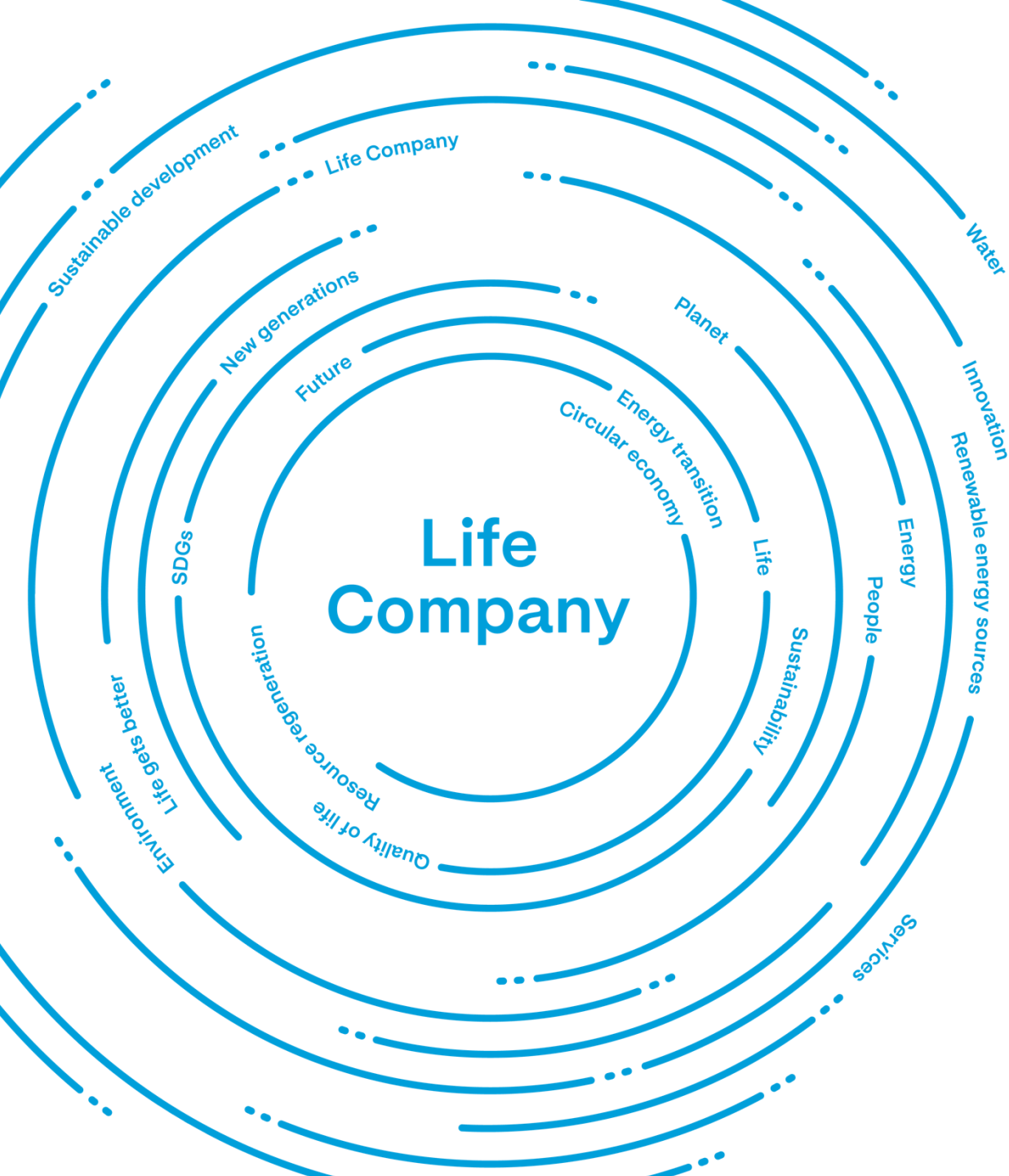


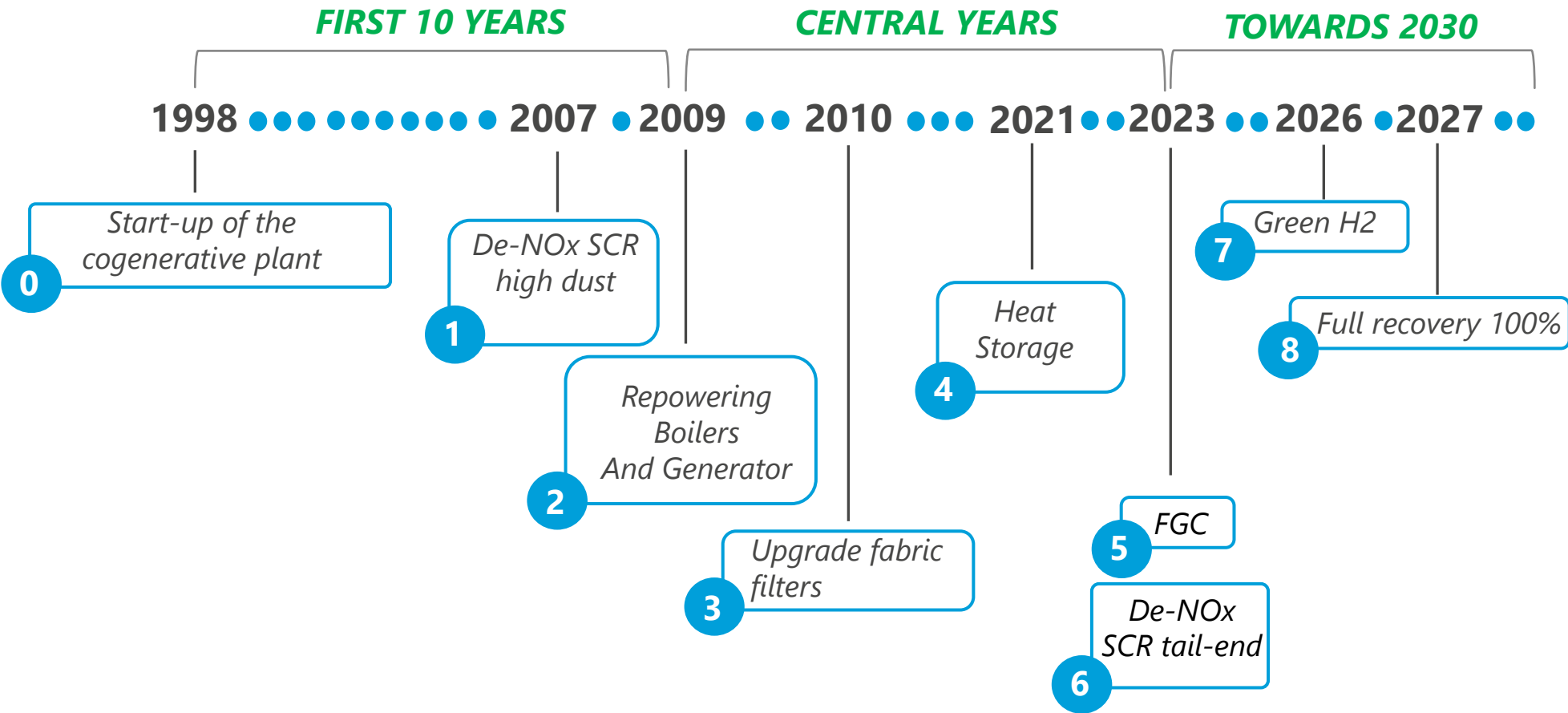


WASTE TO ENERGY PLANT BRESCIA

