

IWA YOUNG WATER PROFESSIONALS
BUILDING BRIDGES
ONLINE EVENT SERIES

Carbon Neutral Wastewater Treatment

Friday, 9 April 2021

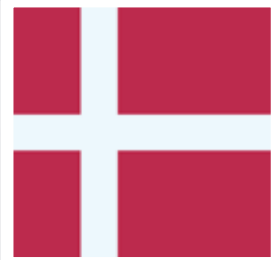
1 PM (Central European Summer Time)

AGENDA (Duration 1.5 hrs)

- . 15' Introduction
- . 15' Guest Speaker Denmark: **Nina Almind-Jørgensen** (VandCenter Syd)
- . 15' Guest Speaker Germany: **Jürgen Schmidtke** (Umwelttechnik BW)
- . 45' Networking Discussion



ywp-germany@web.de
international@junge-dwa.de



info@ywp.dk

IWA YOUNG WATER PROFESSIONALS BUILDING BRIDGES

ONLINE EVENT SERIES

Tell us about yourself!

LINK VOXR: <https://voxr.com/dwa>



QUESTION 1

What is your occupational status?

(e.g. Student / Transition / Young Professional / Professional / etc.)



ywp-germany@web.de
international@junge-dwa.de

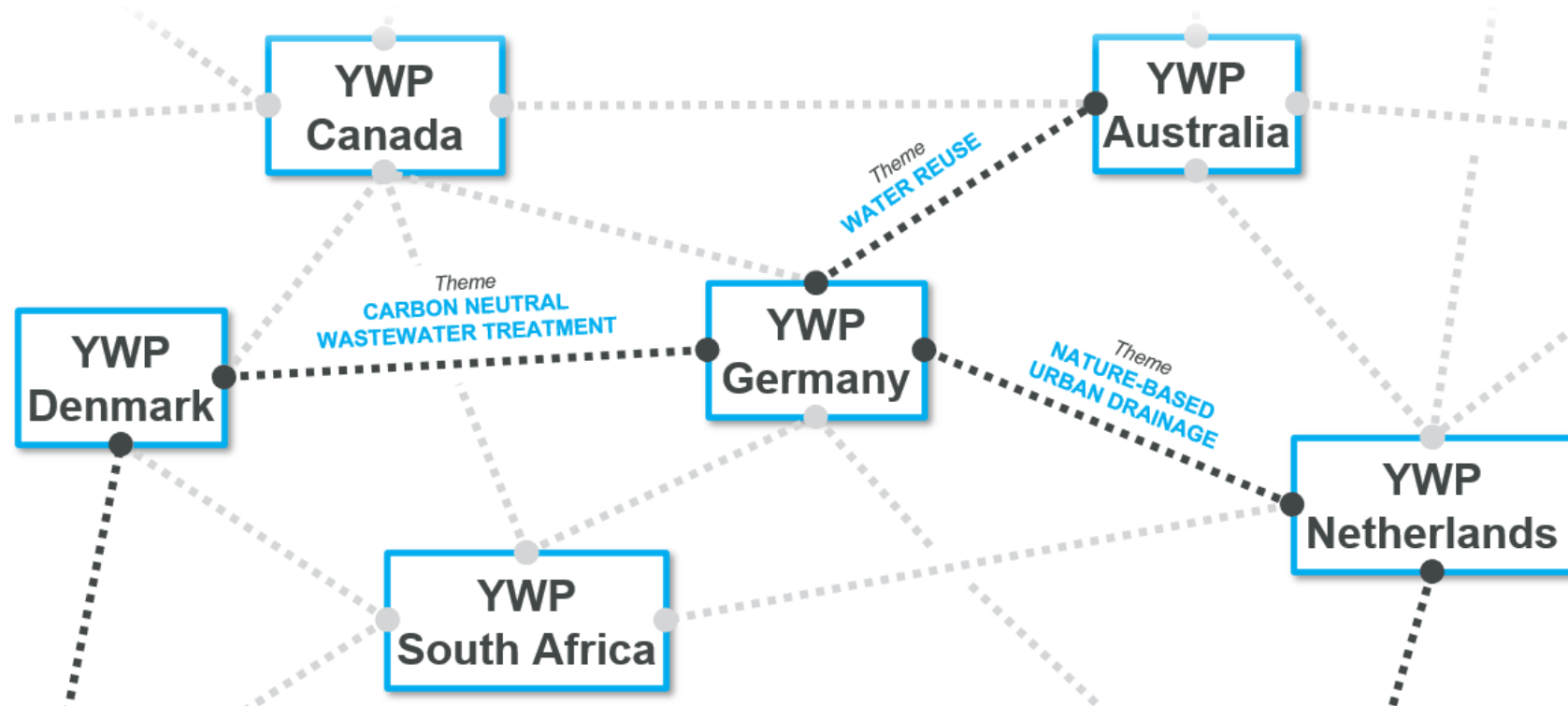


info@ywp.dk

BUILDING BRIDGES ONLINE EVENTS

Concept in a nutshell

- Part of newly created **Building Bridges Online Event Series**
- Regular get-togethers connecting YWP across the globe in **bilateral dialogue**
- Platform to network and **engage over a topic** relevant to both countries
- Platform **empowering YWP** to present insights and to **learn** from peers



INTRODUCING OURSELVES!

JUNGE DWA (YOUNG DWA)

Connect - Roundtables

Exchange - Network Meetings

Grow - Circles & Inclusion

international@junge-dwa.de



<https://en.dwa.de/en/jungedwa.html>



XING-Gruppe > JungeDWA

DWA

Klare Konzepte. Saubere Umwelt.



INTRODUCING OURSELVES!

IWA YWP GERMANY (YWPGER)

We connect (young) water professionals in Germany with the world, and the world with Germany.

- Organisation of **roundtables** & network events
- **Publications** (national & international)
- **Representing** GER abroad within IWA events and at international conferences
- **Connecting** with other IWA chapters

ywp-germany@web.de



<https://ywp-germany.carrd.co/>



@YWP_Germany





<https://www.linkedin.com/company/ywp-germany/>



EVENTS & ACTIVITIES

In the past we have organized both joint workshops with various other youth organizations, spoke at conferences and wrote articles. If you would like to attend one of our activities or contribute please reach out to us!

MORE



IWA **YOUNG WATER PROFESSIONALS GERMANY**

national ciation

Tweets 45 Following 53 Followers 111 Likes 105 [Follow](#)

YWP Germany @YWP_Germany
A warm welcome to the Twitter Account of the IWA Young Water Professionals Germany #SDG6. Updated and detailed info on our activities on ywp-germany.carrd.co
Deutschland
Joined November 2017

Tweets Tweets & replies Media

YWP Germany @YWP_Germany · Feb 5
Amazing turn out at our #Berlin #ywp #roundtable! Thanks so much for having us p2mberlin!

YWP Germany @YWP_Germany · Feb 5
Looking forward to see you all at our #roundtable in #berlin starting at 6pm!

INTRODUCING OURSELVES!

IWA YWP DENMARK (YWPDK)

We are the main independent network for young water professionals in Denmark providing networking and knowledge sharing.

- High activity level of more than 300 members
- Knowledge sharing at webinars, conferences, meetups, workshops, and panel debates
- Networking with like minded passionate professionals regionally, nationally, and globally

info@ywp.dk



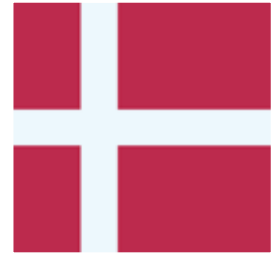
<http://ywp.dk/>



[@YWPDK](https://twitter.com/YWPDK)



<https://www.linkedin.com/company/ywpdk/>



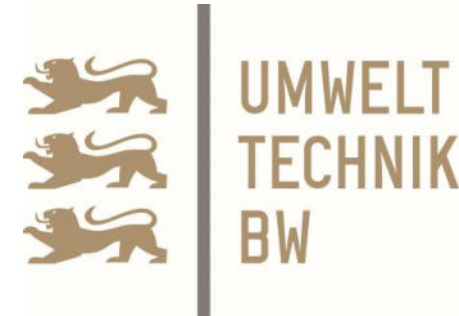
GUEST SPEAKER

YWP GERMANY

- **JÜRGEN SCHMIDTKE**

Project Manager, Umwelttechnik BW

- juergen.schmidtke@umwelttechnik-bw.de
- Tel: +49 711 252841-27



Climate neutral Waste Water Treatment Plant (WWTP)



