

Fortum

For a cleaner world

Andris Vanags, Chairman of the Board, Fortum Latvia
January 30, 2019



Fortum in brief

Our core

Hydro and nuclear
Combined heat and
power production
Circular economy
Energy-related
products and expert
services

We are the largest
electricity retailer in
the Nordics and one of
the leading heat
producers globally.
We have
2.5 million
customers.

96% of our
electricity
production is CO₂
free in Europe,
61% in all
operations

9,000
professionals
in the Nordics,
the Baltics,
Russia, Poland
and India

2/3 of our
power
production is
**hydro and
nuclear**

Key figures 2017

Sales	EUR 4.5 bn
Comp. op. Profit	EUR 0.8 bn
Balance sheet	EUR 22 bn

Markets

Nordic countries

Power generation	45,4 TWh
Heat sales	4,3 TWh
Electricity customers	2,4 million

Poland

Power generation	0.5 TWh
Heat sales	3.7 TWh

Russia (OAO Fortum)

Power generation	26.3 TWh
Heat sales	19.8 TWh

Baltic countries

Power generation	0.7 TWh
Heat sales	1.4 TWh

India

Power generation	0.3 TWh
------------------	---------

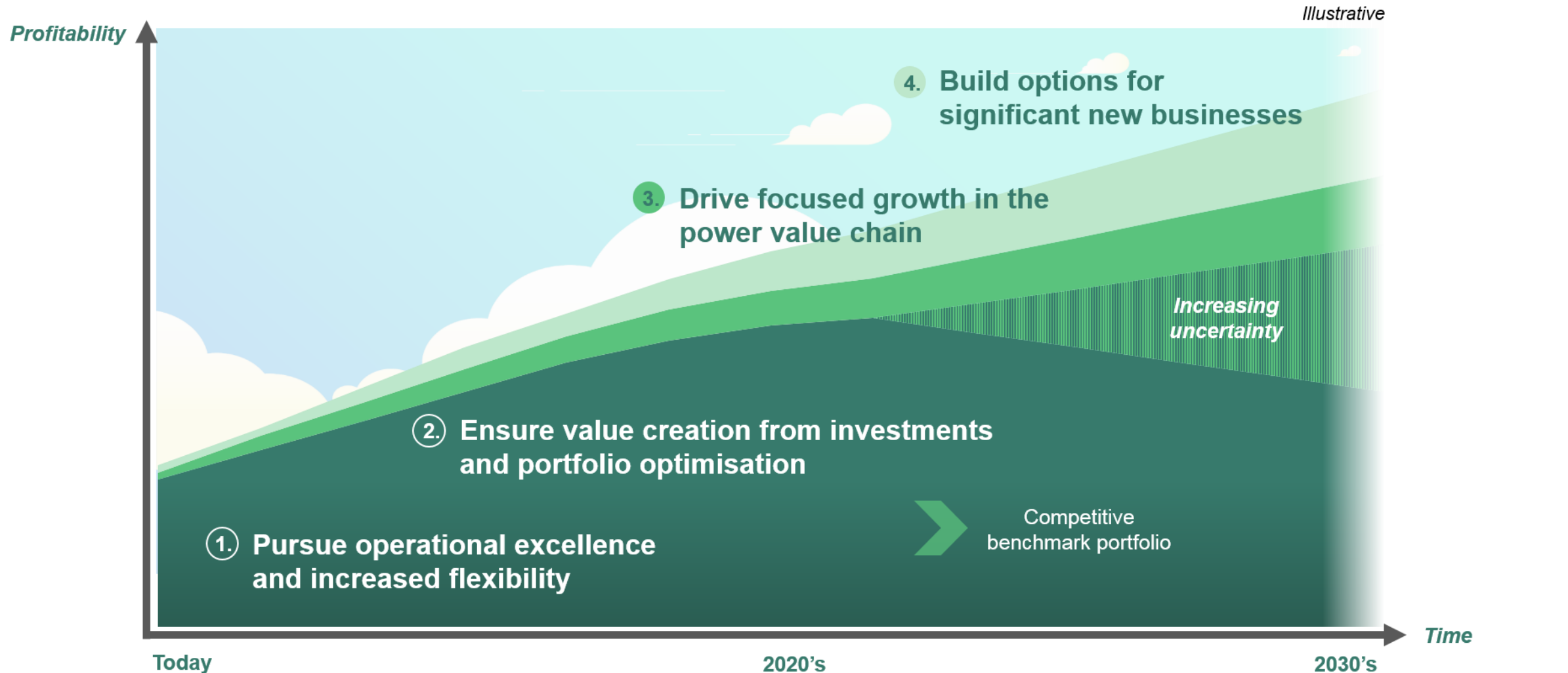
Fortum worldwide



Expert services
globally

Fortum's vision is even more valid today

– *For a cleaner world*



Strategy: Create solutions for sustainable cities

Cities' challenges

High emissions from inefficient heating/cooling and electricity production

Inefficient use of energy

Growing waste amounts, unsustainable landfills

Traffic pollution and noise



Fortum's solutions

Clean, efficient and reliable energy: utilising local fuels (waste, bio) and excess heat (e.g. data centres, sewage water); CHP and heat only solutions

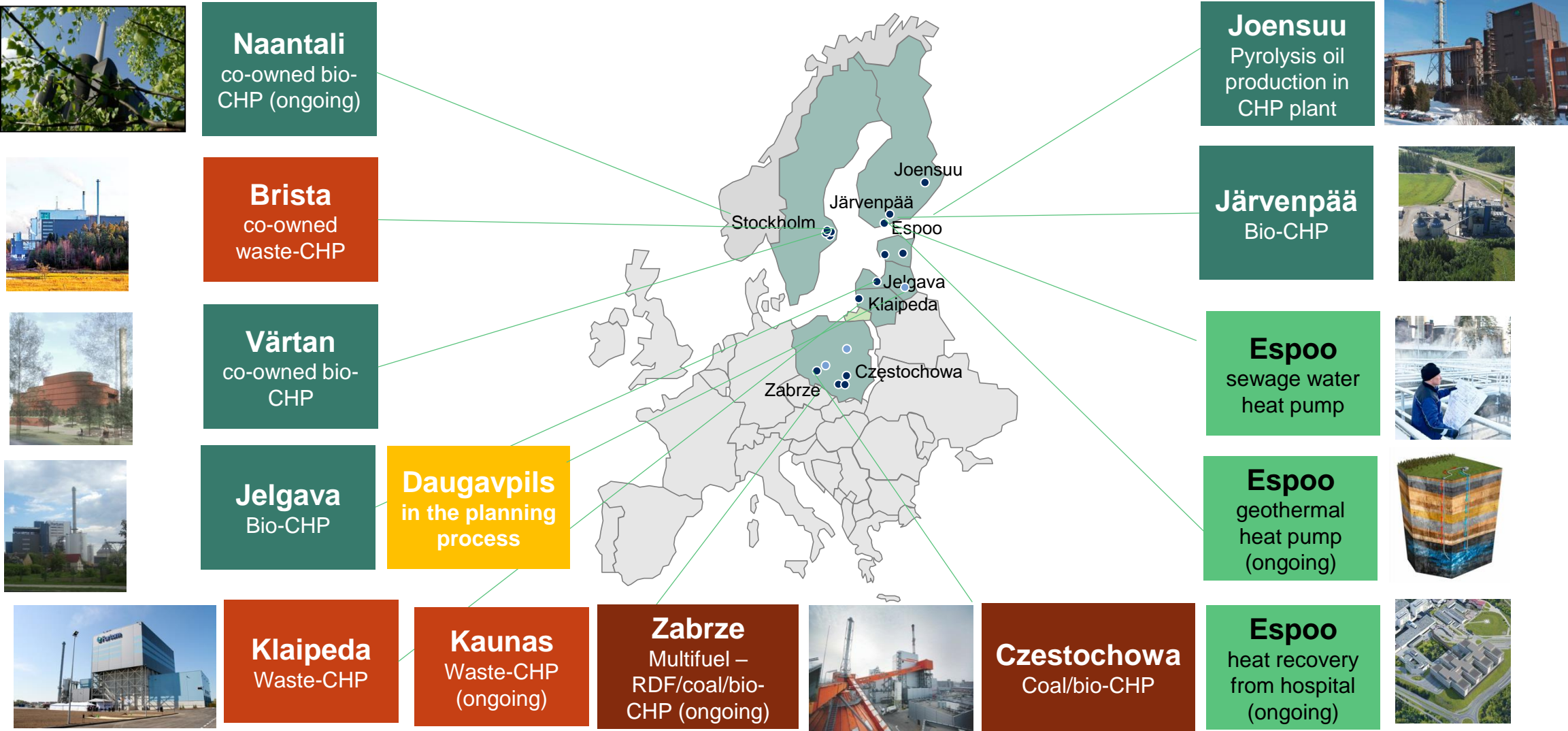
Integrated retail solutions: electricity and heat combined with service and solution offering for customers (e.g. smart home energy solutions, demand-response aggregation, solar kits, heat pumps)

