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Onshore Wind Energy and Photovoltaics: Overview of expansion targets and spatial planning aspects

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Renewable energy expansion targets at a glance

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Figures on the expansion of renewable energies – 2024

Expansion in GW	Expansion (net) 2024	Total installed capacity 2024	Expansion Targets for renawables 2030
Photovoltaics	16,7	**99,8**	215
Wind Energy	2,6	**63,6**	115
Offshore Energy	0,7	**9,2**	30
Biomass	0,1	**9,1**	8,4

Source: AGEE Stat/UBA, BNetzA-Marktstammdatenregister
January 2025

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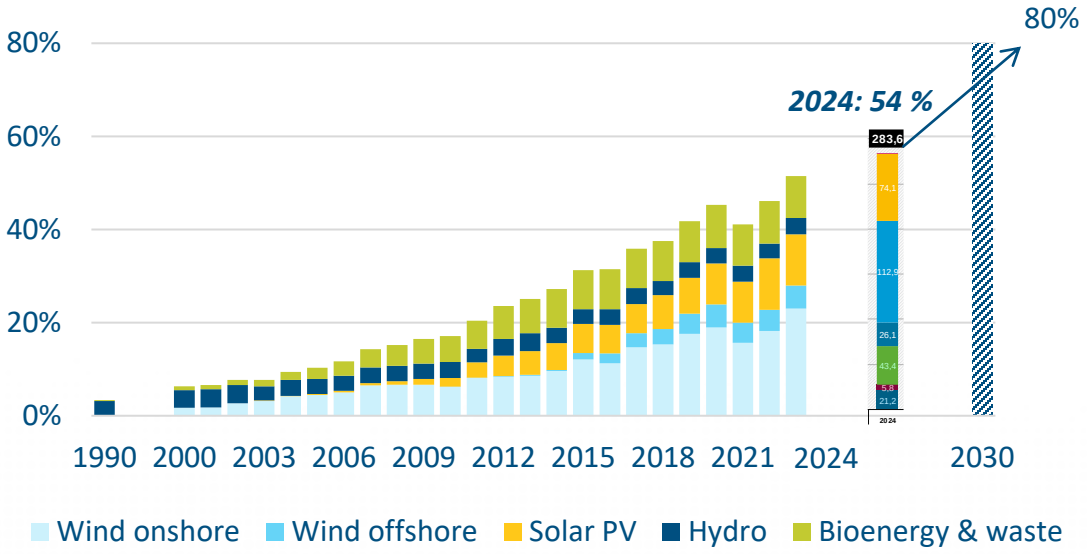
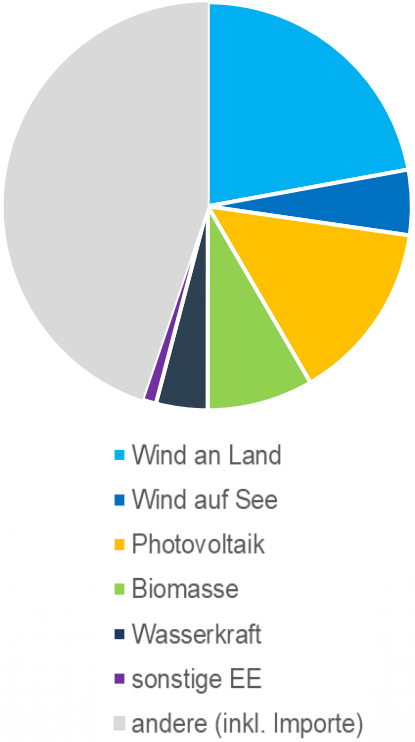
Renewable energies are expanding

- RE shares of gross electricity consumption and 2030 target



RE shares of gross electricity consumption : **54 %***



*Source: Guidehouse, June 2024, based on UBA 2024, BMWK 2024 & UBA 2024; Icons from flaticon.com

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Wind and PV in spatial planning in Germany: Legal framework and expansion targets

