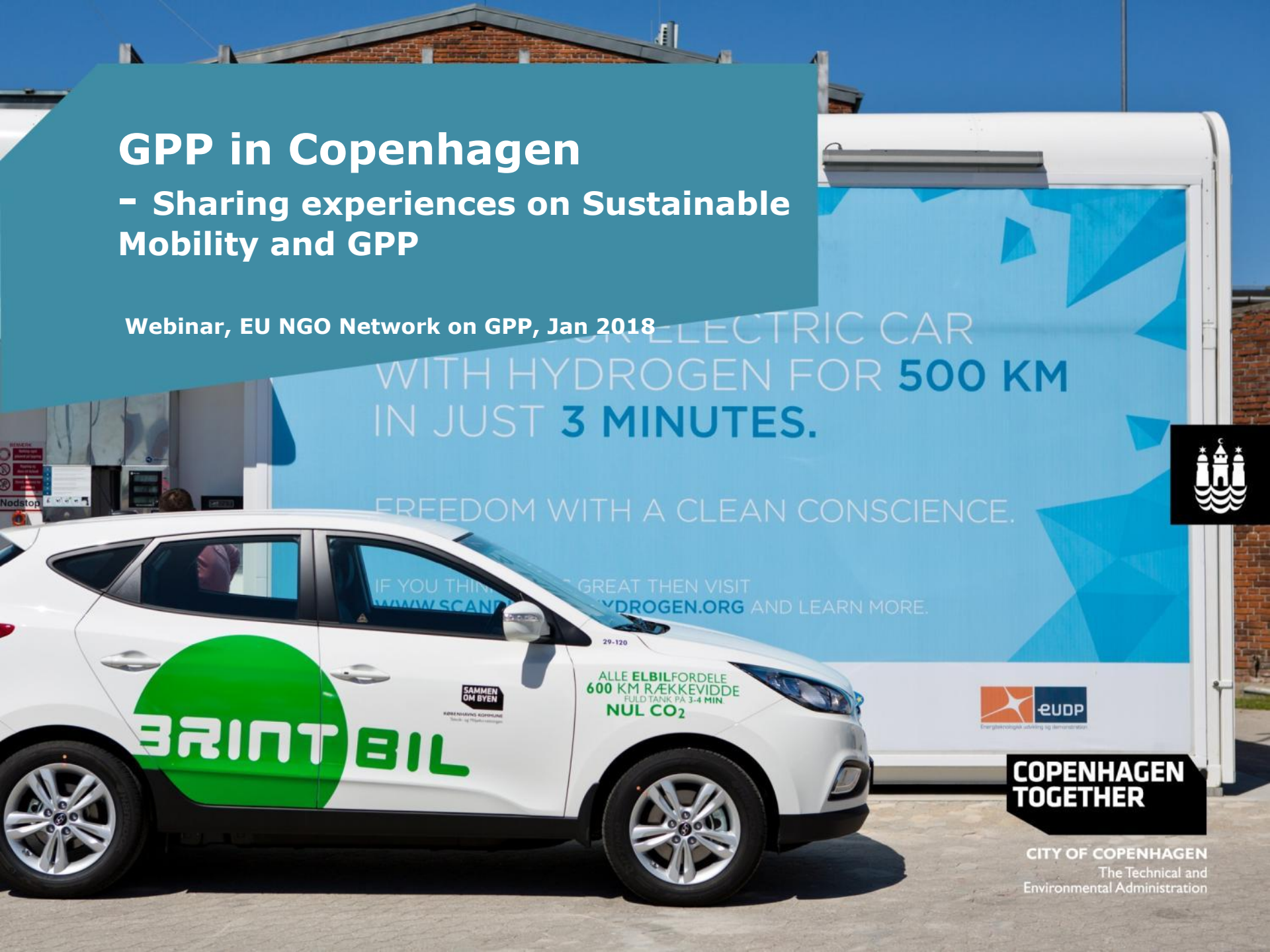


# GPP in Copenhagen

- Sharing experiences on Sustainable Mobility and GPP

Webinar, EU NGO Network on GPP, Jan 2018



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The Technical and  
Environmental Administration

# Agenda

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- 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



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# Procurement in the City of Copenhagen

