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Reasons for Centralising Sewage Sludge Recycling in M-V

The legal situation is changing.

- New regulations are significantly restricting the possibilities of using sewage sludge in agriculture.
- In future, the law will stipulate that communities must provide proof of recovering phosphor and other nutrients from sewage sludge.
- Thermal treatment of sewage sludge will ensure that the law on waste management will be complied with on both national and EU levels.
- Until now, no thermal treatment capacity exists for communal sewage sludge in M-V [Mecklenburg-West Pomerania].

Reasons for Centralising Sewage Sludge Recycling in M-V

A central recycling system creates disposal dependability and guaranties stable prices.

- All quantities of sewage sludge coming from the members will be treated in an environmentally friendly way, with neutral impact on CO_2.
- Conventional technology and a time-tested system design ensure economic efficiency and dependability.
- Members of the community support each other in recycling the sewage sludge.
- Design, building and operation are for 100 % in the hands of the community – no maximisation of profits over the backs of citizens.
- Thermal treatment makes it possible to generate energy in a highly efficient manner and to recycle phosphor as much as possible.

The system is a flagship project for northern Germany and Mecklenburg-West Pomerania.

Interesting Facts about Sewage Sludge

Hitherto, in Mecklenburg-West Pomerania 75 % of sewage sludge was **recycled in agriculture**.

When the sewage sludge leaves the treatment plant, it becomes **waste**. That makes it subject to the stipulations

- of the European **rules on waste handling** (EU waste directive),
- of the national rules on waste handling, and also
- of the **Waste Recycling Law** as amended in 2012, and
- the **Sewage Sludge Ordinance**, still waiting to be amended.

Because sewage sludge is also used as fertiliser in agriculture and farming, the stipulations of the following also apply:

- the Law on Fertilisers,
- the Fertilisers Ordinance

Consequences for Mecklenburg-West Pomerania

With the **tightening of the threshold values** as specified in the Law of Fertilisers (particularly in terms of heavy metal contents in sewage sludge), in Mecklenburg-West Pomerania proportion of sewage sludge will no **longer meet the requirements** of **agricultural recycling**.

According to estimates of the Federal Environmental Agency (UBA (Umweltbundesamt) 98/2015), in future **about 35 percent** of the hitherto physically (meaning agriculturally) recycled **sewage sludge will be treated thermally**.

In MWP the proportion is larger, because a larger proportion of sewage sludge is hitherto physically used in agriculture.

(National average: 40 percent, MWP: 75 percent)

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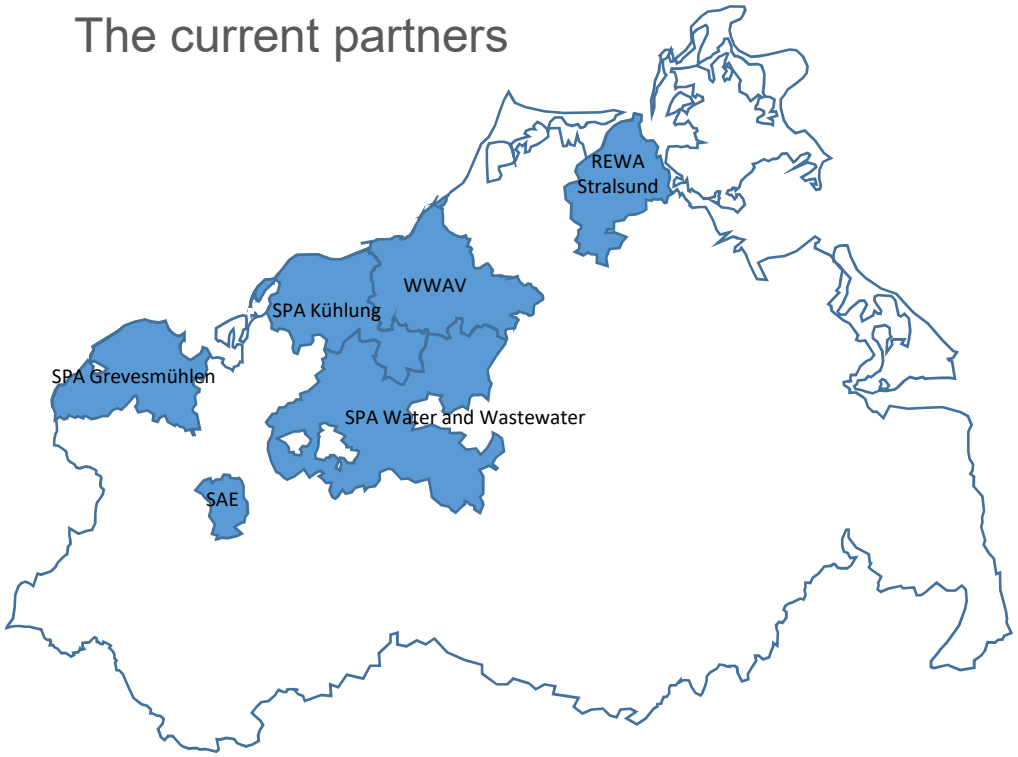
The current partners