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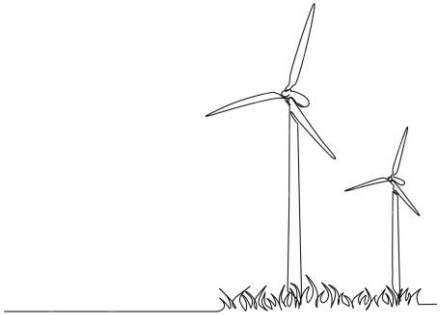

Onshore - Wind Strategy

- Expansion of Onshore Wind with the Renewable Energy Sources Act (EEG)
- Support business models outside the EEG
- Maintain existing plants and accelerate Repowering
- **Mobilise more sites in the short term**
- Simplify and accelerate approval procedures
- Make it easier to secure land
- Strengthen public support
- Strengthen value creation and production capacities in Germany
- Secure skilled workers
- Ease the transport of wind turbine components
- Further technological development
- Align the expansions of the electricity grid and wind energy.

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Legal framework for the expansion of Wind Energy

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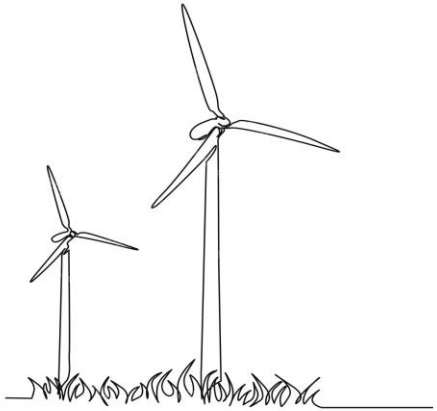

§ 2 Renewable Energy Sources Act (EEG)
(overriding public interest)

Act on Determination of Area Requirements for Onshore Wind Turbines (WindBG)
(2% area target)

Legal Framework
Onshore Wind

Spatial Planning Act (ROG/BauGB)
(changes to wind energy areas planning procedure to a positive planning approach)

Federal Immission Control Act – BImSchG
(permit procedure)

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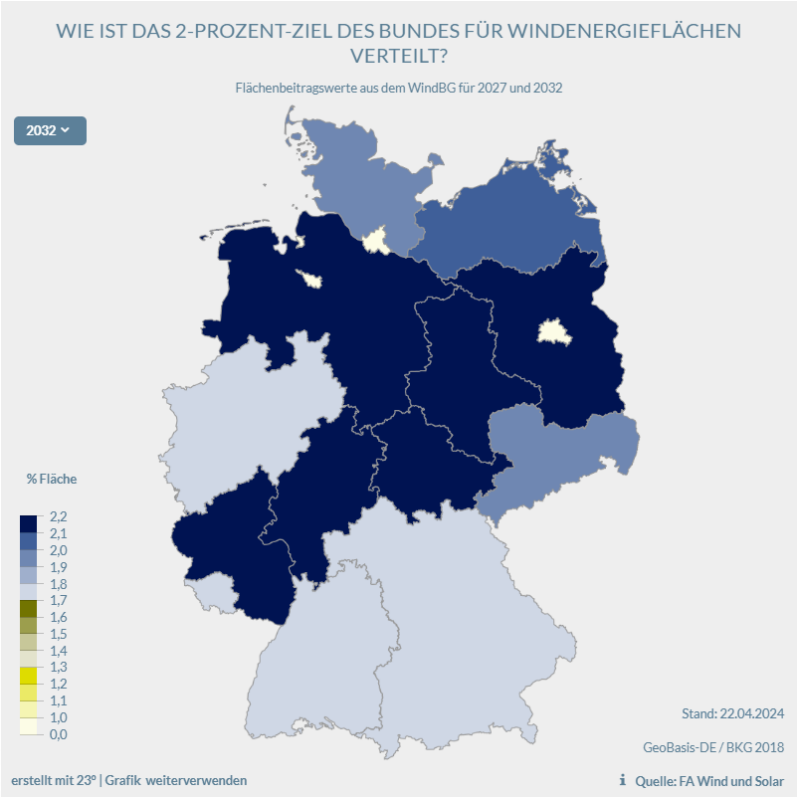
Act on Determination of Area Requirements

Area contribution values for Onshore Wind Turbines (WindBG)



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Changes to wind energy area planning I

Before:

- ✓ Concentration area planning: Designation of certain areas as priority areas, while other areas are excluded in order to prevent the uncontrolled spread of wind energy.
- ✓ Unplanned Outdoor area privilege if there were no public concerns and development was sufficiently secured.

