

A hand is shown holding a small amount of water, with a stream of water falling into a clear lake. The background features a mountain range under a bright sun, creating a lens flare effect. The scene is peaceful and natural.

# Fortum's international ambitions with CCS

5 June 2018 – Breakfast seminar / Bellona

# Fortum in brief

Group annual sales some **EUR 5 bn**, with **~19%** EBIT margin\*

We are the largest electricity retailer in the Nordics with **2.4 million** customers. And one of the leading heat producers globally

**96 %** of our electricity production is CO<sub>2</sub> free in Europe, **62%** in all operations (2016)

## Our core

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

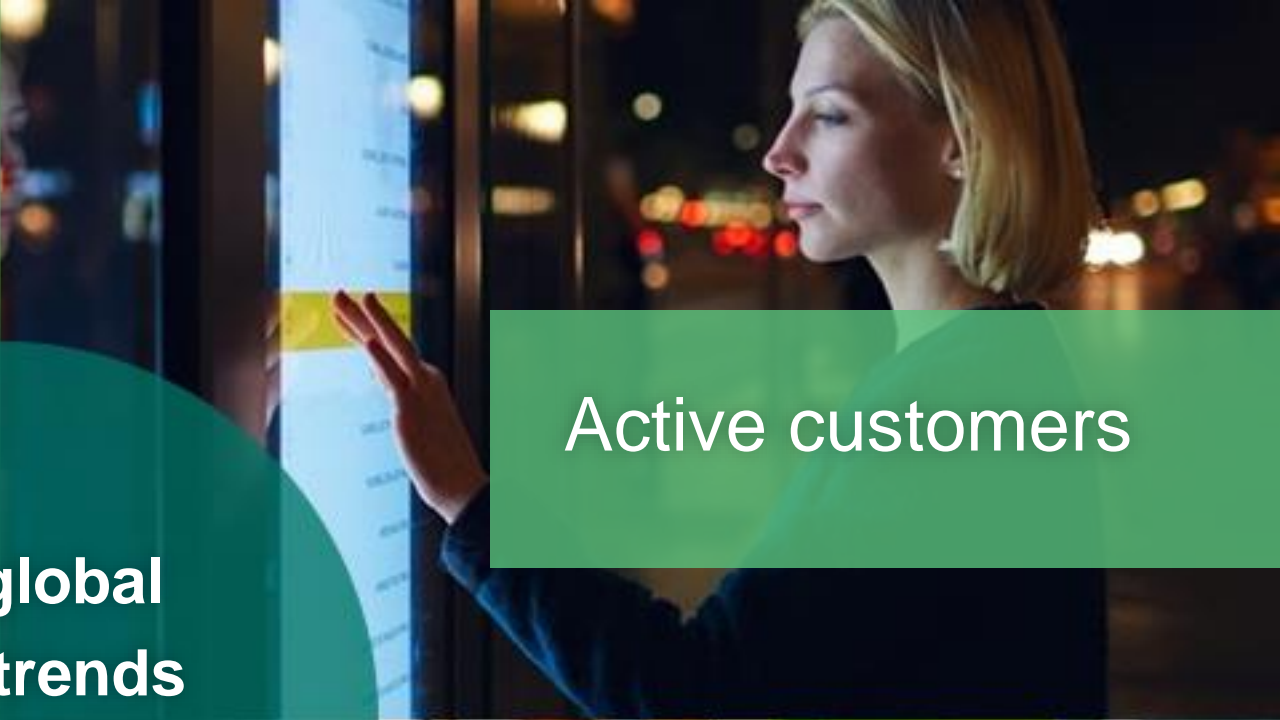
**9,000** professionals in the Nordics, the Baltics, Russia, Poland and India