October 2nd, 2023

EVOLUTION OF BRESCIA WTE

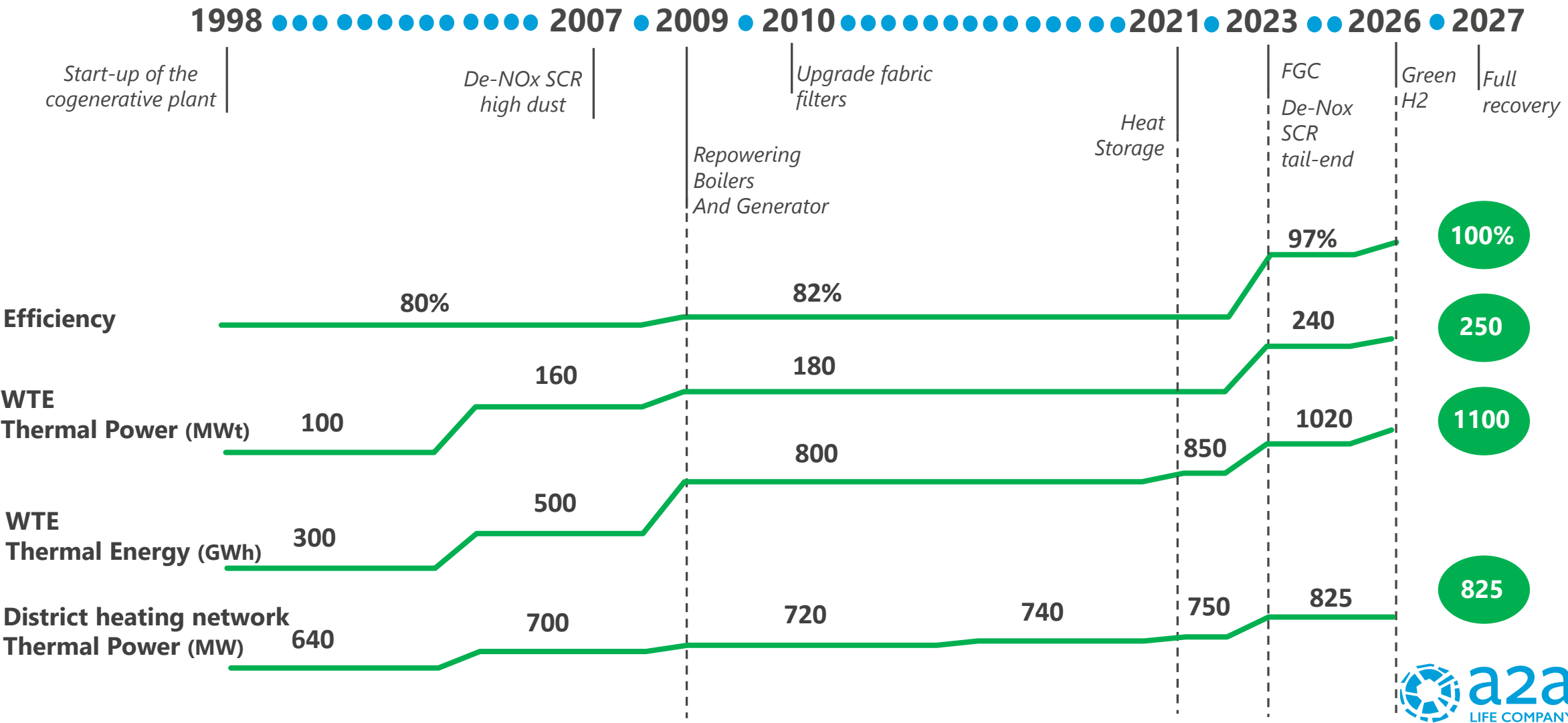
MILESTONES



SCR : Selective Catalytic Reduction
