

Role of the Thermal Waste Treatment



3RD Conference

Sustainable Chemical Conversion in Industry

October 27th – 28 th 2020, Berlin

Remondis: A sustainable partner!

Recycling, Service and Water

- With over 30,000 employees
- At around 900 business locations
- On 4 continents
- Service for more than 30 million people and many thousands of companies

GMVA – PPP between the cities of Duisburg/
Oberhausen (51 %) and Remondis (49 %)

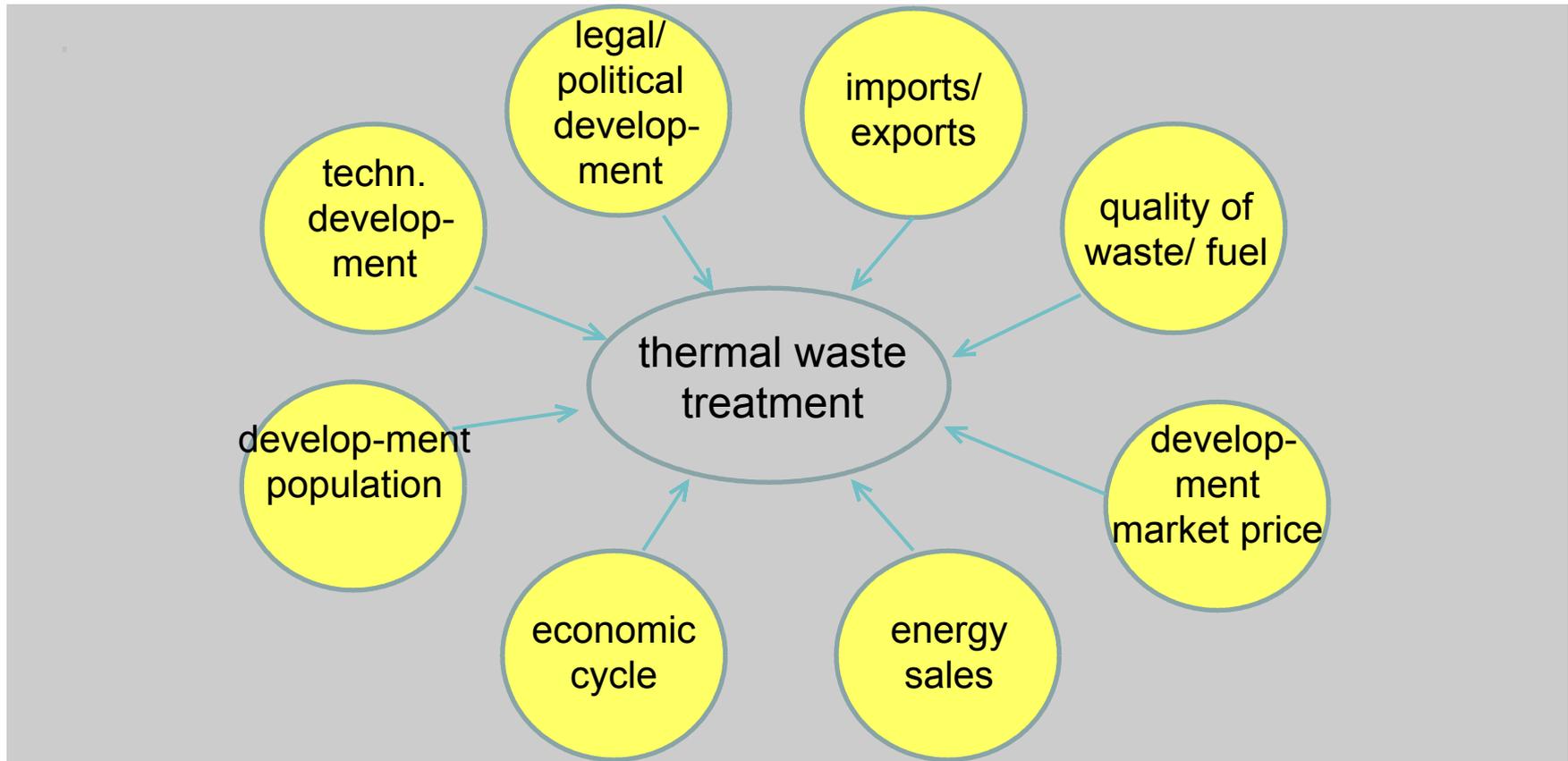


Thermal Treatment plants in the Remondis - Group



				
Municipal/ Commercial waste	Hazardous/ Medic. Waste	Biomass	Sewage Sludge/ RDF	
cap. 3,500,000 to/a	cap. 124,000 to/a	cap. 150,000 to/a	cap. 175,000 to/a	
				
				

Thermal Waste Treatment - the key drivers



current situation – legal/ political development

Treibhausgas- and Brennstoffemissionshandelsgesetz

Exception applies according to §1b EnergieStV for:

- Sewage sludge
- Municipal waste (waste code 20 03)
- other waste streams with a maximum of 18 MJ / kg

But: Evaluation process with associations and companies concerned will start to implement CO₂-certificates for Thermal Waste Treatment. A possible start time can be expected for the year 2024 (at the latest).

