

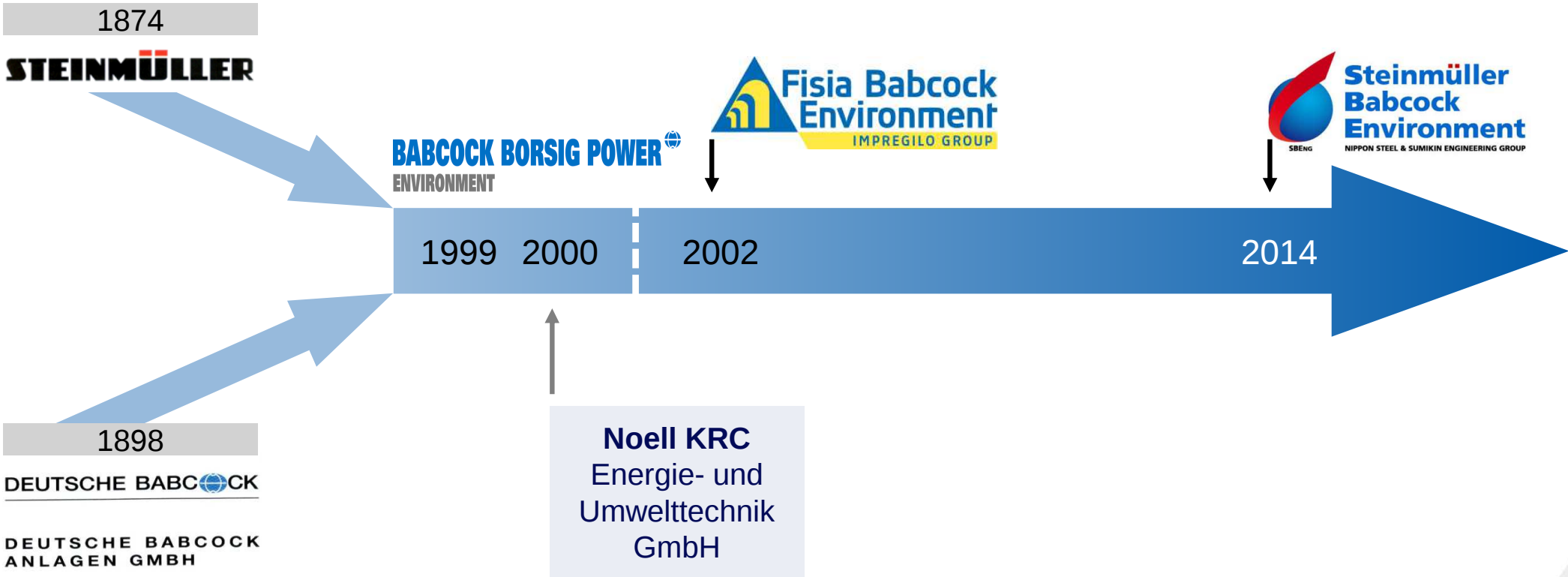
WE MAKE THE WORLD A CLEANER PLACE

Company Presentation

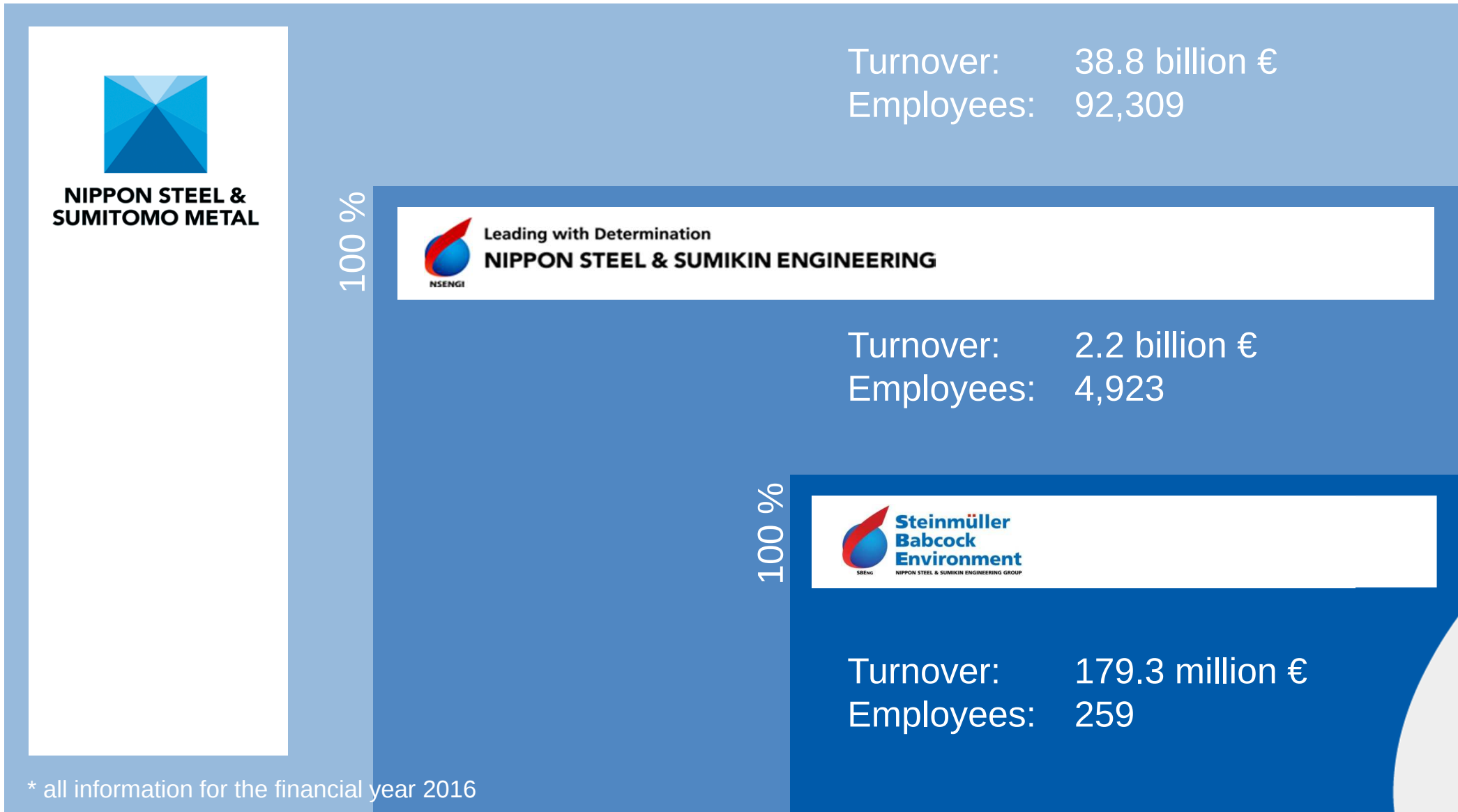


- ▶ International company for plant construction in the field of environmental and energy technology
- ▶ More than 150 years of tradition and know-how
- ▶ Worldwide more than 1,600 reference plants
- ▶ EPC-Contractor for turnkey plants
- ▶ Member of the Nippon Steel & Sumitomo Metal Corporation