After:

- Positive planning in the form of priority areas (i.e. areas are specifically designated for the use of wind energy - planning procedures are simplified)
- If it is determined that the area targets have been achieved, the unplanned outdoor area privilege is cancelled and the expansion focusses on the wind energy areas

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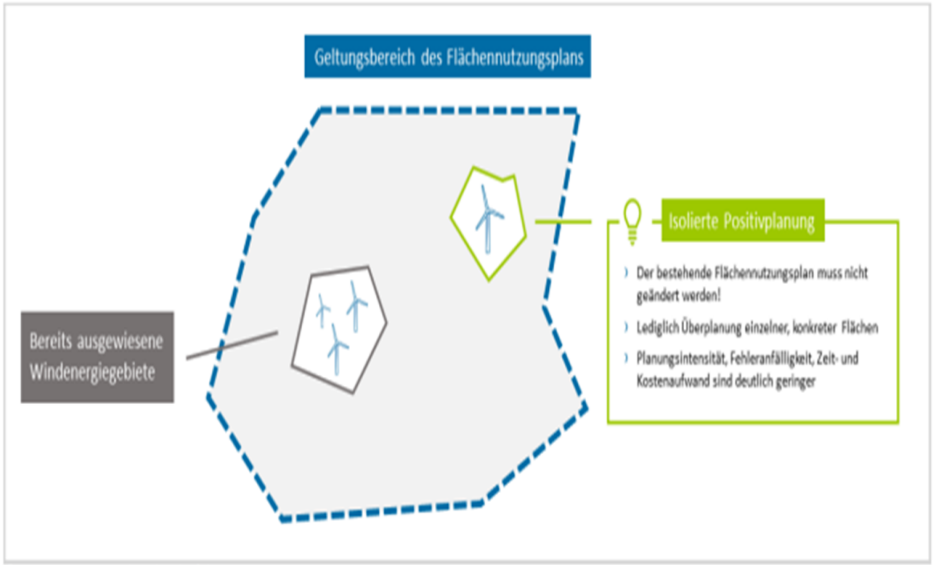
Options for action by the municipalities/ regional planners

1. Adhere to completed plans

2. Complete ongoing planning by 1 February 2024 with planning criteria before the Wind-an-Land Act comes into force.

3. For the transitional period until 31 December 2027, ‘isolated positive planning’ is possible in order not to jeopardise the existing concentration area planning.

4. New (positive) planning



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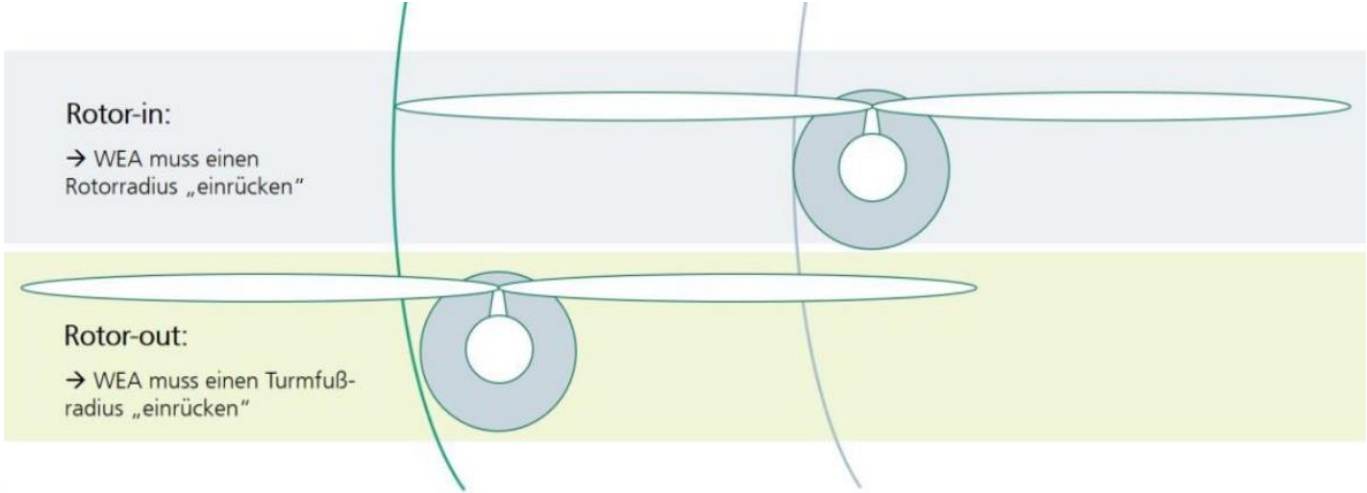
Changes to wind energy area planning II

