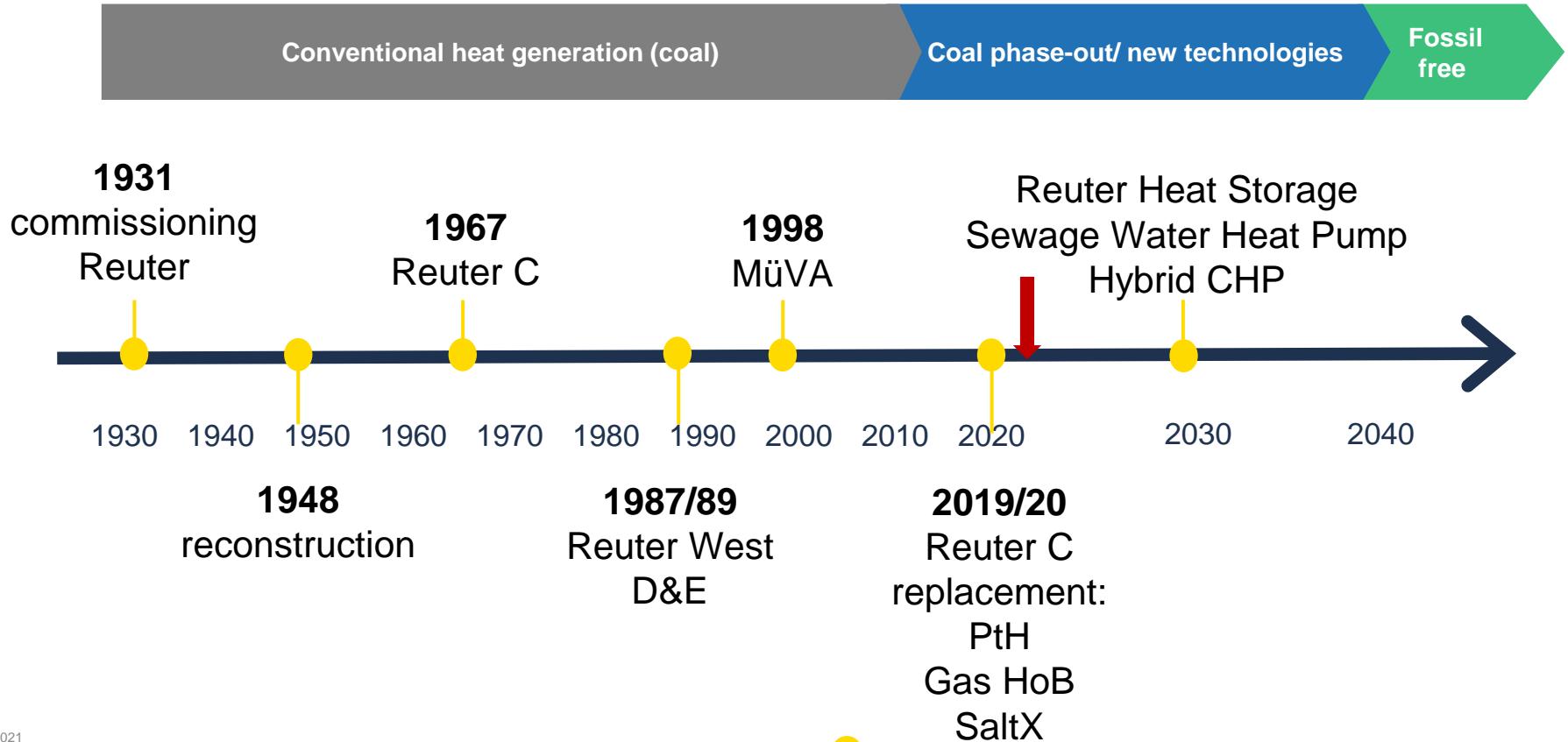


Reuter West CHP plant

Towards efficient district heating and cooling in Europe

15.09.2021, Ruben Hoffmann, Vattenfall

Timeline



Overview



Overview



Reuter (past)

- **Commissioned** 1948
- **Decommissioned** 2019
- **Installed el. capacity** 458 MW
 - last running block Reuter C 132 MW_{el}
 - 169 MW_{th}
- **Efficiency, CHP** 80 %
- **Efficiency, condensation** 49 %



Reuter (present)

Waste-incineration-turbine

- Partner BSR
- Th. capacity 162 MW
- El. capacity 36 MW
- Steam quantity 660.000 t/a



Salt X – Energy Storage Pilot Plant

- Partner SaltX
- Use chemical energy storage
- Material nanocoated Salt
- Capacity per m³ 500 kWh



Reuter West D&E (present)