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

\* For the period 4/2017-3/2018, comparable operating profit



Climate change and resource efficiency



Active customers



Urbanisation

The global megatrends affecting our industry



Digitalisation, new technologies

# We are putting our growth strategy to work

## Vision For a cleaner world



### Strategic focus areas



Drive productivity and industry transformation



Create solutions for sustainable cities



Grow in solar and wind



Build new energy ventures

# Delivering on our growth strategy

**Agreement with E.ON**  
Uniper public takeover offer

**170 MW solar**  
power in India,  
35 MW in Russia























**Hafslund restructuring**

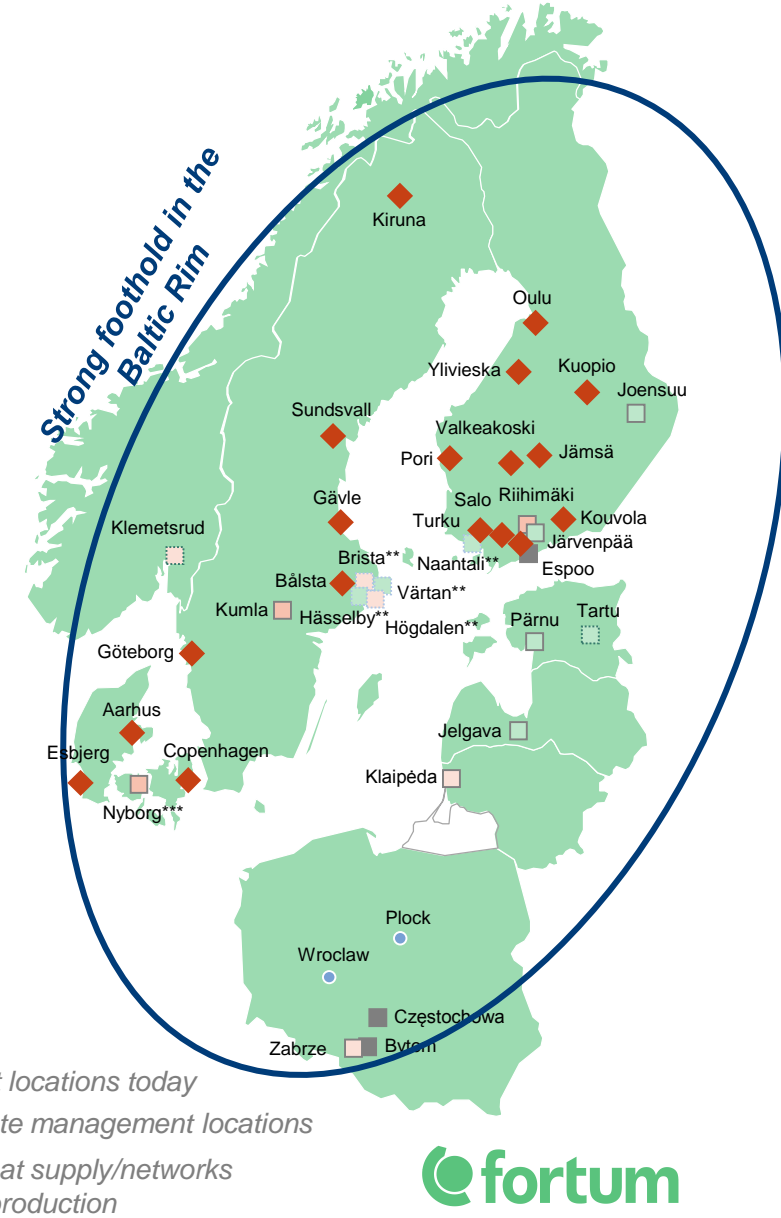
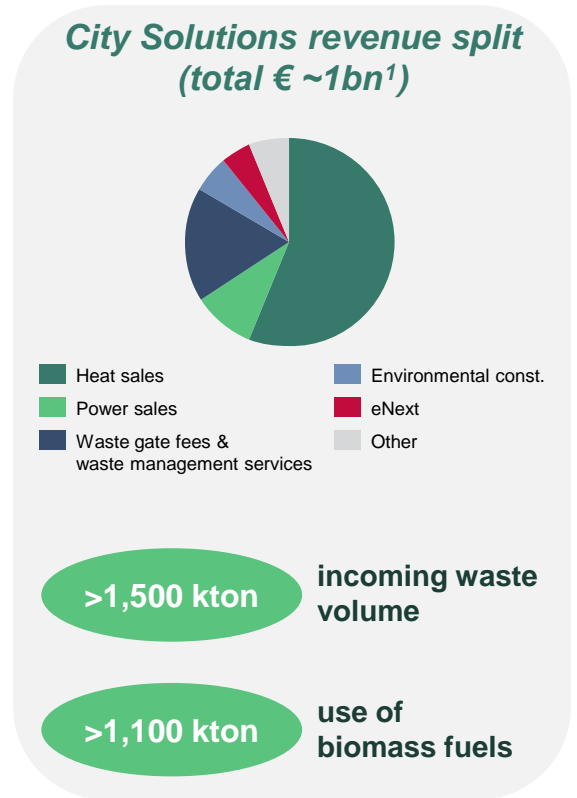
**180 MW wind**  
power in Norway,  
35 MW in Russia  
and a 1,000 MW  
wind JV in Russia

