

# Exploiting the potential of public procurement - Opportunities for cleantech diffusion

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## Background



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Policies, for example:

- ETAP 2009, Environmental technologies action plan of EU
- Europe 2020 strategy
- new procurement directive in EU, 'innovation partnership'
- in Finland, Government Resolution 2013 set an objective of 350 million €, i.e. 1 % of the total value of nation's annual public procurement expenditure, to be targeted to cleantech solutions (new government 2015: 5%)

Literature, e.g.:

- Edler & Georghiou 2007, Uyarra et al. 2014, Georghiou et al. 2014, Edquist et al. 2015

## Goals of the paper

- clarify what is cleantech in the context of public procurement and investments
- develop a definition for public cleantech procurement
- analyse what kinds of solutions can be considered as cleantech in public procurement
- examine those sectors in which public cleantech procurement could be most applicable, potentially leading to the diffusion of cleantech products, services and solutions
- discuss the relevance of public cleantech procurement.

## Material and methods

- Literature review, study of investment plans for year 2015 of 20 Finnish municipalities, interviews with industry experts (10), cleantech companies (9), procurers (25), innovative public procurement cases funded e.g. by TEKES.

# Definition of cleantech

Common elements of 'Cleantech' in 17 literature sources:

1. Environment – Cleantech solutions cause remarkably less environmental impacts during life cycle compared to other products or services for similar purpose in the market
2. Economy – Cleantech solutions are economically competitive especially in life cycle costs
3. Technology – Cleantech aims at solving environmental problems through technology which is commercialized or has the potential to be commercialized
4. Innovativeness or novelty – Cleantech solution is an innovative or novel solution compared to the market offering
5. Market references – Cleantech is export oriented business where home market references are of key importance for national companies and creation of business.

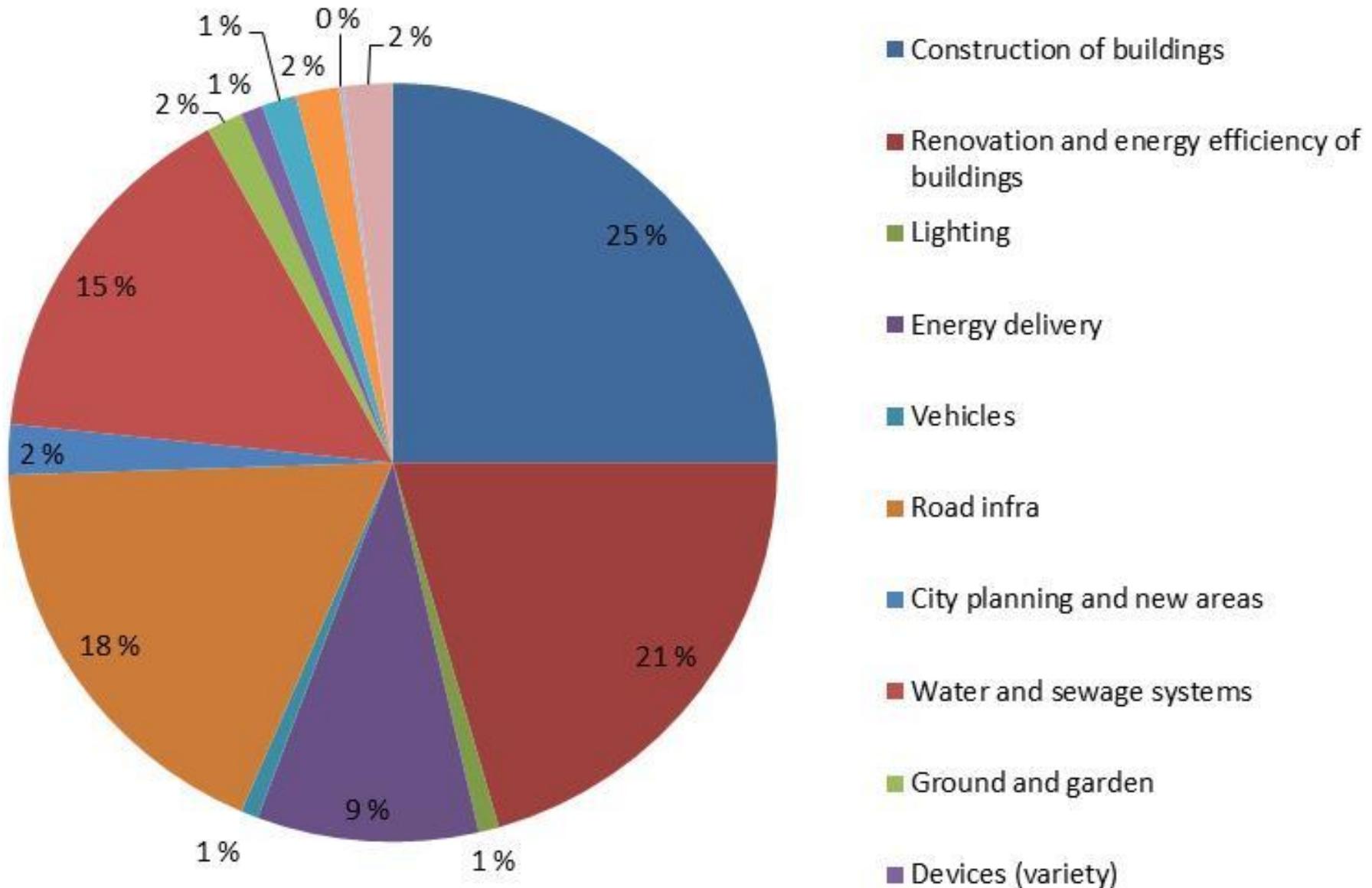
## Cleantech procurement – our definition so far

