

Web Processing - Standardized GIS Analyses for Cable Route Planning

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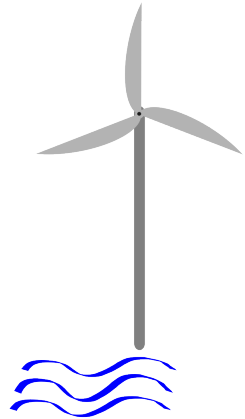
Topic and Motivation

Topic

- ▶ route planning, e.g. connection of offshore wind farms to the power grid
- ▶ conflicts with land usage, land coverage, regulation
- ▶ routing cables from landing point to final position
- ▶ offer a standard web service for the routing

Motivation

- ▶ Energy Security
- ▶ Contribution to important real world problems



Timetable

Start Date	End Date	
09/23/2022		Project Start
09/23/2022	10/10/2022	Initial Literature Study
10/01/2022	10/23/2022	Initial Data Search
10/14/2022		Kick-Off Presentation
10/16/2022	10/28/2022	Data Conversion/Costs/test execution
10/28/2022	12/31/2022	provide WPS/implement LCP
12/02/2022		Midterm Presentation
12/14/2022	02/01/2022	Optimization/Research Issue
02/01/2022		Feature Freeze
02/01/2022	02/28/2023	Finalizing Report
02/28/2023		Submission
03/15/2023		Final Presentation

Get Land coverage/ usage planning

Area Under Study:

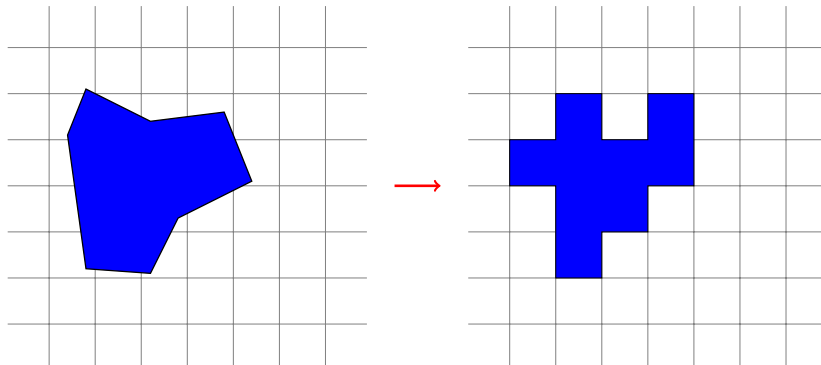
- ▶ Cuxhaven county
- ▶ Osterholz county

Sources

- ▶ Protected Areas - German Environment Agency
- ▶ land usage - Federal Agency for Cartography and Geodesy
- ▶ planning land usage - 'Metropolplaner' (Planning data Lower Saxony & Bremen)
- ▶ transformers and power lines, off-shore wind parks - OpenStreetMap

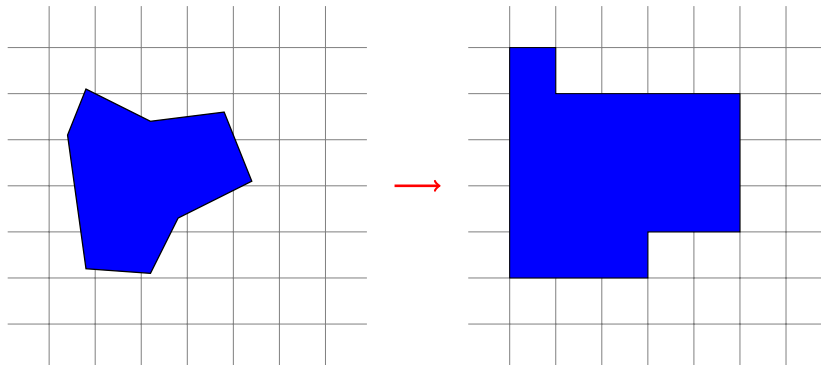
Rasterization

- ▶ vector (point, line, polygon) \rightarrow raster
- ▶ all touched \leftarrow false



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Configuration tool options

TODO OPTIONAL

Costs

Cost Level	Cost (numeric)	Example
Prohibited	500	National Parks, Buildings
strongly Restricted	10	Bird Sanctuary
Restricted	5	industrial areas
No Restriction	0.5	default
Preferential	0.1	power grid, motorways buffers

Cost Raster

TODO show examples

web processing server

TODO current state