Welcome

How to proceed with Onshore Power Supply?

Programme workshop

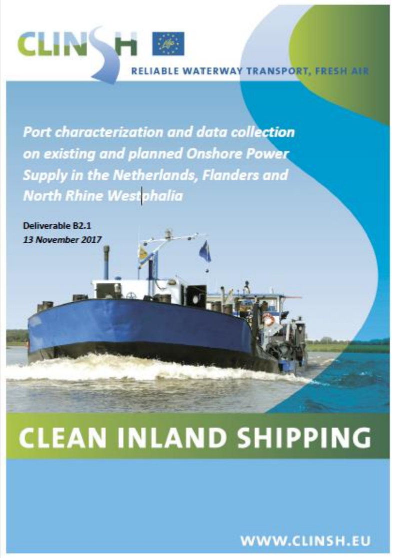
15:00 - 15:05	Introduction workshop by Moderator Remco Hoogma, City of Nijmegen
15:05 – 15:20	Results of Onshore Power study in CLINSH, by Erik Lubberding, City of Nijmegen
15:20 – 15:35	TEN-T Onshore Power in Flanders project, by Mohssine El Kahloun, Flanders Department of Mobility & Public Works
15:35 – 15:50	Innovative shorepower facilities in Arnhem, by Jan Fransen, Walvoorziening Nederland BV
15:50 – 16:00	Discussion

Results of Onshore Power study in CLINSH

Erik Lubberding

12 April, 2018

Ports and the City Conference, De Lindenberg, Nijmegen



Contents

1 Introduction & background report

- A. Introduction
- B. Method
- C. Port Characteristics

2 Key results & conclusions

- A. Key findings data analysis
- B. Conclusions, backed by interviews

3 Policy implications

1A Introduction

Goal task

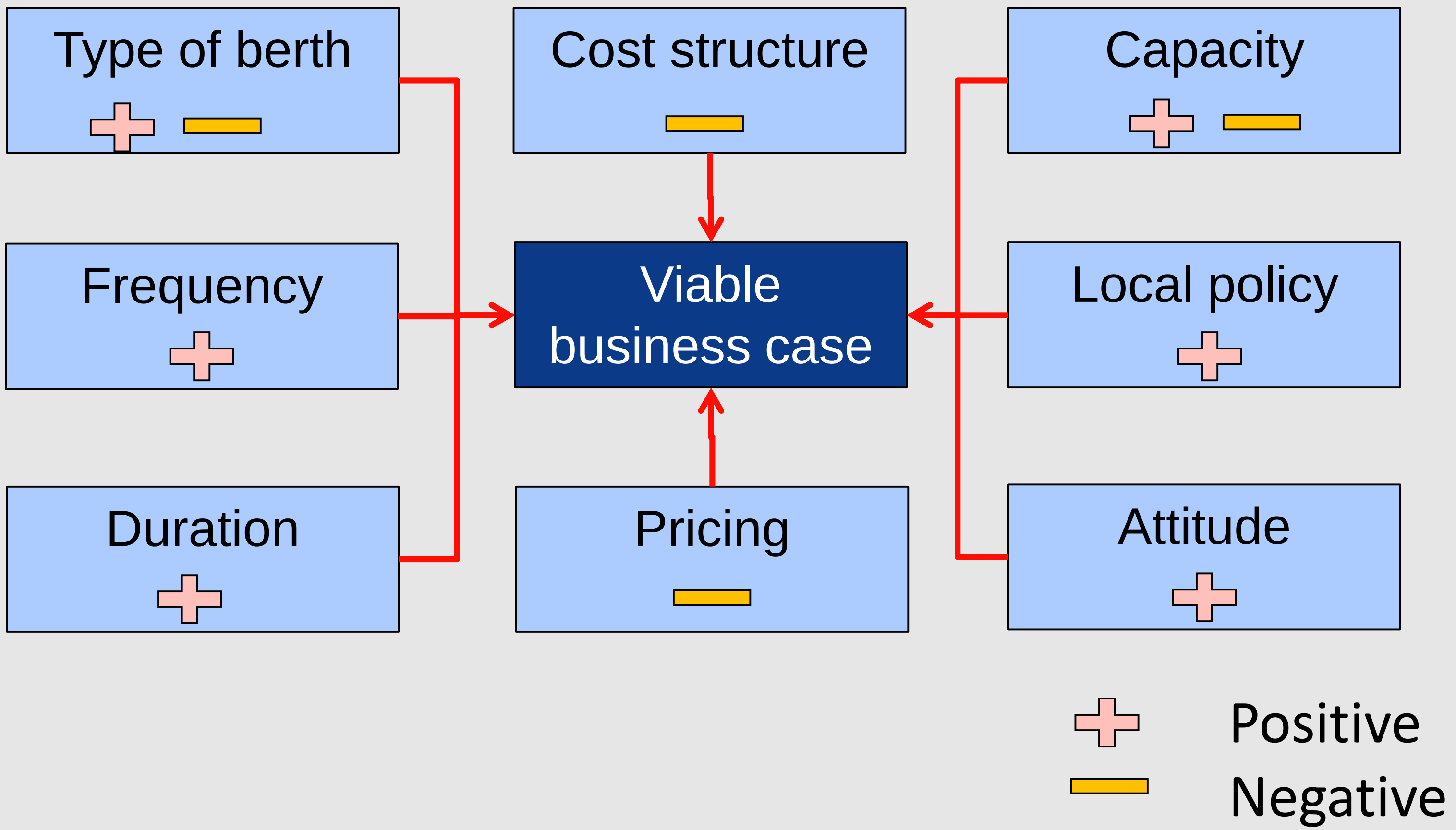
- study the characteristics of OPS initiatives
- describe the different modes of OPS which have been installed in ports and along waterways, and the existing plans for OPS installations.
- examine locations that might benefit from OPS.
- characterize ports so that costs and impacts can be compared, and priority locations can be identified.