History



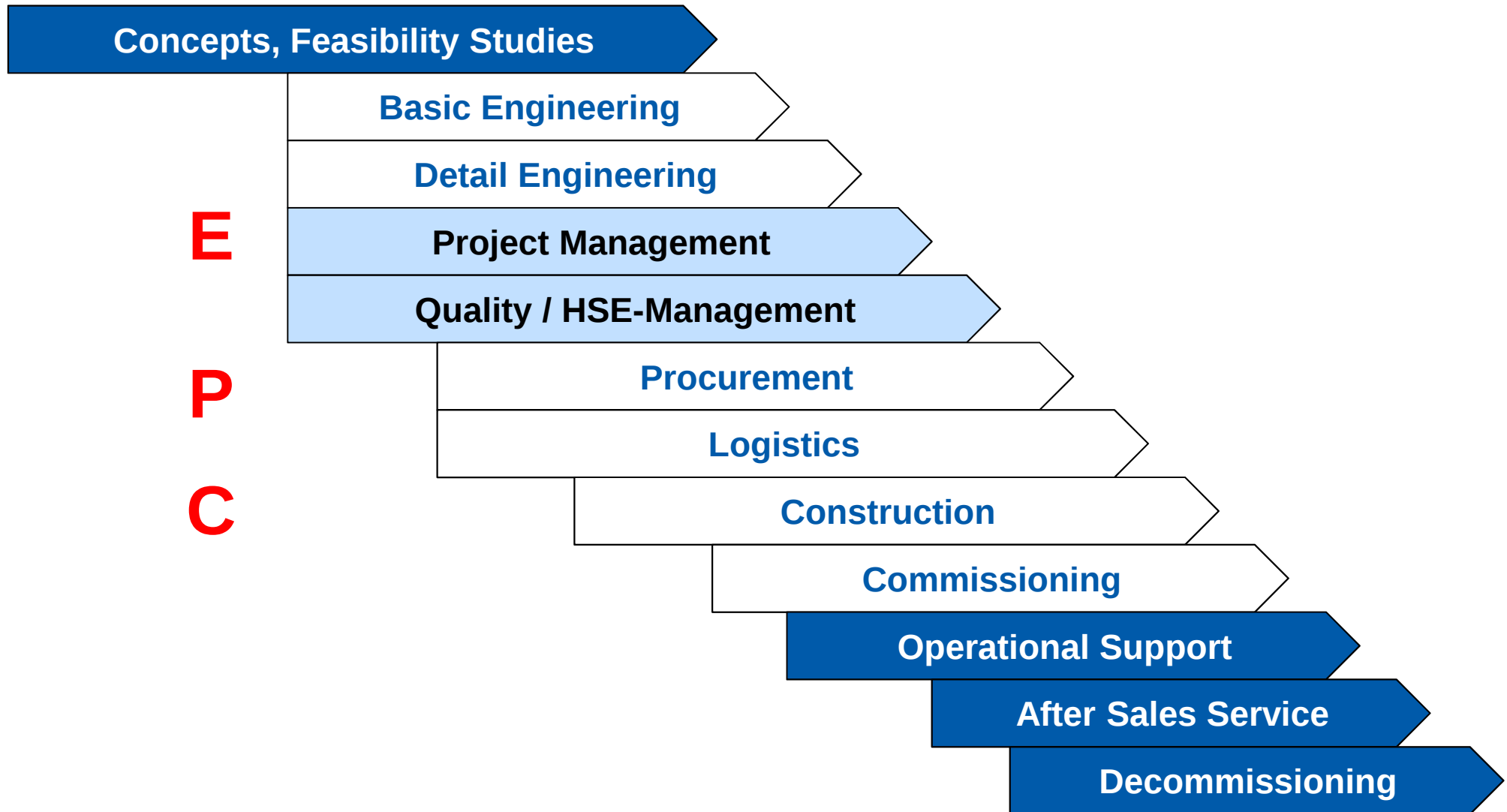
Ownership structure



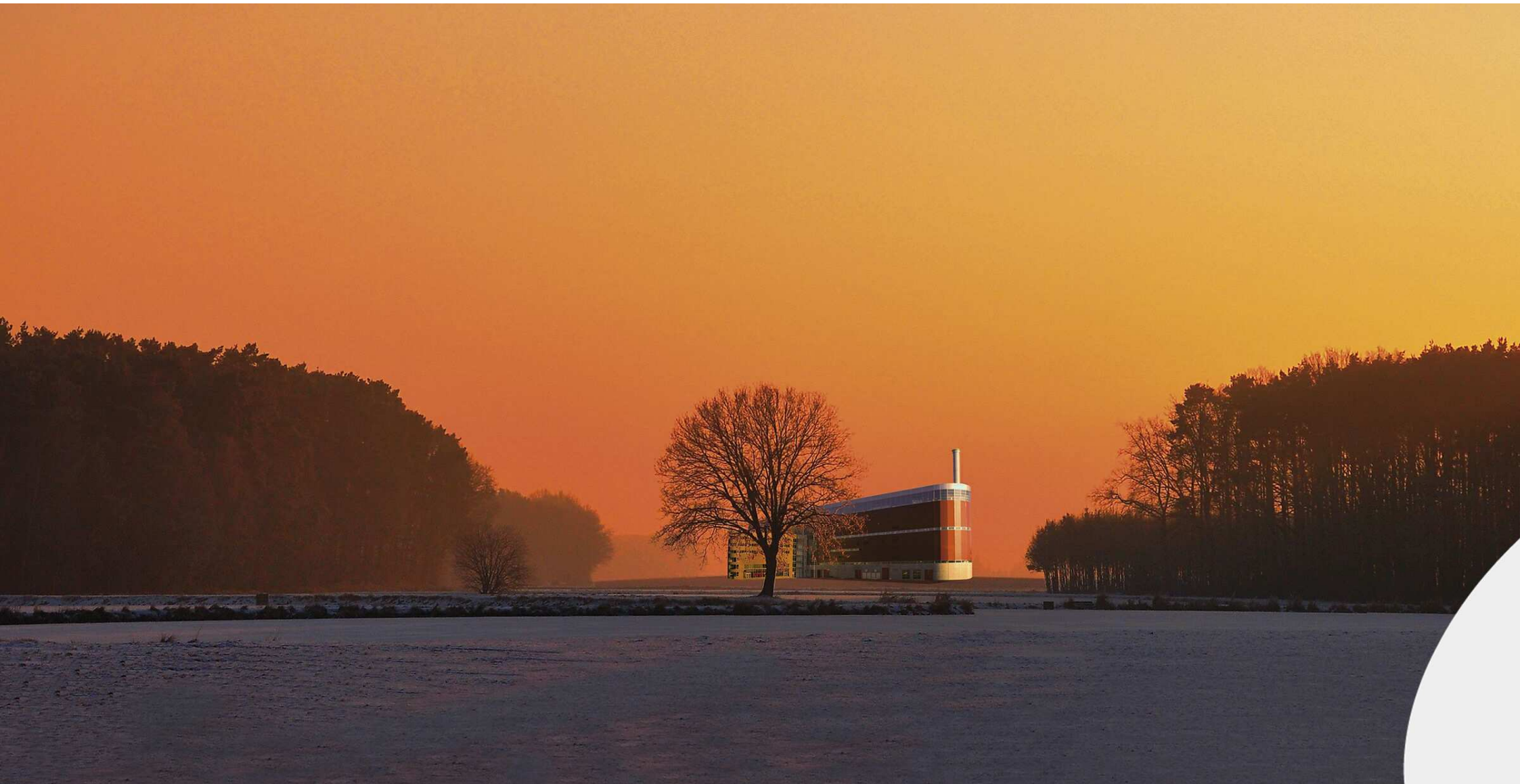
Global network



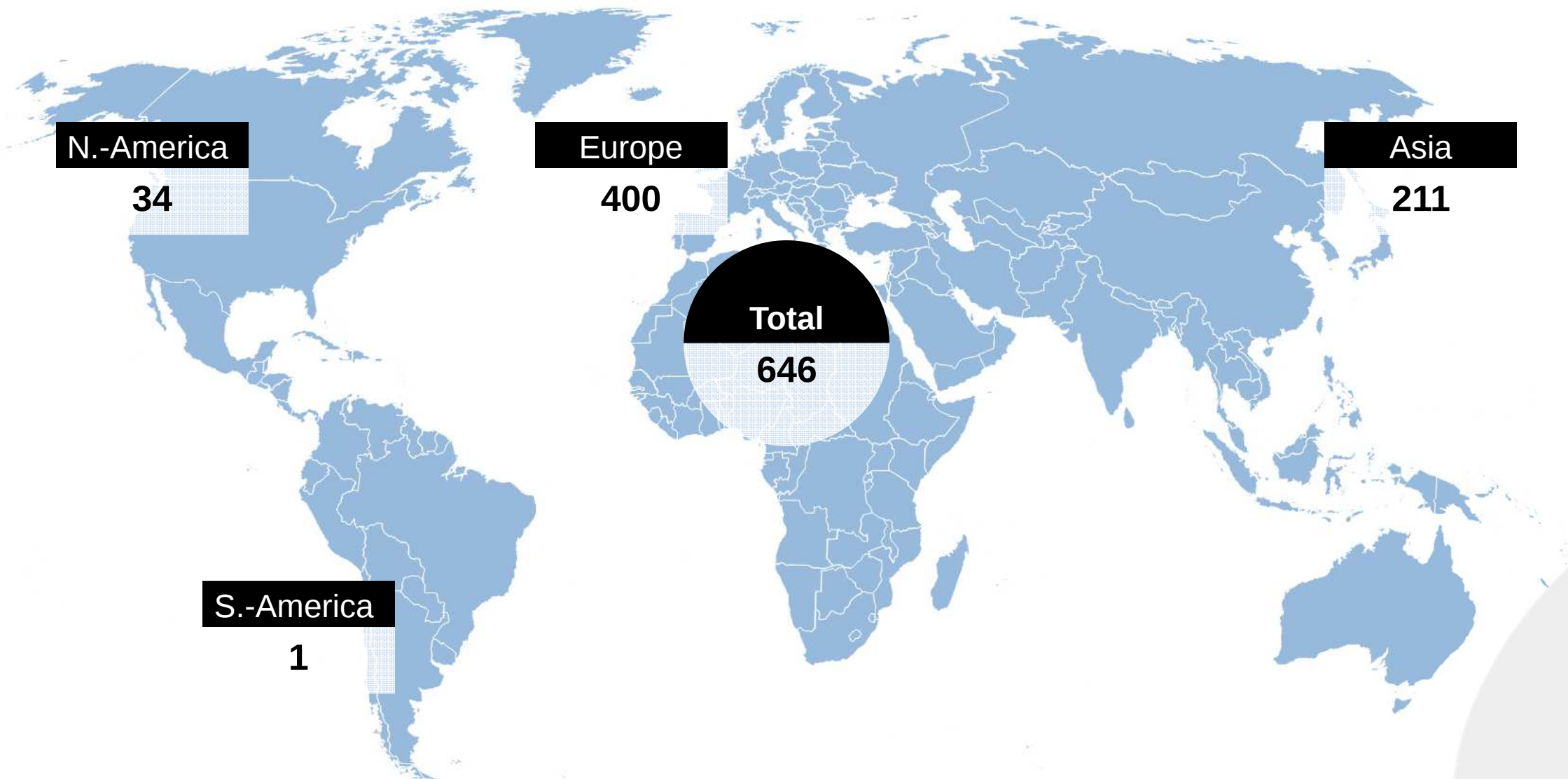