Partner	Annual volume of sewage sludge in t OS (rounded)
WWAV	21,000
SPA Water and Wastewater	7,600
SAE Schwerin	10,000
REWA GmbH	9,000
SPA Kühlung	4,500
SPA Grevesmühlen	5,900
	58,000

The sewage sludge volume of 58,000 t OS currently represents about 36 of the total volume in MWP.

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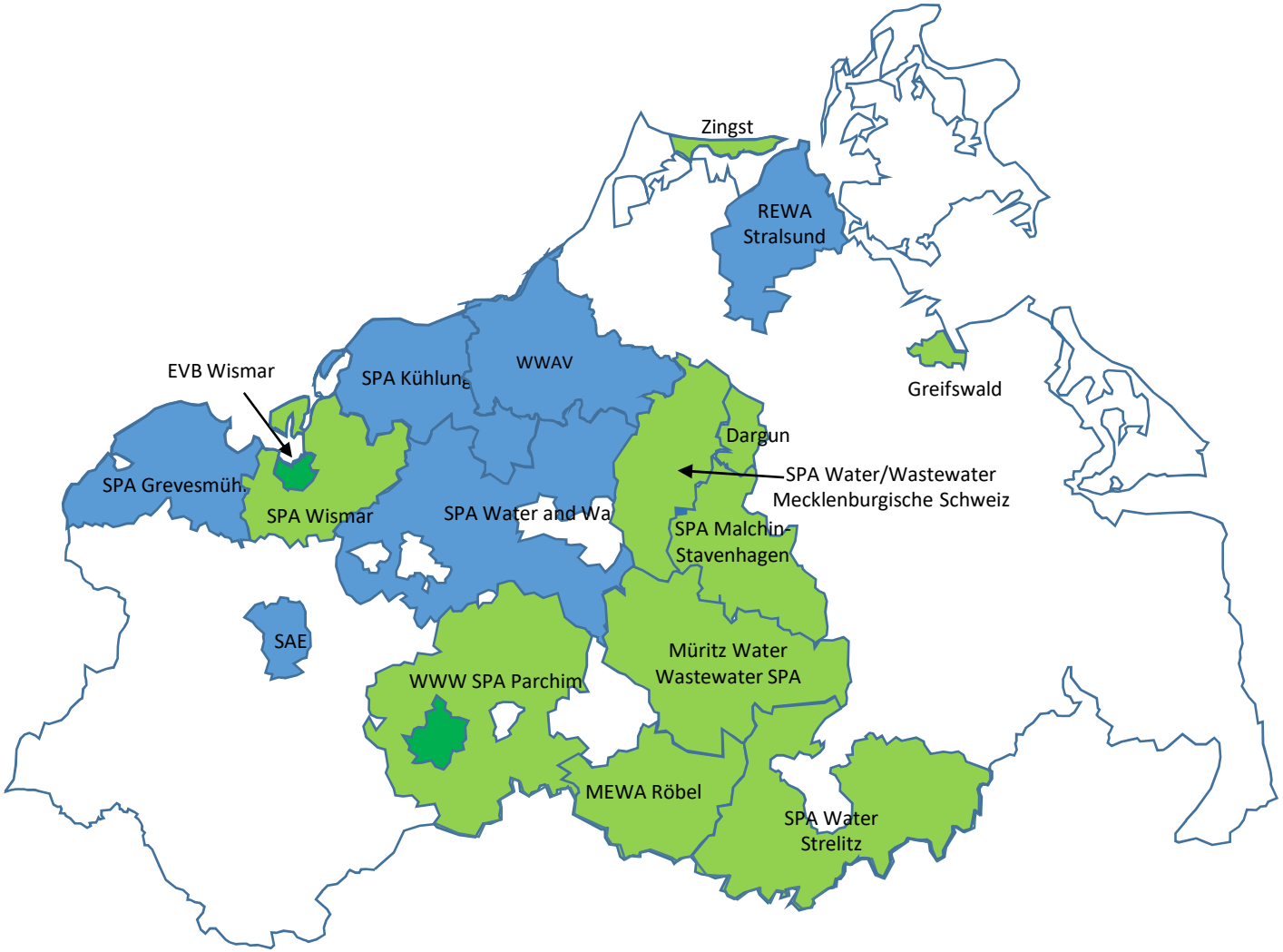
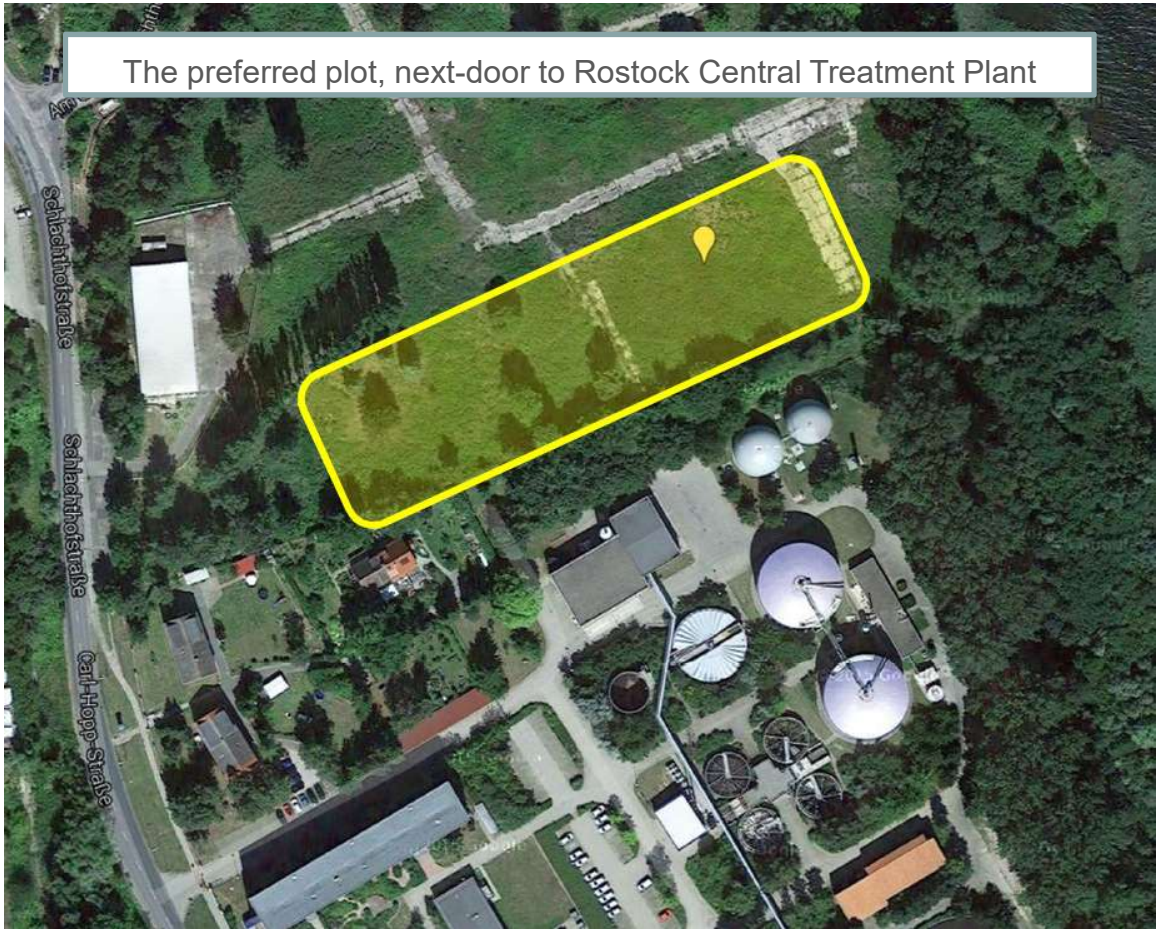
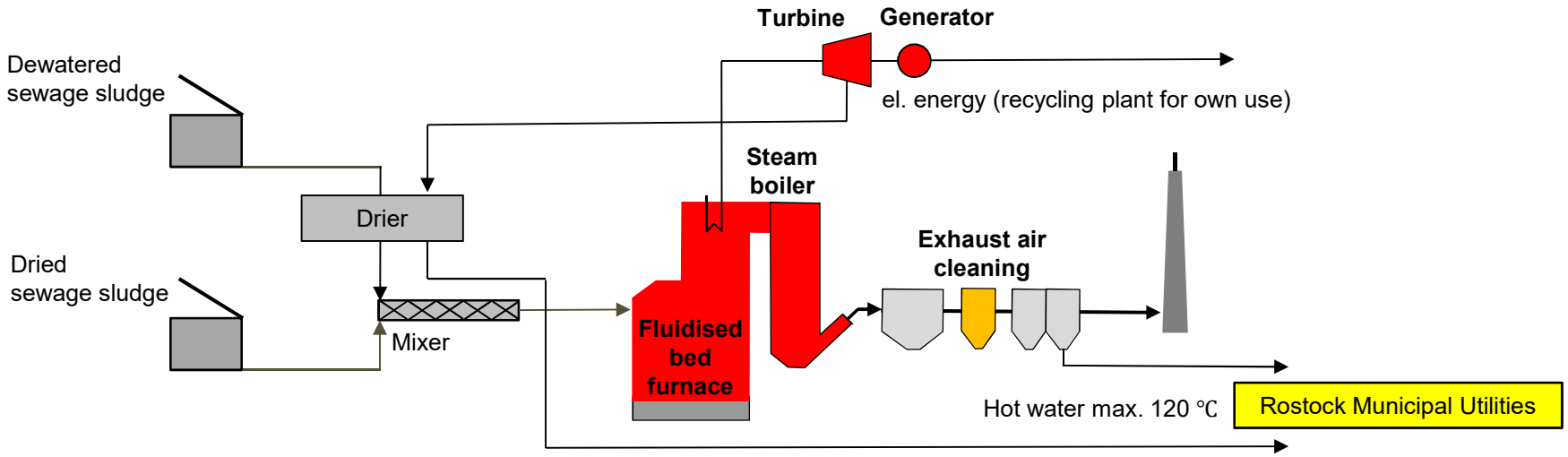