1B Method

- Analysis of data provided by Involtum, covering over 50,000 transactions from 2011 until 2015.
- Anonymized, categorized
- (Some) additional data from port authorities and municipalities and service provider Park Line Aqua.
- Additional interviews with ports and OPS providers in NL and for case study Arnhem-Nijmegen region, used to verify and provide context to data analysis.

1C Port characteristics

Building blocks for business case OPS <u>for port authorities</u>



1C Port characteristics

Priority locations for successful implementation of OPS

River cruise in home ports, ports of call and off season (repair ports)

Cargo (container) terminals with long (un)loading

Waiting docks and overnight mooring for cargo vessels

Maintenance and repair docks

Home ports nautical services

2 Key results & conclusions

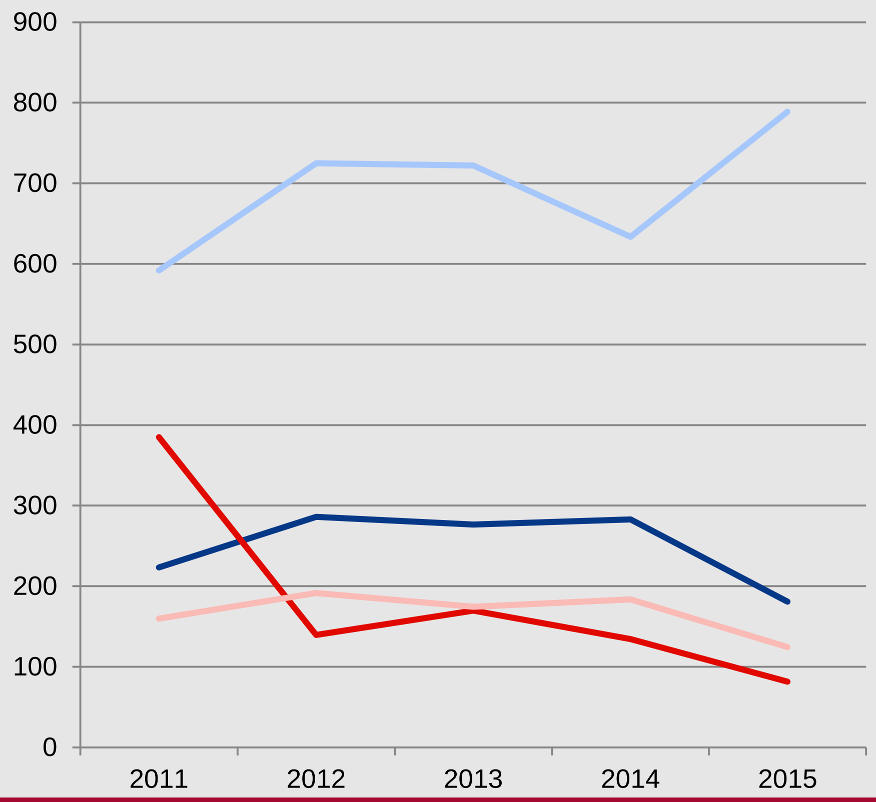
A. Key findings data analysis

B. Conclusions, backed by interviews

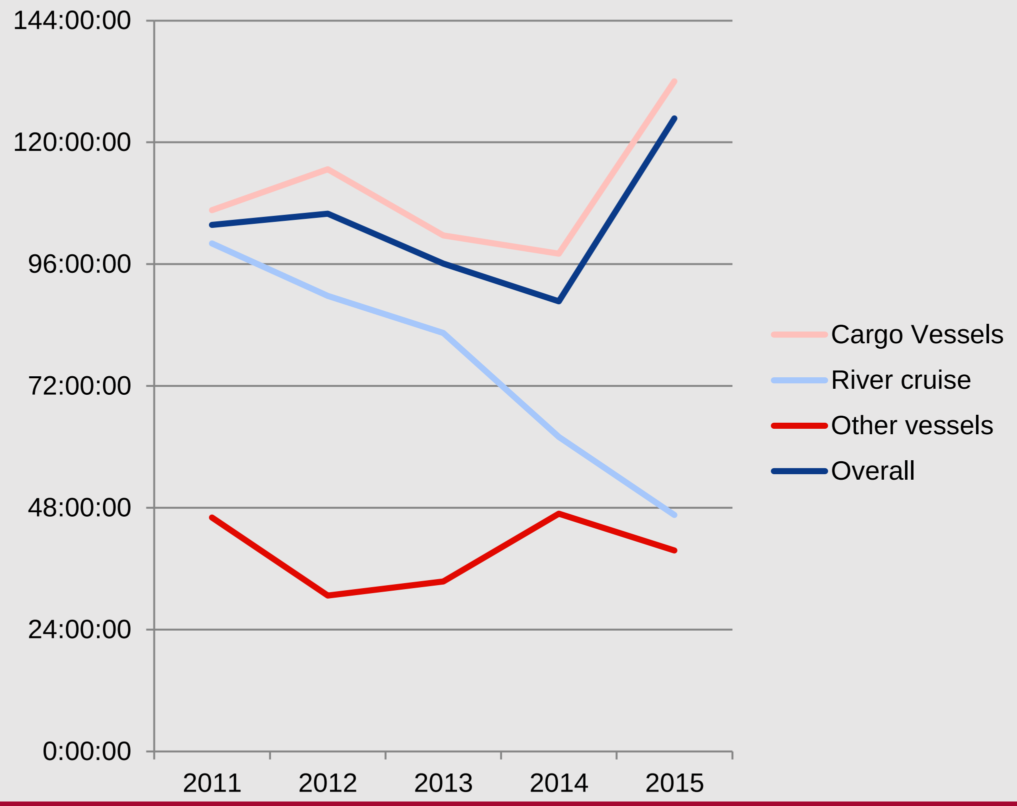
2A Key findings data analysis

Overall findings all vessels

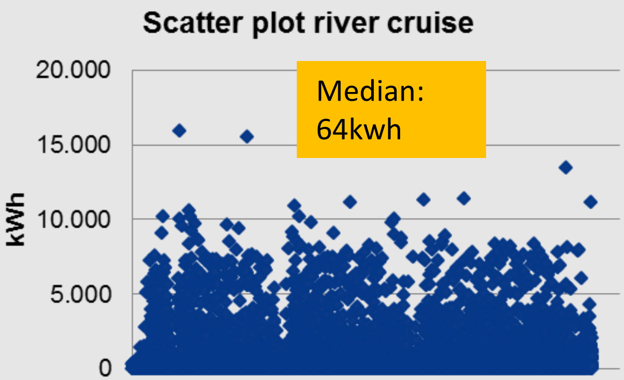
Average electricity usage per transaction
in kWh, 2011-2015, source: Involtum