Usage of primary energy – composition of waste

Round about 40 % of energy from waste (commercial waste, household waste and sewage sludge) are biogenic:

		2016	2020	2025	2030	2035
total	PJ	317	318	301	290	290
fossil	PJ	192	192	181	174	174
biogenic	PJ	125	126	120	116	116
percentage biogenic	%	39,3%	39,5%	39,9%	40,0%	40,0%

source: Projektionsbericht 2019 für Deutschland gemäß Verordnung (EU) Nr. 525/2013

Main effects:

- Increasing separate collection of biowaste from 2025 onwards (-1,5 Mt untill 2030)
- Increasing amount of sewage sludge untill 2025 (reduction agriculture)
- Reduction of commercial and packing waste (-1,5Mt untill 2030)

Usage of primary energy – contribution of the waste branche

energy source [PJ]	2008	2010	2016	2020	2025	2030	2035
brown coal	1566	1516	1525	1316	1315	1150	1104
stone coal	1823	1779	1650	1392	1412	1228	1210
mineral oil	4974	4765	4594	4532	4306	4092	3886
fossil gas	3219	3301	3169	2982	2896	2785	2637
waste (fossil)*	192	234	257	250	232	222	220
biomass**	934	1164	1150	1265	1288	1263	1279
nuclear	1623	1534	923	727	0	0	0
wind	149	140	288	495	565	664	741
hydro power	73	76	74	77	77	77	78
solar	31	61	165	186	245	300	330
geothermal	17	20	46	56	64	68	68
trade balance	-81	-64	-193	-188	-169	-220	-281
primary energy usage	11521	11526	13648	13080	12231	11620	11271
percentage waste in total			2,3%	2,4%	2,5%	2,5%	2,6%
percentage renewable**	8,3%	10,1%	12,6%	15,9%	18,3%	20,4%	22,1%

40 % biogenic
60 % unavoidable

source: Projektionsbericht 2019 für Deutschland gemäß Verordnung (EU) Nr. 525/2013

* amount diverge slightly from fossil/biogen data due to different origin source

** incl. organic content of waste

Thermal Waste Treatment - provision of service

Waste is ... an energy source

... a national disposable source

Thermal Waste Treatment is
energy mix

... for ~2,5 % part of total



available 365 days

reliable method to warrant base

load supply

Thermal Waste Treatment - provision of service

Thermal Waste Treatment provides a significant value for environment, health and climate protection:

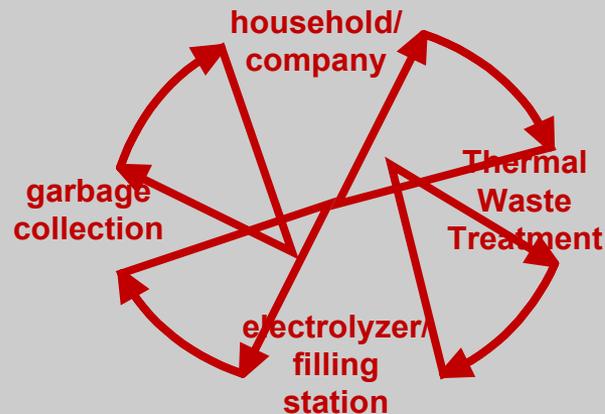
- due to Corona: also a disease control
- (thermal) utilization of waste streams which cannot be used for material recycling
- reduction of waste volume
- removal of substances that are harmful to environment and health through the most complex flue gas cleaning technology
- replacement for fossil fuels
- delivery of steam and/of electricity
- reliable partner e.g. to realize future energy projects



Thermal Waste Treatment - attaining the climate protection goal

Conversion of (green) electricity into hydrogen:

- market starter for regional hydrogen projects
- providing of e.g. garbage collection trucks, public transport, distribution trucks with green fuel
- close the circle



Development greenhouse gas emissions

Goals:

- 2030: 55 % less CO₂ emissions ref. to level 1990
- 2050: 90-95 % less CO₂ emissions