FGC : Flue gas cleaning

EVOLUTION OF BRESCIA WTE

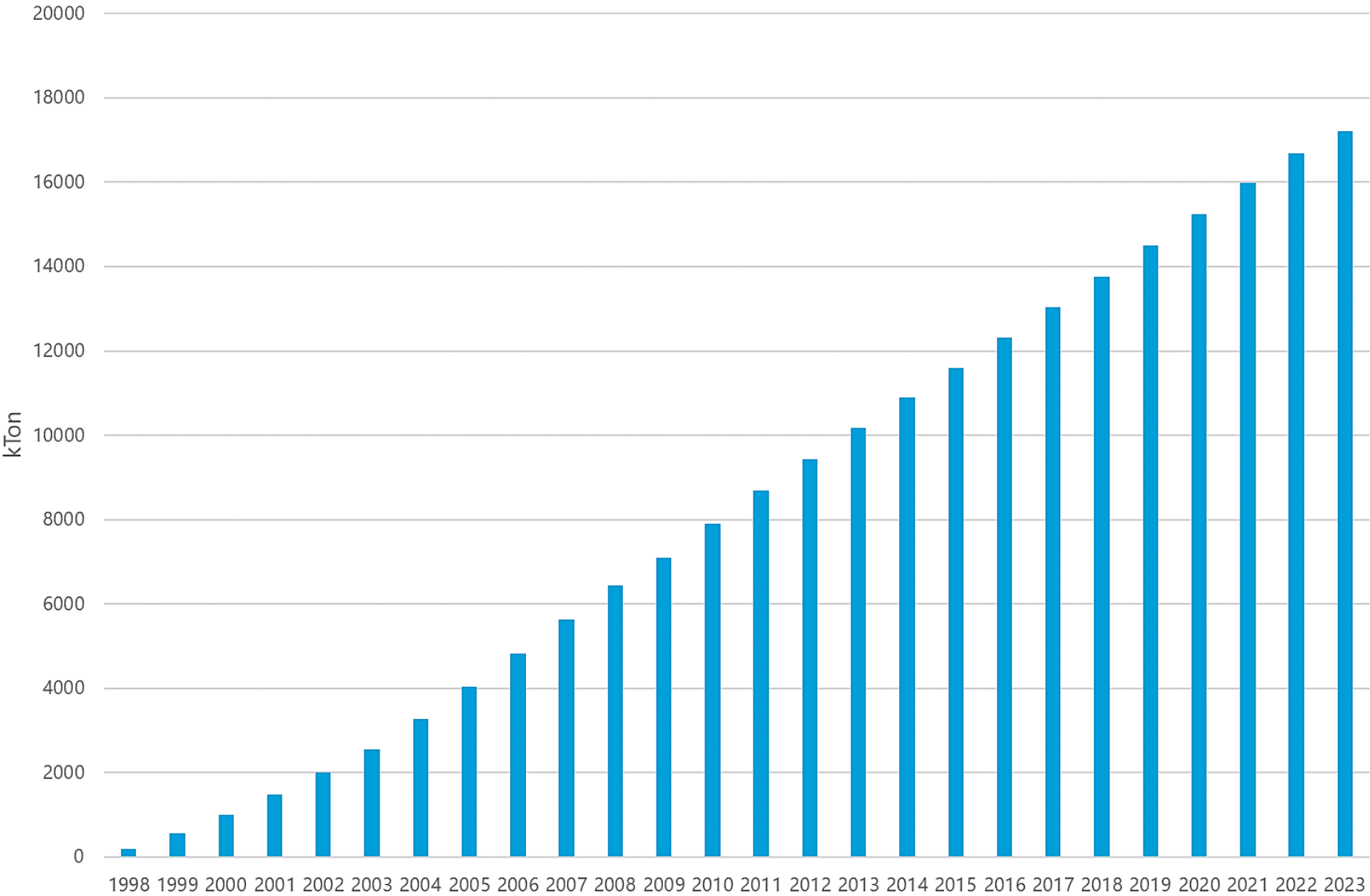
MILESTONES