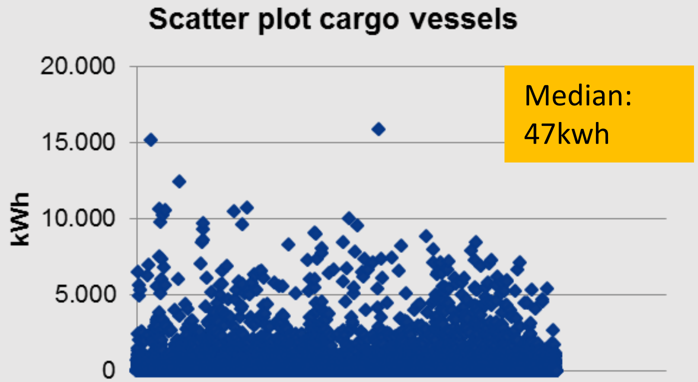


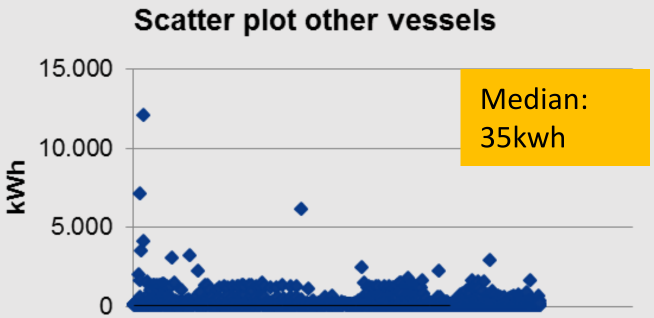
Average transaction time
in hh:mm:ss, per type of berth
2011-2015, source Involtum