International  
growth for Nordic  
market leader  
**Charge & Drive**

**Chelyabinsk GRES unit 3**  
started commercial  
operation

# Through City Solutions division, Fortum is a forerunner in district heating and waste management

Bio-CHP	Recycling & Waste	Coal/gas & multi-fuel CHP
<b>Joensuu</b>  Woodchips, peat + pyrolysis plant	<b>Riihimäki</b>  Hazardous, municipal & industrial/commercial waste, material recovery	<b>Espoo</b>  Coal & natural gas
<b>Järvenpää</b>  Woodchips, horse manure & waste	<b>Kumla</b>  Hazardous & industrial/commercial waste	<b>Bytom</b>  Coal
<b>Jelgava</b>  Woodchips	<b>Nyborg</b>  Hazardous waste	<b>Czestochowa</b>  Coal & woodchips
<b>Pärnu</b>  Woodchip	<b>Klaipėda</b>  Municipal waste, RDF & woodchips	<b>Värtan, old units</b>  Coal & oil
<b>Tartu</b>  Woodchips & peat	<b>Zabrze</b>  Waste & coal <i>New unit ready 2018</i>	 <i>Co-owned and consolidated companies</i>
<b>Värtan KVV8, Brista 1</b>  Woodchips	<b>Klemetsrud</b>  Municipal & industrial/commercial waste RDF	 <i>Associated companies</i>
<b>Hässelby</b>  Wood pellets	<b>Högdalen</b>  Municipal & industrial/commercial waste RDF	
<b>Naantali</b>  Woodchips & coal	<b>Brista 2</b>  Municipal & industrial/commercial waste RDF	
	<b>Several other operating locations in the Nordics</b>	



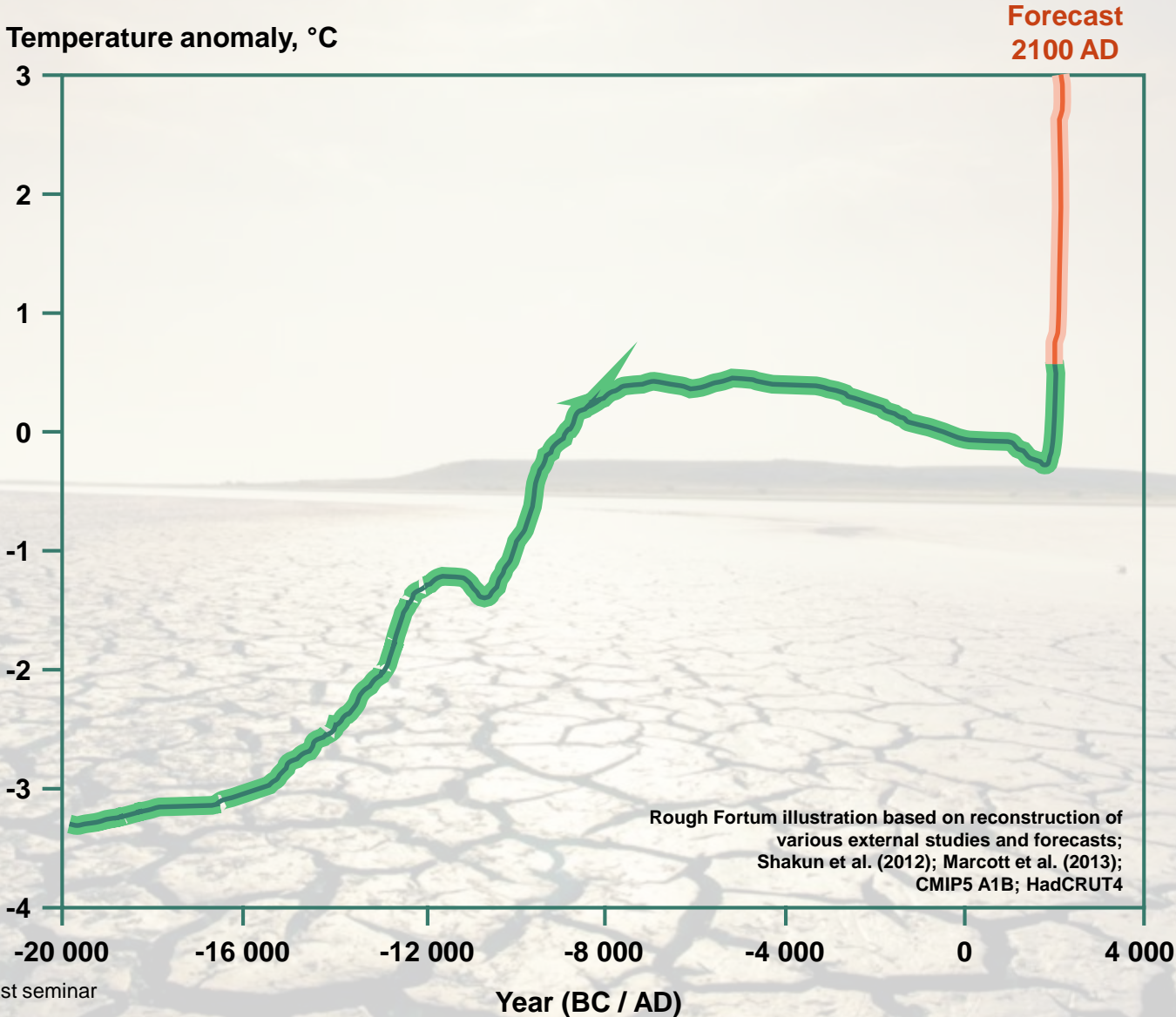
➔ New waste-to-energy plant being constructed in Lithuania