System design Rostock Recycling Plant

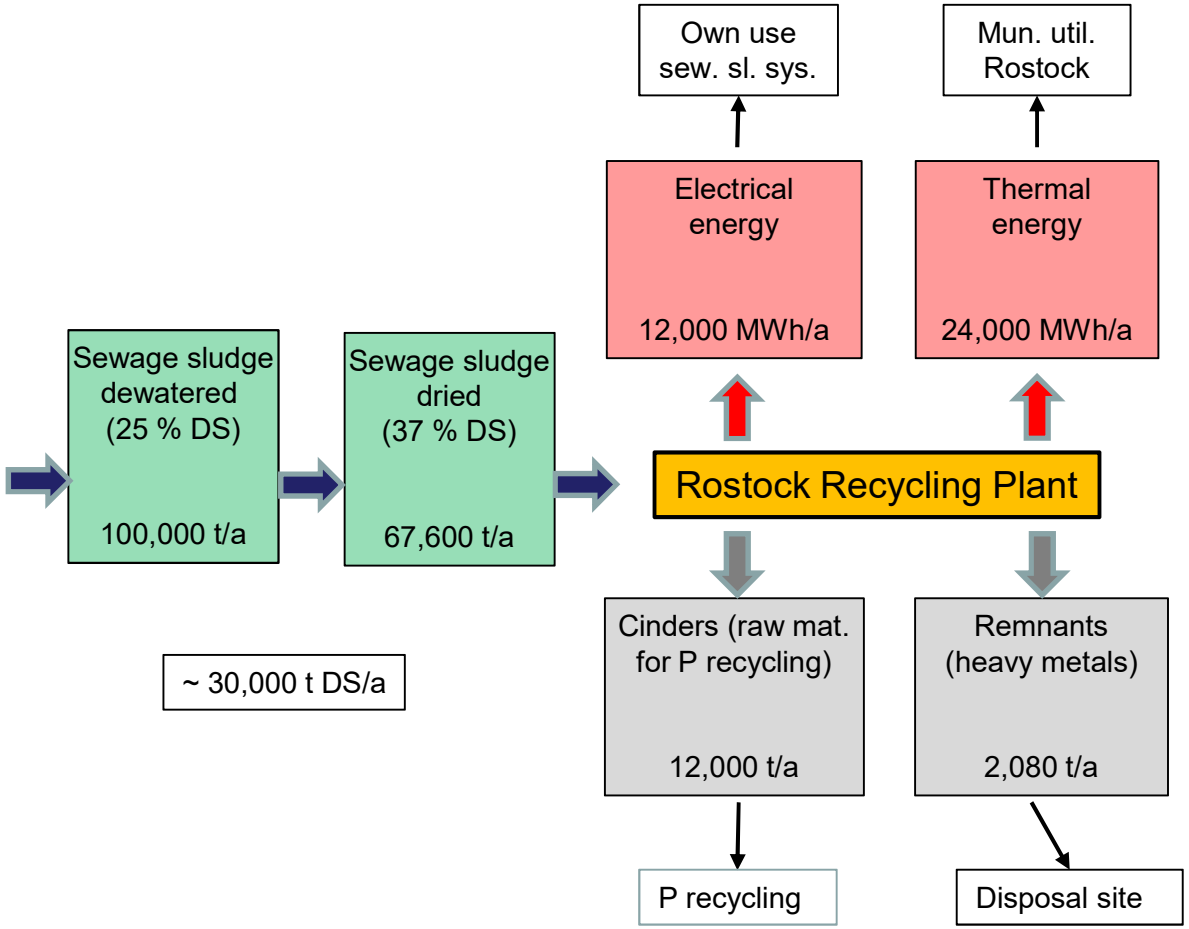


The preferred plot, next-door to Rostock Central Treatment Plant

System Design Rostock Recycling Plant