- ✓ Preference for rotor-out planning
- ✓ WindBG only allows full crediting of the designated areas if they are designated as rotor-out areas.



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Changes to wind energy area planning III

- ✓ If a wind turbine is erected within an already designated wind energy area, the environmental impact assessment and species protection assessments at the project level are not required if an environmental assessment in accordance with § 8 ROG or § 2 IV BauGB has been carried out (§ 6 WindBG).

- ✓ Exception: Natura 2000 area, nature reserve or national park

- ✓ Limited until after the 30. June 2025

Problem: End of EU emergency regulation and delayed implementation of RED III (designation of acceleration zones)

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PV in Spatial Planning in Germany: Expansion and Legal Framework at a glance

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Status of PV expansion

- Overall Expansion of PV in GER until end of 2024 :
  - About 100 Gigawatt
  - Distribution: about 2/3 on roofs and 1/3 in open space
- Overall Extension (new) PV in 2024:
  - 16,2 Gigawatt
  - Distribution : about 2/3 on roofs und 1/3 in open space

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Land use of ground-mounted Photovoltaic (1/2)

- Total land use of ground-mounted PV by the end of 2024 :
  - about 45.200 hectars
- Mainly used areas:
  - Arable Land (15.200 hectars)
  - Conversion Areas (12.200 hectars)
- Total utilised land area in GER:
  - 0,13 Percent

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Land use of ground-mounted Photovoltaic (2/2)

- Positive developement regarding the space efficiency:
  - 2008: per Megawatt ≥ 3,5 hectares
  - 2021: per Megawatt = 1 hectar
  - 2024: per Megawatt = 0,88 hectar

- By the end of 2024 biggest ground-mounted PV put into operation:
  - 164 Megawatt in Saxony

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Spatial control of PV expansion (1/3)

- About the area of the EEG (funding):
- The EEG stipulates the locations for which subsidized PV systems are entitled to EEG remuneration: these include conversion areas, such as former landfill sites or military properties, as well as 500-metre-wide strips along motorways and railway lines (§ 37 EEG).
- However, due to their economic viability, a large number of ground-mounted systems are planned without EEG remuneration. In this case, the location control of the EEG does not play a role.

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Spatial control of PV expansion (2/3)

- **Spatial planning** (state/regional level) and urban land-use planning (municipal level)
  - Spatial development plans (in particular state-wide spatial development plans and regional plans)
  - Regional planning procedure as a preliminary assessment of major infrastructure projects
  - Crucial: 'Spatial significance‘ of the ground-mounted PV
    - Varies by federal state between 0.5 and 10 hectares

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Spatial control of PV expansion(3/3)

- Spatial planning (state/regional level) and **urban land-use planning** (municipal level)
  - Land use/development plans (“F-Plan/B-Plan”) are integrated into spatial development plans (“Regionalpläne”)
  - Development plans must be developed from land use plans.
  - If there is no ‘supply planning’ (“Angebots-Planung”), the initiative must come from the project developer, usually to draw up the development plan and adapt the land development plan.
  - The building law privilege for unplanned outdoor areas is very relevant in practice (§ 35 Abs. 1 Nr. 8 lit. b) BauGB)

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Thank you for your interest in the renewable energy expansion in Germany