➔ Projects under development in the UK and Indonesia

RDF = Refuse Derived Fuel  
 1. Revenues and volumes from associated companies excluded

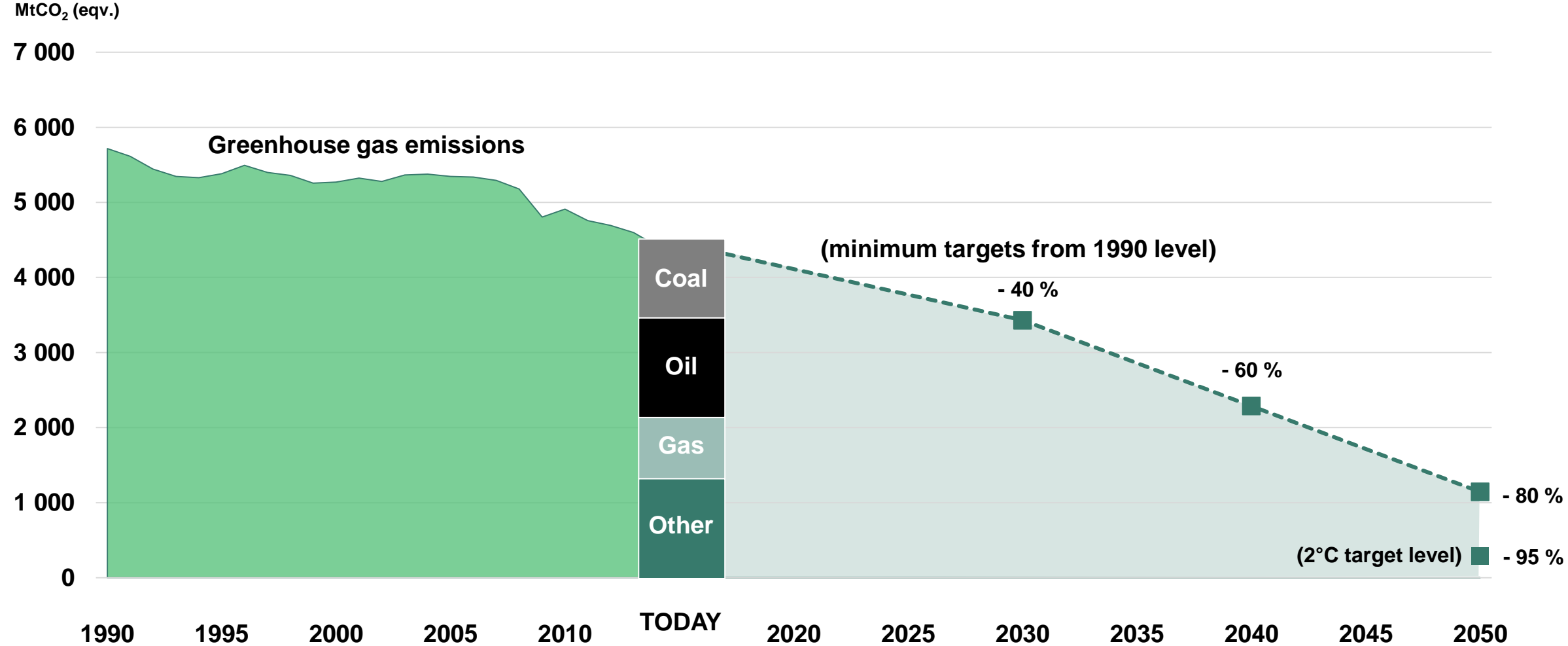