Foto: Jürgen Schmidtke

Where I started



ELIQUO
ELOVAC-P

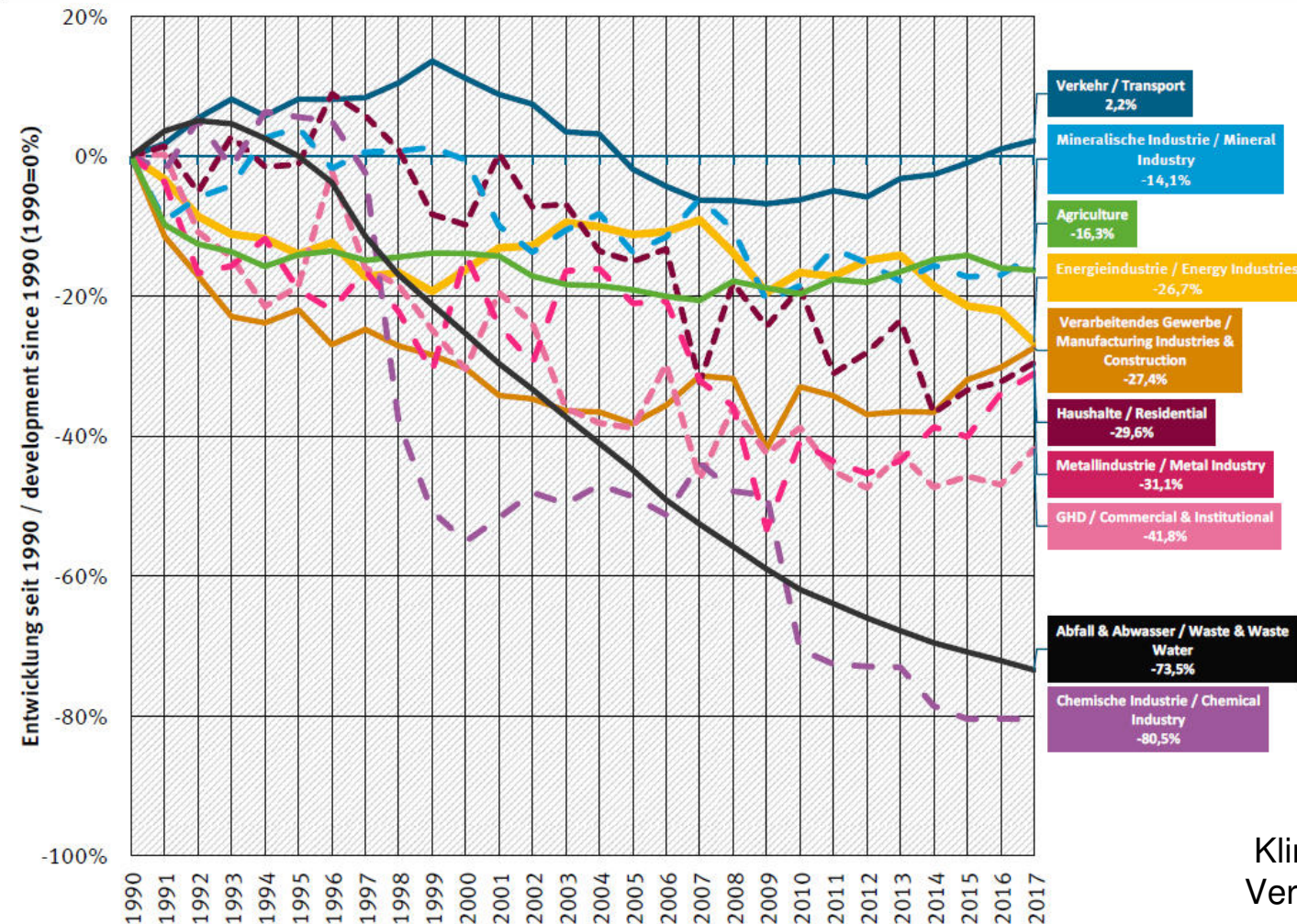


Iris Beuter, master thesis, 2020

Carbon footprint of a WWTP

- Where to start?
IPCC-
Intergovernmental
Panel on
Climate Change

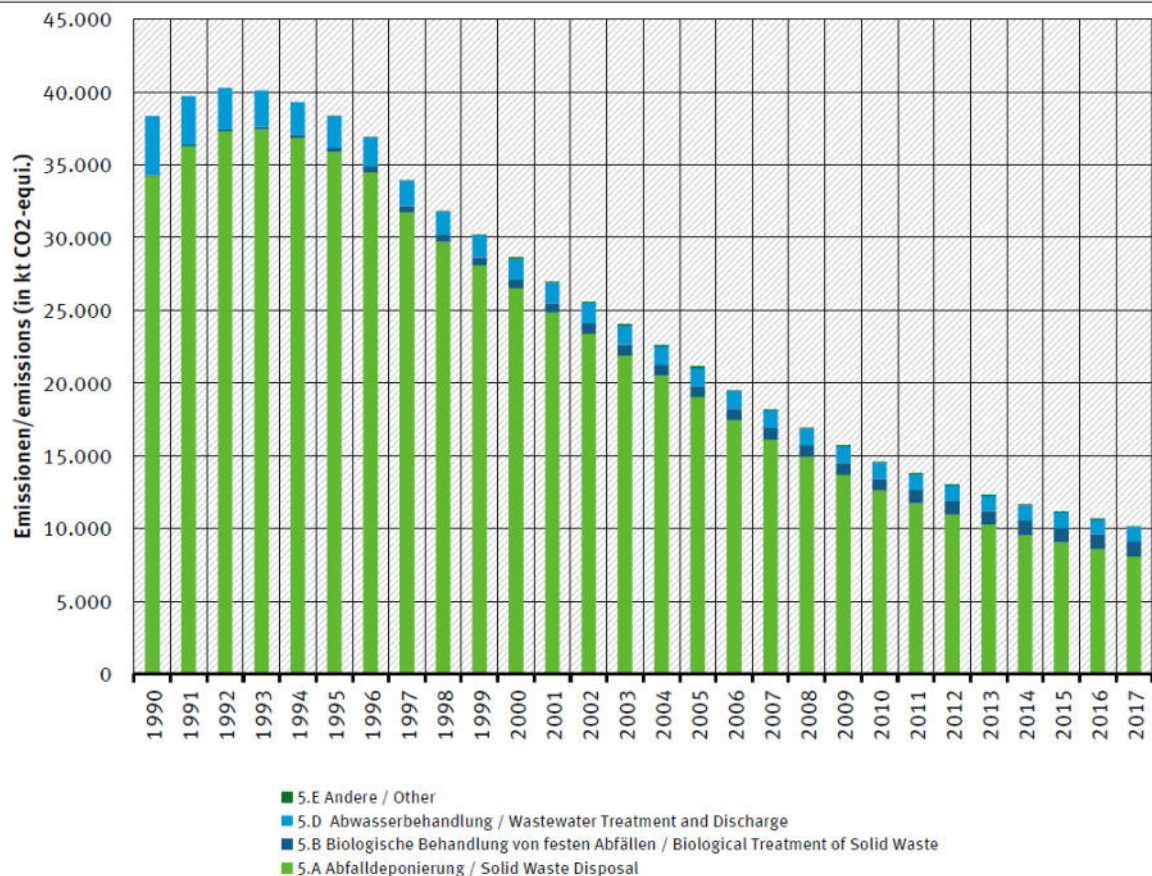
Abbildung 3: Relative Entwicklung der Treibhausgasemissionen seit 1990 nach Kategorien¹²,



Umweltbundesamt,
Berichterstattung
unter der
Klimarahmenkonvention der
Vereinten Nationen und dem
Kyoto-Protokoll 2019

CRF Sector 5

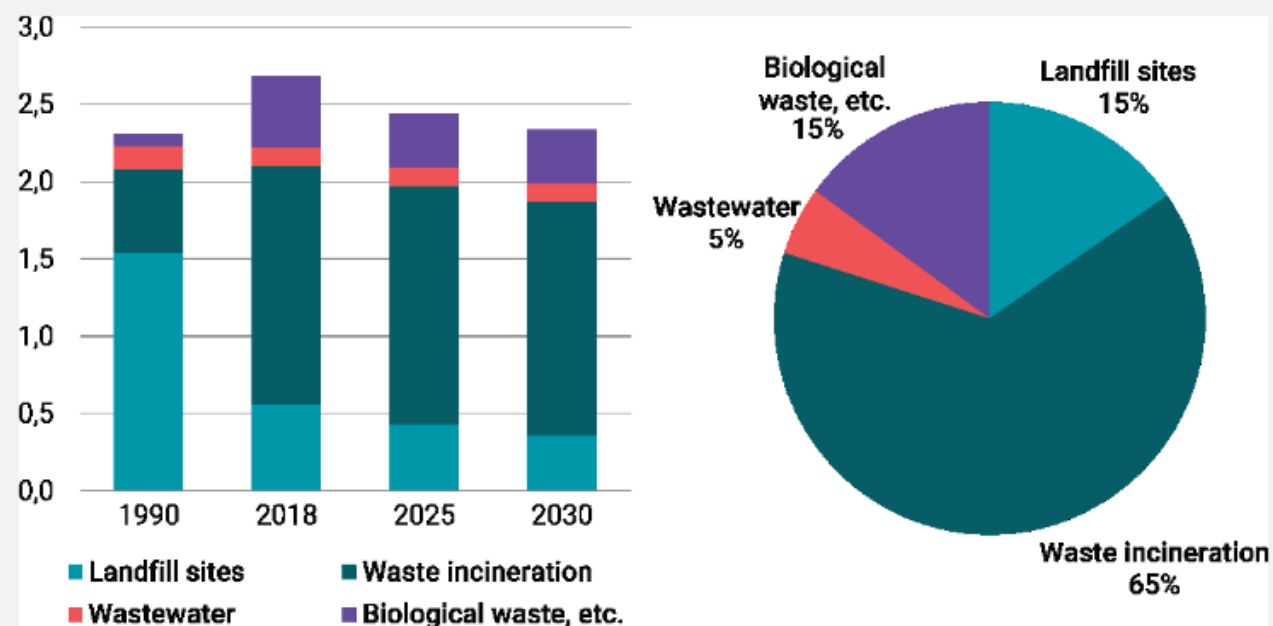
Abbildung 76: Übersicht über die Treibhausgas-Emissionen des CRF-Sektors 5



Germany, Umweltbundesamt, Berichterstattung unter der Klimarahmenkonvention der Vereinten Nationen und dem Kyoto-Protokoll 2019

Figure 28

What will be the source of waste sector greenhouse gas emissions in 2030?