Material Flow Analysis Rostock Recycling Plant



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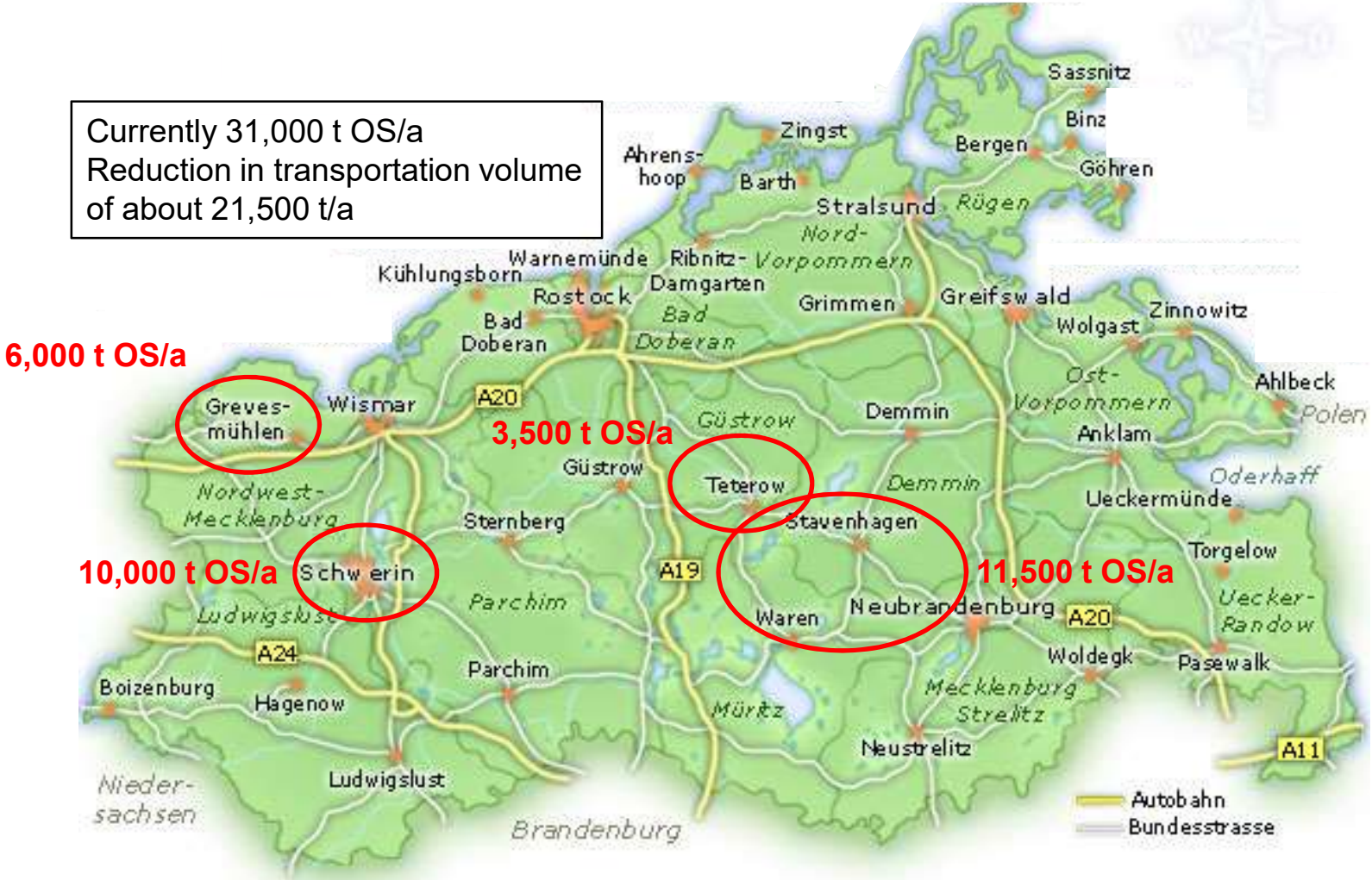
Sewage Sludge Logistics (Solidarity Principle)