# Temperature 20 000 BC – 2100 AD

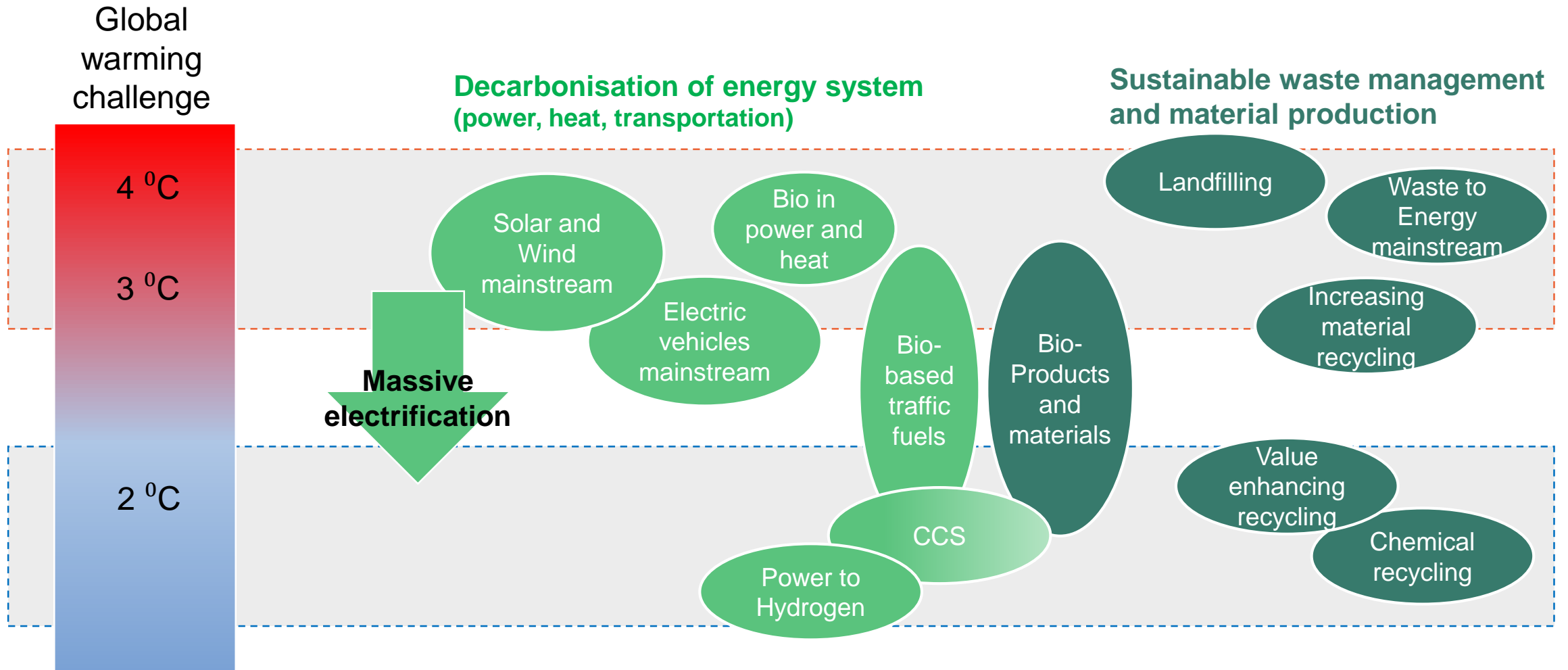


Rough Fortum illustration based on reconstruction of various external studies and forecasts; Shakun et al. (2012); Marcott et al. (2013); CMIP5 A1B; HadCRUT4