*stop
landfilling*

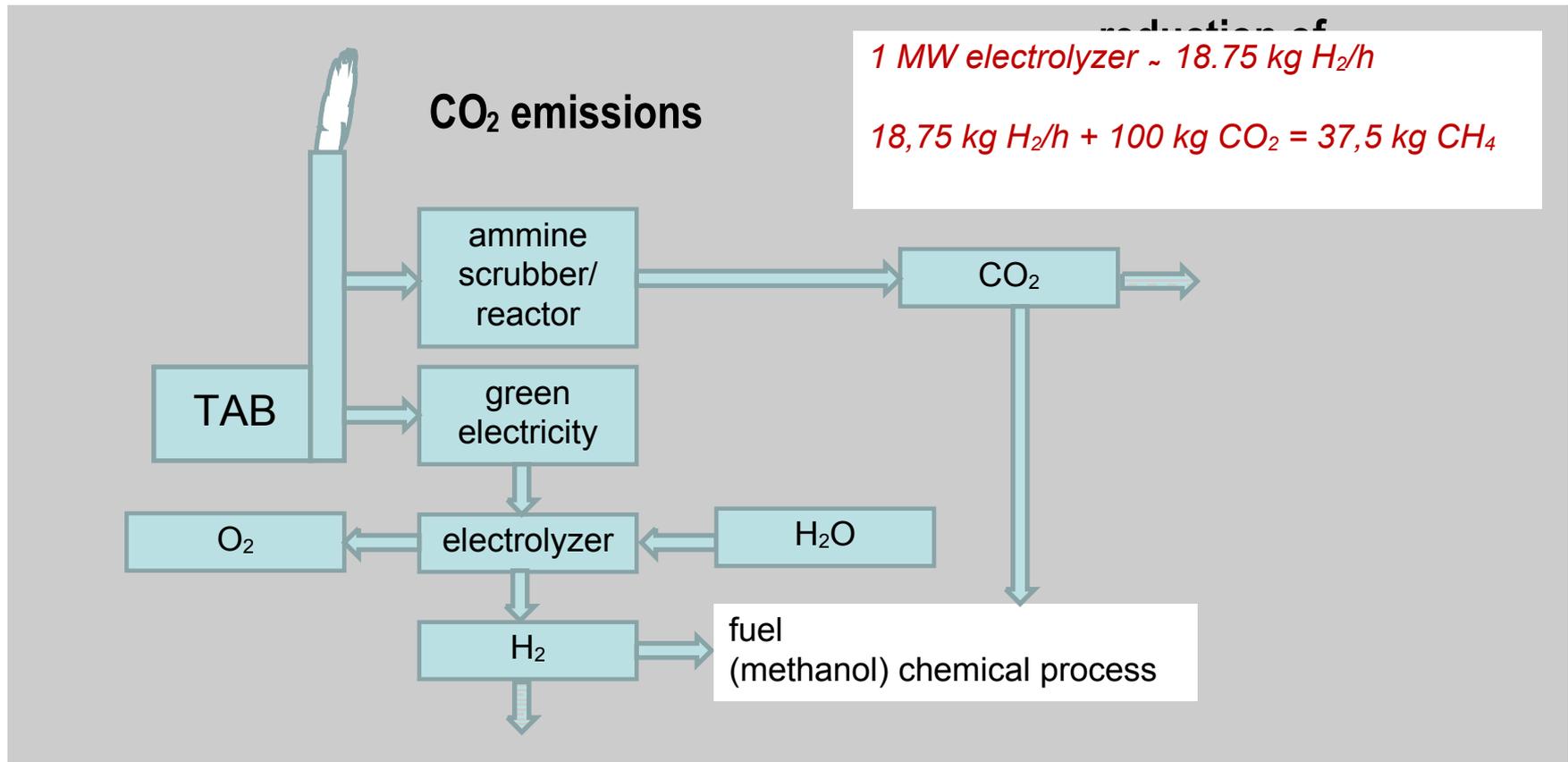


fuel [Mt CO ₂ e]	1990	2005	2010	2016	2020	2025	2030	2035
brown coal	346,5	178,2	168,4	169,2	146,0	146,1	127,7	122,6
stone coal	203,7	165,7	160,5	142,8	119,2	121,7	104,6	103,0
mineral oil	335,8	311,2	286,3	281,8	278,4	258,9	242,3	224,7
fossil gas	122,5	175,2	184,9	176,8	166,2	160,9	154,5	145,8
waste	7,7	13,4	19,4	21,2	20,6	19,2	18,4	18,2
biomass*	0,5	1,2	2,8	3,9	4,1	4,1	4,0	4,0
fuel total	1016,7	845,0	822,3	795,7	734,4	710,9	651,4	618,3
percentage waste in "total"	0,8%	1,6%	2,4%	2,7%	2,8%	2,7%	2,8%	2,9%
CO ₂ incineration of biomass	22,1	60,2	109,3	108,1	117,8	119,7	117,5	118,9

source: Projektionsbericht 2019 für Deutschland gemäß Verordnung (EU) Nr. 525/2013