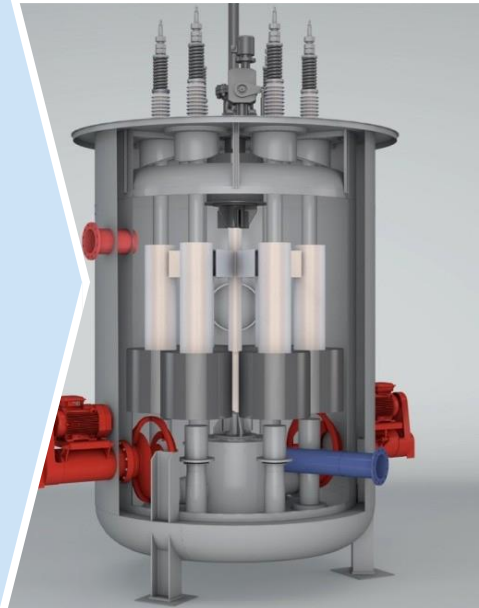
- Commissioned in 1987/89
- Planned decommissioning 2029
- Installed el. capacity 600 MW_{el}
 - Two steam turbines, each with 300 MW_{el}
- Installed th. capacity 726 MW_{th}
- Efficiency, CHP ca. 80 %
- Efficiency, condensation ca. 40 %
- Net electricity production Ø 2.918 GWh
- Heat production Ø 1.652 GWh
- Coal quantity Ø 1.177.000 t



Power-to-heat-plant (present)

- **Number of electrode boilers:** 3 (identical design)
- **Output per boiler:** 40 MW_{th} (120 MW_{th} in total)
- **Voltage level:** 22 kV
- **Electrodes per boiler:** 6 (copper and porcelain)
- **Diameter of boiler container:** 2.60 m
- **Height of boiler container:** 4.50 m
- **Empty weight:** 9.1 t
- **Water volume in the boiler:** 22 m³
- **Efficiency** 99%
- **Water temperature at boiler outlet:** 130 °C

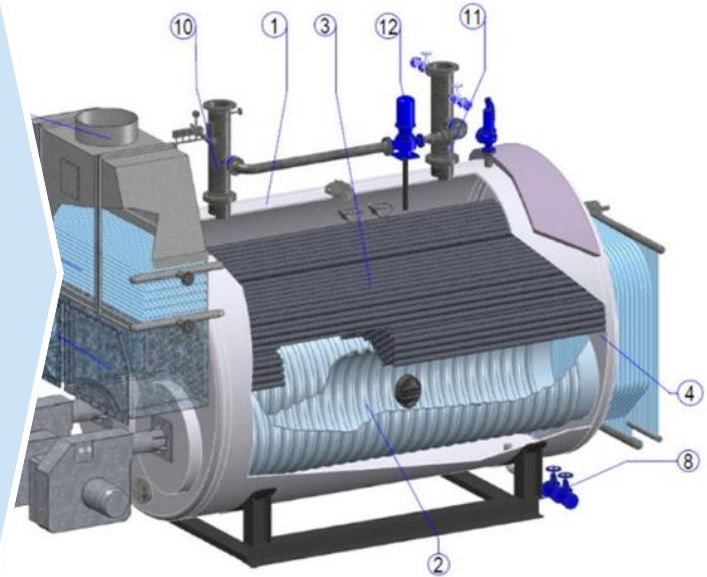
Electrode boiler



Gas Heat-only-boiler (present)

- **Commissioned in** 2020
- **Installed th. capacity** 4-120 MW_{th}
Three boilers, each with 40 MW_{th}
- **Efficiency, CHP** 97,5%
- **Water temperature in boiler** max. 110°C
- **System pressure in boiler** max. 18 bar
- **Use** flexible supplement

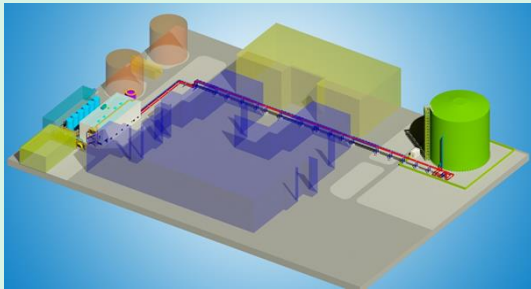
Gas boiler



Coal Phase-out (future)

Reuter Heat Storage

- Commissioning 2022
- Max temperature 98°C
- Capacity 56.000 m³
- Max heat extraction 200 MW



Hybrid CHP

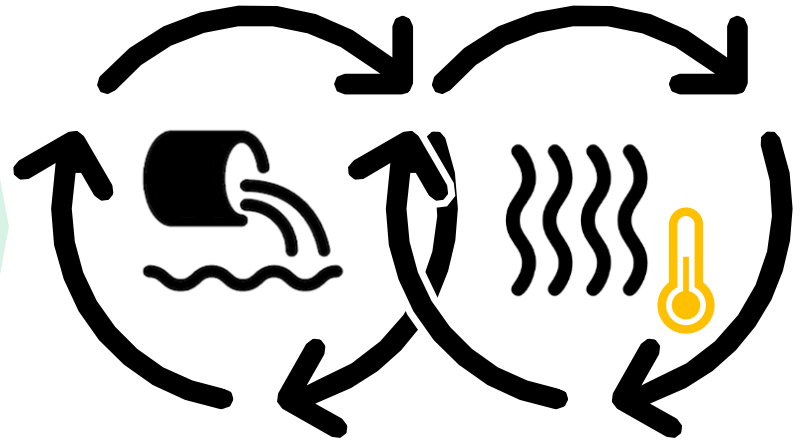
- Planned commissioning 2029
- Natural gas and H₂ ready
- Final design yet to be determined

