

City Solutions

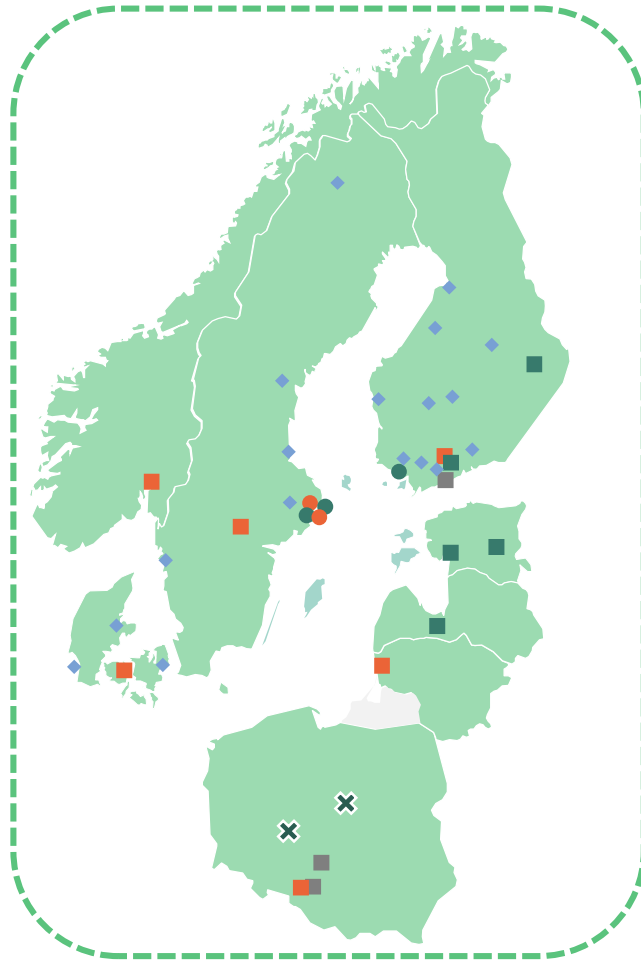
# Circular economy in practice

Per Langer, EVP – City Solutions

13 November 2018

# Fortum – leading player in heating, circular economy and solar

## Strong foothold in the Baltic Rim

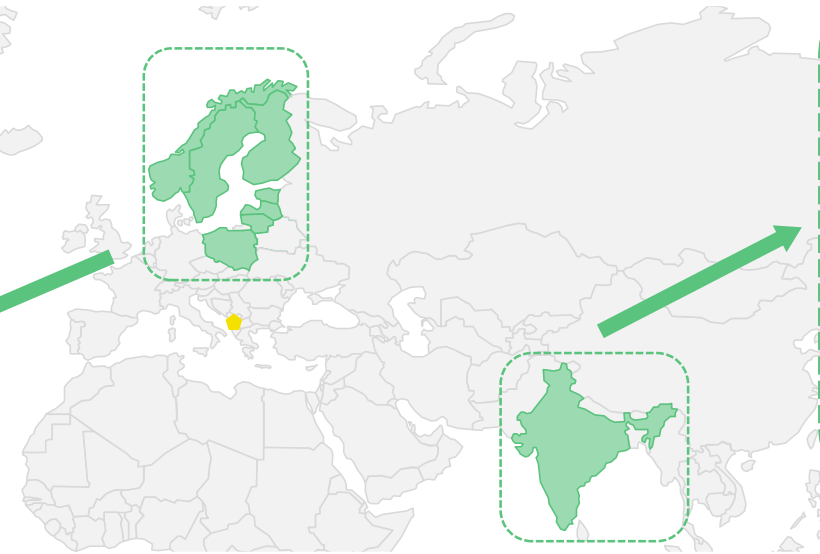
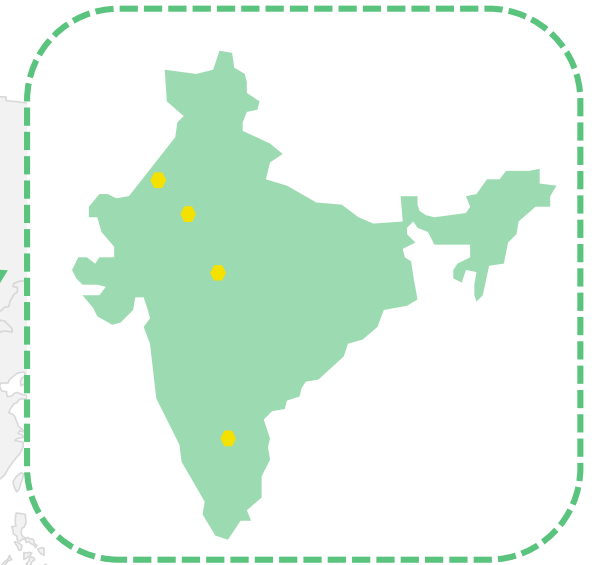