Average vs distribution



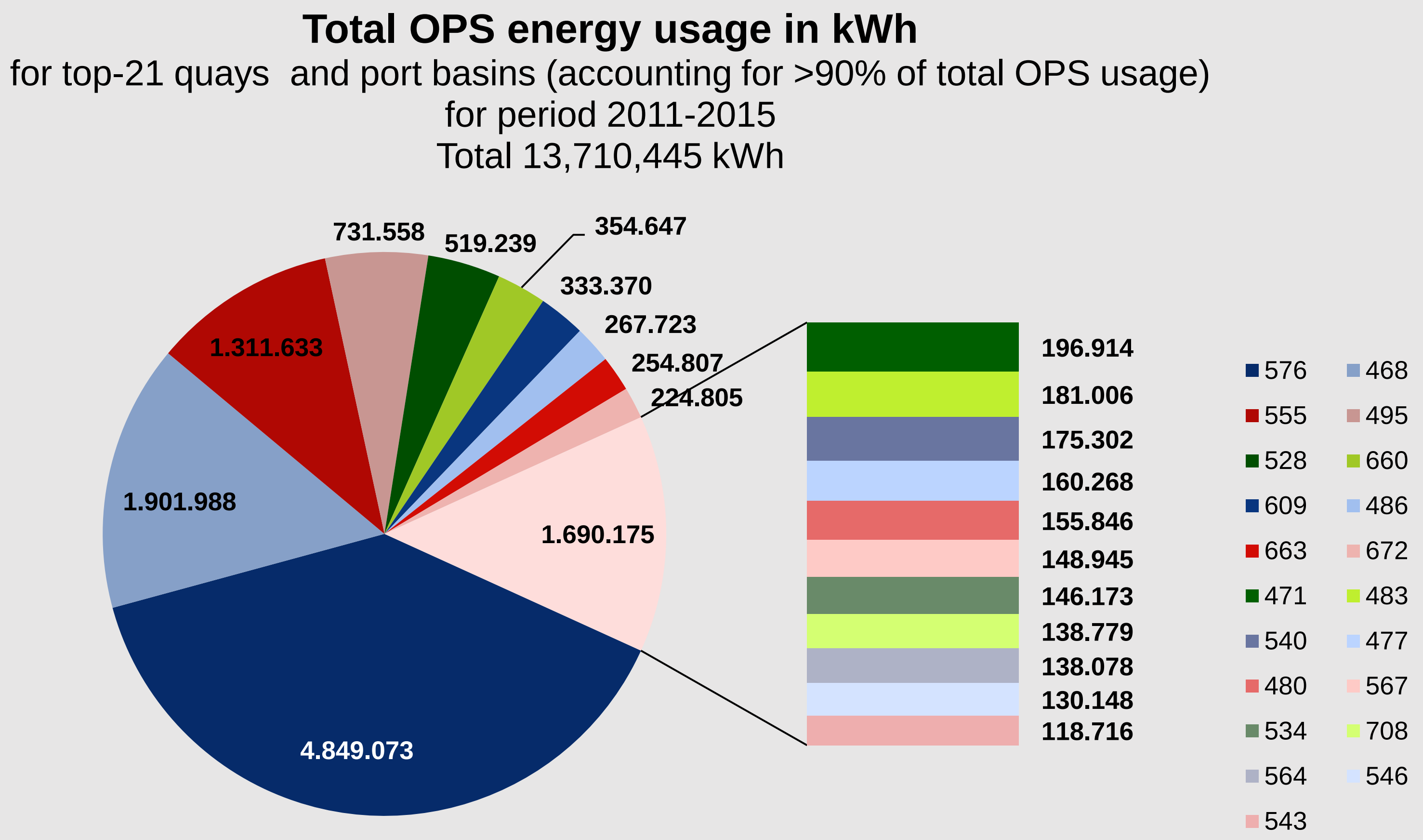




