

Designing PPP contracts for public charging

Evaluating 10 years of procurement of public charging infrastructure in the Netherlands

Tim van Beek
EVConsult

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Introduction EVConsult



EVConsult

Our mission

**Accelerating the transition towards
zero-emission mobility**



EVConsult

E-mobility experts



- Over 10 years of experience in over 200 e-mobility projects in over 20 countries



- Largest independent EV Consultancy office in Europe



- In-depth knowledge of international e-mobility market through partners across the world



- EV experts with multidisciplinary backgrounds (e.g. technical, commercial, economic, legal)



- International experience with e-mobility strategy, project management and innovation



EVConsult

Tim van Beek: founder and co-director



- MSc. degree Urban Design - Delft University of Technology
- MA degree Public Management - Leiden University



- Strategy consultant and project manager



- >10 years experience in EV
- > 15,000 charging stations in public space
- Specialized in: innovation, charging infrastructure, PPPs



Contact details

📞 +31 6 1735 2943

✉️ t.vanbeek@evconsult.nl





Designing PPP contracts public charging



Why public charging infrastructure?

Public charging is needed for the growth of EV

Need for public charging infrastructure

- 70% of Dutch households rely on public parking
- Availability public charging infrastructure is prerequisite for the uptake of electric vehicles

Public charging infrastructure scaled-up from 2008

- First public charging point realized in 2008
- 2019: > 20,000 charging points

Public charging will continue to increase

- From 2030: all new vehicle sales will be electric
- Public charging points needed in 2030: > 500,000
- Enormous growth of charging points expected!



Organization of public charging infrastructure

PPP contracts public charging

Public parties facilitate the realization of public charging

- Municipalities and regions have been involved since 2008
- PPP procurements for realizing public charging infrastructure

Advantages of PPP procurements

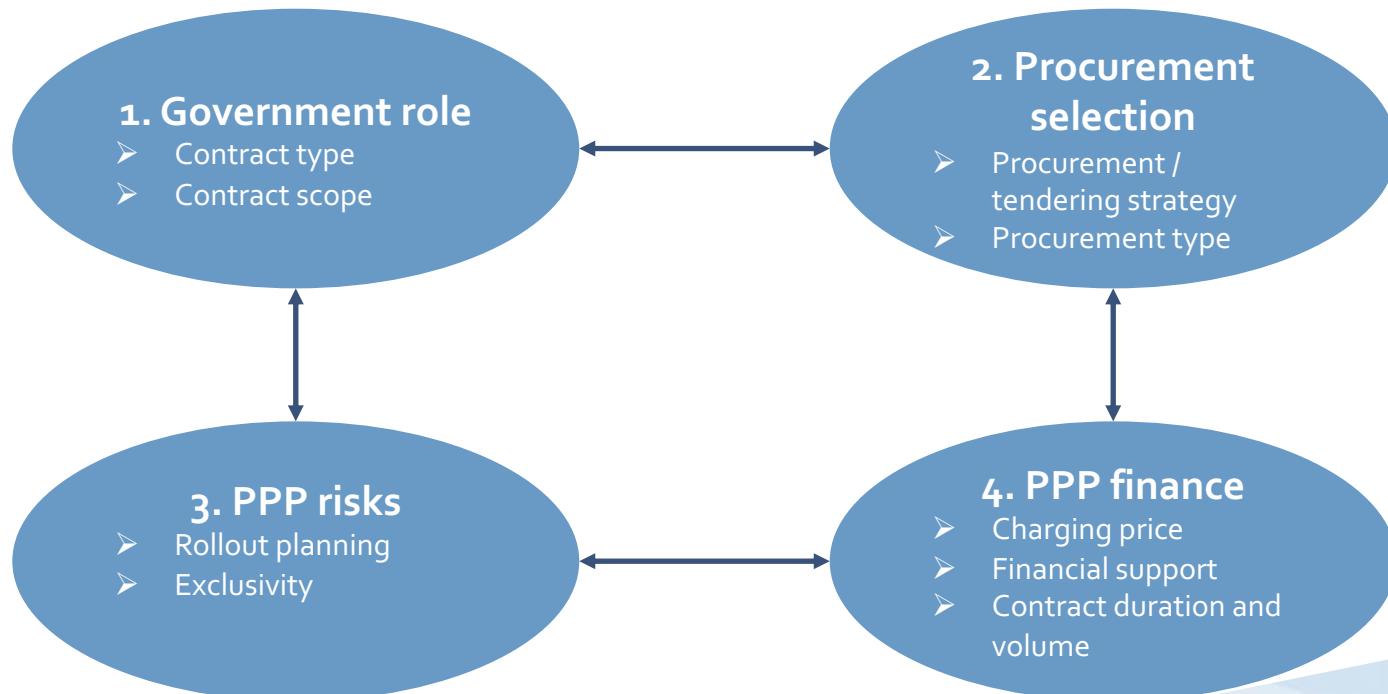
- Reduce financial burden on public sector
- Transfer risks from public to private sector
- Efficient, lower-cost and reliable services

