



Kompetenz wird Energie
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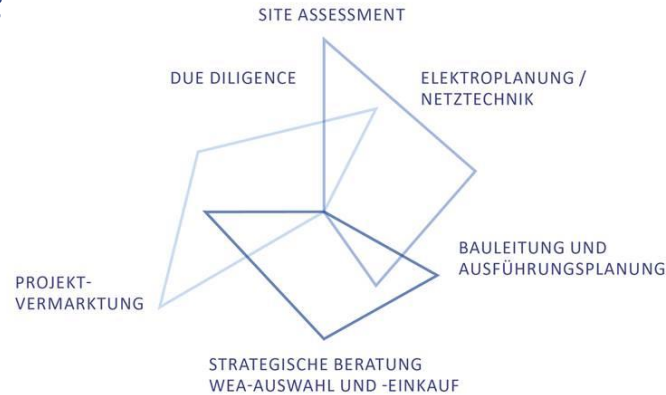
Repowering Project *Morbach Energy Park*



Practical Experiences of a Community
Wind Farm Development under the
Renewable Energy Sources Act (EEG 2017)

Quelle: DDInfo.de

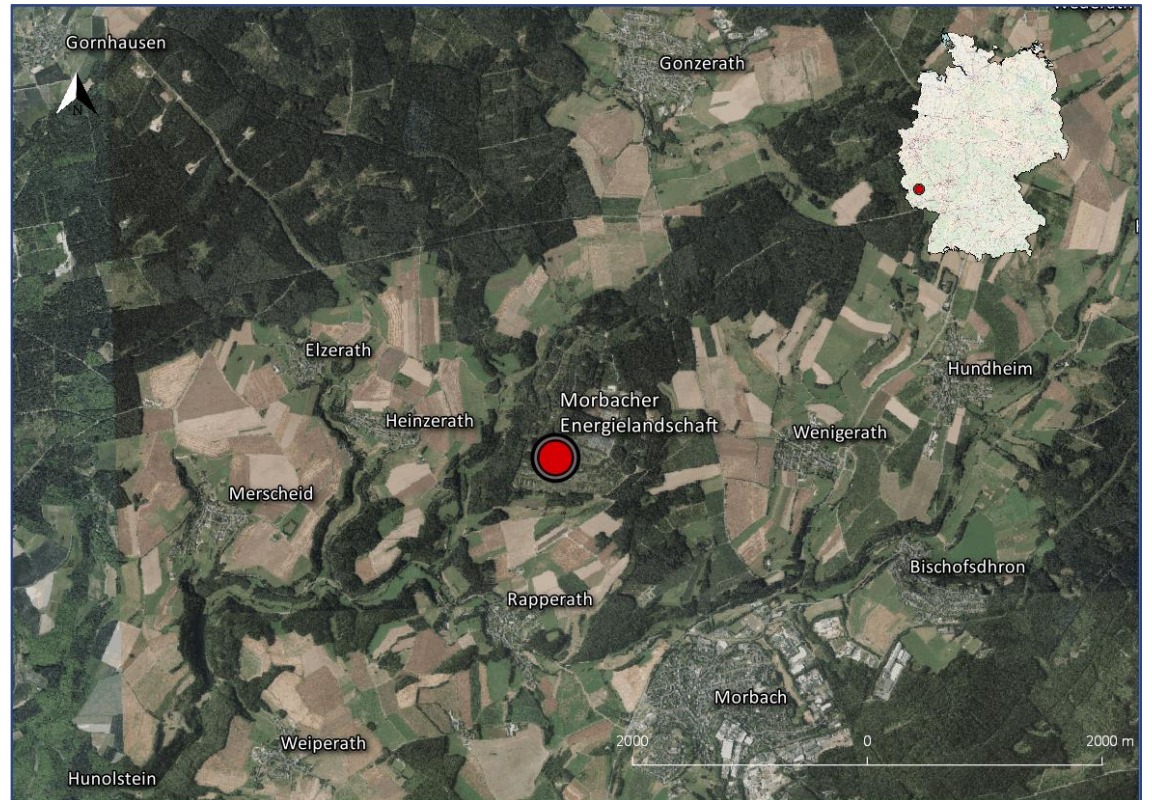
wiwi consult at a glance



- ❖ Founded in 2016
- ❖ Technical and commercial consultancy services for the wind industry: Planning, Financing, Construction, Project Sales, Optimization
- ❖ Customers: Project Developers, Investors, Projekt Owners/Operators
- ❖ Planning and construction of repowering projects
- ❖ Team of currently eight employees with extensive experience in the wind industry