- Fortum CHP
  - Associated companies' CHP
  - ◆ Other waste management locations
- Bio  
■ Waste  
■ Gas / coal & multi-fuel

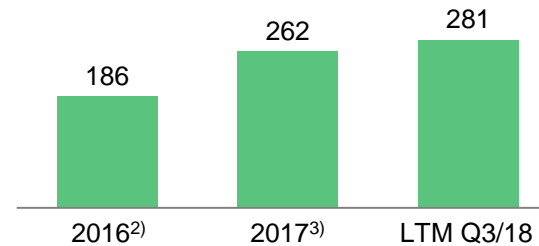
- ✕ District heat supply/networks w/o own production

- ◆ Solar

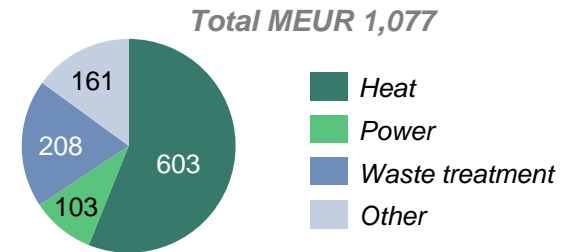
## Established solar offering in India



EBITDA development (MEUR)<sup>1)</sup>



Sales split (MEUR, LTM Q3/18)<sup>1)</sup>



1) Financials do not include Solar which will be a part of CiS division from the beginning of 2019  
 2) Consumers Solutions excluded from financials for better comparability  
 3) Fortum Oslo Varme consolidated from August 2017 onwards

# Operating environment – highlights by business

## Heating and cooling

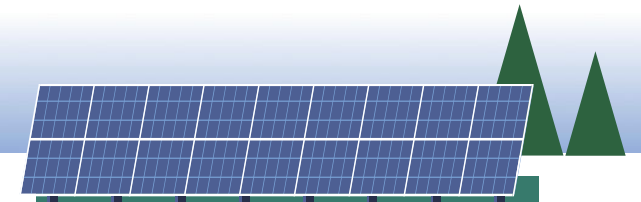
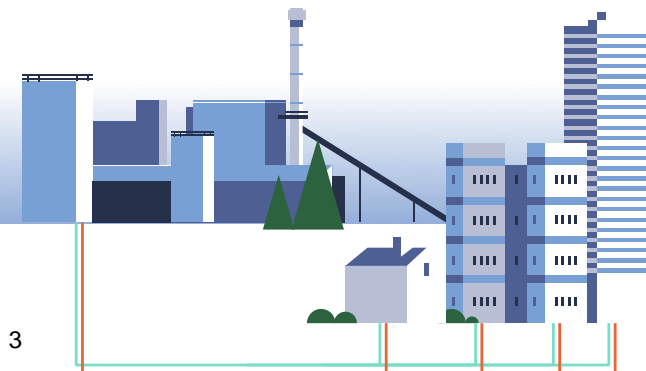
- Relatively stable business environment
- Heat storage and cooling solutions increasingly important
- District heating flexibility and complements renewables with growing focus on environmental impacts

## Circular economy

- Waste and recycling: small players and consolidation opportunities
- Waste-to-energy highly relevant and growing globally, complements recycling
- High demand for recycled and bio-based raw materials
- Strong drive for sustainable bio materials

## Solar

- Strong growth in solar PV power production
- Continuing cost decline driven by higher efficiency
- Large-scale solar still contract based
- Emphasis on combining solar with battery storage