Price and quality of charging infrastructure depend on procurement strategy



Procurement strategy

4 success factors that determine price and quality



Research aim of this study

Development PPP procurement during scale-up of public charging

Research aim of this paper

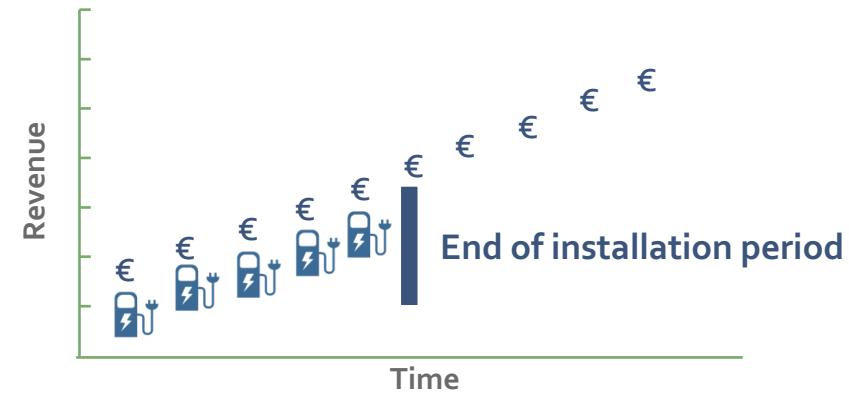
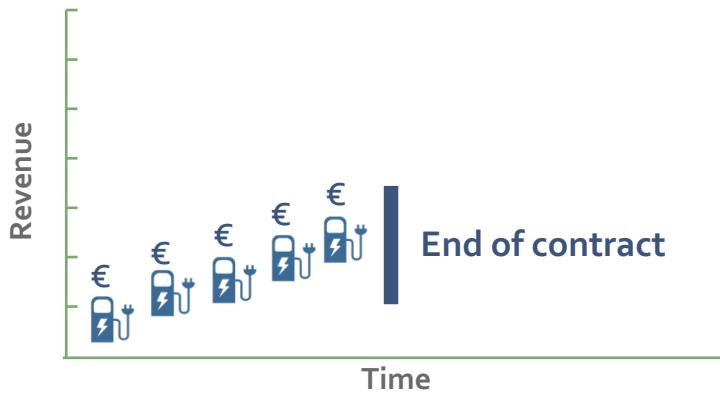
Evaluation of development PPP procurements during the scale-up of public charging infrastructure over the last 10 years

- Insights into the scale-up of the market of the Dutch charging infrastructure
- 10 Dutch case studies of PPP procurement over the last 10 years
- Effect on financial burden and costs of public charging infrastructure