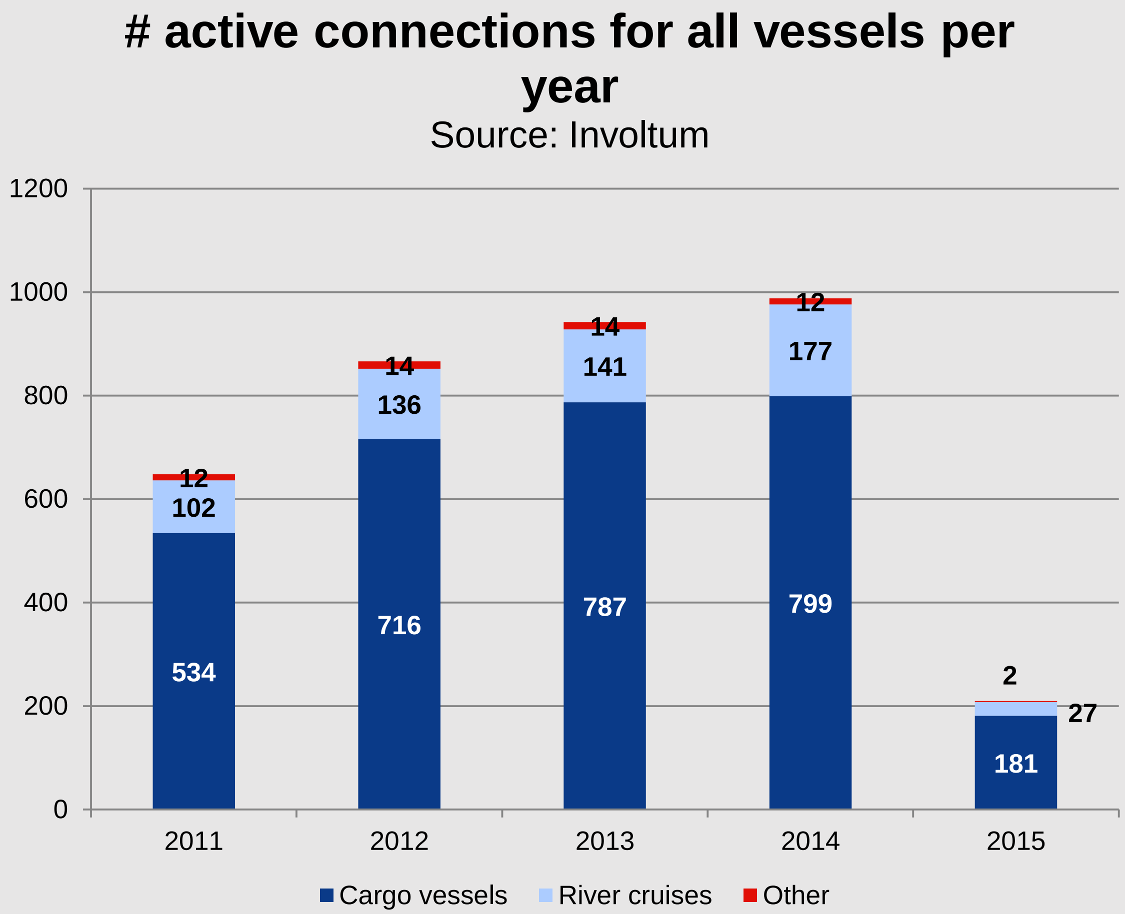
Median sign. lower dan average, becasue of small # high frequent users