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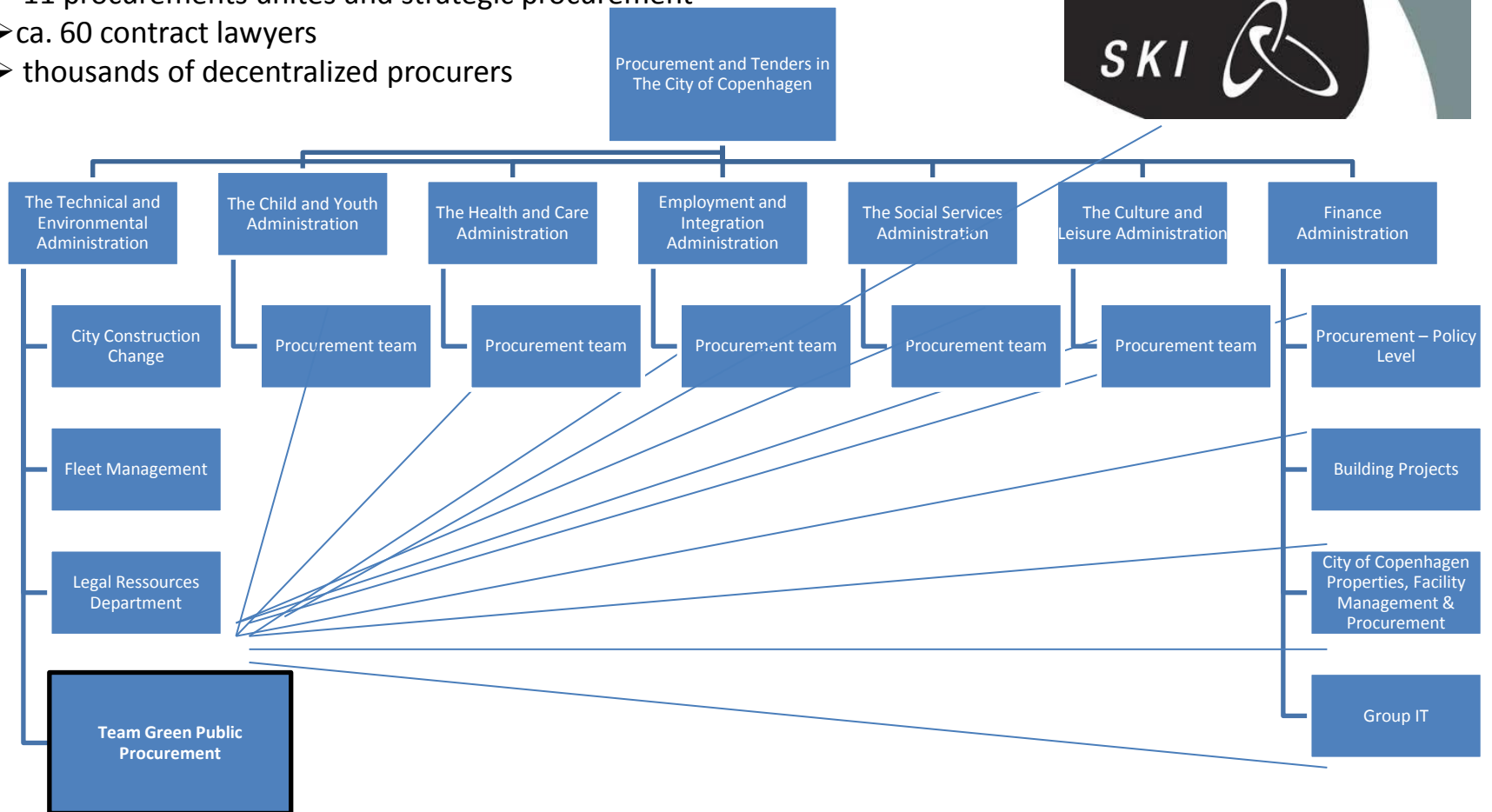
The annual procurement of the City of Copenhagen is 1,5 billion Euro

