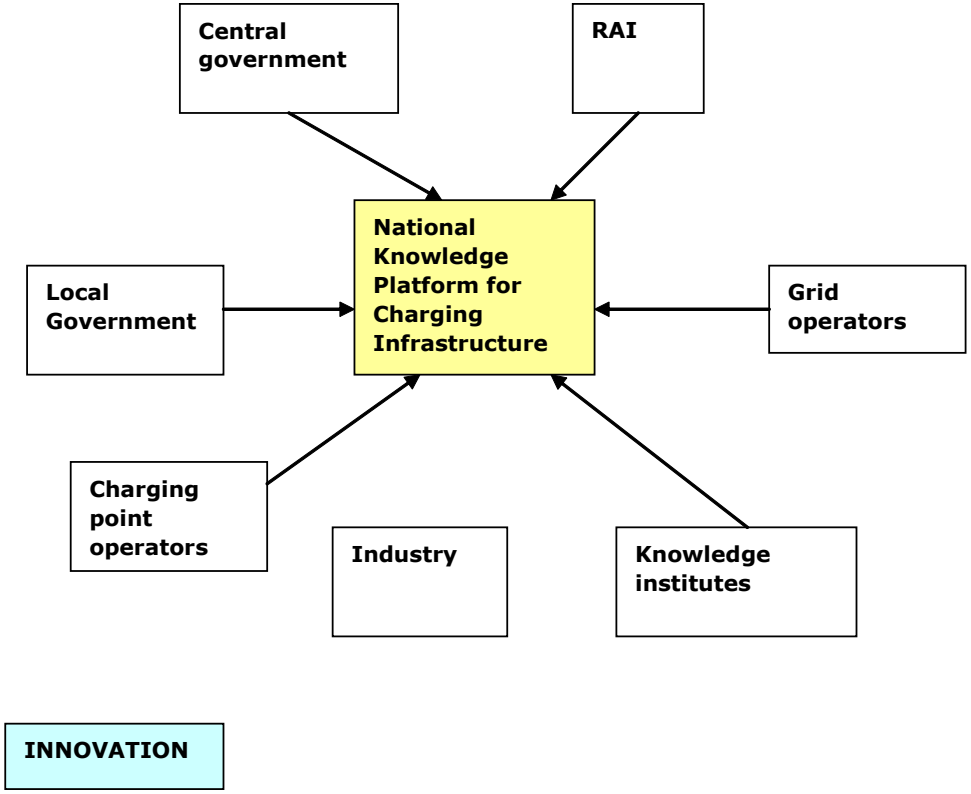
Cost reduction by:

- More cost-efficient metering on charging units
- Reduction of idle capacity of charging points
- More efficient construction and positioning of infrastructure
- More efficient procedures grid operators and local authorities
- Adjustment of regulation to reduce tariffs grid operators for charging infrastructure

Improving earning models by:

- Liberalization charging tariffs
- Optimization location charging points

National Knowledge Platform fo Charging infrastructure



Roll-out: Regional/local tenders of right to build and operate public infrastructure

Open tenders by local and regional authorities, preferably by clusters of local/regionale authorities

Advantage:

- Reduction of tendering costs
- Better negotiation position for regional authorities by larger scale
- Supports harmonization/simplification tendering procedures and functional requirements.

- Open tendering stimulates market development and level playing field

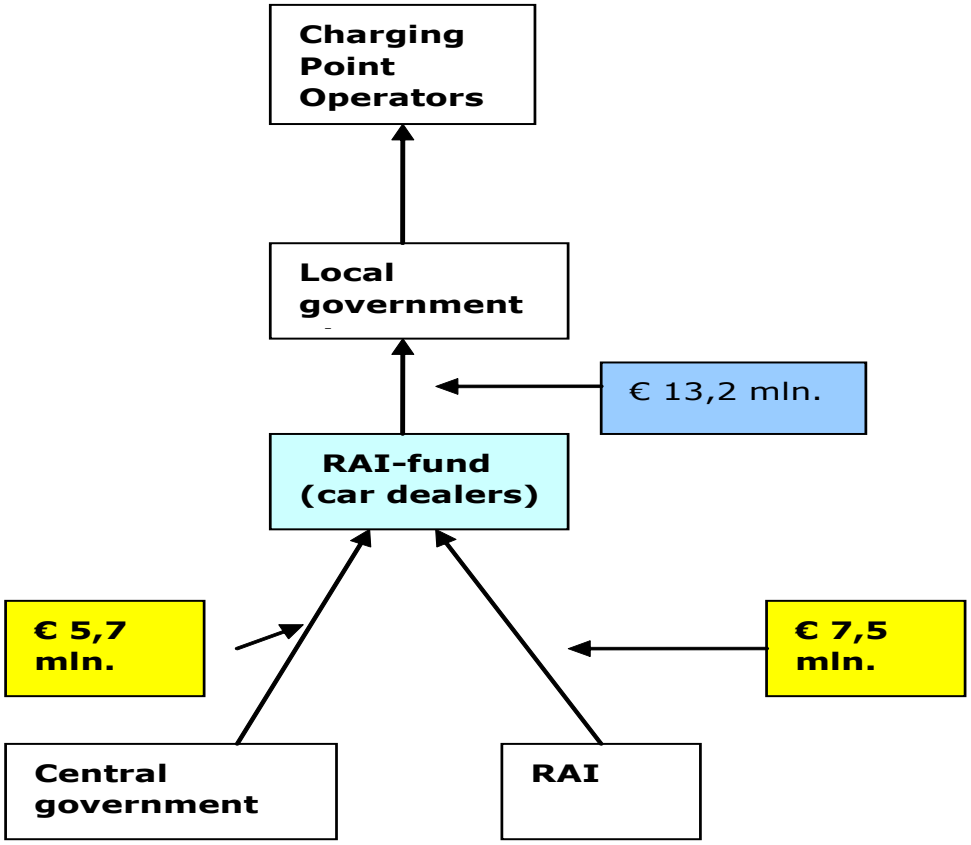
- In discussion: permits and subsidies by local communities to private initiators of building/operating public accessible charging infrastructure

Financing loss in business case public charging infrastructure

The temporary loss in the business case is financed by:

- Local communities and Regional authorities (provinces)
- Vehicle importers and car dealers (RAI)
- Central government

Financial flows roll-out public charging infrastructure



Information

TCO Mobility Project

(& cross border collaboration)

Anton Wolthuis

“Green Deal”

Bram van der Wees

AW Projects bv

“making strategy happen“

Netherlands

Waver 15
5711 LR Someren
www.awprojects.nl
E info@awprojects.nl

Germany

Auf der Haag 2
52156 Monschau
www.awprojects.de
M +31 6 53449046

Ministery of
Economic Affairs

Direction Energy & Sustainability
Bezuidenhoutseweg 73
2594 AC Den Haag
The Netherlands
T +31 70 3797350
E a.a.j.vanderwees@minez.nl

Thank you for your attention !