Repowering Project Morbach – overview

- ❖ Site: Morbach Energy Park
- ❖ Location: Morbach (Hunsrück), Rhineland-Palatinate
- ❖ Former US military base → biggest ammunition depot in western Europe
- ❖ Conversion area and development for renewable energy generation since the early 2000s
- ❖ Mix of solar, wind and bio energy
- ❖ Installation/commissioning of wind farm in 2002/2003 → 14x Vestas V80 (2 MW, 100m hub height)



Morbach – community and public relation

- ❖ Ecological role model for mix of different sources of renewable energy generation
- ❖ Land and site are community-owned
- ❖ Energy park is well-known not only on a regional level
- ❖ Toursim: visitors from > 100 countries, e.g. Fiji
- ❖ Chance: sustainable renewal and development of energy park
- ❖ Extensive support from local community and citizens
- ❖ Political dimension: unanimous vote in favor of the repowering project in community councils



Morbach – the repowering project

- ❖ Dismantling of existing wind turbines
- ❖ Construction and commissioning of 7 Enercon E-141 (4.2 MW) at 159m hub height
- ❖ Annual Energy Production (AEP): 67.000 MWh/yr
- ❖ Grid connection at substation approx. 1 km south of site
- ❖ Well-known site conditions
- ❖ Community wind farm → local shareholders
- ❖ Construction: mid 2018 to mid 2019





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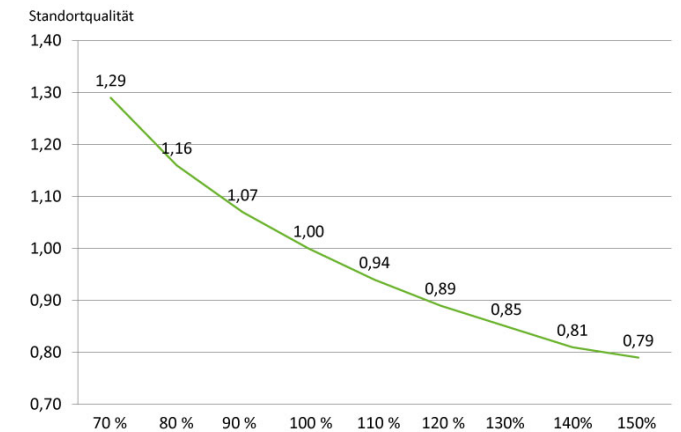


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Morbach – the repowering project

- ❖ Regulatory framework: Renewable Energy Sources Act (EEG 2017)
- ❖ Owner/operator: two *Bürgerenergiegesellschaften* (EEG 2017)
- ❖ Successful participation in first tender round (May 2017)
 - Feed-in tariff secured at 5.78 Cent/kWh
 - < 70% site quality („Standortgüte“) → full correction factor of 1.29 applicable → **7,46 Cent/kWh**
- ❖ Development process completed
- ❖ Construction permit (Federal Immission Control Act, „BImSchG“) obtained in February 2018