Your partner along the plant life-cycle



Energy from Waste



Reference projects - Energy from Waste



(as at December 2015)

A solution for every kind of waste

Grate incineration



Gasification (DMS)



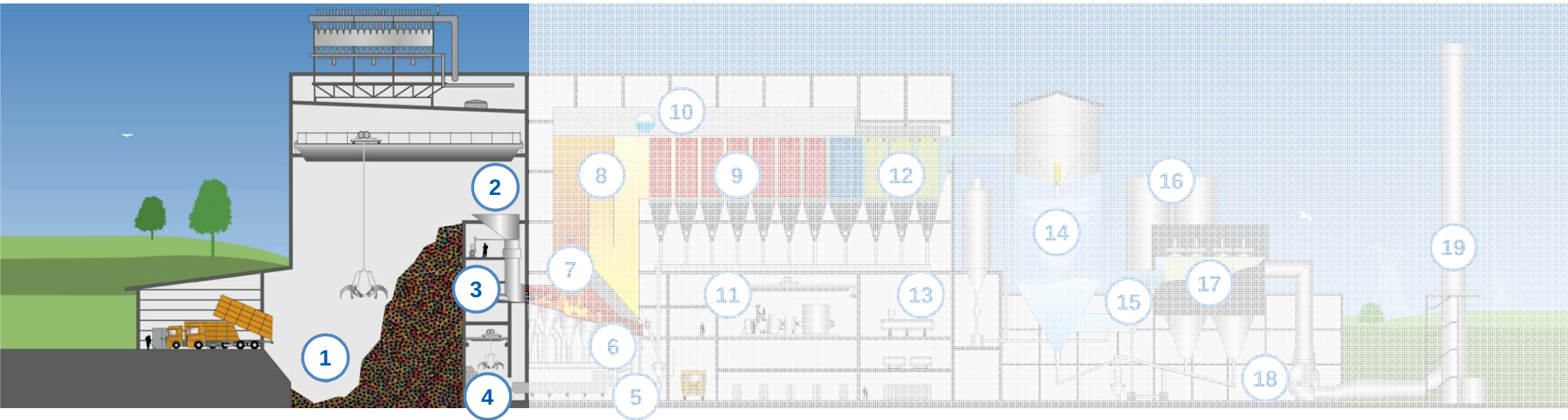
Rotary kiln incineration



Incineration and co-incineration of:

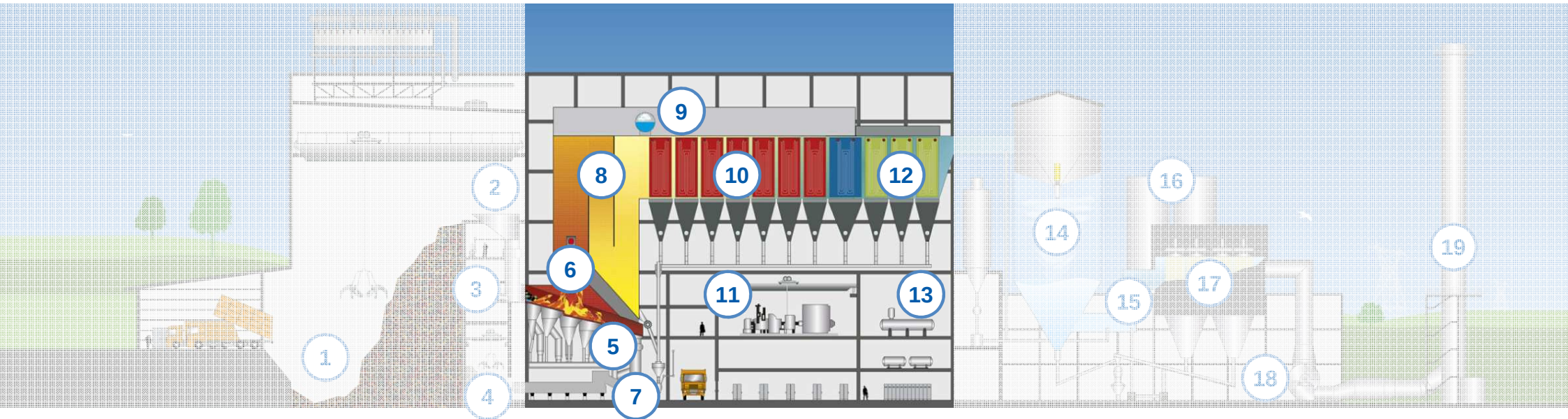
- ▶ Municipal solid waste
- ▶ Refuse derived fuels
- ▶ Industrial waste
- ▶ Bulky waste
- ▶ Biomass
- ▶ Sewage sludge
- ▶ Shredder light fraction
- ▶ Tyres
- ▶ Animal waste
- ▶ Hospital waste
- ▶ Hazardous waste – solid
- ▶ Hazardous waste – pasty
- ▶ Hazardous waste – liquid

Process of waste incineration



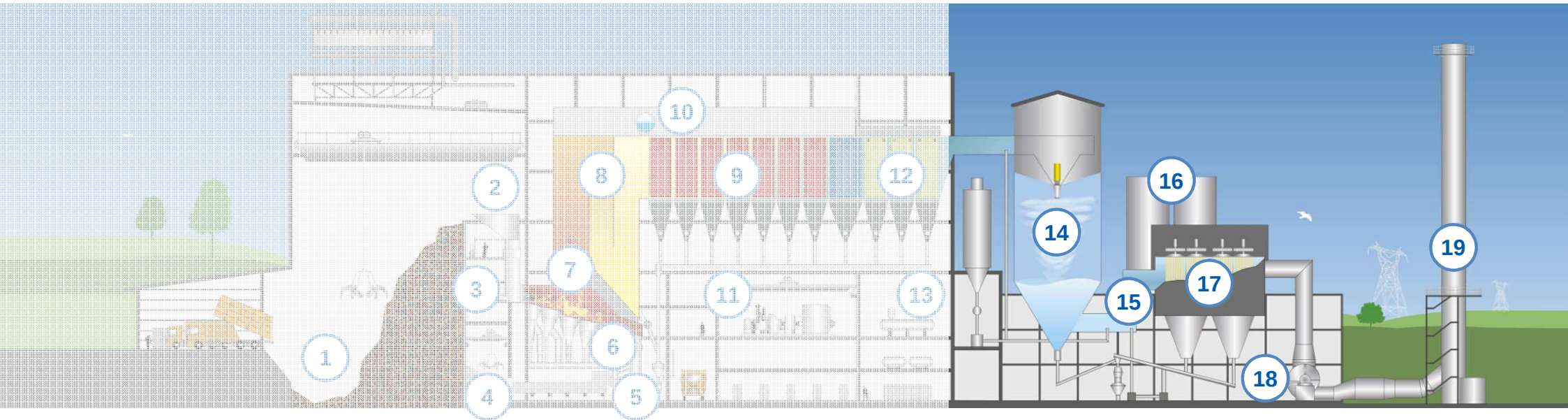
- 1) Waste bunker
- 2) Waste feed hopper
- 3) Feeder
- 4) Slag bunker