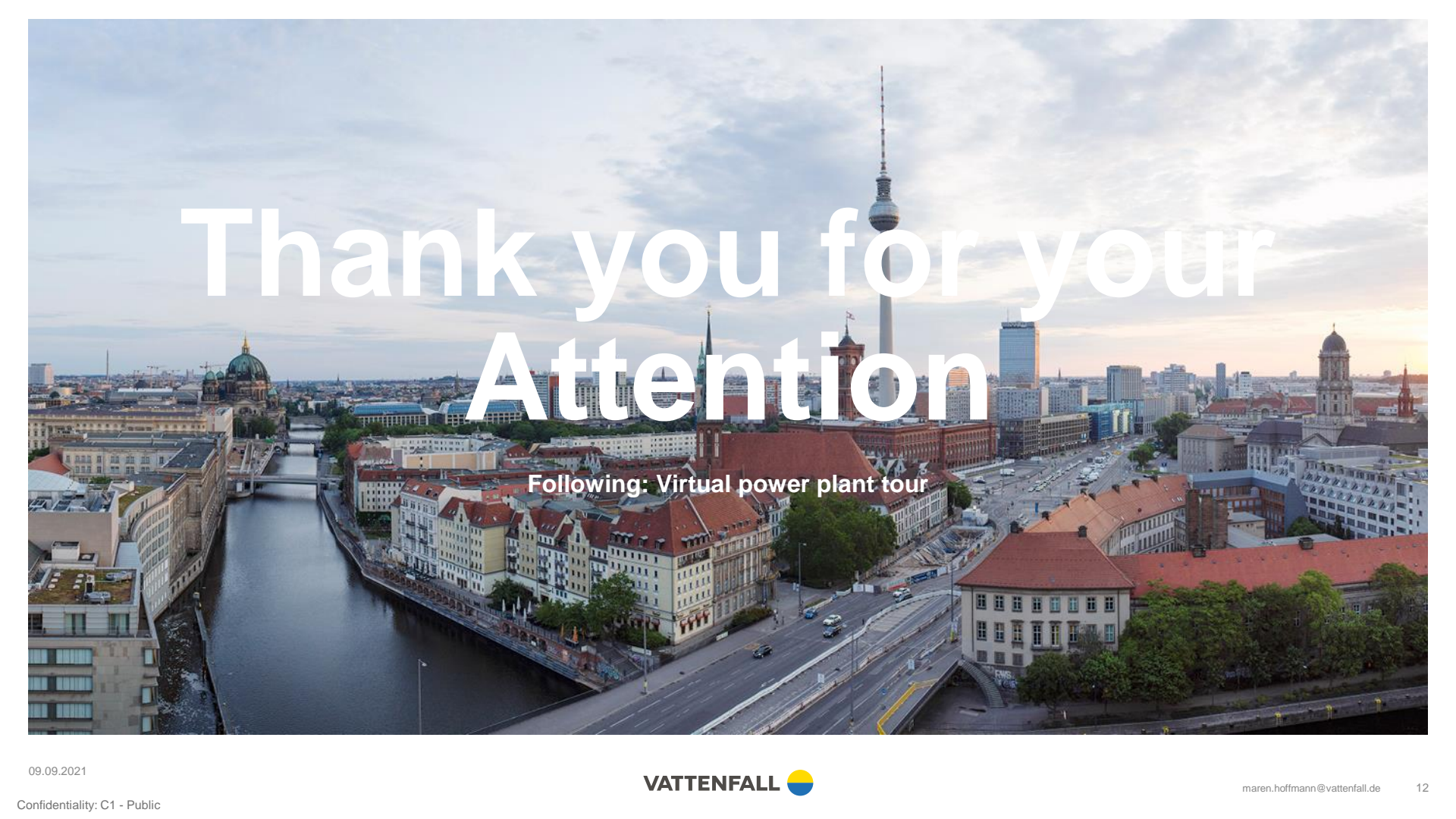


Coal Phase-out (future)

Reuter Sustainable Heat and Power

- **Sewage water heat pump**
 - Commissioning 2025
 - Partner BWB
 - Thermal capacity 70 MW_{th}
- **New MüVA turbine**
 - Commissioning 2025
 - Partner BSR
 - Electrical capacity 32 MW_{el}
 - Thermal capacity 108 MW_{th}
 - Steam quantity 185 t/h





Thank you for your Attention

Following: Virtual power plant tour