Morbach – repowering benefits

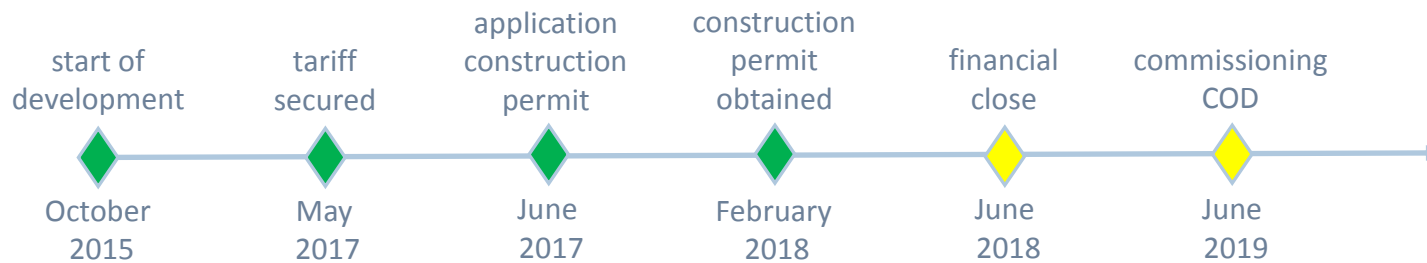
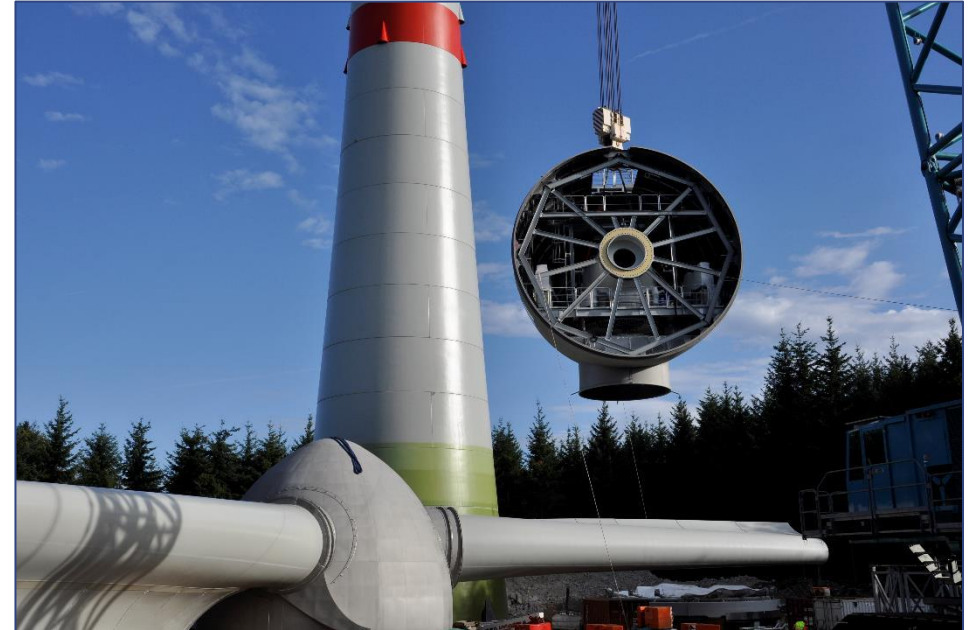
- ❖ Extensive support from local community → interest in securing flagship project for the long-term
- ❖ High acceptance by citizens and local stakeholders
- ❖ Nature/wildlife protection: previous impact due to existing wind farm
- ❖ Sustainability I: recycling of old foundation material for new crane pads
- ❖ Sustainability II: Re-use of old turbines → re-installation at new project site
- ❖ Low BOP costs: utilization of existing roads and electrical infrastructure
- ❖ Low risk in income projection → very solid production forecasts (15 years of data from existing turbines + LiDAR wind measurement)

Morbach – repowering benefits

- ❖ Chance: sales profit from old turbines higher than decommissioning costs (process ongoing)
→ Improvement of project economics
- ❖ Urban Land Use Planning: existing *Priority Zone* (Development and Land Use Plans, *RROP*, *FN*P)
- ❖ Repowering as political goal: less land consumption, higher production per turbine (factor 4)
- ❖ Acceptance of bid in first tender round → high tariff
- ❖ Realization as one of the first *Bürgerenergieprojekte* under the new EEG 2017
→ Attractive for banks → resulting in favourable conditions
- ❖ Public participation: citizens as shareholders → strong acceptance and support

Morbach - outlook

- ❖ Completion of financing process (Q2 2018)
- ❖ Start of construction (mid 2018)
- ❖ Commercial operation date: June 2019
- ❖ Continuation of close cooperation with local community





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Thank you for your attention!



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