# Operational excellence and increased flexibility for City Solutions

## Executing fuel conversions

- Increasing flexibility in the fuel mix for CHP plants: more bio, waste, and excess heat through large-scale heat pumps
- E.g. Zabrze, Järvenpää, Pärnu, Jelgava, Czestochowa

## District heating providing flexibility to power market

- District heating provides flexibility (alternative fuels, power-to-heat etc.) and short-term storage possibilities to balance intermittent power production
- District heating helps to balance the seasonal energy demand variation

## Extracting synergies from acquisitions

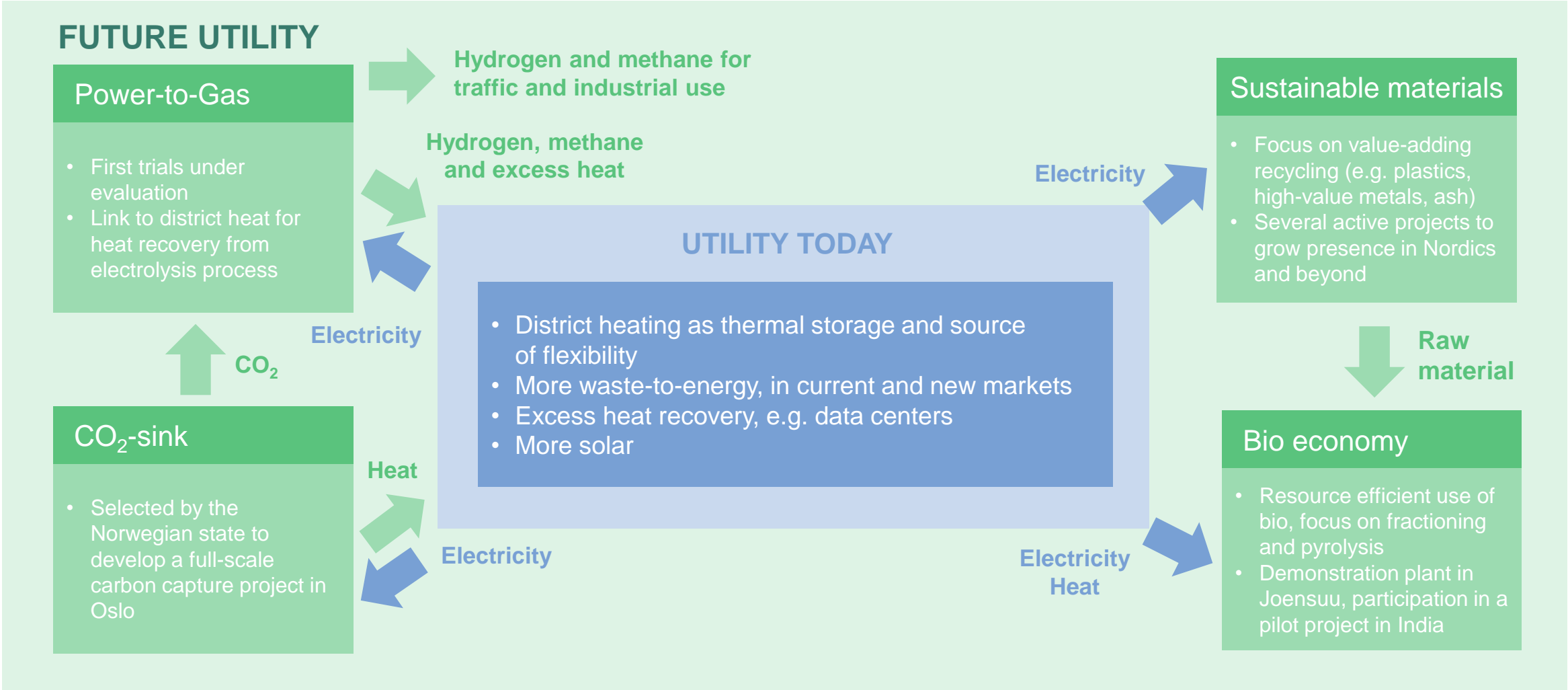
- Hafslund / Fortum Oslo Varme integration progressing as planned. Expected synergies of EUR 5-10 million in 2019-2020
- Ekokem integration completed in 2017. Platform for growth and bolt-on acquisitions

