

TOWARDS A SUSTAINABLE BUSINESS MODEL FOR PUBLIC CHARGING **PROCUREMENT OF PUBLIC CHARGING** POINTS

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1. WHY PUBLIC CHARGING?

70 - 80 % OF ROTTERDAM INHABITANTS DON'T HAVE PRIVATE PARKING SPACE







1.1. STAIRS OF CHARGING

Private	Semi-public	Extended private	Public	Fast
\$	\$\$	\$\$\$	\$\$\$\$	\$\$\$\$
 Private connection Private use only Low costs No role for the government 	 Private connection Public use Low costs No role for the government Positive business case possible 	 Private connection No separate DSO connection needed Insurance and liability issues 	 DSO connection 24/7 open for everybody Expensive solution 	 Large DSO/private connection Very expensive solution
Charging time 4-8 hrs Realistic service capability: 1 / 2 cars a day	Charging time 1-2 hours Realistic service capability: 3/4 cars a day	Charging time 4-8 hrs Realistic service capability: 1 / 2 cars a day	Charging time 4-8 hrs Realistic service capability: 1 / 2 cars a day	Charging time 0,5 -1 hrs Realistic service capability: 8 - 16 cars a day





1.2. PUBLIC CHARGING: PRO'S AND CON'S

Criteria

- Identification
- Open standard
- Interoperability
- Payment system
- Dedicated charging 'squares' with multiple chargers vs. charger in front of house of user
- Dedicated
 charging/parking
 location(s)
- Network throughout the city
- Safety

Hufter proof

Pro's

- Supportive
- Non bound
- Large amount of people does not have private property

Con's

- Expensive solution
- Difficult business case
 - Growth of objects in
 - public space
- Involvement of multiple
 parties









1.3. ROLES IN PUBLIC CHARGING







1.4. PUBLIC CHARGING: FINANCE AND ORGANISATION

Stimulate	Mature market
Rotterdam De elektrisch De Utrecht De	bam -essent -essent Second
Gemeente Almere Gemeente Den Haag Amsterdam De	Ballast Nedam Creco Cheijmans Cool





2. STIMULATING EV: CITY OF ROTTERDAM

PUBLIC CHARGING POINTS IN THE CITY OF ROTTERDAM

- PUBLIC EUROPEAN TENDER 2010
- ONE CONTRACT PARTNER FOR INSTALLATION AND MAINTENANCE (3 YEARS)
- 1.000 PUBLIC CHARGING POINTS
- CONTRACT ALSO APPLIED IN ROTTERDAM CITY REGION

FURTHER SUBSIDIES IN THE CITY STIMULUS PACKAGE:

- PRIVATE CHARGING POINTS
- REMOVAL POLLUTING CARS
- PARKING PERMITS FOR EVS









2.2. PROCUREMENT PROCESS

SCOPE OF THE TENDER

INFRA PROVIDER

- supply charging stations
- realization
- operation
- removal (if seperately asked for)

SERVICE PROVIDER

- account management, information, billing (to user and third service providers)
- management reports (to city of Rotterdam)

CRITERIA: REFERENCE PROJECTS

OPERATOR SELECTED MOST VALUABLE BID

NON EXCLUSIVE







2.3. REALIZING PUBLIC CHARGING: ROTTERDAM'S CUSTOMER PERSPECTIVE

- DEMAND DRIVEN: OPERATOR RECEIVES APPLICATIONS
- ONLY RESIDENTS OR COMPANIES NOT ABLE TO CHARGE ON OWN PREMISES
- MINIMUM ELECTRIC RANGE OF 50 KM ONLY
- CHARGING WITHIN 200 M OF THE APPLICANT
- ADDITIONAL 'STRATEGIC' LOCATIONS FOR GUEST USE







Gemeente Rotterdam





2.4. TIMELINE REALIZATION PUBLIC CHARGING POINT

Login



On average 4-5 months



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2.5. REALIZING PUBLIC CHARGING







2.6. HOW TO ORGANIZE PUBLIC CHARGING IN A DEVELOPING MARKET

WHAT DID WE LEARN?

- > NEED FOR A CONSTRUCTIVE CONTRACT PARTNER
- > STIMULATE EV BY CONTROLLING CONSUMER PRICES
- > IMPROVE APPLICATION AND IMPLEMENTATION PROCESS
- > OPEN STANDARDS TO COUNTER VENDOR LOCK IN
- MORE ROOM FOR COMMERCIAL OPPORTUNITIES
- LONGER CONTRACT TERMS
- > IMPROVE EFFECTIVE USAGE PER CHARGING POINT











EFFECTIVENESS EXISTING NETWORK IMPROVING THE BUSINESS CASE: DYNAMIC PRICING

 NO OVERSTAYING
 ADMINISTRATION FEE TO STIMULATE LONG CHARGING

 PRICE DIFFERENCES BY LOCATION, USER, ETC







DISCUSSION IMPROVING THE BUSINESS CASE: DYNAMIC PRICING



Would the future EV-driver accept fees other





DISCUSSION IMPROVING THE BUSINESS CASE: DYNAMIC PRICING



Would the future EV-driver be willing to pay more in centres vs outskirts? Or for guest use?





IMPROVING THE BUSINESS CASE Development in volumes - contracts - investment







3. IMPROVING THE BUSINESS CASE



Eén keer dwarsparkeren langs de straat

4 palen, 8 laadplekken, circa 15 meter graven vanaf de moederpaal situatie die regelmatig voorkomt in de stad





3.1. IMPROVING THE BUSINESS CASE BY INFRASTRUCTURE PLANNING

- PREDICTING USER DEMAND AT NEIGHBOURHOOD LEVEL
 - Density of population
 - ◆ Income, education
 - ♦ Age
 - Prevalence private parking space
 - ◆ Etc
- CHARGE POINT APPLICANTS ANALYSIS (CITY OF ARNHEM)
 - ♦ 92%: UNIVERSITY DEGREE
 - ◆ 92%: ABOVE AVERAGE INCOME, 78% MORE THAN 2X AVERAGE
 - ♦ 85%: FULL TIME JOB
 - ♦ 83%: MARRIED OR LIVING TOGETHER
 - ◆75% 35-55 YEARS, 29% 40-45
 - ♦ 36%: COMPANY OWNER AT THE APPLICANTS ADDRESS







4. OVERCOMING BARRIERS

CHALLENGES FOR THE FUTURE

- Grid and tax costs
- Involvement of OEM in financing public charging infrastructure
- Stability of the grid, role of the DSO
- Procurement:

Long cost recovery period Space for creative solutions

- Infrastructure planning
 Demographic and geographic factor
 Charging hubs cutting costs
- Stimulate private/semi public charging







DISCUSSION



How could OEMs contribute to public charging?