Note: *The sub-components stated with one decimal place sum up to 2.3 million tonnes of CO₂e and not the total emissions of 2.4 million tonnes of CO₂e. This is due to rounding.

Source: The Danish Energy Agency

Denmark: Climate Programme 2020, Denmark's Mid-century, Long-term Low Greenhouse Gas Emission Development Strategy

Carbon footprint of a WWTP

Table 7.1.1 Emissions for the waste sector, kt CO₂ equivalents.

		1990	1995	2000	2005	2010	2013	2014	2015	2016	2017	2018
5.A. Solid waste disposal	CH ₄	1 536	1 331	1 073	909	772	703	687	651	617	588	560
5.B. Biological treatment of solid waste	CH ₄	40	62	111	135	163	165	184	209	264	316	359
5.B. Biological treatment of solid waste	N ₂ O	12	21	153	59	86	78	74	65	80	83	83
5.C. Incineration and open burning of waste	CH ₄	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
5.C. Incineration and open burning of waste	N ₂ O	0.19	0.21	0.21	0.23	0.28	0.26	0.26	0.26	0.27	0.27	0.28
5.D. Waste water treatment and discharge	CH ₄	41	43	46	47	48	49	50	49	50	50	51
5.D. Waste water treatment and discharge	N ₂ O	109	115	80	73	63	64	66	69	65	67	65

7.5 Abwasserbehandlung (5.D)

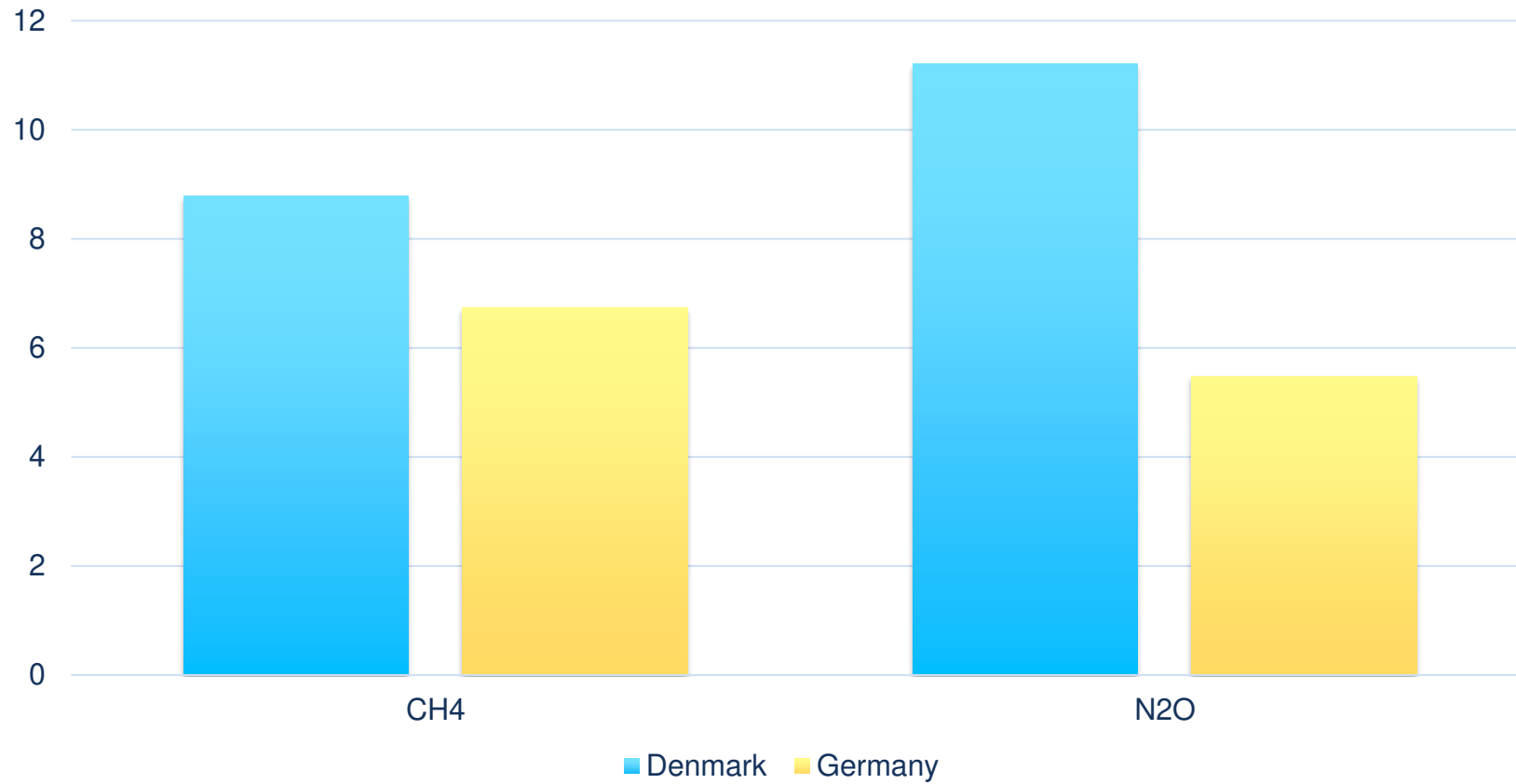
KC	Category	Activity	EM of	1990 (kt CO ₂ -e.)	(fraction)	2017 (kt CO ₂ -e.)
-/T	5.D.1 Wastewater Handling	Domestic Wastewater	CH ₄	2.629,71	0,21%	514,58
-/-	5.D.1 Wastewater Handling	Domestic Wastewater	N ₂ O	1.389,87	0,11%	429,65
-/-	5.D.2 Wastewater Handling	Commercial Wastewater	N ₂ O	31,59	0,00%	25,11
-/-	5.D.2 Wastewater Handling	Commercial Wastewater	CH ₄	9,25	0,00%	44,74

DENMARK'S NATIONAL INVENTORY REPORT 2020 Emission Inventories 1990-2018 – Submitted under the United Nations Framework Convention on Climate Change and the Kyoto Protocol

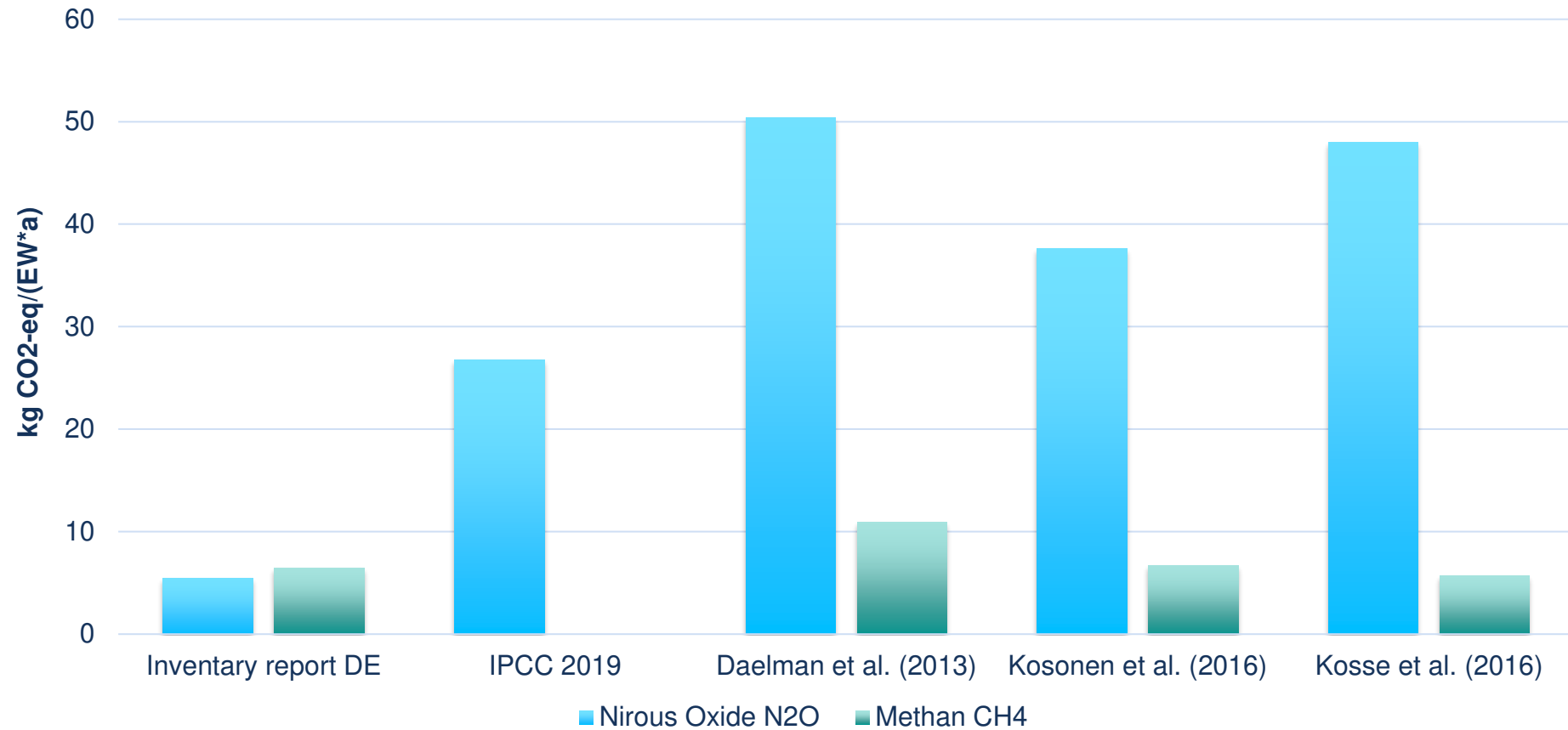
Germany, Germany, Umweltbundesamt, Berichterstattung unter der Klimarahmenkonvention der Vereinten Nationen und dem Kyoto-Protokoll 2019