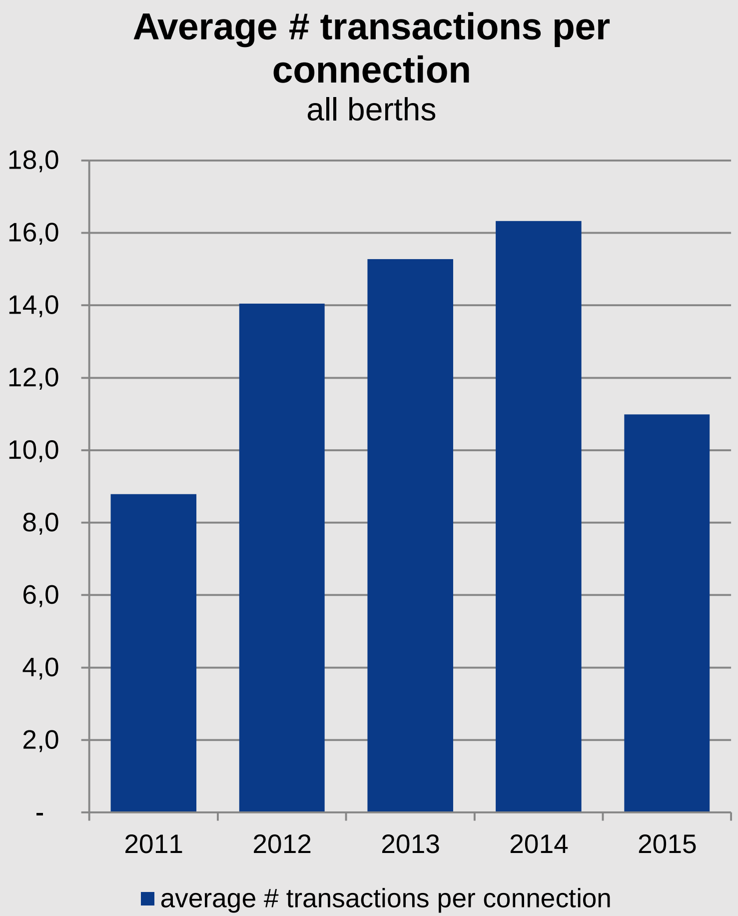
Scatter plots distribution of kWh usage 2011-2015 by ship type (Involtum data 2011-2015)

2A Key findings data analysis Netherlands



2A Key findings data analysis Netherlands





2B Conclusions, backed by interviews

- Energy consumption cruise vessels is much higher than for cargo and other vessels. It should therefore be easier to build the business case for OPS on river cruisers, although the costs (CAPEX and OPEX) will also be higher.
- The frequency and duration of berthing is most of all determined by (macro, meso, micro) economic factors, such as demand for cargo transport from or to a port, and demand for cruise holidays.
- The utilization of OPS cabinets for cargo ships is the highest in the places where ships are waiting for new cargo for extended periods of time.

2B Conclusions, backed by interviews

- Using medium voltage grid connections rather than low voltage (which provides better power purchase rates) or registering a group of OPS cabinets under one meter offers cost efficiencies (which means that a lower energy price and tax rate applies).
- When the price of OPS is too high, then it is attractive for the skippers to generate their own electricity on board, especially when diesel fuel is cheap. The price of OPS is more or less the same in most of the Netherlands and Flanders. There are cases where lower rates are charged or OPS is offered for free.

2B Conclusions, backed by interviews

- The type of port management (private, public) is important for the ability and willingness to invest in and make policy to promote use of OPS.
- The benefit of OPS to society will be highest in locations that are close to residential areas where vessels' noise and emissions cause nuisance and health impacts. This will increase the willingness to invest in and make policy to promote use of OPS
- a small amount of heavy OPS users (vessels) at a small number of berths and a small number of connections make up the vast majority of OPS transactions and energy consumption.

3 Policy implications

Overall conclusion

OPS policy should focus on:

- targeting potential heavy users;
- selecting sites for OPS provision in a demand-driven approach and in close collaboration with the ship owners and their principals;
- Ideally the ship owners articulate their demand for OPS in locations that suit them and the authorities facilitate accordingly. This way the public funding can be concentrated on those OPS sites that will show the highest utilization and therefore maximum public benefit (improving air quality and reducing noise).

3 Policy implications

Next steps

1. Combine EU-wide available knowledge on OPS and formulate do’s and don’ts for implementing OPS as a air quality measure in ports
2. Share best practices on procurement, schemes, incentive programs as input for “demand-driven facilitation” approach
3. Governments should find ways to facilitate OPS by creating a friendly fiscal regime (energy tax)
4. In spatial-economic projects in urban areas along the river: include OPS as a measure to improve Air Quality and reduce noise.

3 Policy implications

5. To significantly increase the utilization of OPS instead of on-board diesel generators the OPS solution should be cheap and easy to use for skippers
6. (Innovative) Technical solutions can *and should* improve the business case for port authorities and municipalities
7. (Innovative) Energy as a Service (EaaS) solutions can offer “on-demand” solutions for skippers (waste, utilities, port dues etc.)

Questions?

Overview of different types of OPS equipment in NWE region