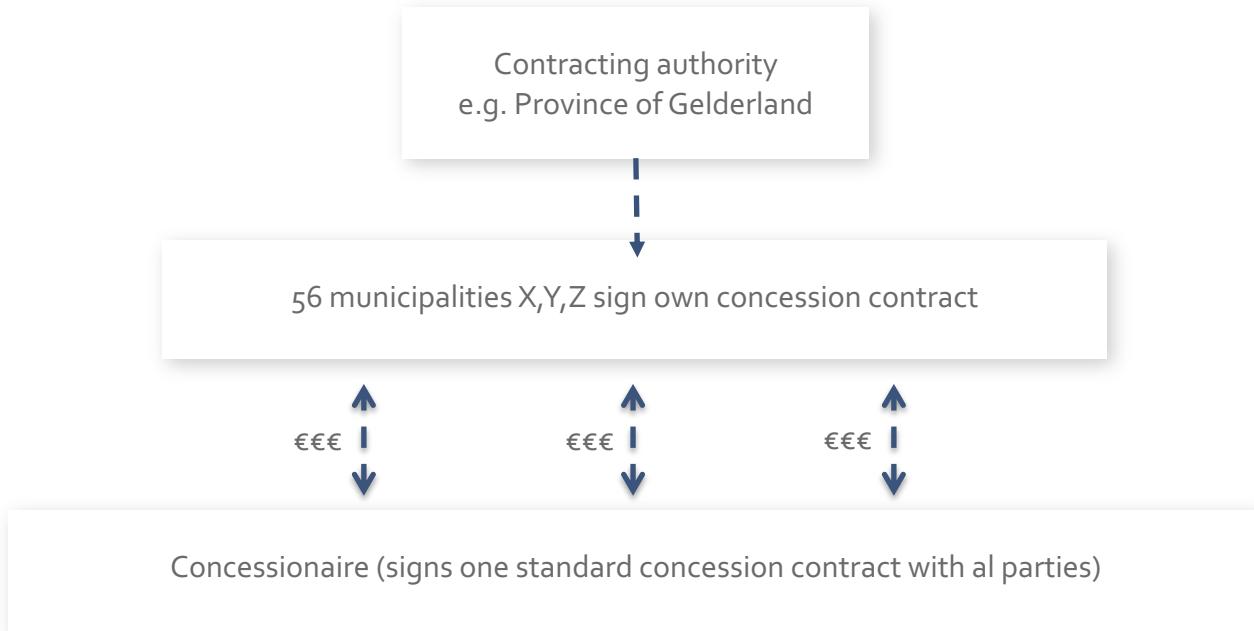
Success indicator 1: Contract scale

Increased contract scale lead to better business cases



Success indicator 2: Contract scope

Increased contract scope lead to better business cases



Success indicator 3: Rollout planning

3 types of rollout lead to increased scale and better coverage within cities

Demand driven

On request inhabitants.

- Guaranteed revenues for CPO
- Guaranteed solution for e-driver

Strategic

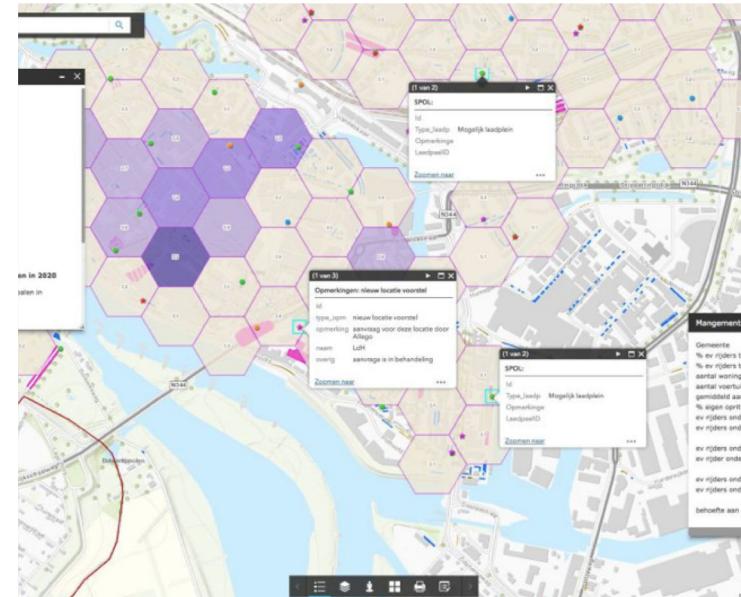
On request city

- When city foresees demand, e.g. train station, shopping mall

Data-driven

Existing charging station shows high occupancy rate

- Proactive way of rollout in the city

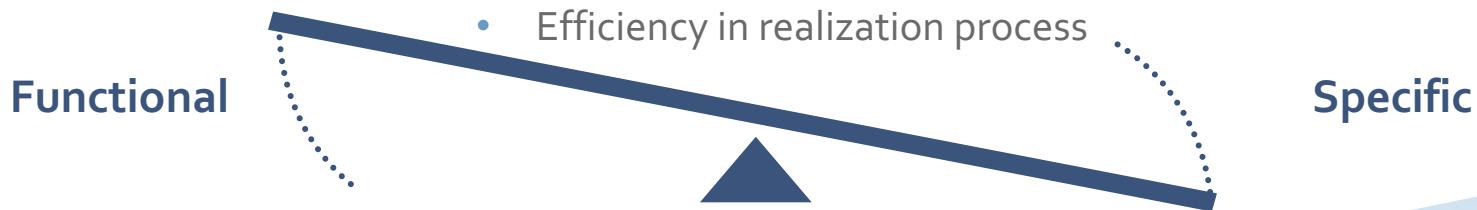


Success indicator 4: Requirements

Functional requirements are included in procurement selection, and lead to improved quality