BRESCIA WTE - DATA

WASTE TREATMENT

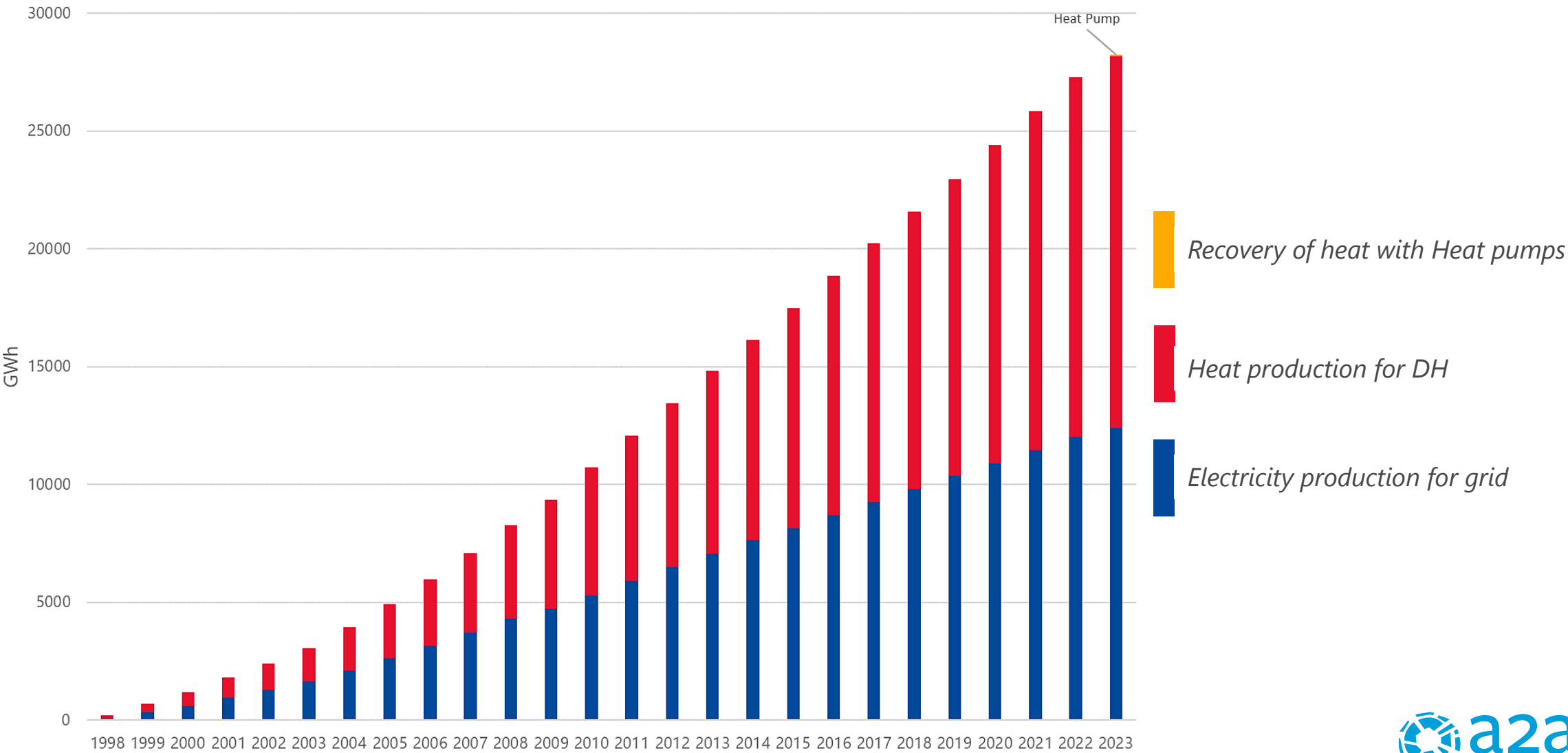
Cumulative value since the start-up of the plant



