



# Possibilities of Applying Electrically Powered Vehicles in Urban Freight Transport

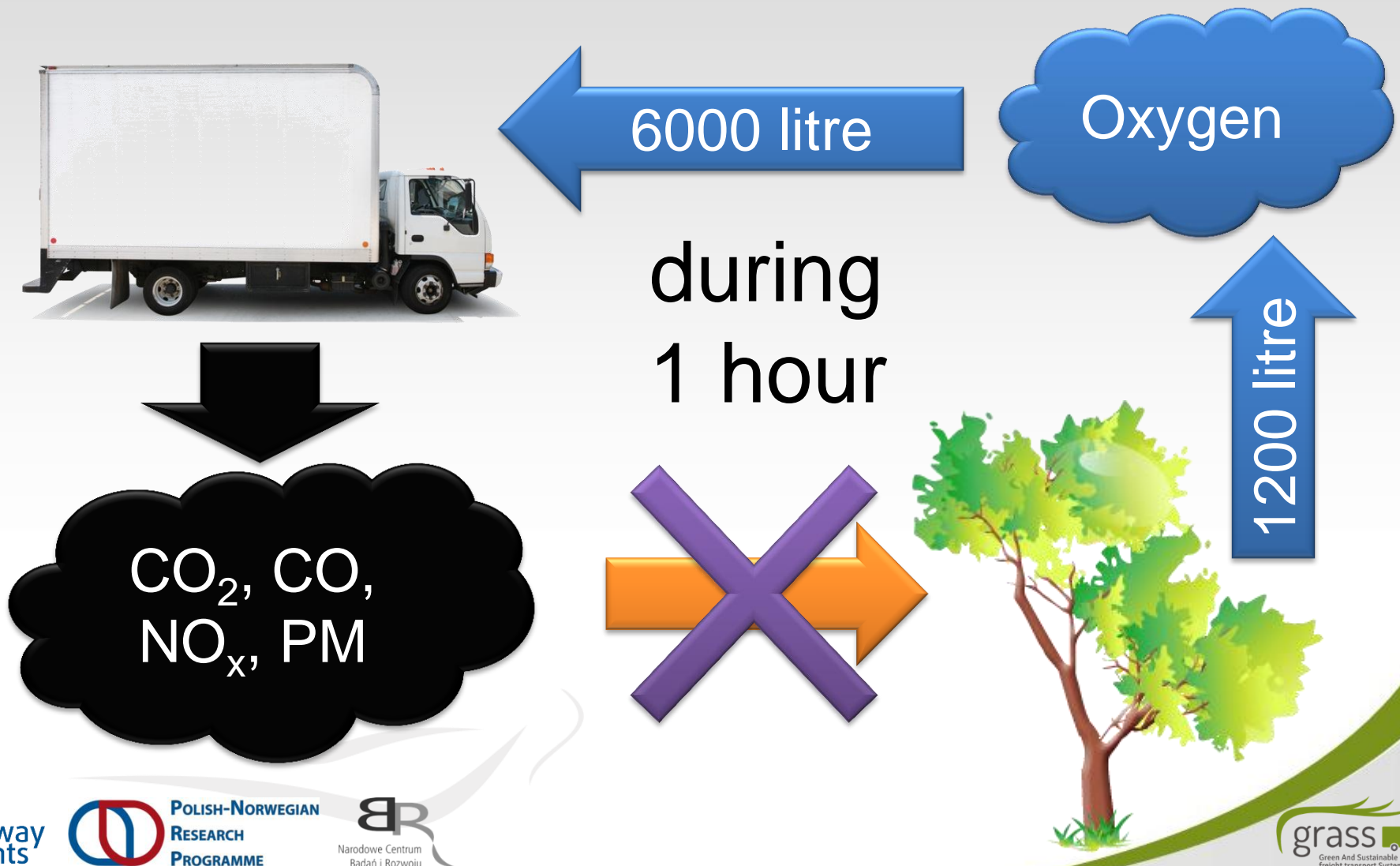
PhD Stanisław Iwan, Maritime University of Szczecin



# Agenda

- Background
- Implementation of UFT measures
- The method of adaptative approach
  - city analysis
  - stakeholders engagement
  - measures choice
- Analysis of chosen electric vans
- Problems

# Background



# Background

In Westpomeranian Region the road transport based on traditional engines produce per year ([www.wios.szczecin.pl](http://www.wios.szczecin.pl)):

49 457 Mg CO,

14 113 Mg NO<sub>x</sub>,

45 Mg SO<sub>2</sub>.

# Background

- The negative environmental impact of urban freight transport and deliveries to a large extent results from the fact that **conventionally fuelled vehicles are mainly used for that purpose.**
- Many countries, including all the EU ones, have implemented regulations aimed at setting adequately high technical parameters for conventionally fuelled vehicles in order to **reduce their negative impact**, however, **in the long term this seems to be insufficient.**

# Background

- This, combined with the issue of oil resources depletion, leads to a need to search for alternative drives.
- One of such solutions is electric drive. Electric vehicles are becoming more and more popular, nevertheless, they are mainly used in passenger transport.