## Asset performance

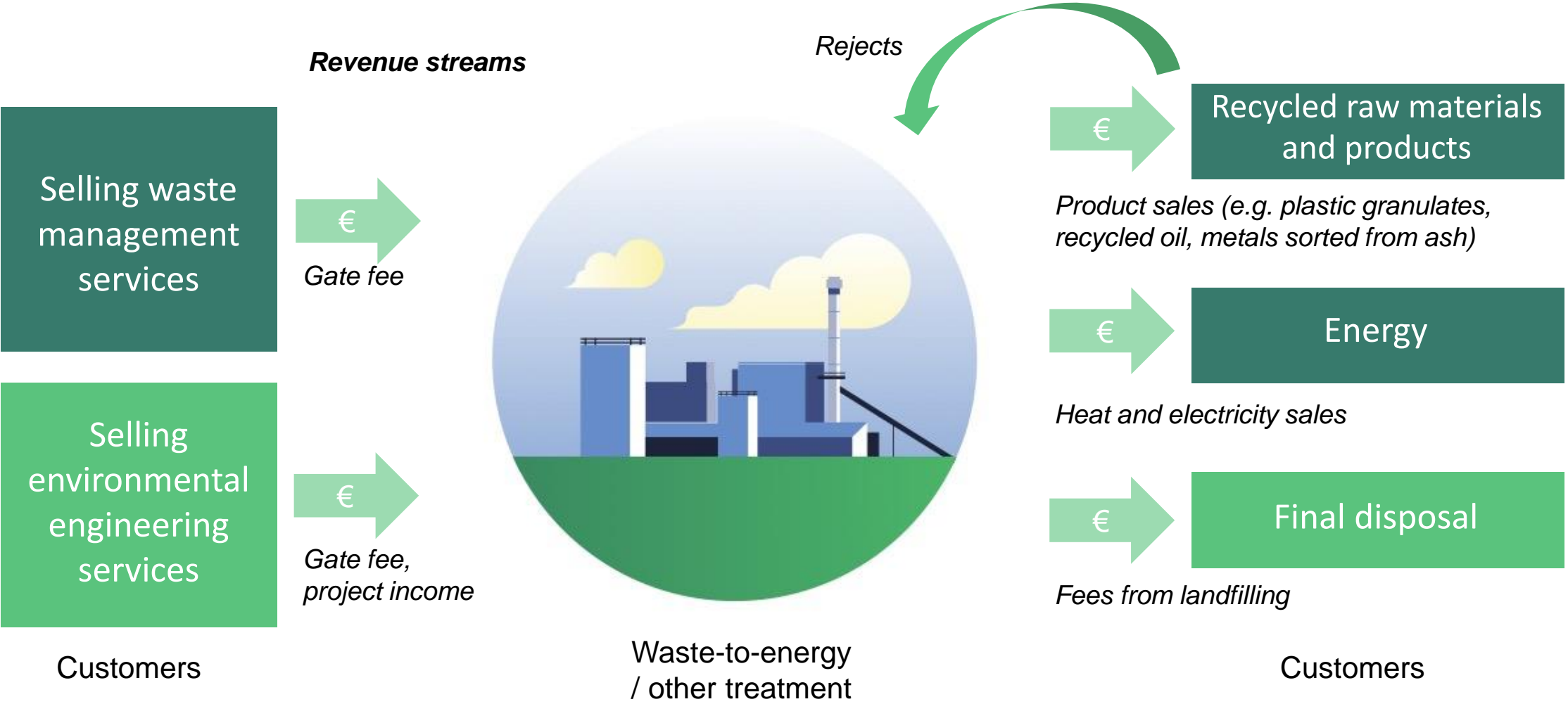
- Introduction of more advanced predictive maintenance tools for decreasing unavailability costs at power plants
- Using digital tools for total district heat systems optimisation – from individual plants all the way to demand side response at customer end

# The role of future utility expands

## – clear link with our current competences and assets



# Waste-to-energy is the enabler for starting sustainable material production



# City Solutions

- Continue fuel conversions in heat production
- Extract value from district heating's role as a provider of flexibility
- Grow solar in selected markets, continue capital recycling
- Grow waste-to-energy in selected markets and focus on value-adding recycling
- Develop competences in advanced bio-material processing