Process of waste incineration



- | | |
|-----------------------|--------------------|
| 5) Grate | 10) Superheater |
| 6) Furnace/waste fire | 11) Turbine |
| 7) Slag extractor | 12) Economiser |
| 8) Evaporator | 13) Feedwater tank |
| 9) Boiler drum | |

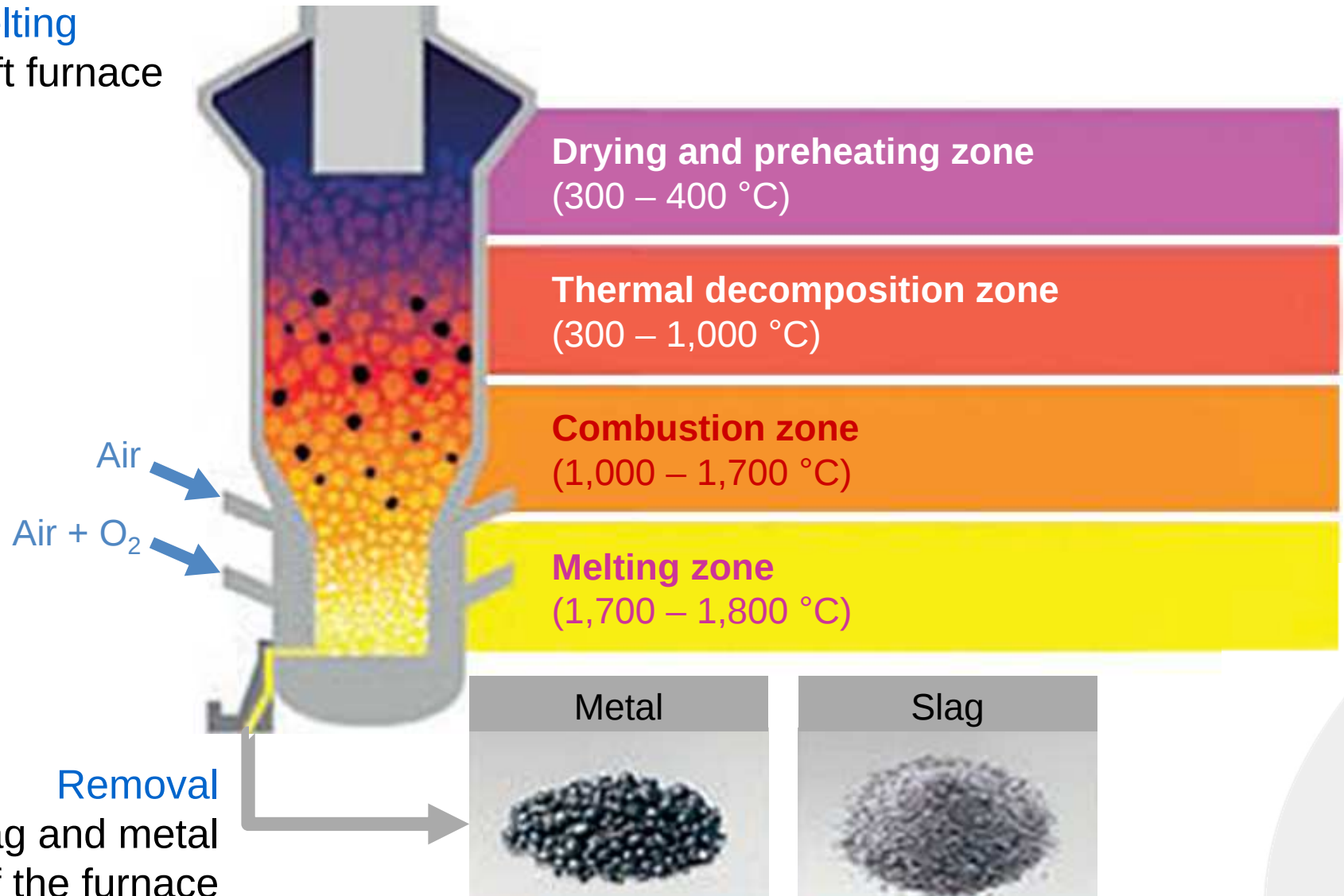
Process of waste incineration



- 14) Spray absorber
- 15) Flow reactor
- 16) Silos
- 17) Fabric filter
- 18) ID-Fan
- 19) Stack

Process of Direct Melting System (DMS/Gasification)

Gasification + Melting
of waste in a shaft furnace
at up to 1,800°C



Reference plant

EfW plant Herten / Germany



Client:	RZR Herten II GmbH
Fuel:	Municipal and commercial waste
Capacity:	2 x 52 MWth; 2 x 17 t/h; 10,800 kJ/kg
Grate system:	Forward moving grate
Commissioning:	2008
Scope:	General contractor → Enlargement of the existing plant by two incineration lines for municipal waste on a turnkey basis (incl. grate, boiler, flue gas cleaning, turbine, erection, commissioning)
Special features:	Facility consists of 6 lines (2 x hazardous waste and 4 x municipal waste) Municipal waste: line 3 & 4 → general contractor; line 1 → grate, boiler, flue gas cleaning Hazardous waste: line 1 & 2 → rotary kiln, boiler, flue gas cleaning

Reference plant

EfW plant Acerra / Italy



Client:	Fibe S. p. A.
Fuel:	Refuse derived fuel
Capacity:	3 x 113 MWth; 3 x 27 t/h; 15,070 kJ/kg
Grate system:	Forward moving grate (water-cooled)
Commissioning:	2009