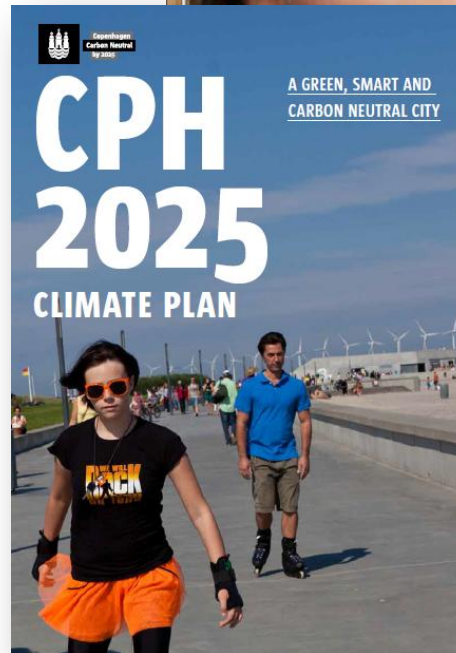
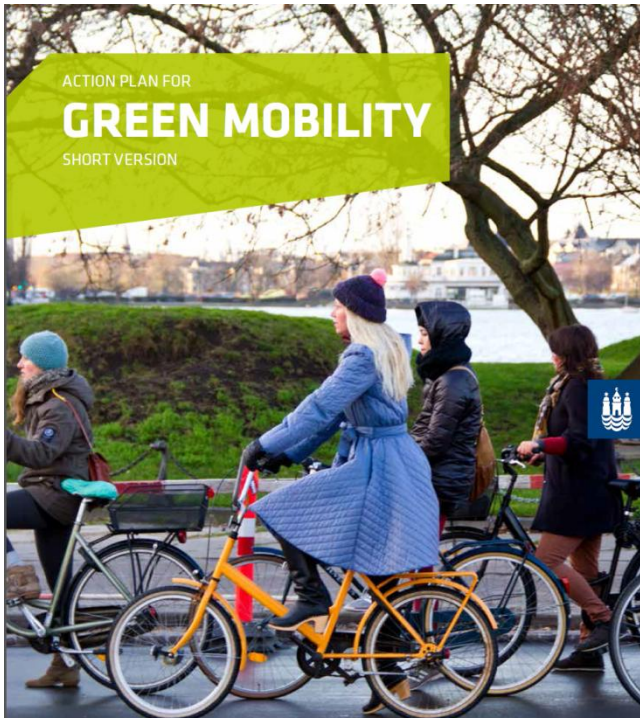
▪400 million euro on construction alone



# Organization

- 7 administrations
- 45.000 employees
- 11 procurements unites and strategic procurement
- ca. 60 contract lawyers
- thousands of decentralized procurers





# How do we work?



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# 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

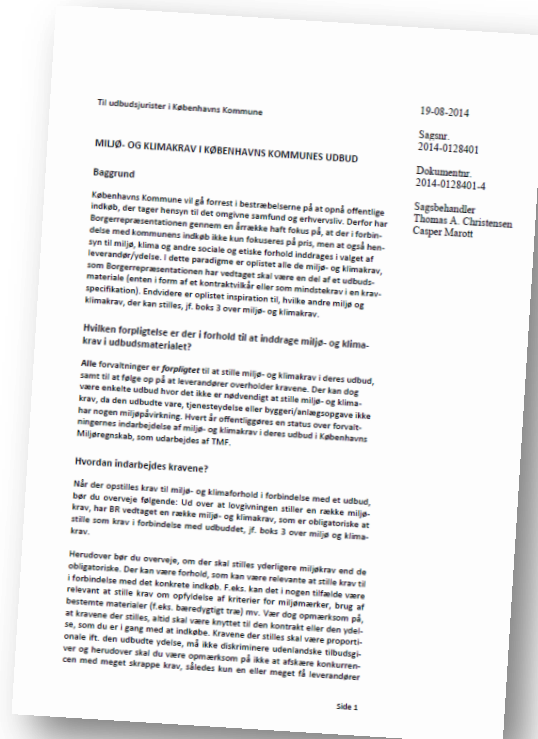
- Receive documentation
- Supplier meetings
- Audits