Improvements to the system around charging station:

- Type of charging solutions (hub, single/double chargepoint)
 - Sustainability (smart charging, electricity supply)
 - Availability and rollout
 - Pricing and transparency to user
 - Monitoring & data services
 - Efficiency in realization process



Success indicators result in scale-up market

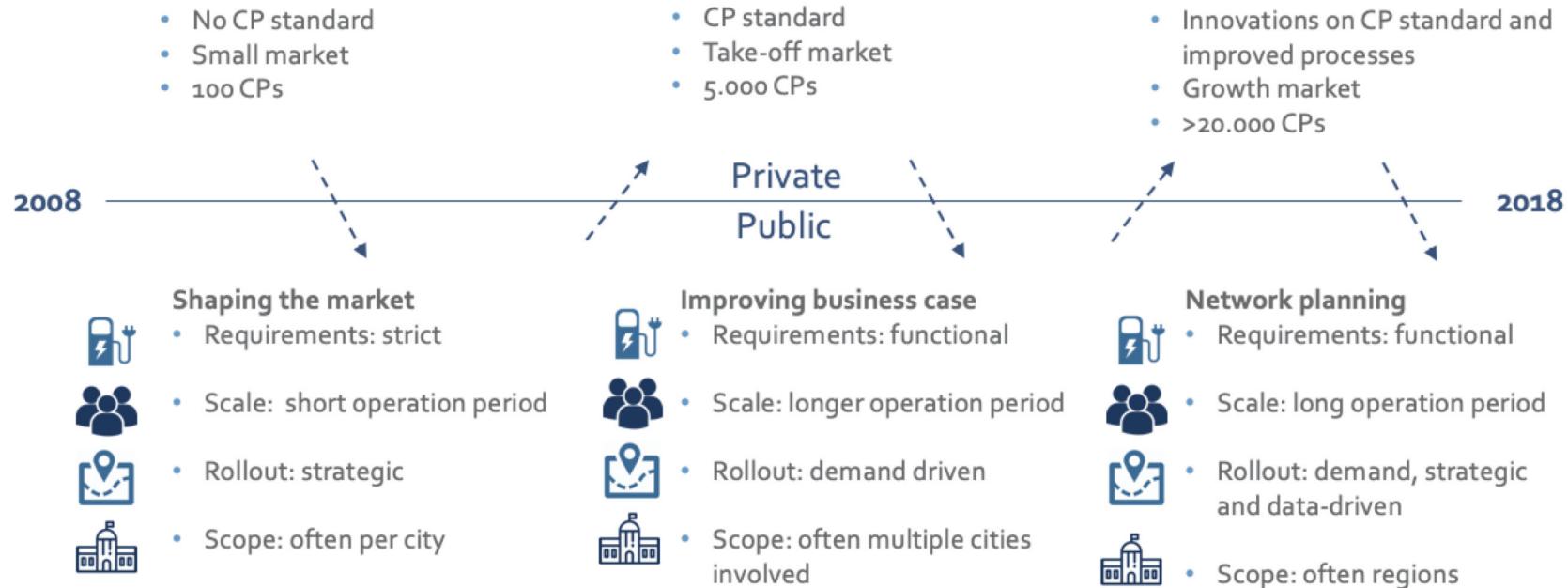
Dutch market currently in growth phase

TLC phase	Status	Technology observation
I: Development phase	✓	<ul style="list-style-type: none">Charging stations for innovators that pay high priceFew CPOs
II: Take-off phase	✓	<ul style="list-style-type: none">After several years of experimenting: more CPOs → more competition during procurements
III: Growth phase		<ul style="list-style-type: none">Standards for charging stations → government force CPOs to comply with standards during procurementsProcess innovation, e.g. efficiency gains in realizationSystem innovation, e.g. price transparency
IV: Maturity phase	?	<p>Expected changes:</p> <ul style="list-style-type: none">Competition based on price differences?More process innovations?