# Alternative engines

- gas engine – in 18% smaller pollution emission and 3 dB noise than traditional engine:
  - Liquified Petroleum Gas (LPG)
  - Compressed Natural Gas (CNG)
- biofuel
- hydrogen engine
- hybrid engine

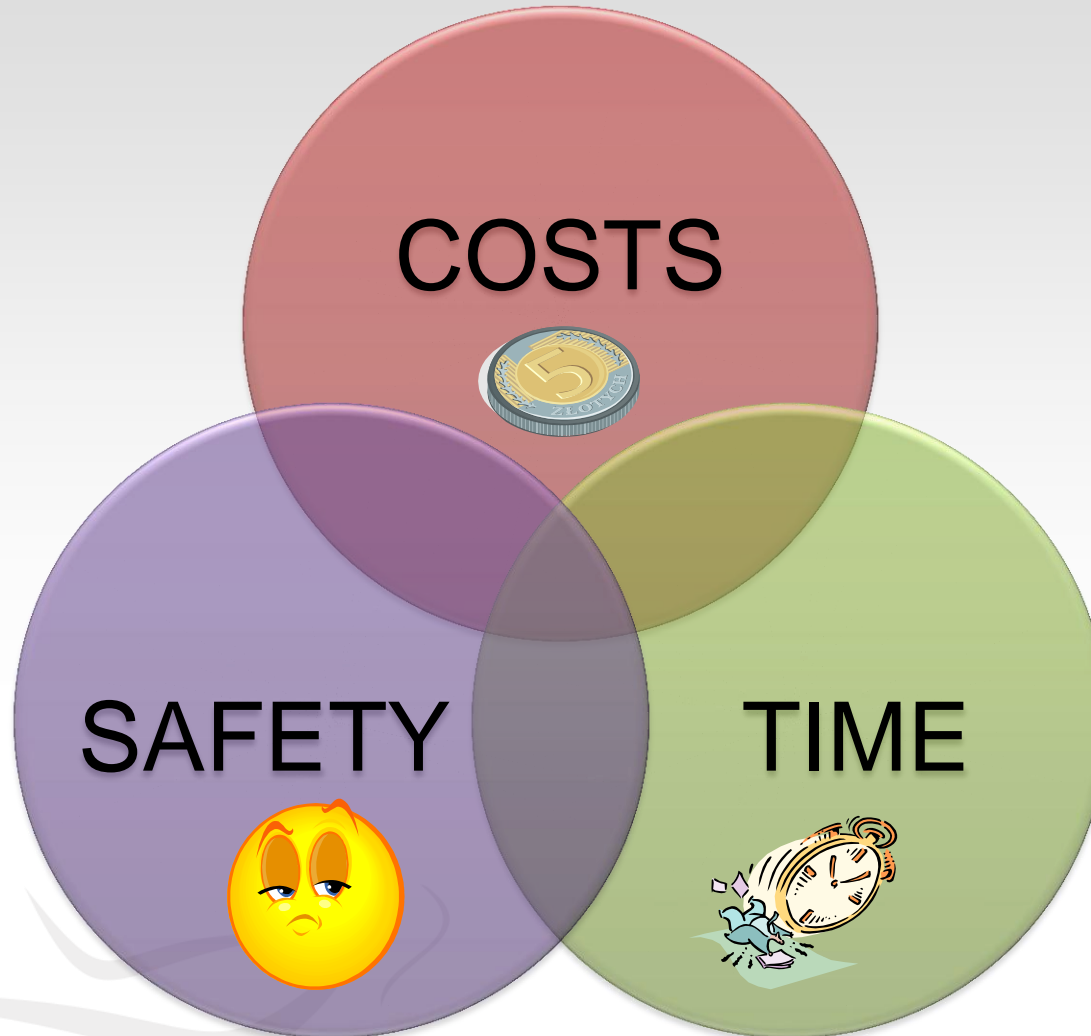


# Analysis of chosen electric vans

Name	Power [kW]	Max. speed [km/h]	Max. dist. [km]	Battery charging time [h]	Capacity [kg]	Price [zł]
Ford Transit Connect Electric	55	121	129	6	700	62 743,59 zł
Renault Kangoo	44	130	160	7	650	98 277,00 zł
Peugeot Partner	66	130	170	8	685	76 500,00 zł
MegaVan	n/d	60	150	6	600	50 500,00 zł
Mitsubishi MINICAB-MiEVc	30	80	150	6,5	350	96 640,00 zł
Piaggio Porter	Brak danych	57	110	8	750	95 733,36 zł
Vito E-CELL	60	80	130	5	850	Brak danych
Volkswagen e-Co-Motion	85	120	200	7	800	Brak danych
Opel Vivaro	77	110	100	8	750	Brak danych
Navistar eStar	70	80	160	8	2000	153 000,00 zł
Modec	70	80	160	7	2000	126 250,00 zł
ZeroTruck	100	90	160	9	7000	Brak danych
Smith Electric Vehicles US Corporation (SEV US Corp)	120	80	160	7	7000	274 572,00 zł



# The problems



# The costs

- Costs of electric vehicles purchasing
- Costs of utilization of vehicles in term of energy production
- Cost of batteries waste

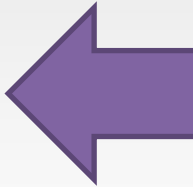
- exemption from taxes
- no fees for the enter

- renewable energy sources

- recycling methods
- storage method

# The time

- Time of batteries recharging

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- new technologies of charging
  - battery replacement
  - the charging during the load/unload operations

# The safety

- People could not notice the vehicle due to low of noise level
- Auto-ignition of the batteries

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- change of the habits
  - knowledge sharing

- 
- new technologies

# Thank you for the attention



[info@grassproject.eu](mailto:info@grassproject.eu)  
[www.grassproject.eu](http://www.grassproject.eu)

Stanisław Iwan, Maritime University of Szczecin  
[s.iwan@am.szczecin.pl](mailto:s.iwan@am.szczecin.pl)