BRESCIA WTE - DATA

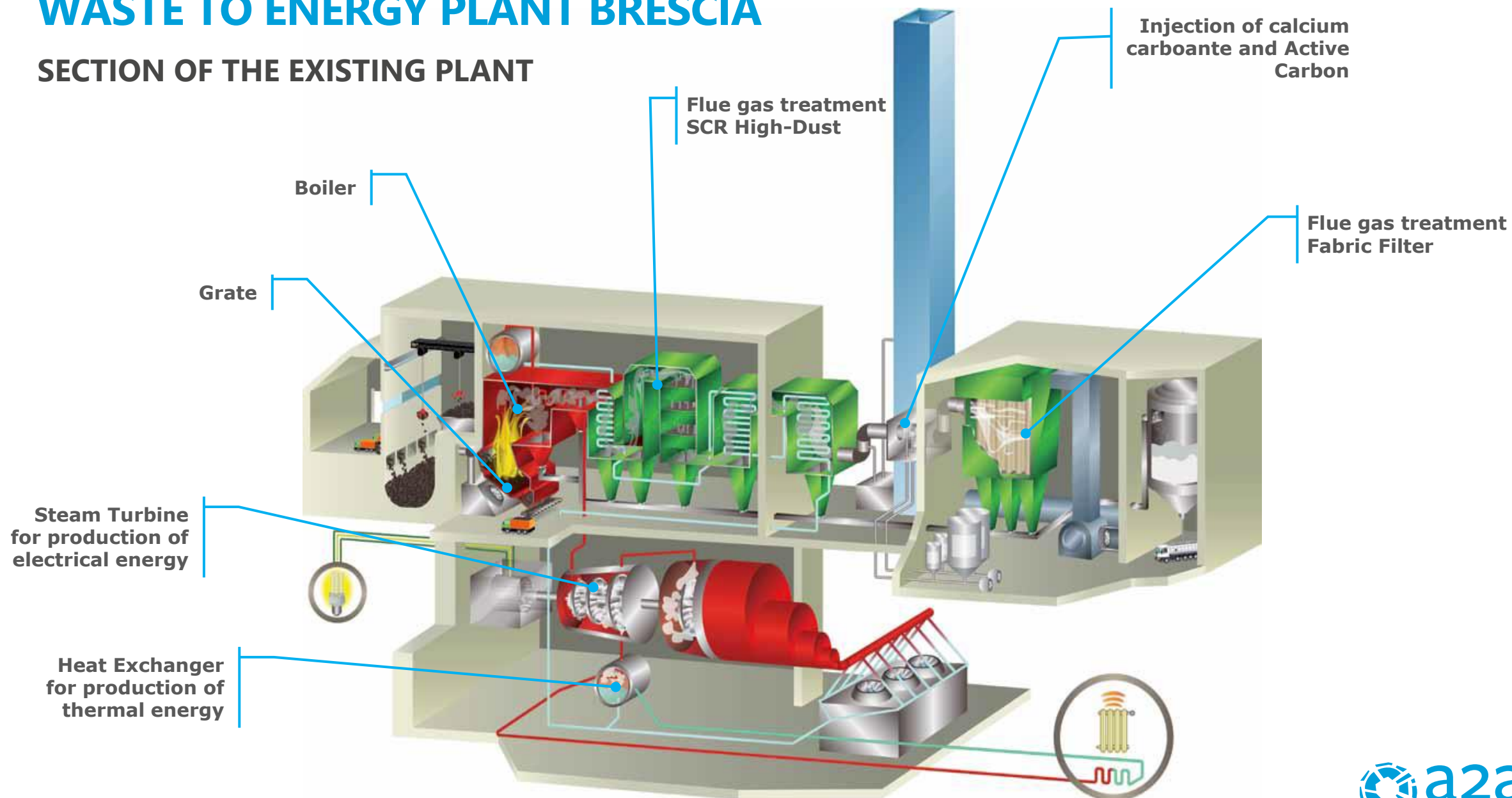
ENERGY PRODUCTION

Cumulative value since the start-up of the plant



WASTE TO ENERGY PLANT BRESCIA

SECTION OF THE EXISTING PLANT



WASTE TO ENERGY PLANT BRESCIA

OPERATING DATA 2022



703,225

T



Needs of about
200,000 families
(557 GWh)



Needs of about
50,000 families
(810 GWh)



167,000

Tep



877,000

t



WASTE TO ENERGY PLANT BRESCIA

PARAMETERS	Units	IED Limit	AIA Limit	Average 2022
Dust	mg/Nm ³	10	10	0.2
HCl (Hydrochloric acid)	mg/Nm ³	10	10	3.6
HF (Hydrofluoric acid)	mg/Nm ³	1	1	0.026
SO2 (Sulfur oxides)	mg/Nm ³	50	50	1.2
NOx (Nitrogen oxides)	mg/Nm ³	200	80	49.9