Climate emissions

Emissions of CO₂-equ. per inhabitant



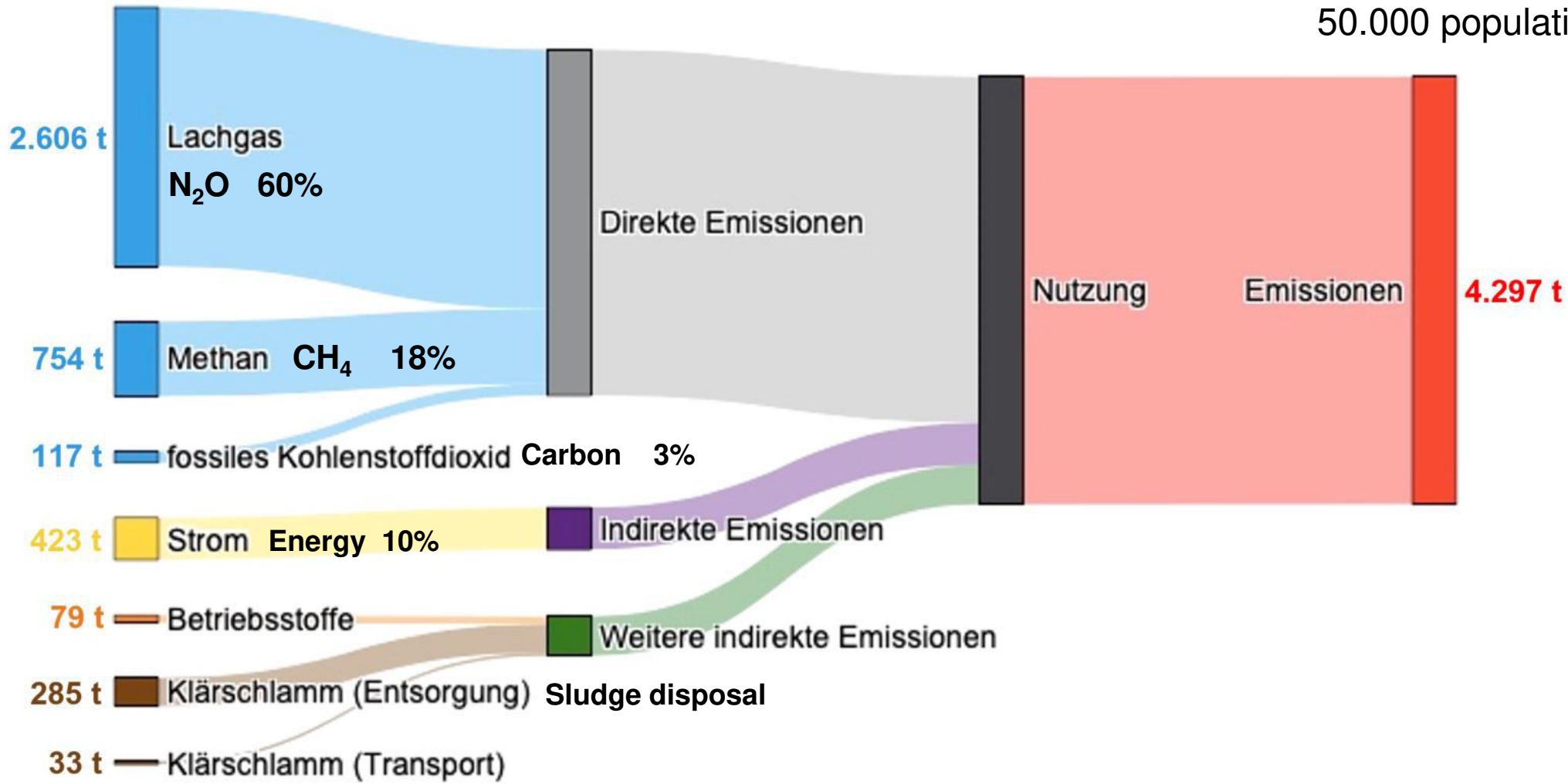
Emission factors



Iris Beuter, master thesis, 2020

Climate Footprint of a WWTP with Daelman factors

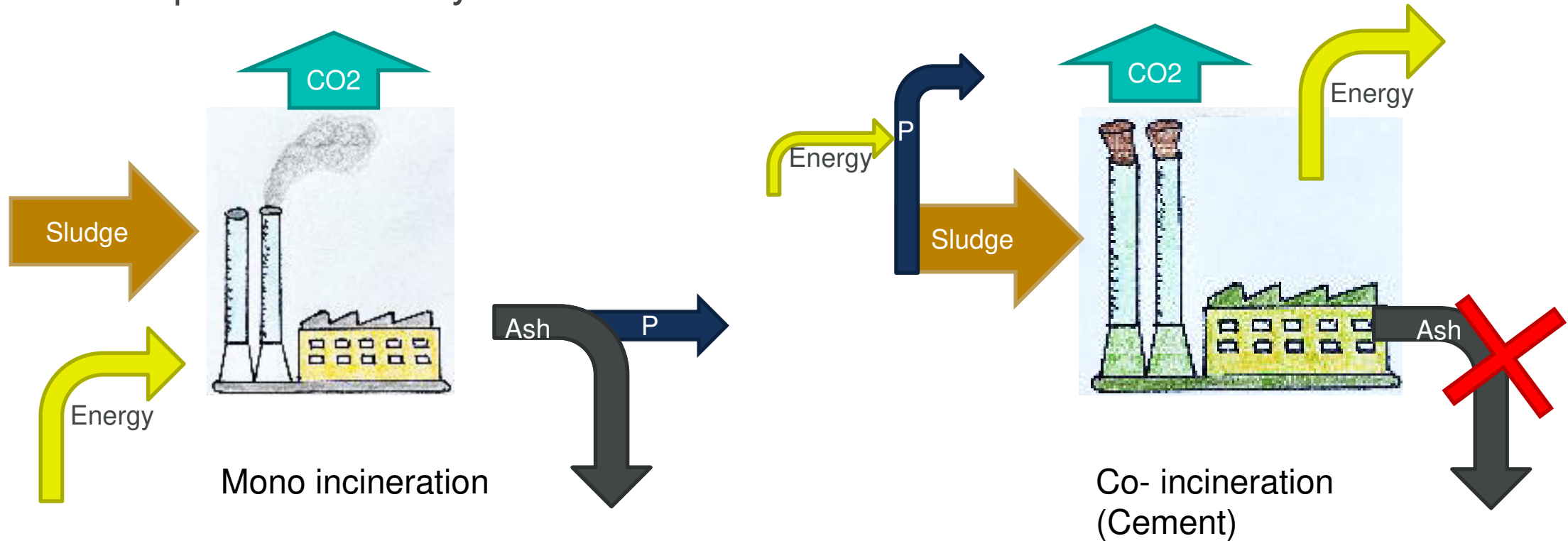
Emissions of a typical WWTP with 50.000 population equivalent