# Main activities

## Guideline for Environmental criteria



	ydelse skal overholde miljøzonekravet i København, dvs. som minimum opfylde Euro4-normen eller være eftermonteret med et effektivt partikelfilter. <a href="http://www.miljoezonen.dk">http://www.miljoezonen.dk</a> [Kilde: Miljøzonen]	
Transport	<b>Tomgang</b> "Alle Leverandørens chauffører skal gøres bekendt med, og overholde, Københavns Kommunes tomgangsregulativ, der forskriver, at motoren 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/2B3190CE193040EE87E54AA6A6FBE63F.ashx">http://www.kk.dk/~media/2B3190CE193040EE87E54AA6A6FBE63F.ashx</a> " [Kilde: Københavns Kommunes Tomgangsregulativ]	Obl
Transport	<b>Køretøjer under 3.500 kg</b> "Person- og varebiler under 3.500 kg. benyttet til udførelse af de af Rammeaftalen omfattede ydelser som anskaffes i kontraktperioden skal som minimum overholder Euronorm 5." [Kilde: Trafikstyrelsen]	Obl
Transport	<b>Køretøjer under 3.500 kg</b> Personbilers under 3.500 kg. skal være el- og brintbiler. [Kilde: Borgerrepræsentationen, 2011]	Obl
Transport	<b>Køretøjer over 3.500 kg</b> "Dieseldrevne køretøjer over 3.500 kg. benyttet til udførelse af de af Rammeaftalen omfattede ydelser som anskaffes i kontraktperioden skal som minimum overholde Euronorm 6." [Kilde: Trafikstyrelsen]	Obl
Transport	<b>Person- og varebiler samt personbefordring</b> 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 berigtiget af at det vurderes udgiftsneutralt eller besparende set i totalomkostningsperspektiv. [Kilde: Partnerskab for offentlige grønne indkøb]	Obl
Transport	<b>Køretøjer under 3.500 kg</b> "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 6."	Friv
Transport	<b>Køretøjer over 3.500 kg</b> "Dieseldrevne køretøjer over 3.500 kg. benyttet til udførelse af de af Rammeaftalen omfattede ydelser som anskaffes i kontraktperioden skal leveres med udstyr, der begrænser tomgangskørsel."	Friv
Transport	<b>Kør grønt-kursus (eco-driving)</b> Alle chauffører skal senest seks måneder efter kontraktindgåelsen have gennemført kursus i at køre grønt.	Friv
Transport	<b>Trafikstyring</b> Krav til anvendelse af et ruteplanlægningssystem	Friv