* according to CH₄ and N₂O emissions without CO₂ from incineration of biomass

Role of Thermal Waste Treatment Help to attain the climate protection goal



Thermal Waste Treatment - conclusion

Thermal Waste Treatment

... is a supplier of (green) energy

... covers always more the base load

in the future

... energy source is national

and disposable 365 days

(autarky)

... can provide a

contribution to the CO₂ reduction goal

... will

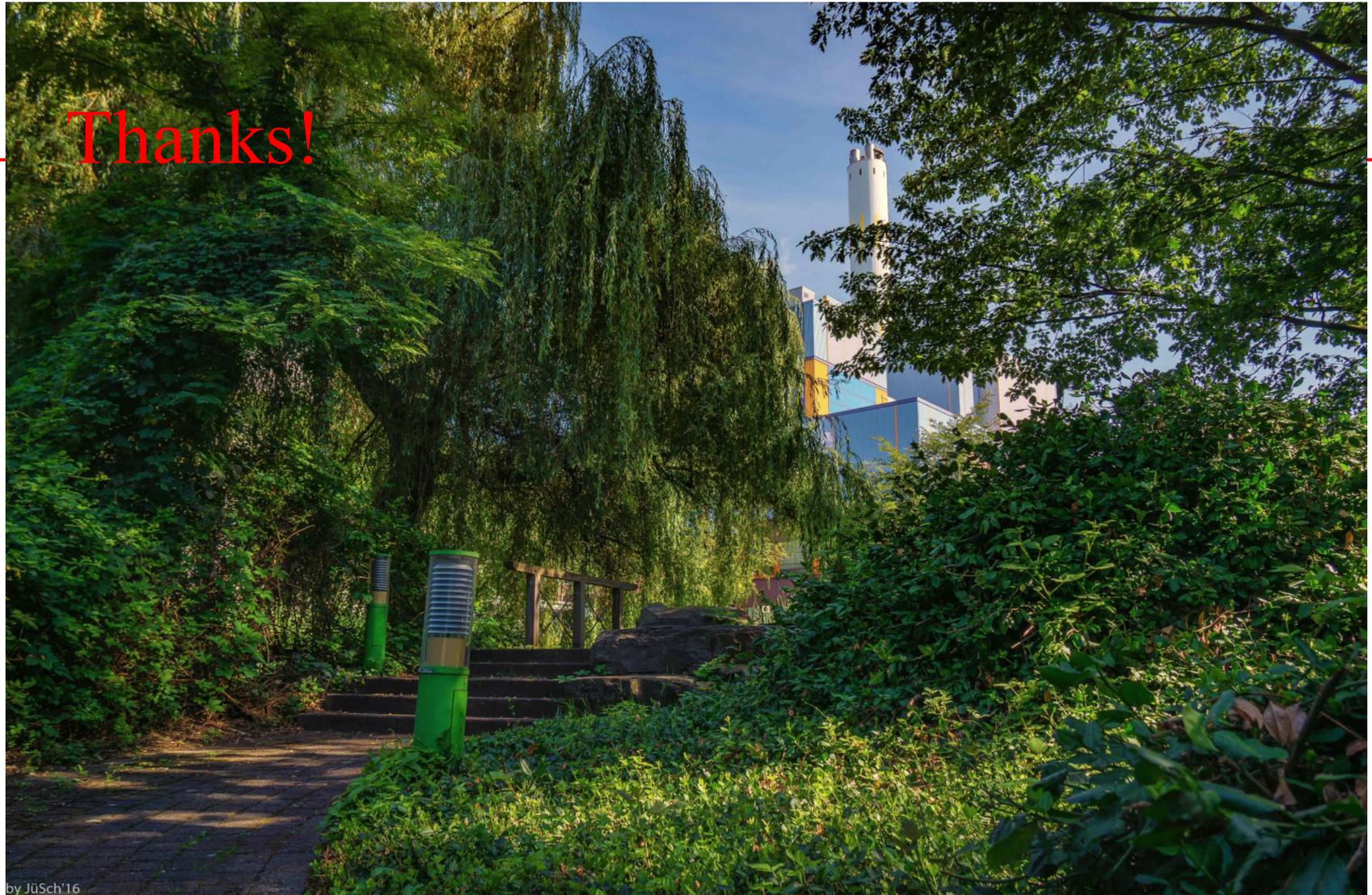
need clarity concerning the classification of

Thermal Waste Treatment - conclusion

How to manage the CO₂ reductions at Thermal Waste Treatment?

- subsidy to start pilot projects to gain experience and develop markets
- possible: change of BImSchG to reduce emission parameters
- alternative: introduction of CO₂-certificates
- alternative: trade of „negative“ CO₂-certificates to discharge not only fossil but also biogenic CO₂

Thanks!



by JüSch'16