Waste-to-energy and waste treatment solutions – aligned with the circular economy

E-mobility: smart charging solutions for electric vehicles

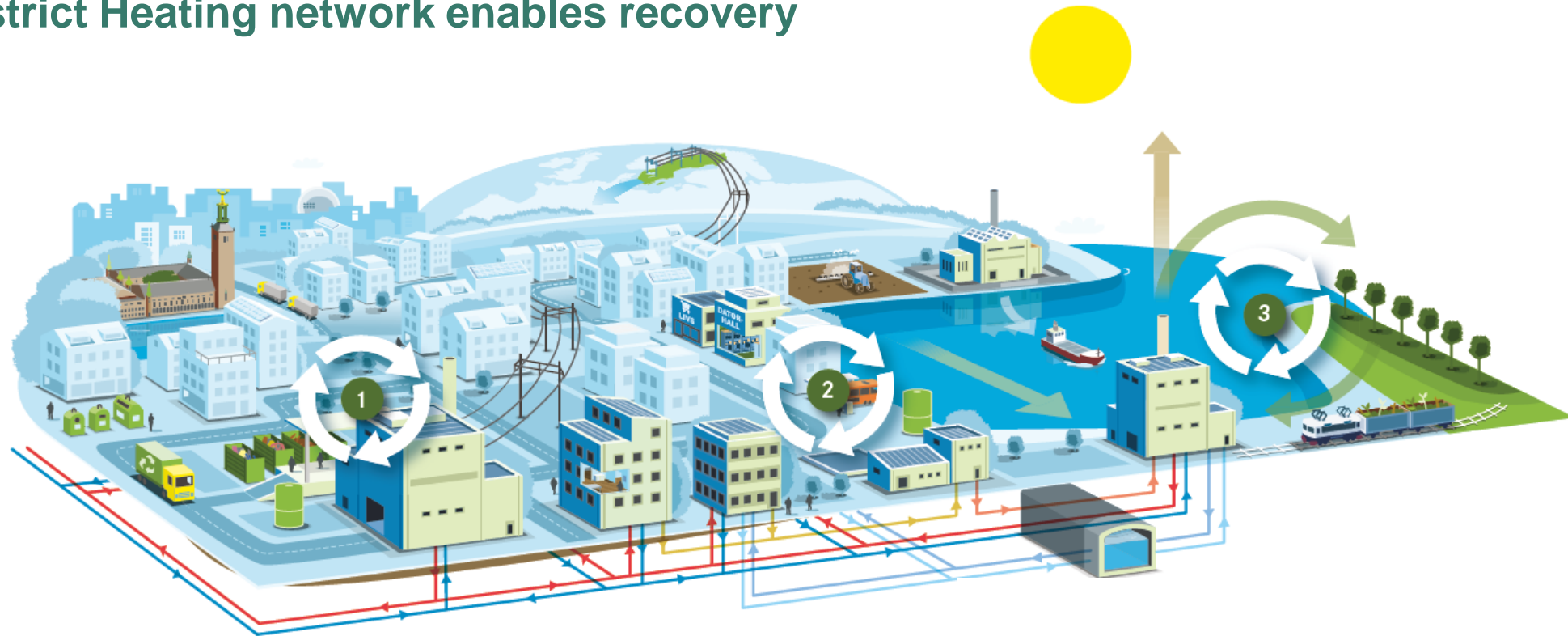
Fortum's investment programme in Europe

Major bio- and waste-CHP investments in several countries



The city itself is a source of energy

The District Heating network enables recovery



1. Energy from sorted waste from companies and households

2. Waste heat in sewer water, district cooling returns and from server farms

3. Renewable biofuels from the forest industry and sun energy from the sea

Fortum in Jelgava

- Since 2008 **operator** of Jelgava district heating system
- Earlier production was 100% natural gas based, using boiler houses from 1970`s
- Fortum's **investment during 2008–2017 totals to ~ 95 M€**, including:
 - Network renovation and interconnection of two district heating systems under the river Lielupe,
 - Replacement of all heat production units,
 - Bio-cogeneration plant based on wood chips
- Creating around 300 indirect workplaces in the fuel supply chain