# BuyZET

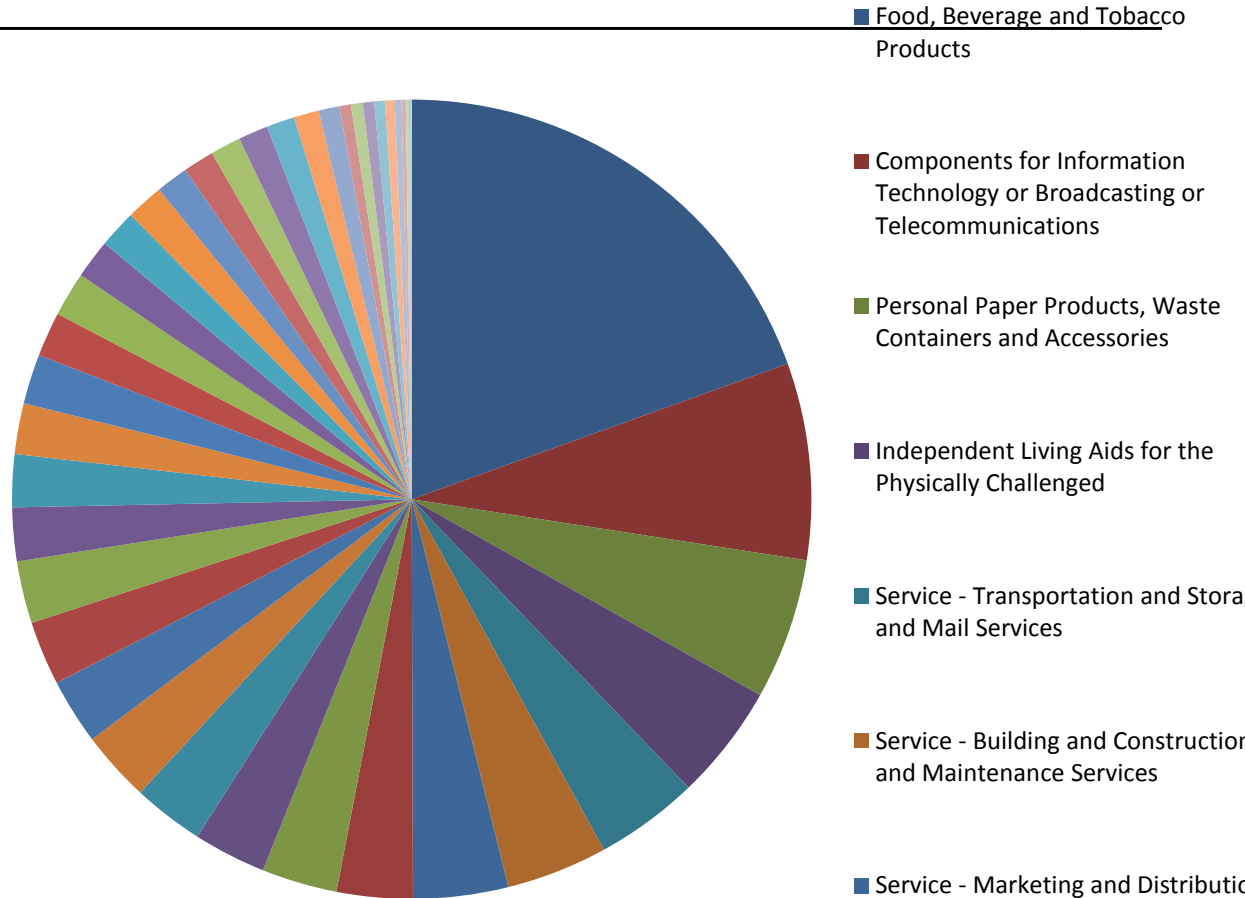


- The BuyZET project aim to exploit the full potential of public procurement to promote the introduction of innovative sustainable mobility solutions in cities.



# Category 3

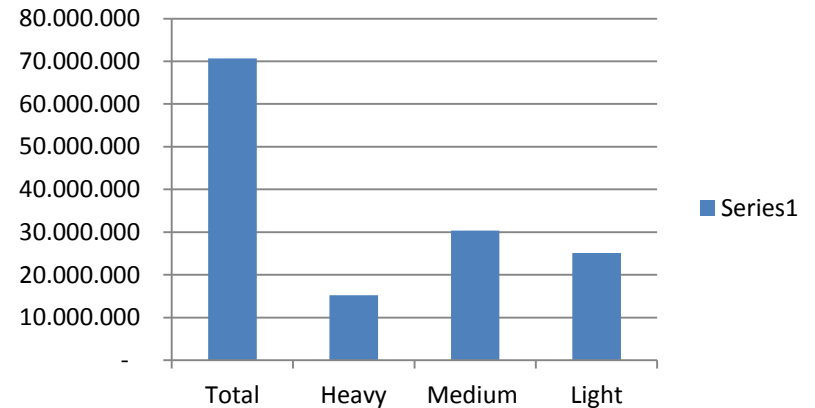
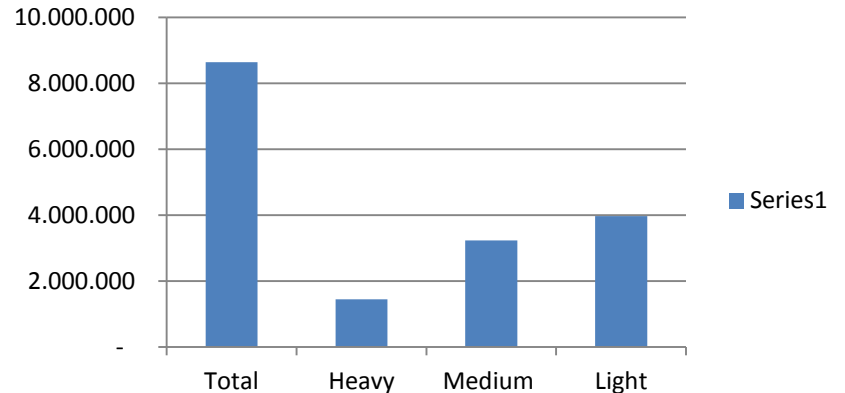
- Cat3 - Numbers of categories
  - 44 different categories
    - 24 goods
    - 20 services
- Total CO<sub>2</sub> emissions approx. 7.000 ton
  - Goods 4.000 ton CO<sub>2</sub>
  - Service 3.000 ton CO<sub>2</sub>



# Km driven

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- 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."**



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# Presentation of Actions

## Copenhagen City on alternative drivelines and fuels and procurement strategy towards 2025



David Marc Gurewitsch  
Fleet Development

COPENHAGEN CITY  
The Technical- & Environmental Administration  
City Operations