Scope:	Member of general contractor consortium for the construction of turnkey plant → incl. grate, boiler, flue gas cleaning, turbine, erection, commissioning
Special features:	660,000 tons throughput capacity per year, optimised energy efficiency, turbine/generator with 120 MWeI

Reference plant

EfW plant Berlin-Ruhleben / Germany



Client:	Berliner Stadtreinigungsbetriebe
Fuel:	Municipal waste
Capacity:	90 MWth; 1 x 36 t/h; 9,000 kJ/kg
Grate system:	Forward moving grate
Commissioning:	2012
Scope:	General contractor → turnkey construction of line A incl. grate, boiler, flue gas cleaning, civil works, control and monitoring system, electrical systems
Special features:	One of the largest MSW grates worldwide, replacement of 4 old lines by 1 new line

Reference plant

EfW plant Klaipeda / Lithuania

Client:	Fortum Baltic Investment
Fuel:	Municipal waste, biomass
Capacity:	85 MWth; 1 x 34 t/h; 9,000 kJ/kg
Grate system:	Forward moving grate
Commissioning:	2013
Scope:	Engineering, delivery, installation and commissioning of grate, boiler and boiler house
Special features:	Co-incineration of biomass (up to 50 %), first EfW plant in Lithuania



Reference plant

DMS plant Sin-Moji / Japan

Client:	Kitakyushu City
Fuel:	Municipal waste, sewage sludge
Capacity:	3 x 10 t/h; 9,100 – 12,000 kJ/kg
Commissioning:	2007
Scope:	Turnkey plant incl. operation and maintenance
Special features:	World's biggest plant with gasification process based on Direct Melting System (DMS), melting of slag from other plants



WE MAKE THE WORLD A CLEANER PLACE

Let's work it out together