CO (Carbon monoxide)	mg/Nm ³	50	50	6.4
NH3 (Ammonia)	mg/Nm ³	30	10	1.65
Cd + Tl (Cadmium + Thallium)	mg/Nm ³	0.05	0.05	0.00148
Sb + As + Pb + Cr + Co + Cu+ Mn + Ni + V (Metals)	mg/Nm ³	0.5	0,5	0.01616
Hg (Mercury)	mg/Nm ³	0.05	0.05	0.00113
VOC (Volatile organic carbon)	mg/Nm ³	10	10	0.1
PCDD/F (Dioxins/Furans)	ng I-TEQ/Nm ³	0.1	0.1	0.00087

WASTE TO ENERGY PLANT BRESCIA

TODAY – FLUE GAS CLEANING



Objective: reduction of NO_x emissions and recovery of further heat to be transferred to the district heating network to replace the heat generated with fossil fuels



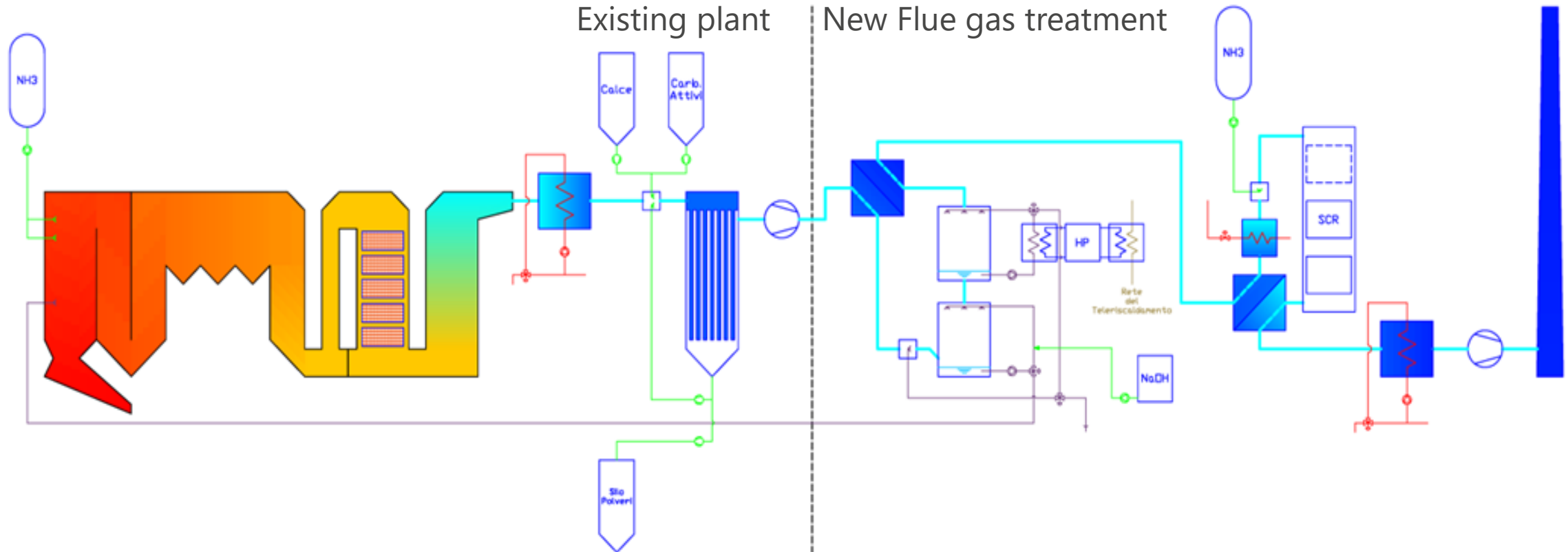
Results:

- Increase in thermal energy (+164 GWh)
- Reduction of emissions (- 30%)
- Efficiency +15% (from 82% to 97%)
- Reduction of residual dust production from filtration (- 5000 t/year)



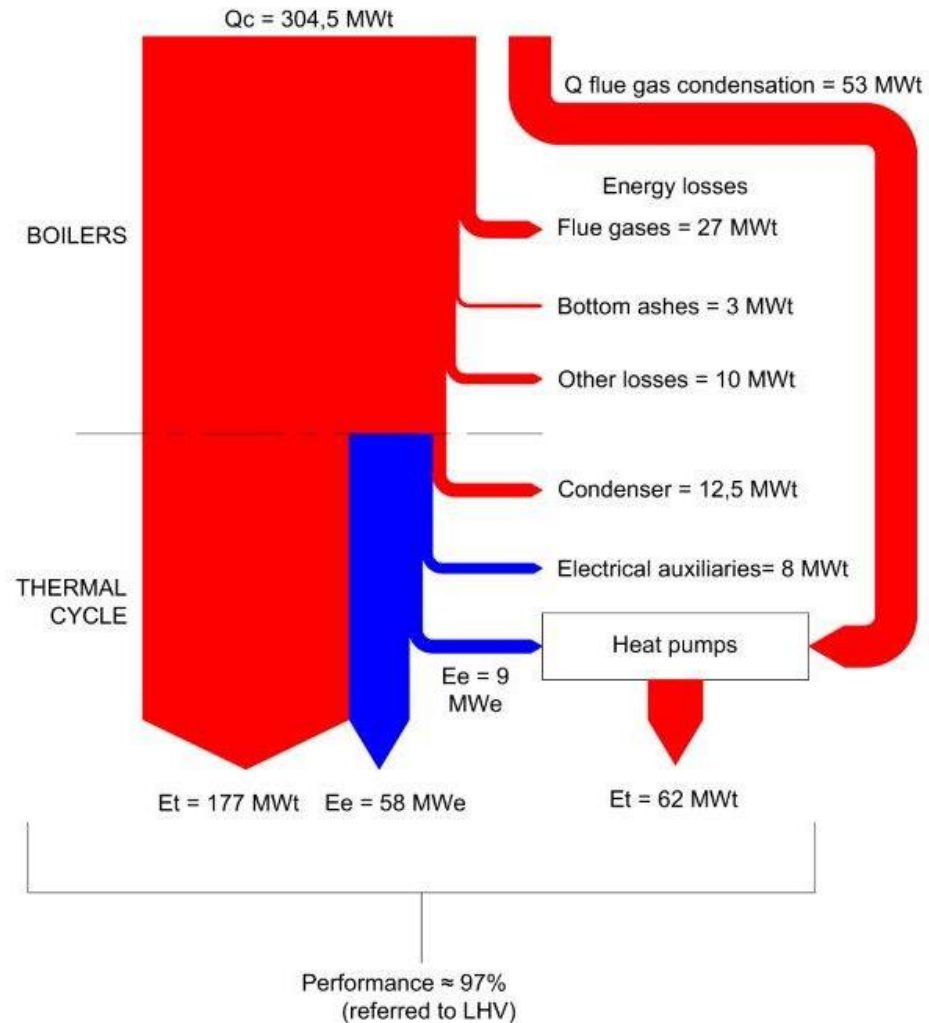
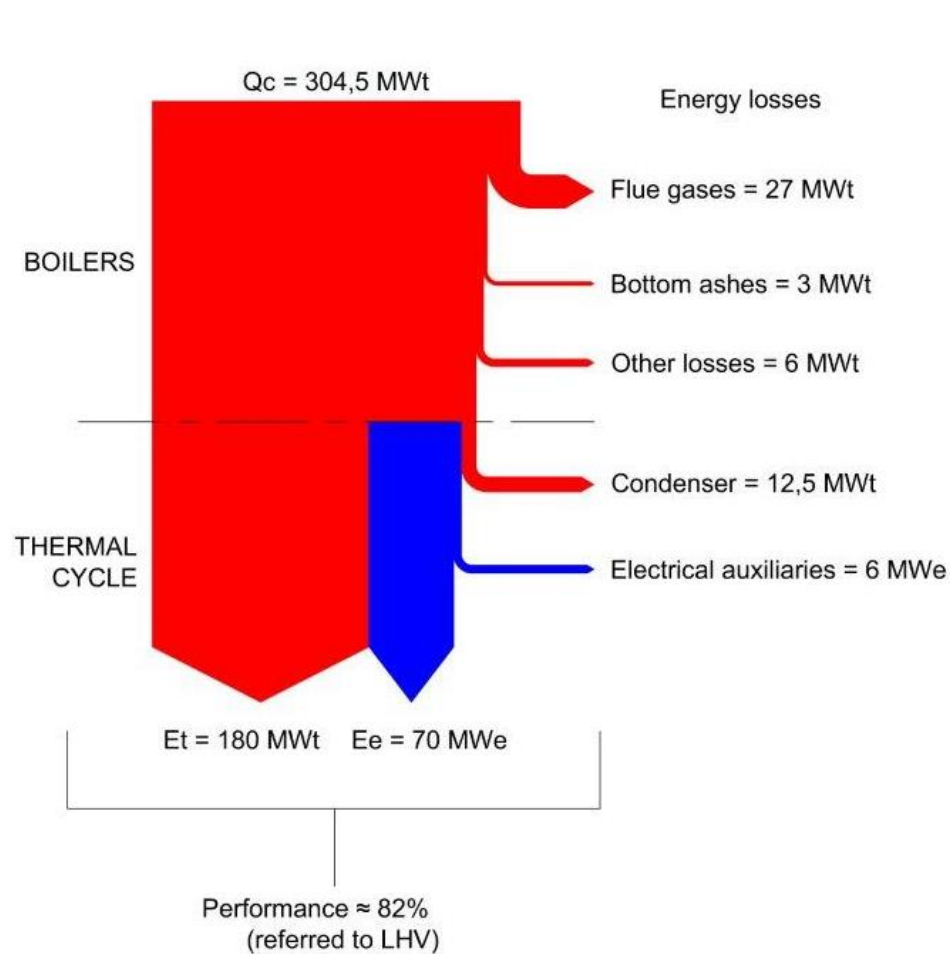
WASTE TO ENERGY PLANT BRESCIA

FLUE GAS CLEANING



WASTE TO ENERGY PLANT BRESCIA

FLUE GAS CLEANING



HYDROGEN VALLEY VALCAMONICA

TOWARDS 2030



Objective: use of a renewable source to decarbonize rail transport

GREEN H2 - The first Italian reality thanks to the conversion of a railway line (Brescia-Iseo-Edolo)



- **Renewable energy supply**
from WtE Brescia



- **Construction of a 6 MW electrolysis plant** (with scale-up to 21), compression and storage



- **H2 supply for the conversion of the FNM train fleet** and local public transport by road

FULL RECOVERY 100%

TOWARDS 2030



Objective: recovery 100% of thermal energy



Results:

- increase in power for DH equal to the needs of 3,000 families through the installation of additional exchangers for the recovery of heat from fumes before their release into the atmosphere

Before

Energy input
in the system
304.5 MWt

Energy recovered
and available
294.5 MWt

After

Energy input
in the system
304.5 MWt

Energy recovered
and available
304.5 MWt

Thanks!