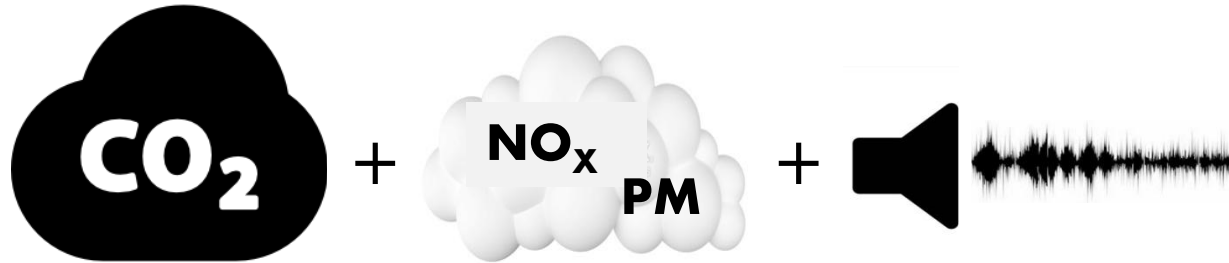


# Inner outer pressure...





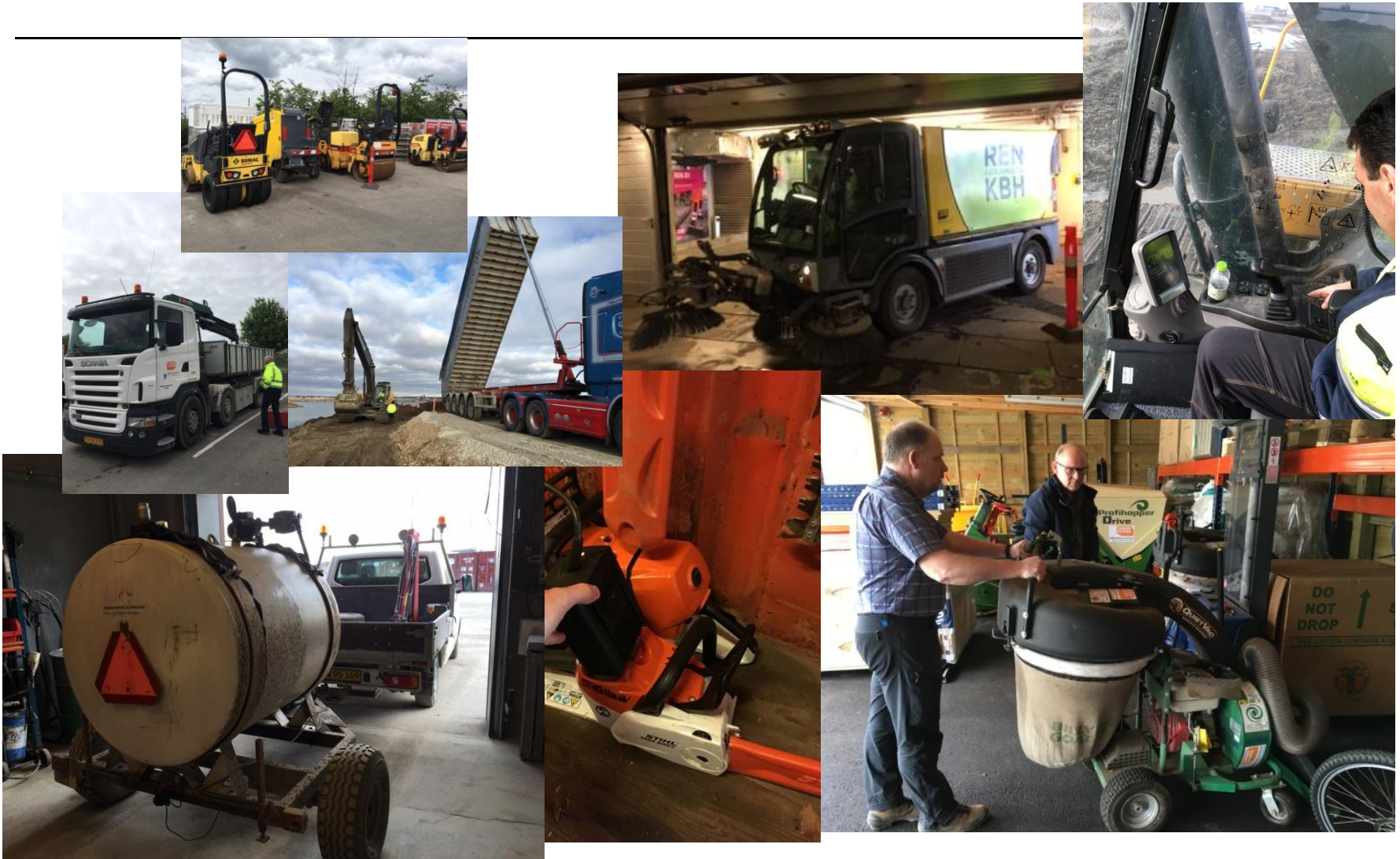
# Focus for the transition







# Operation slowly moving forward...





# Constantly overlooking hurdles and gains per driveline/fuel solution

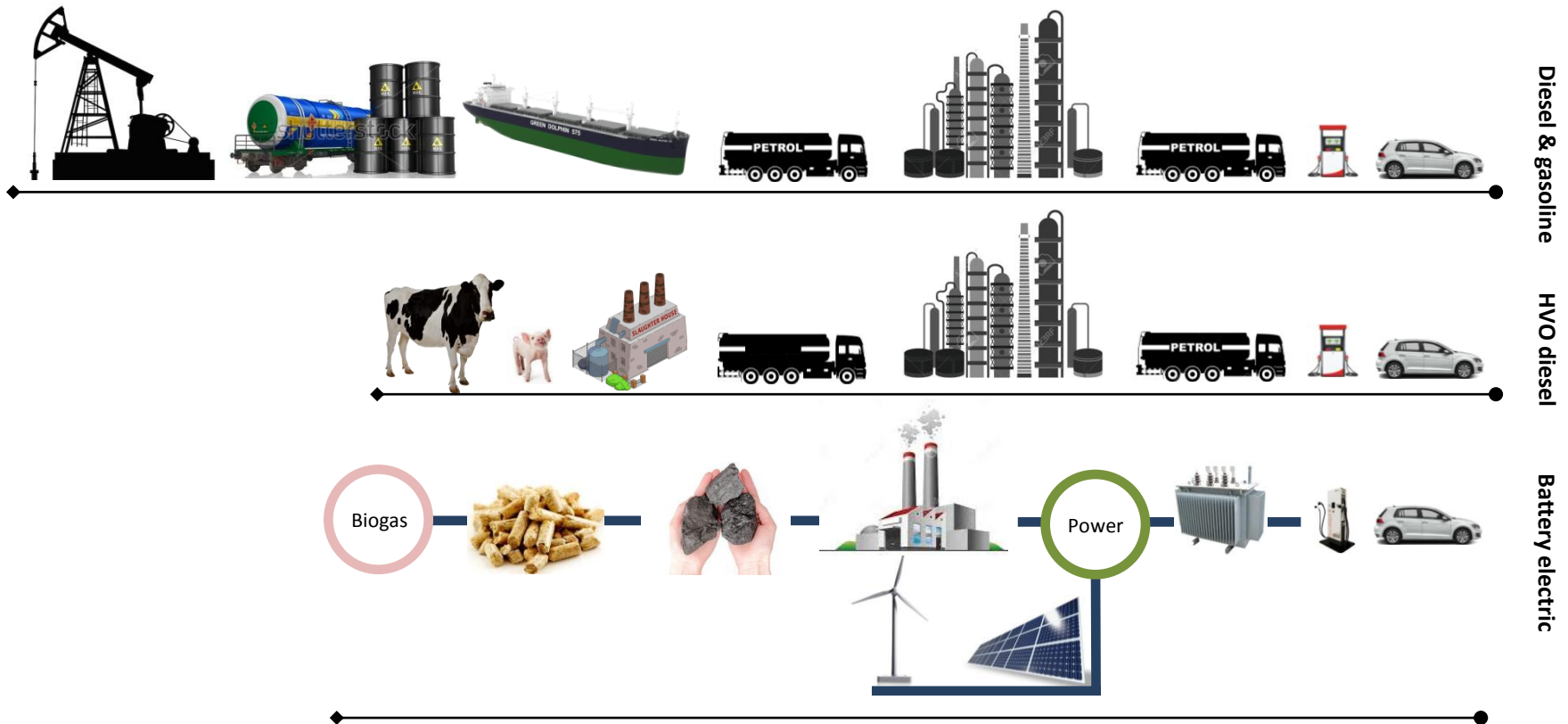
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- **Constantly overlooking matureness of driveline?**
- **Infrastructure geography placements vs. investment needed ?**
- **Expected cost of driveline and after sale price ?**
- **Operation costs** (fuel and service) ?
- **Ensure easier fleet management?**
- **Range needed / winter operation issues ?**
- **Idle usage that leads to NO<sub>x</sub> og PM focus ?**
- **Value change emissions (WtW) of CO<sub>2</sub> ?**
- **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*



