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# **Circular Resource and Energy System**

## **- a vital precondition for a Sustainable Development**

Eirik Folkvord Tandberg / VP Fortum Oslo Varme, City Solutions division



# What is demanded from Smart Cities?



## Urbanizations requirement

*More people and higher activity  
in a small geographical area*



## Societies requirement

*Climate friendly activity at  
low cost*



## Peoples requirement

*Solutions that always work at  
low cost*

# District Heating and Waste-to-Energy is important for optimal resource utilization

## Energy sources:

- WASTE HEAT
- ELECTRICITY
- HEATPUMP/ SEWAGE
- DATACENTER
- WOOD PELLETS
- BIO- AND FOSSIL OIL
- BIODIESEL
- LNG



3289 Domestic housing

1010 Apartment buildings

1168 Commercial buildings

Distric heating, cruiseships/ferries

District heating

ENERGY RECOVERY FROM 400.000 TONNES WASTE/ YEAR

600 km district heating network

30 million liters hot water distributed throughout Oslo

District cooling

Production capacity  
**150 GWh**  
electricity







# Carbon Capture in Oslo

- Goal to capture about 400 000 tons CO<sub>2</sub> per year
- CCS at Waste-to-Energy plant will capture both fossil and biological CO<sub>2</sub> (appr. 50 % BIO-CCS)
- CO<sub>2</sub> transport to port via emission free cars
- Pilot testing on real flue gas is ongoing
- 90% cleaning of CO<sub>2</sub>



**Join the change!**