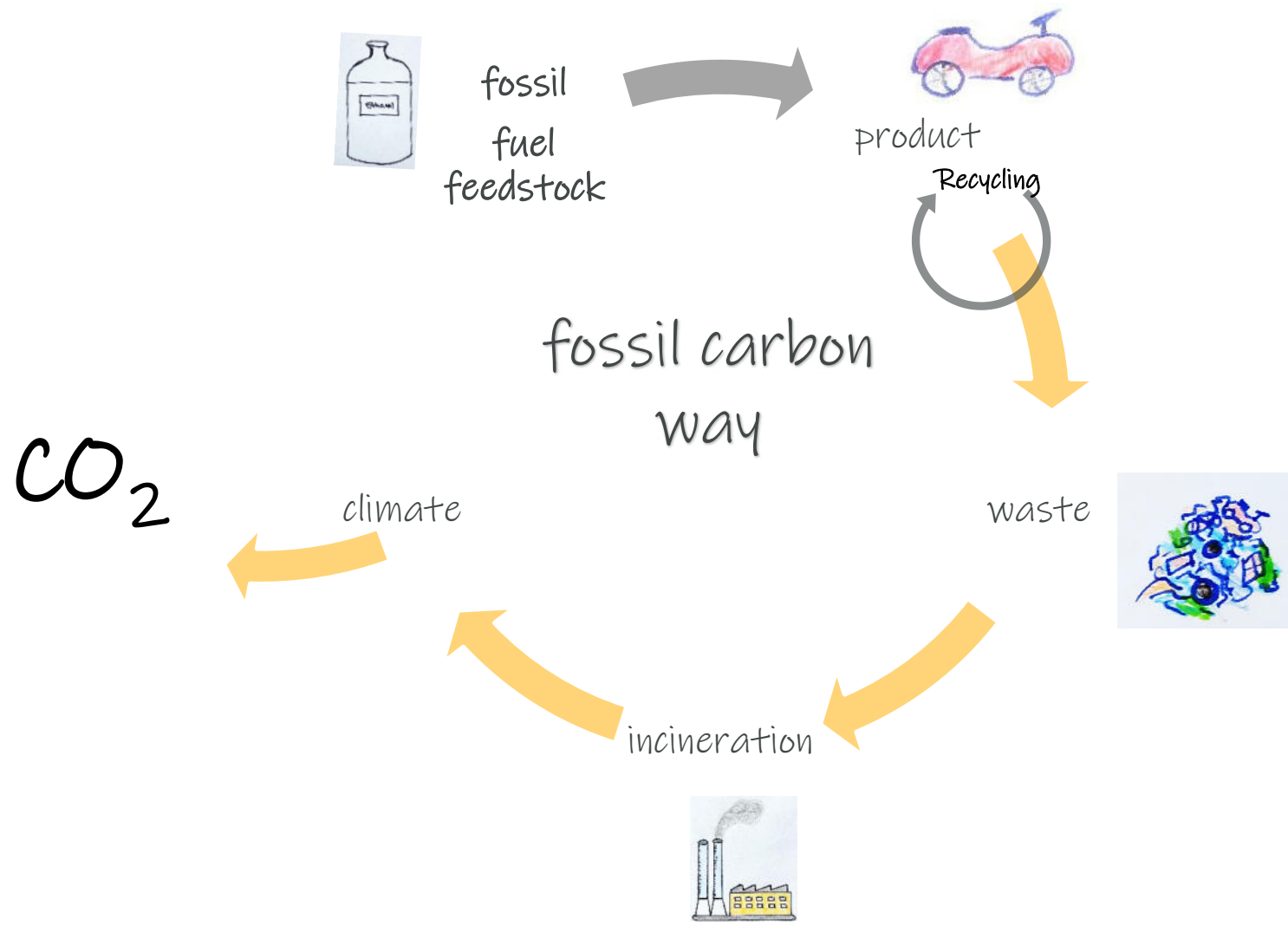


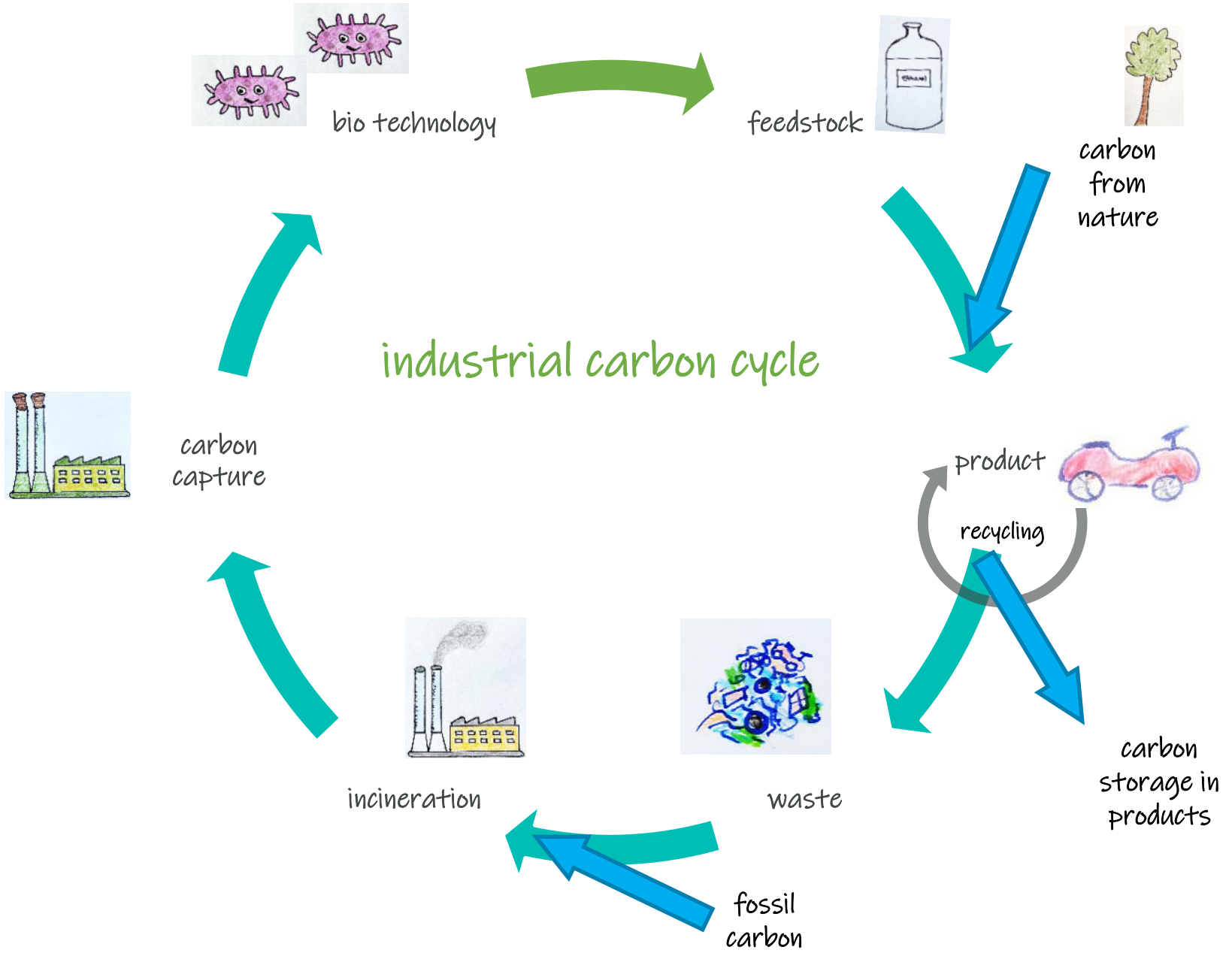
Iris Beuter, master thesis, 2020

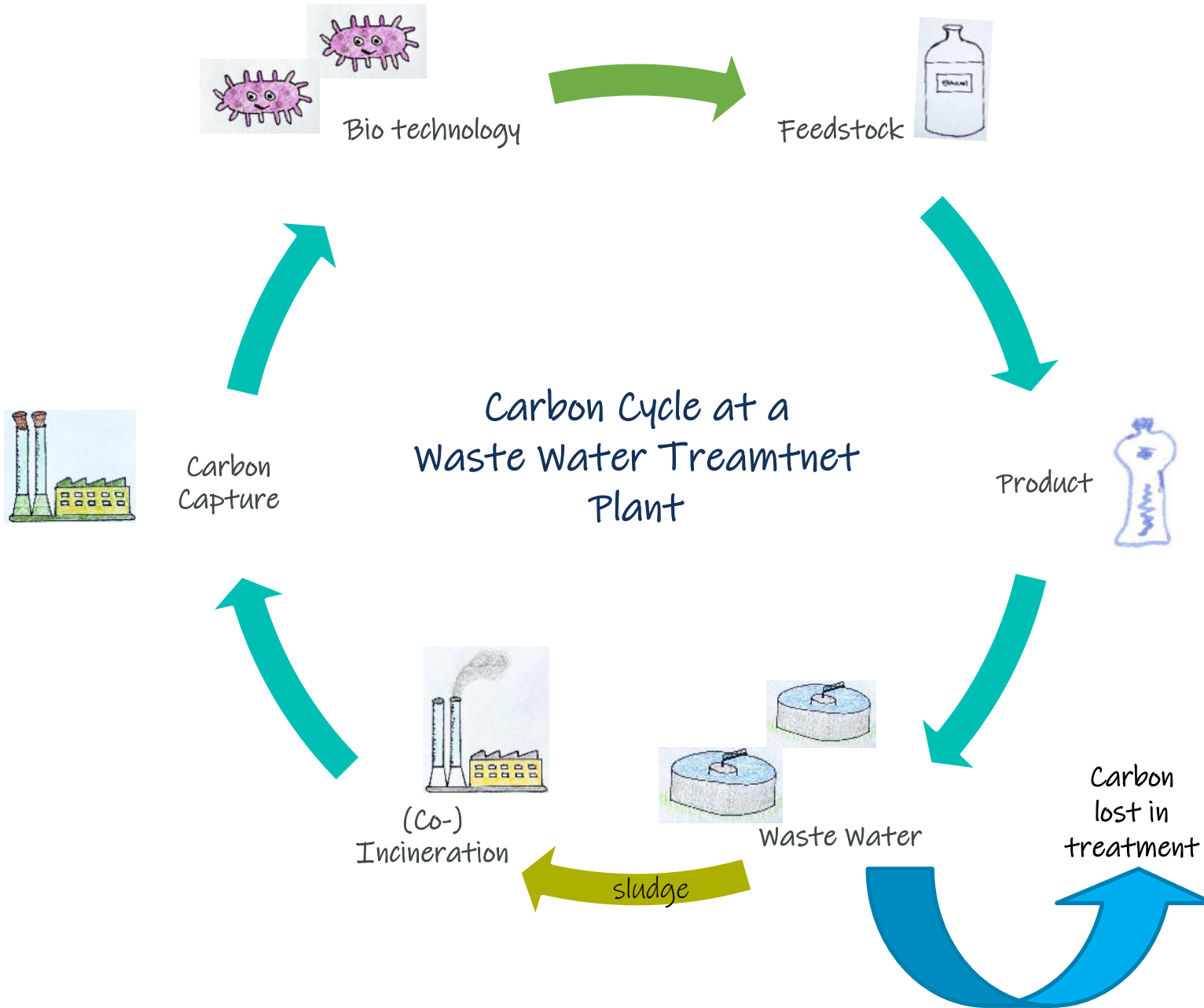
Can we make decisions based on the carbon footprint?