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# Different solutions different CO<sub>2</sub> footprint



# Battery development - machines

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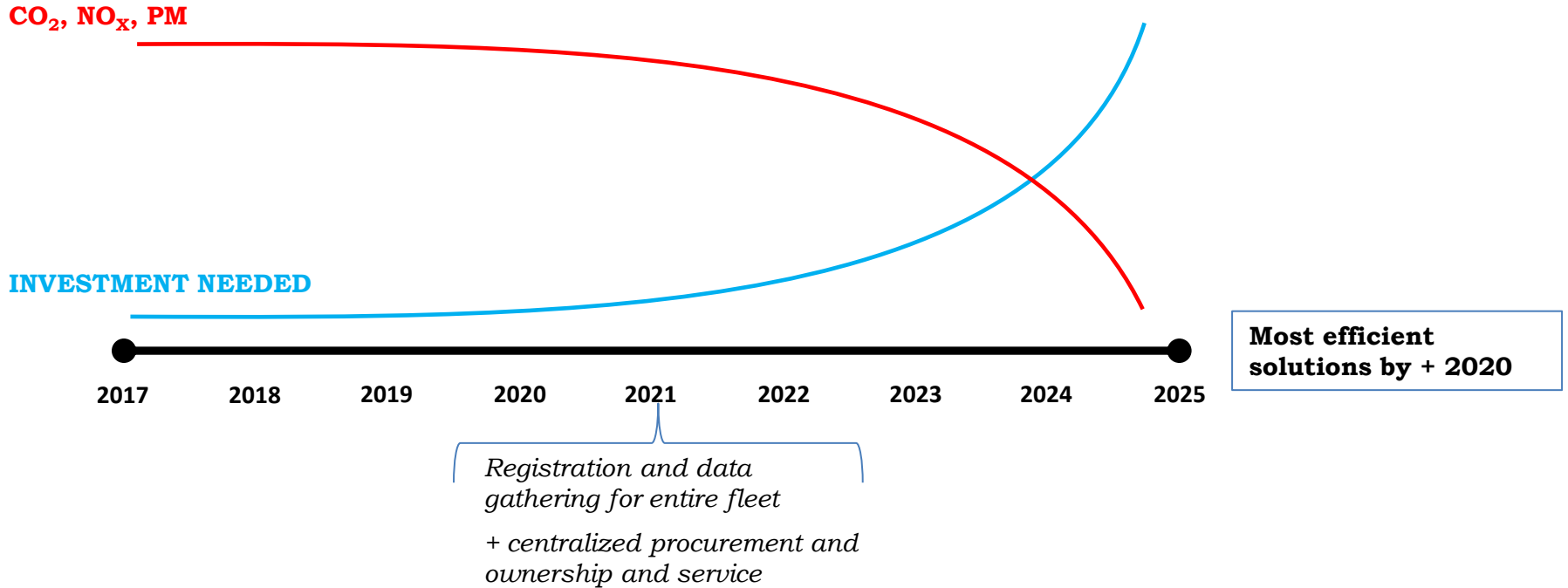
- **Low volume compared to car OEMs**
  - **Small scale battery cost (2017) 5 DKK/Wh incl. packaging + BMS**  
(minimum factor 5 from small scale to OEM cost prices)
- **Same market trend reductions in price (percentage) as for car OEMs**
- **3 x cost price for machine OEM on Euro Stage 5 engines (+2019) = electric driveline push !**
  - **No extra price for small/medium e-machines in 2020 due to Stage 5 increase**







# Planning is needed...





# Tests 2018

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## **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

## **CO<sub>2</sub> reducing/green methanol for vehicles and machines**

*Producing methanol from CO<sub>2</sub> and renewable power sources*

*Using green methanol in gasoline/gas engines*

*Reducing both CO<sub>2</sub>, NO<sub>x</sub> 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\*

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- 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...**

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- 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 CO<sub>2</sub> 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...

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## **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: CO<sub>2</sub>, NO<sub>x</sub>, TCO...?*



# Learnings...

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- *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!*



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**Comments/Feedback?**

# Contacts

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