GPP in Copenhagen
- Sharing experiences on Sustainable Mobility and GPP

Webinar, EU NGO Network on GPP, Jan 2018
Agenda

- General introduction to GPP in Copenhagen (5 min)
- How we work with transportation criteria in tenders (5 min)
- Our own fleet (10 min)
GPP in Copenhagen
Procurement in the City of Copenhagen

The annual procurement of the City of Copenhagen is 1.5 billion Euro.

- 400 million euro on construction alone
Organization

- 7 administrations
- 45,000 employees
- 11 procurements units and strategic procurement
- ca. 60 contract lawyers
- thousands of decentralized procurers
How do we work?
Main activities
Support/Consult the tender process

- Procurement unite
  - New tender
  - Extension of existing agreement

- Technical and Environmental Administration (TEA)
  - Brainstorm
  - Elaborate environmental criteria

- TEA gather information
  - Colleagues
  - Authorities
  - Eco Label
  - Business association
  - Network
  - Market engagement
  - Other Cities
  - NGOs

- TEA
  - Elaborate environmental criteria

- TEA and procurement unit
  - Negotiation

- Tender announcement
  - Q&As
  - Evaluation
  - Signature

- Follow-up
  - Receive documentation
  - Supplier meetings
  - Audits
### Main activities

#### Guideline for Environmental criteria

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<tr>
<th>Activity</th>
<th>Description</th>
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<td><strong>Transport</strong></td>
<td><strong>Tomgang</strong></td>
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<td>Alle Leverandørens chauffører skal gøres bekendt med, og overholde, Københavns Kommunes tomgangsregulativ, der forskriver, at motorer i et holdende motordrevet køretøj ikke må være i gang længere end højst nødvendigt og højst 1 minut. Læs mere om reglerne i kommunens folder her: <a href="http://www.kk.dk/~/media/2931900CF193040FEB7F54AA5A6FB5F3F.jpg">http://www.kk.dk/~/media/2931900CF193040FEB7F54AA5A6FB5F3F.jpg</a></td>
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<td><strong>Køretøjer under 3.500 kg</strong></td>
<td><em>Person- og varebiler under 3.500 kg, benyttet til udførelse af de af Rammeaftalen omfattede ydelser som anskaffes i kontraktperioden skal som minimum overholde Euronorm 5.</em></td>
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<td><strong>Køretøjer under 3.500 kg</strong></td>
<td>Personbilers under 3.500 kg skal være el- og brintbiler.</td>
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<td>Nyindkøb af personbiler og udbud af personbefordring i personbiler til 5 personer samt varebiler op til 2000 kg skal leve op til Center for Grøn Transports anbefalinger om offentligt indkøb af energieffektive køretøjer. Anbefaling er euronorm 6 og energimærke A+. Målet er at vurderes udgåelsesneutralt eller besparende set i totalkostnindspektiv.</td>
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<td><strong>Transport</strong></td>
<td><strong>Køring-grænsekursus (eco-driving)</strong></td>
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The BuyZET project aims to exploit the full potential of public procurement to promote the introduction of innovative sustainable mobility solutions in cities.
Category 3

- Cat3 - Numbers of categories
  - 44 different categories
    - 24 goods
    - 20 services

- Total CO₂ emissions approx. 7,000 ton
  - Goods 4,000 ton CO₂
  - Service 3,000 ton CO₂
Km driven

- Travelled km/City boundaries approx. 8 mio. km

- Travelled km/First tier suppliers approx. 60 mio. km
“The battle for our delivery future is on.”
Presentation of Actions

Copenhagen City on alternative drivelines and fuels and procurement strategy towards 2025
Inner outer pressure...
Focus for the transition

\[ \text{CO}_2 + \text{NO}_x + \text{PM} \]
Operation slowly moving forward…
Constantly overviewing hurdles and gains per driveline/fuel solution

- Constantly overviewing matureness of driveline?
- Infrastructure geography placements vs. investment needed?
- Expected cost of driveline and after sale price?
- Operation costs (fuel and service)?
- Ensure easier fleet management?
- Range needed / winter operation issues?
- Iddle usage that leads to NO\textsubscript{X} og PM focus?
- Value change emissions (WtW) of CO\textsubscript{2}?
- Pilots for un-proven solutions (drivelines/fuels)
- New tender focal points (clean Vehicle Directive/emission impact)
  - Joint procurement + Cross Boarder Joint Procurement can gain crucial knowledge on how to encrease volume on a small volume market
Different solutions
different CO$_2$ footprint

Diesel & gasoline
HVO diesel
Battery electric

Biogas

Power
Battery development
- machines

- Low volume compared to car OEMs

  - Small scale battery cost (2017) 5 DKK/Wh incl. packaging + BMS
    (minimum factor 5 from small scale to OEM cost prices)

- Same market trend reductions in price (percentage) as for car OEMs

- 3 x cost price for machine OEM on Euro Stage 5 engines (+2019) = electric driveline push!