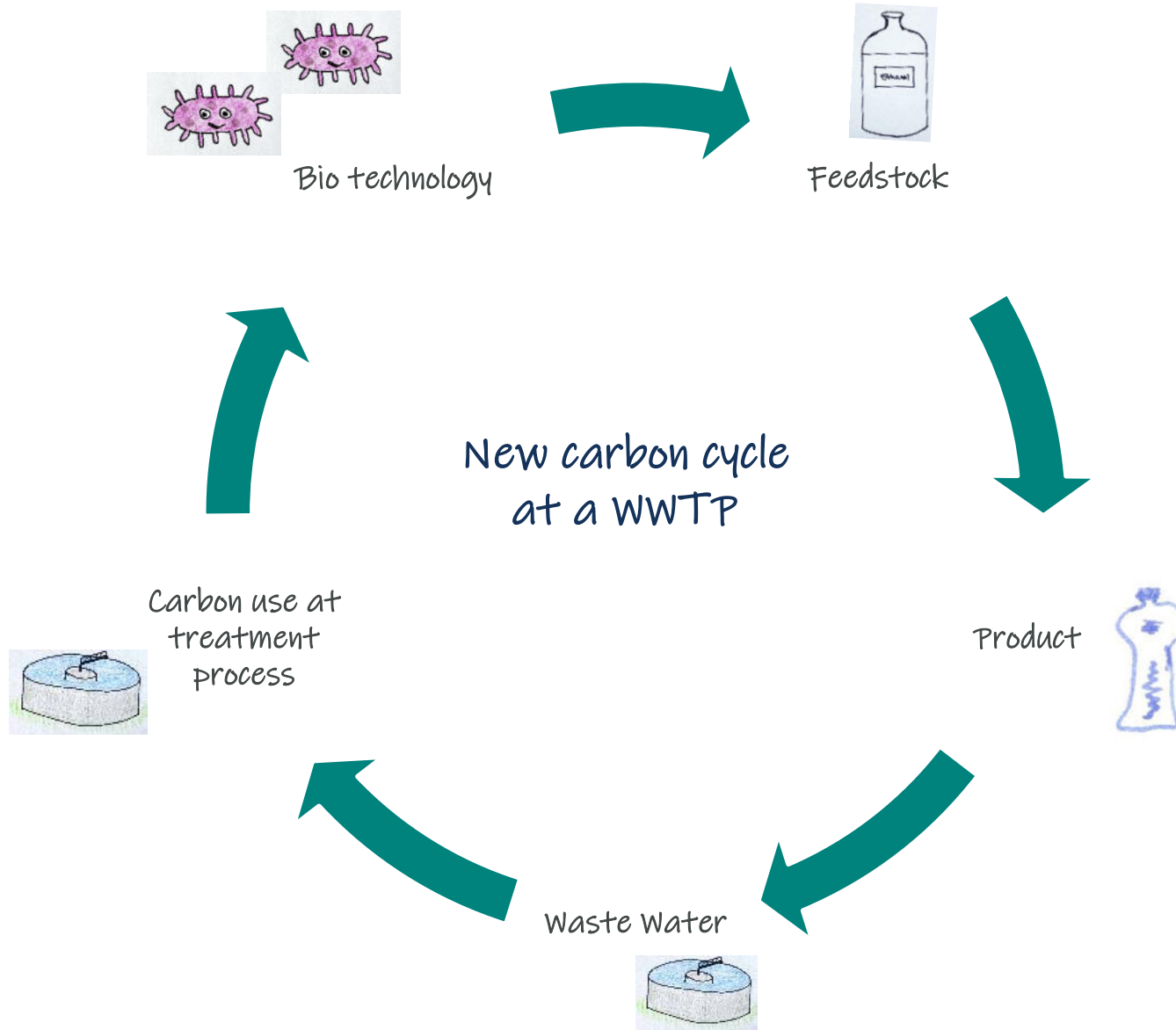
- Phosphorus recovery











Message to go

- More measuring and understanding of process
- Carbon footprint for WWTP/ Life cycle analysis (LCA)
- See the planet – multidimensional decisions!

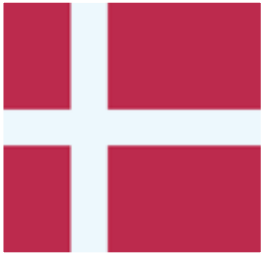
Contact

- If you would like more information about our **research** or the complete master thesis on **carbon footprint for a WWTP** (Carbon footprint of municipal wastewater treatment plants – Potential savings of methane emissions in sludge treatment by using a vacuum degassing system, Iris Beuter, 2020), please contact me at:
- **JÜRGEN SCHMIDTKE** juergen.schmidtke@umwelttechnik-bw.de
 - Tel: +49 711 252841-27

GUEST SPEAKER

YWP DENMARK

- **NINA ALMIND-JØRGENSEN**
Chemical Engineer, VandCenter Syd





Towards sustainable wastewater treatment

– Ejby Mølle Case Study

YWP

April 9th 2021

Nina Almind-Jørgensen

VCS Denmark

Towards sustainable wastewater treatment – Ejby Mølle

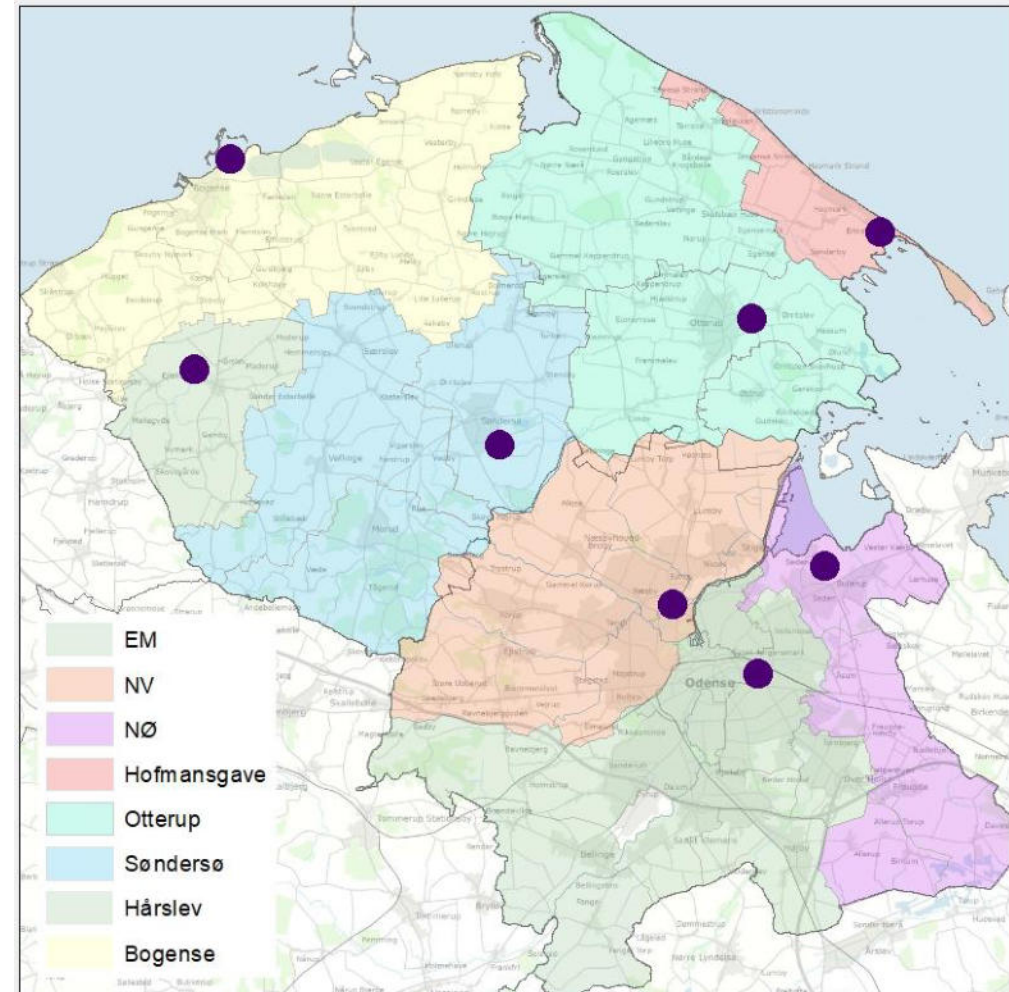
VandCenter Syd (VCS)