Fortum in Jelgava

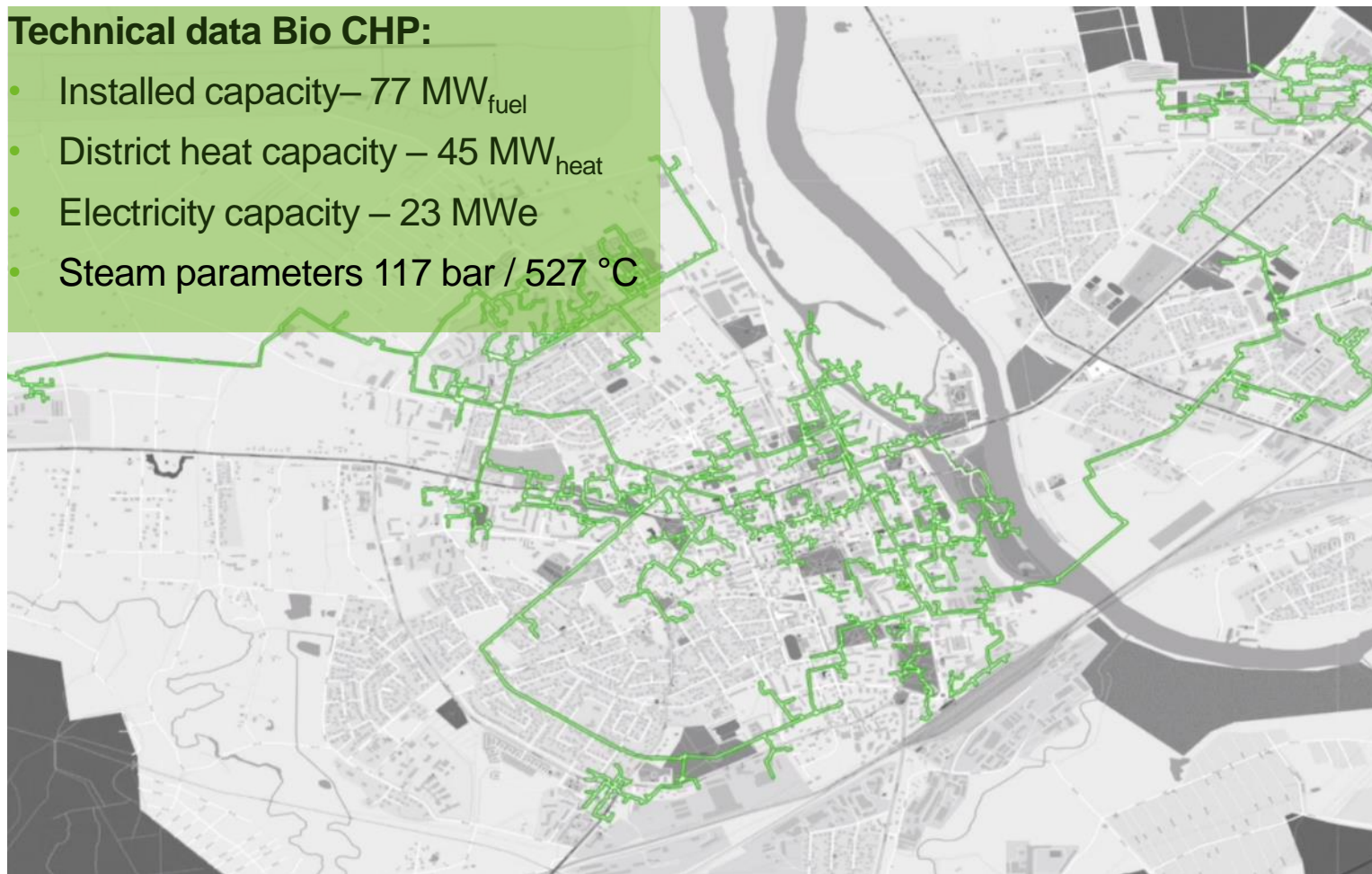
➤ Installed heat capacity in CHPs	50 MW (45 MW biomass, 5 MW natural gas)
➤ Installed capacity in HOBs	109 MW (natural gas)
➤ Installed power capacity	27 MW (23 MW biomass, 4 MW natural gas)
➤ Power trading	Nord Pool Spot and large industrial end-consumers
➤ Annual heat sales	175 GWh
➤ Annual power sales	126 GWh
➤ Heat losses in the network	16 %
➤ Length of DH network	75 km
➤ Heat customers	16 000 households or 365 buildings, 172 B2B customers
➤ Fuel	80% biomass (peat), 20% natural gas
➤ Employees	70