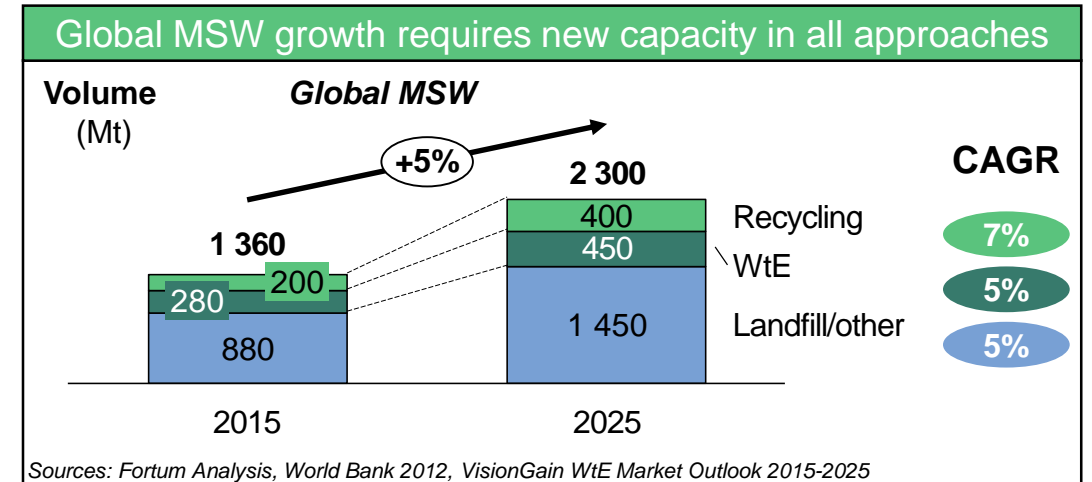
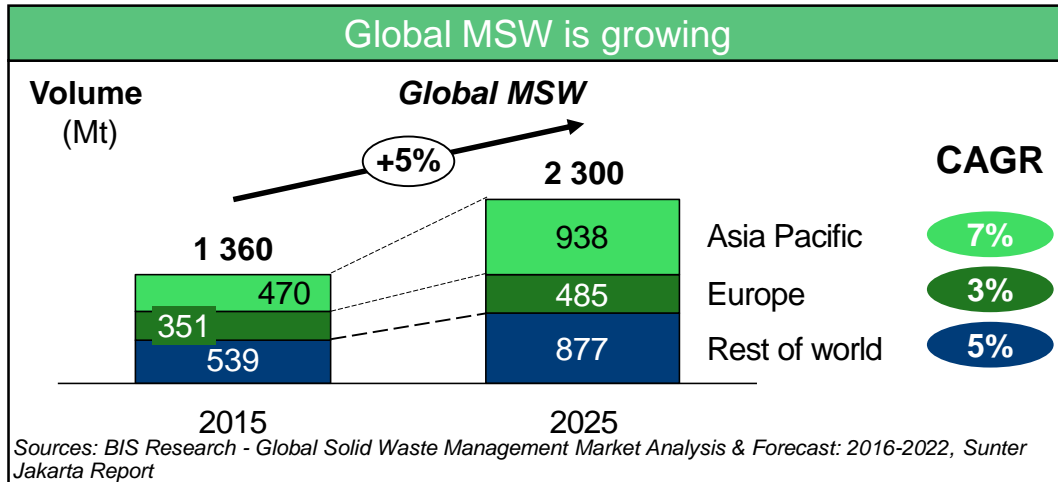
# Fossil fuel consumption in Europe needs to decrease drastically to reach 2050 targets



# Sustainable material production and de-carbonization of energy system are needed to reach +2-degree path



# Asia's waste growth requires new capacity in all approaches; Europe's volumes are shifting towards WtE and recycling



➔ Transition to circular economy and recycling will need waste-to-energy

➔ CCS is an essential part of the toolbox to fight climate change – with many possible applications