8 wastewater treatment plants

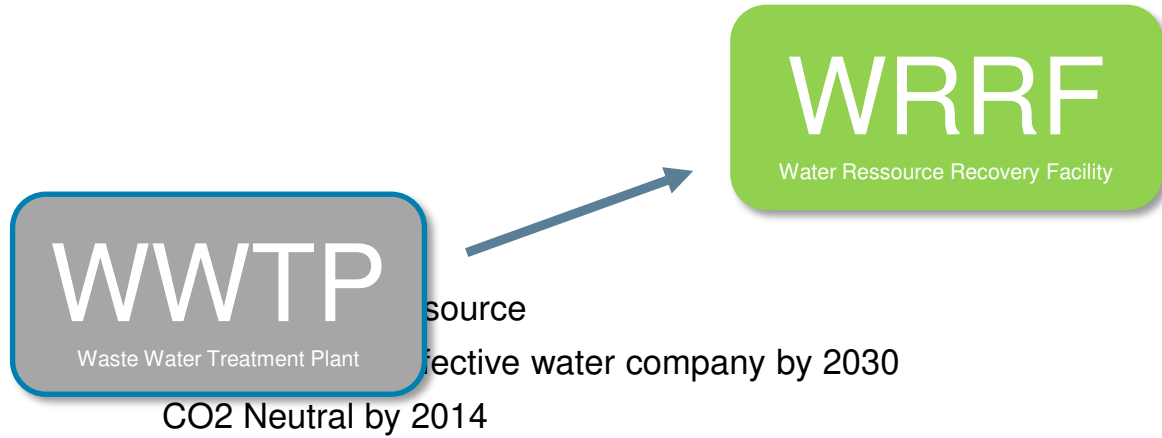
Ejby Mølle

Capacity 410.000 PE

Load 220.000 PE

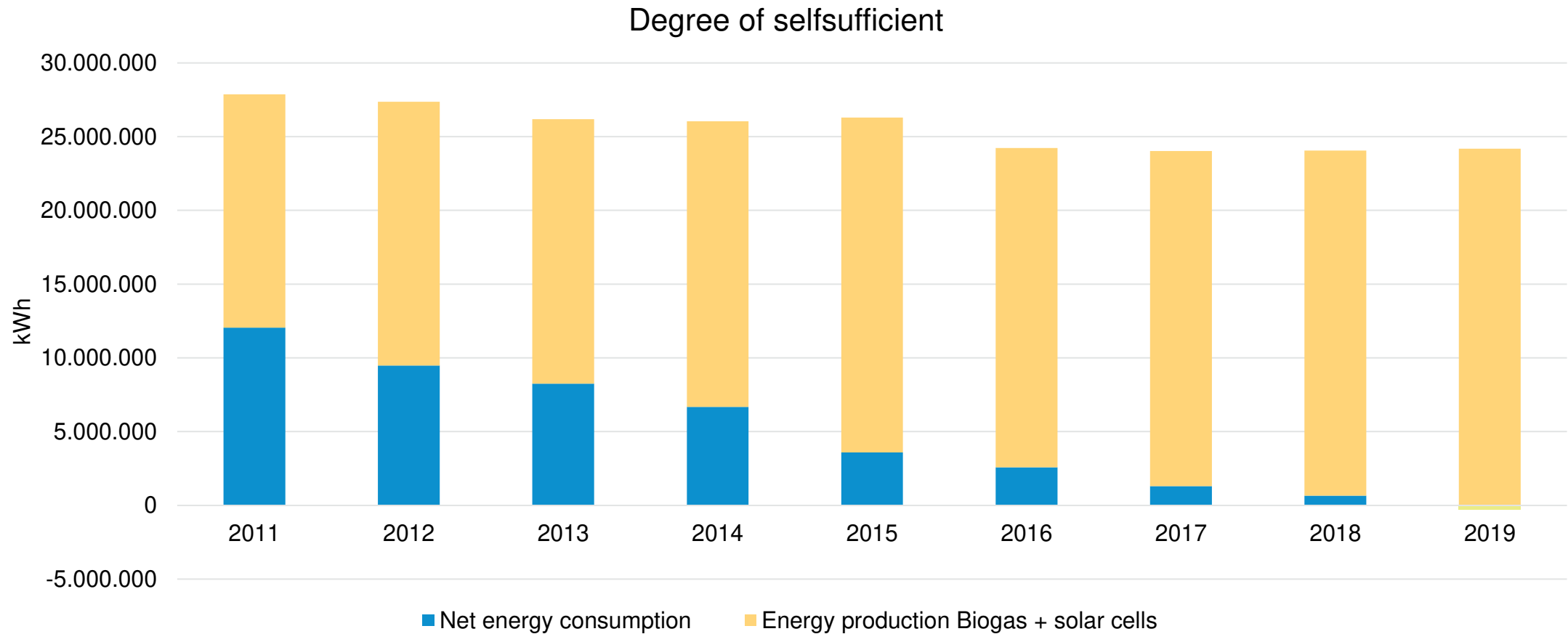


Corporate strategi

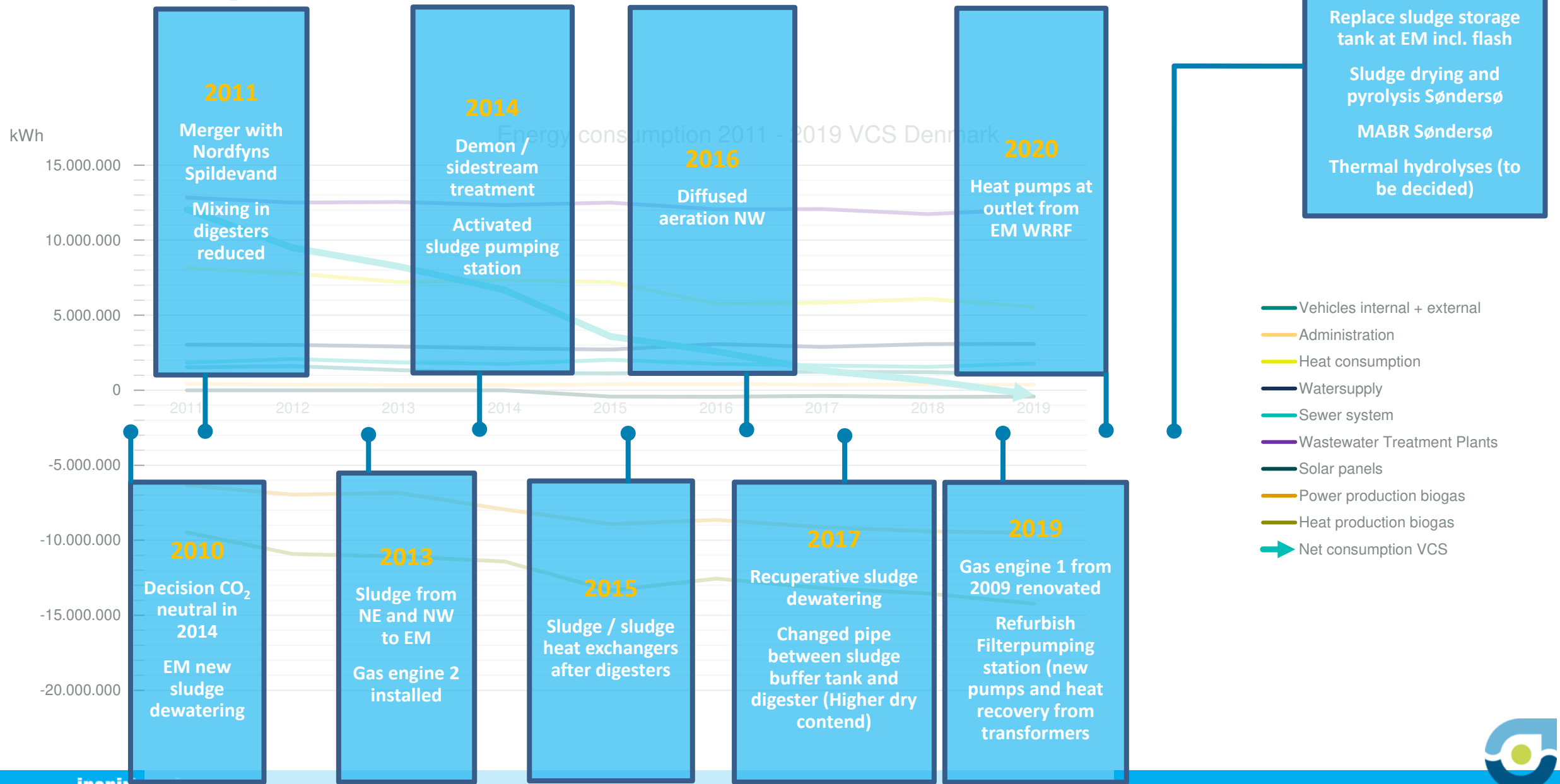


United Nations 17 SDGs

Net Energy Producer



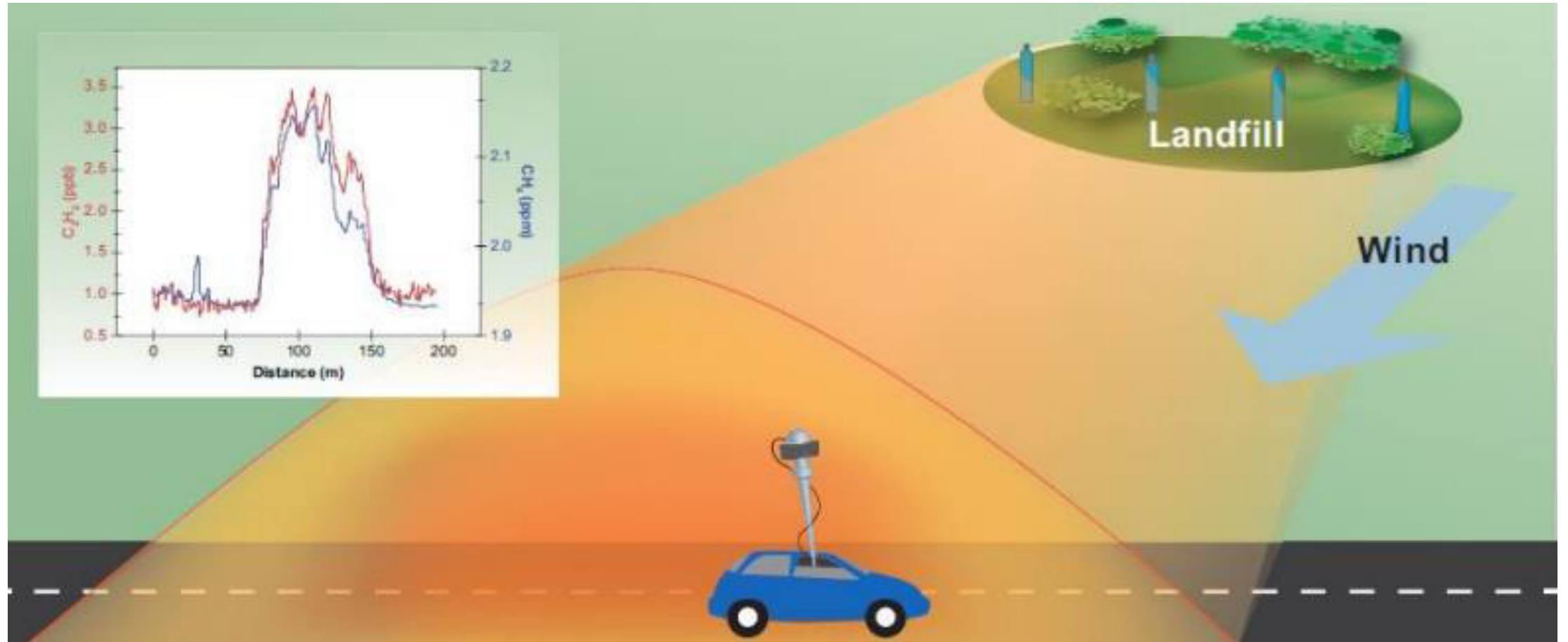
Energy related milestones 2011-2020



Emissions from Ejby Mølle



Trace gas method



Emission reduction

ARES – Active Reduction of Emissions from Sewage

New sludge storage tank
Elovac

Other initiatives to achieve sustainable goals

Test of Pyrolysis

Testing Membrane Aeration Biofilm Reactor (MABR)

Chemical mapping of phosphorus resources at WWTP with purpose of effective recovery





Thank you for
listening



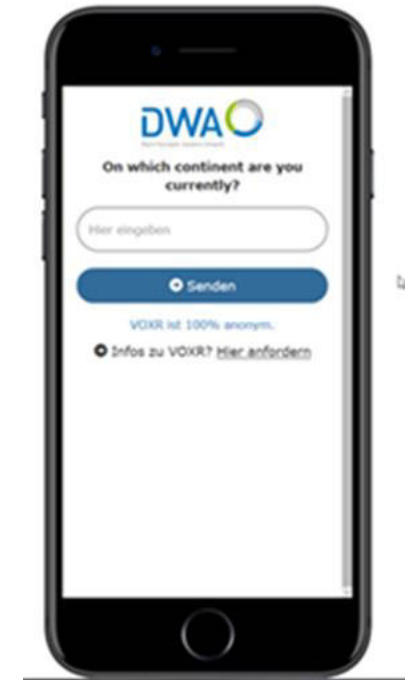
SESSION FEEDBACK

QUESTION 2

Presentations! Which word stuck with you the most?