Seq. No.	Association / Company	Distance km	Sewage sludge t OS/a	Transport Route km t OS/a	Ø Transport cost/t km	Specific cost/a	Residual cost/a
1	Warnow Water and Wastewater Association	0	21,000	0	€0.15	€0	**€204,417**
2	Schwerin Wastewater Disposal	100	10,000	1,000,000	€0.15	€150,000	**€97,341**
3	SPA Güstrow-Bützow-Sternberg	45	7,600	342,000	€0.15	€51,300	**€73,980**
4	REWA Stralsund GmbH	110	9,000	990,000	€0.15	€148,500	**€87,607**
5	SPA Kühlung	20	4,500	90,000	€0.15	€13,500	**€43,804**
6	SPA Grevesmühlen	85	5,900	501,500	€0.15	€75,225	**€57,431**
7	EVB Wismar	65	5,000	325,000	€0.15	€48,750	**€48,671**
8	SPA Water / Wastewater Mecklenburgische Schweiz	65	3,500	227,500	€0.15	€34,125	**€34,070**
9	SPA Water Strelitz	140	1,500	210,000	€0.15	€31,500	**€14,601**
10	SPA Water Malchin Stavenhagen	90	5,500	495,000	€0.15	€74,250	**€53,538**
11	Wastewater Plant Greifswald	105	4,500	472,500	€0.15	€70,875	**€43,804**
12	SPA Water Wastewater Müritz	100	6,000	600,000	€0.15	€90,000	**€58,405**
13	City of Dargun	65	1,200	78,000	€0.15	€11,700	**€11,681**
14	MEWA Office Röbel, Municipal Wastewater Plant	110	500	55,000	€0.15	€8,250	**€4,867**
15	Zingst Municipality, Wastewater Disposal Plant	75	700	52,500	€0.15	€7,875	**€6,814**
16	SPA Wismar	70	1,000	70,000	€0.15	€10,500	**€9,734**
17	WWW SPA Parchim	130	2,500	325,000	€0.15	€48,750	**€24,335**
			89,900	5,834,000		€875,100	**€875,100**

Ø Transportation cost /t OS €9.73

Decentralised Pre-drying

Currently 31,000 t OS/a
Reduction in transportation volume of about 21,500 t/a



Impact of Decentralised Drying

Decentralised pre-drying on suitable locations leads to the following impacts:

Positive

- Reduction in transportation volumes
- Fewer deliveries by lorry to the recycling plant
- Reduction in emissions from road traffic
- Reduction in dryer output to the recycling plant

Negative

- Higher investments because of splitting dryer output
- Increased staffing costs on location

Organisation of Decentralised Drying

Organising decentralised pre-drying through sewage sludge cooperation offers the following advantages:

- Investments in drying plants are part of the overall project and are, therefore, eligible for subsidies
- The sludge volumes of all participants will continue to be settled on the basis of the same cost (solidarity principle)
- Service and maintenance are centrally organised (equitable risk sharing)

The drying plants should be operated by existing on-site staff, with costs being offset.

Next Steps

For speedy processing of the entire project, the following steps must be taken in the near future:

- Preparation of the planning and permissioning procedures, near-term tendering and awarding of the work
- Tendering and awarding the building planning, elaborating and submitting the application for the building permit
- Intensive media and public exposure, selecting and charging a competent specialised agency

Public Exposure

Proposal: initial communication messages

- Clear commitment of Rostock to sustainability and active protection of the environment
- Rostock and its residents accept responsibility for better protection of the environment
- Rostock establishes itself as Technological Centre through the pilot plant

Idea: getting the residents of Rostock to adopt the plant as technical “jewel”, as an important milestone on the road to active protection of the environment.

Objective: turning the residents into fans!

Provisional Schedule

2016
Planning for permits and laying out the project
Finalisation of the participants' structure

Objective: a cooperative association with 17 participants and an developed sewage sludge plant of 90,000 t/a

2017
Middle of the year: planning stage completed
Putting the various lots out to tender

2018/19
Building the plant and test running

2020
Commissioning the plant

Summary: Advantages for the Participants

- Wastewater disposal fees can be clearly calculated in advance
- Stable waste management prices: price increase ca. 2.50 euros per resident p.a.; the Federal Environmental Agency states an average price increase for the entire nation of 6 euros
- 100-percent disposal dependability
- No dependence on (private commercial) disposal partners
- Also in the long term, no shopping around with sewage sludge
- Technological advantage for Mecklenburg-West Pomerania through the pilot plant
- Optimisation of transportation through decentralised pretreatment (drying)
- No profit maximisation, since pricing is public
- Building and operating the plant is controlled by the community itself
- Through the thermal treatment, the pollutants in the sewage sludge are destroyed resp. separated out
- No negative environmental impact on agricultural areas