Development PPP procurements 2009-2018

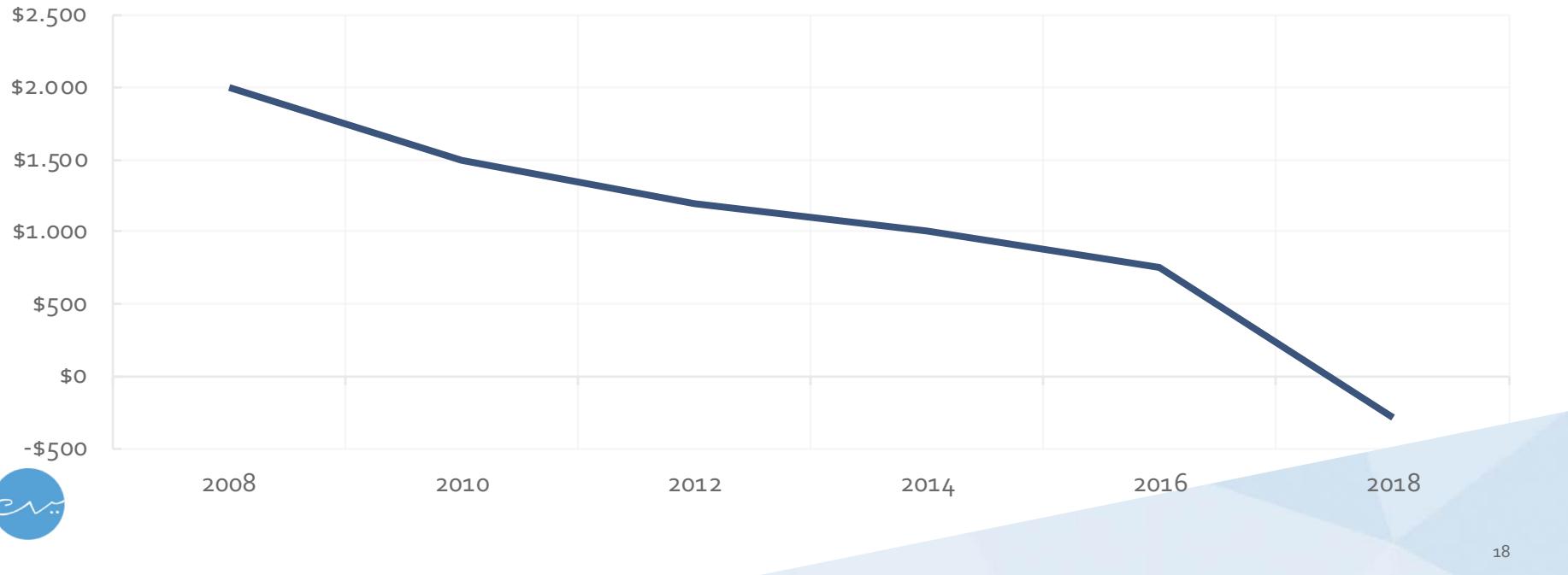
Improved business cases and improved quality



Development public financial support 2009-2018

Improved business cases lead to decreasing public finance

PUBLIC INVESTMENT/2CP/YR. CONSUMER PRICE 0.36/KWH INCL. VAT



Vision on market maturity

500,000 charging points in 2030

Improve business case

- Extended scale and scope PPP lead to negative public finance (CPO pays government)

Improve rollout planning

- Decrease lead time realization process
- Better alignment demand, strategic and **data driven** charging points
- Suitable charging solutions

Improve system around charging station

- Price transparency
- Smart charging
- Free choice of energy supply
- Collaboration with DSO



Challenges of scaling up to market maturity

Increased scale and scope PPP procurements may have side effects

Local governments are customers

- Service to EV driver less prioritized?
- Solution: benchmark and monitoring satisfaction EV drivers

Infrequent competition

- After tender award, no incentive for price – and quality improvements
- Solution: Location based tendering to promote multiple CPOs in the same city and/or several bid packages during procurement?
 - Advantages: continuous competition and smaller local CPOs may enter market
 - Disadvantage: contract management increases



Contact



Amsterdam

Overtoom 60-4
1054 HK Amsterdam

 +31 6 52 66 30 32 / +31 6 17 35 29 43

 info@evconsult.nl



www.evconsult.nl

Scale-up of public charging over the years

Number of charging points has grown exponentially