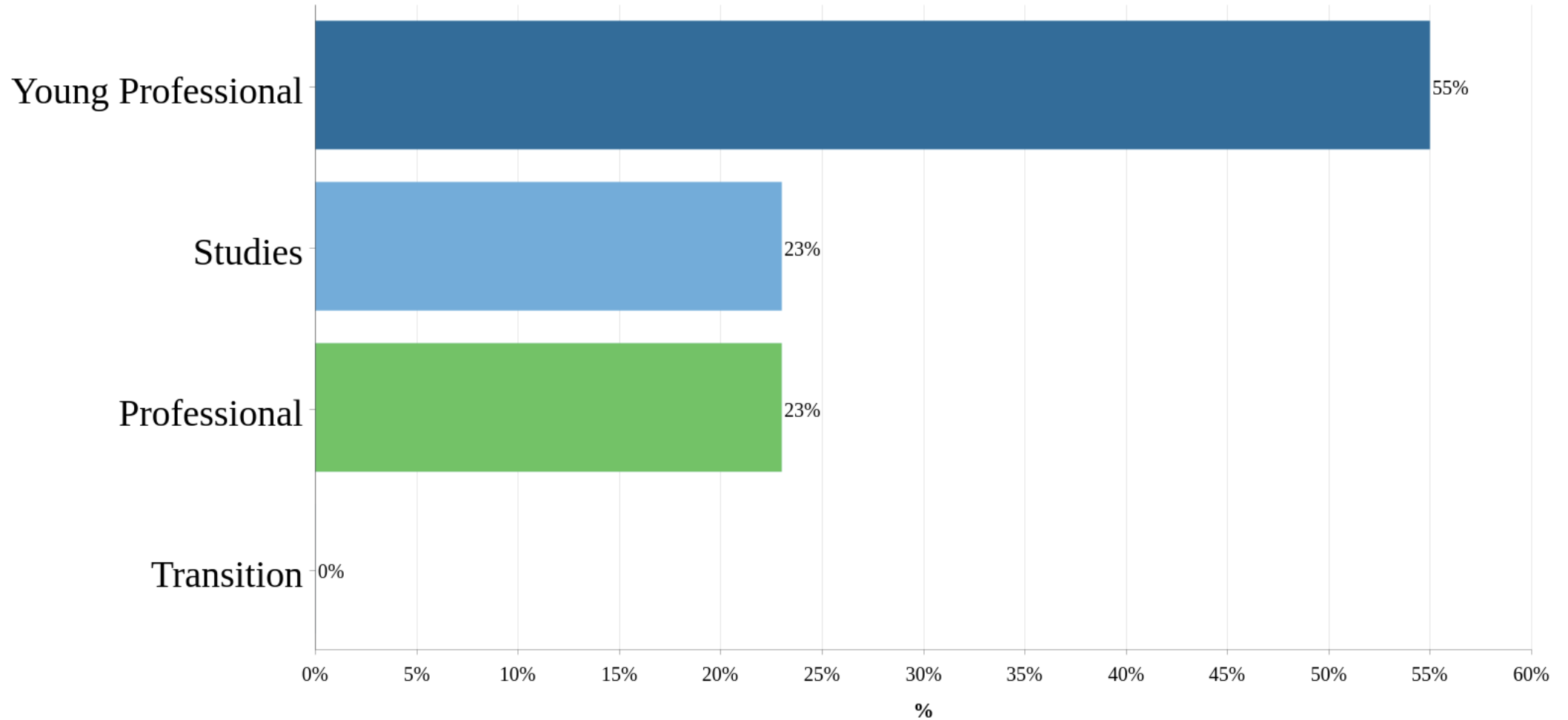


Link VOXR: <https://voxr.com/dwa>



SESSION FEEDBACK

Results



Percentage Degassing
N20
Emission Cycle
Emissions
Recovery
Chemical
Carbon
Footprint
Climate
Self-Sufficiency
Ressources
Resource
Closing
Wrrf
Elovac
Mapping



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ONLINE EVENT SERIES

**THANK YOU
FOR YOUR PARTICIPATION**

IWA YOUNG WATER PROFESSIONALS
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Carbon Neutral Wastewater Treatment

Friday, 9 April 2021

1 PM (Central European Summer Time)

Join via GoToMeeting!

ID 350-970-669

<https://global.gotomeeting.com/join/350970669>

AGENDA (Duration 1.5 hrs)

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- . 15' Guest Speaker Denmark: **Nina Almind-Jørgensen** (VandCenter Syd)
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