*Procurement of competitively priced products, services or systems that satisfy the customer needs and lead to remarkably smaller environmental impacts by utilizing novel or innovative technology especially in terms of increasing energy- and material-efficiency and use of renewables, compared with other solutions for similar purpose in the market.*

Notice slight difference to PPI, Public Procurement of Innovation: new technology always present.

# Potential cleantech procurement sectors

Investment plans of 20 Finnish municipalities (value 156 millions E):



# Potential cleantech procurement sectors

From investment plans of municipalities:

- Construction, renovation and energy efficiency improvements make 46 % of the value.
- Also road construction (18 %), water and waste water systems (15 %), energy delivery system (9 %).

According the Finnish government resolution 2013, cleantech can be applied to different sectors, but the following are recognized as the most suitable:

- Construction
- Energy
- Transport
- Waste management.

## **Some examples** (of the 33 ones in the paper)

### **Haltia – The Finnish Nature Centre**

First Finnish building from cross-laminated timber, geothermal heat and solar heat collectors, green roof, self-adjusting air-conditioning and lightning.



### **Passive house Suurpelto daycare, City of Espoo**

Fullfills passive house specifications, utilize geothermal and solar heat energy.

### **Improve the energy efficiency of 14 municipal buildings by Energy Service (ESCO), City of Vantaa.**

Savings of euros (20%), energy (20%) and greenhouse gas emissions (30%).

## Some examples, continues



### **Climate Street, Amsterdam (-> Helsinki)**

Electric vehicles for waste collection, sustainable street lighting (lights dimmed by 50 % during quiet times), tram stop with solar powered lights and sustainable material, solar powered waste collection system allowing the bins to be emptied five times less frequently, specific cleaning water system.

### **Combined heat and power plant (CHP), Toholampi municipality**

CHP for relatively small scale energy production using a process based on the Organic Rankine Cycle. First in FIN.

### **Biogas buses and system, City of Vaasa**

Buses use locally produced biogas. New business and delivery network developed for the biogas production from local waste.

## Some remarks / Discussion

Often initial procurement price higher, problems with budgeting system (investments vs. operational costs), one solution life cycle costing (LCC) or ESCO, e.g. buildings, roads, leasing of solar panels.

Often not a true 'innovation' but first procurement in a country or a modified application -> cleantech diffusion.

Avoiding too strict and narrow specifications, specifying the performance or service instead of technical solution -> possibilities for innovative solutions.

Cleantech procurement can give rise to the local 'ecosystem', where different smart systems interact with each other and people (City of Vaasa, biogas buses).

## Some remarks / Discussion

Looking from the business side, cleantech can be export oriented business where home market references are of key importance for the companies, especially for start-ups and SMEs. – However, looking from the procurement side, fair competition!

Possibilities for 'chain reactions', e.g. municipality of Ii procured electric cars and invested in a charging network -> private consumers now also switch to electric cars.

CHP (combined heat and power) using wood as the fuel clearly an unexploited possibility in Finland, for municipal buildings outside the district heat network (schools, kindergardens, etc.).

Learning from the experiences/documents of other procurers important (encouragement, right legal procedure).

# Conclusions

Public Procurement of Cleantech (PPC) offers a large potential to the creation and diffusion of new technologies, with much lower environmental impacts than the prevailing ones.

We shouldn't be too strict about 'truly innovative' solutions, as the diffusion of new technologies is not always rapid and needs encouragement. Cleantech procurement could include also the procurement of a new technology for the first time in a country, or a new kind of application in a municipality.

# Conclusions, continues...

The project funding by TEKES for procuring organisations, granted for the ***planning phase*** of the procurement ***to reach innovative public procurement***, has raised PPC and PPI initiatives and activities among Finnish public procurers.

PPC has some differences compared with PPI (Public Procurement of Innovation), and both differ from PCP (Pre-Commercial Procurement).

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