  - No extra price for small/medium e-machines in 2020 due to Stage 5 increase
Spring 2018 - analysis done on costs vs. emissions of different drivelines/fuels vs. diesel
Continuously up-dating recommendations
Planning is needed...

**CO₂, NOₓ, PM**

INVESTMENT NEEDED


Most efficient solutions by + 2020

Registration and data gathering for entire fleet
+ centralized procurement and ownership and service

Dynamic overview – to be updated
Tests 2018

**Electric scooter** (2 + 3 wheel)
Producer: ELMOTO + WII
Test period: 3 weeks April 2018
Testing together with others: No

**Electric sweeper - medio** (2 m3)
Producer: Bucher Municipal
Test period: 14 days April 2018
Testing together with others: Frederiksberg if possible

**Electric sweeper - small** (1 m3) (for Operations)
Producer: Dulevo
Test period: 30 days April 2018
Testing together with others: Frederiksberg if possible

**Electric wheel loader** (for CNCA project (Copenhagen/Oslo/Stockholm)
Producer: Schäffer e23 + Volvo XL1
Test period: 90 days September 2018
Testing together with others: Frederiksberg if possible
Test 2019

**CO₂ reducing/green methanol for vehicles and machines**

Producing methanol from CO₂ and renewable power sources

Using green methanol in gasoline/gas engines

Reducing both CO₂, NOₓ and PM

Potential:

- Global fuel – local production
- Danish technology
- A temporary technology?

**Electric truck +18 tons** – depending on financing

Producer: GINAF or EMOSS

Test period: 2018

Testing together with others: Frederiksberg + RegionH + private companies

**Electric truck with range extender** (KK Affald & Genbrug)

Producer: DAF/Eurotrucks

Test period: 2018

Testing together with others: 10 other cities in EU
Funding is needed...
- for converting fleet toward 2025*

• Investment needed in 2022 for e-conversion of small/medium sized machines and medium/large commercial vehicles (220 of 314 pcs.):
  • DKK 22 ~ 30 mio. for covering extra price tag for electric drivelines and infrastructure

• Investment needed in 2022 for e-conversion of passenger cars, mini busses and small commercial vehicles (900 pcs.):
  • DKK 2 ~ 5 mio. for covering extra price tag for electric drivelines and infrastructure

**Total funding needed: DKK 40 million ~ EUR: 5,263,000 million.**
(i.e. Funding for additional cost of e-conversion)

* Exclusive medium/large trucks, medium/large heavy duty machines
Expected result of e-conversion...

• Investment up to 30 % higher in 2022 than today

• Operation costs reduction ("fuel"/service) will be up to 45 % lower

• Factor 3-5 reduction (minimum) in CO₂ emissions* for e-conversion

• Better and more efficient operation and longer driveline scenarios with electric drivelines

* Depending on average or long term marginal scenario for electricity production. Which can advance up to a factor 50 difference!
Joint Procurement...

**Focus**

- Market wake-up and strategic market approach
- Potential lower price for new and alternative technologies

**Joint procurement**

- National network of 20 municipalities on the procurement of BEVs, PHEVs and FCEVs

**Cross boarder joint procurement**

- CNCA (Stockholm, Oslo and Copenhagen) procurement of wheel loaders
  - Sharing of operation data; tender experiences; business cases
  - Promoting the solutions towards entrepreneurs and rental companies
- Coming Scandinavian procurement network
  - Setting the same demands on WtW: CO₂, NOₓ, TCO...?
Learnings...

- Holistic approach is needed
- Traditional methods don’t work
- Engage stakeholders (users/local, national and international)
- Open up for innovation
- Engage with partnerships/network
- Demonstrate it – show it!
Comments/Feedback?
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