Fortum in Jelgava – In commercial operation since Sep 2013

The largest bio fueled combined heat and power plant in Latvia

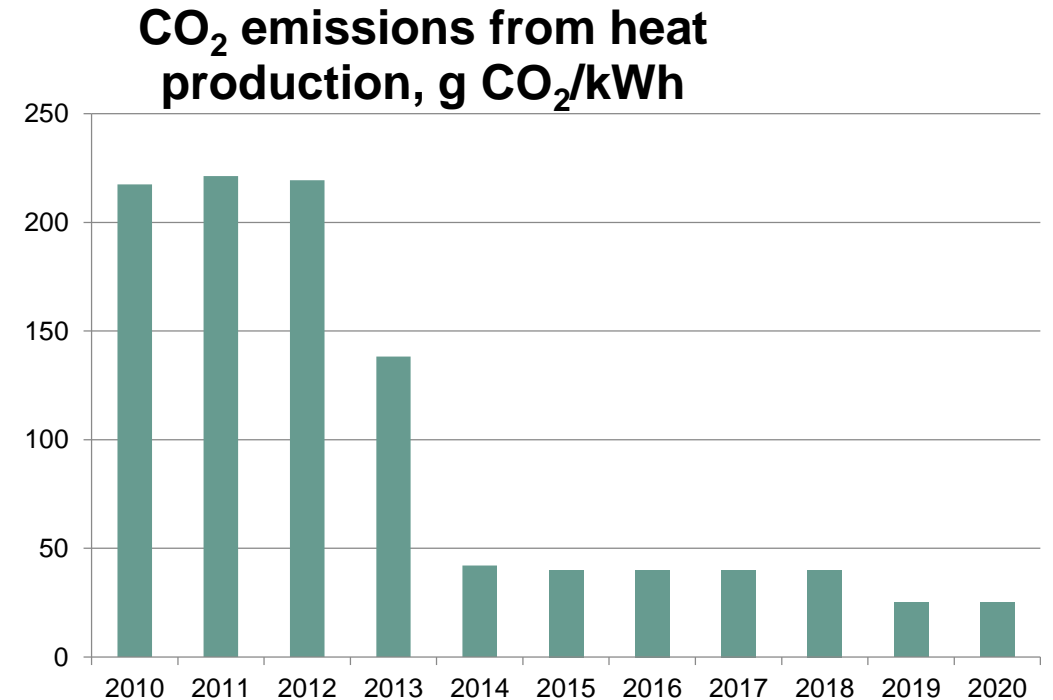
Technical data Bio CHP:

- Installed capacity– 77 MW_{fuel}
- District heat capacity – 45 MW_{heat}
- Electricity capacity – 23 MWe
- Steam parameters 117 bar / 527 °C



CO₂ emissions from heat production in Jelgava

- Amount of CO₂ emissions from heat production is by 70 % lower than in 2010
- **Fulfil Jelgava's targets** under ***The Covenant of Mayors*** - to reduce CO₂ emissions by 20%, to increase energy efficiency by 20% and to raise the share of renewable resources in energy production by 20% (annual savings from burning biomass exceeds 30 thousands tons)



A crystal ball reflecting a forest scene, resting on a mossy surface.

**Join the
change**

fortum