

Thursday, July 2nd, 2020

WEBINAR

On-demand night-time marking for wind turbines in Germany – overview, regulatory framework and technologies



Speaker
Marianna Roscher
Legal Expert
Fachagentur Windenergie an Land



Moderator
Sven Rösner
Managing Director
OFATE|DFBEW

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aufgrund eines Beschlusses
des Deutschen Bundestages





FACHAGENTUR
WINDENERGIE AN LAND

On-demand night-time marking for wind turbines in Germany

Deutsch-französisches Büro für die Energiewende

Marianna Roscher

Webinar, 2. Juli 2020

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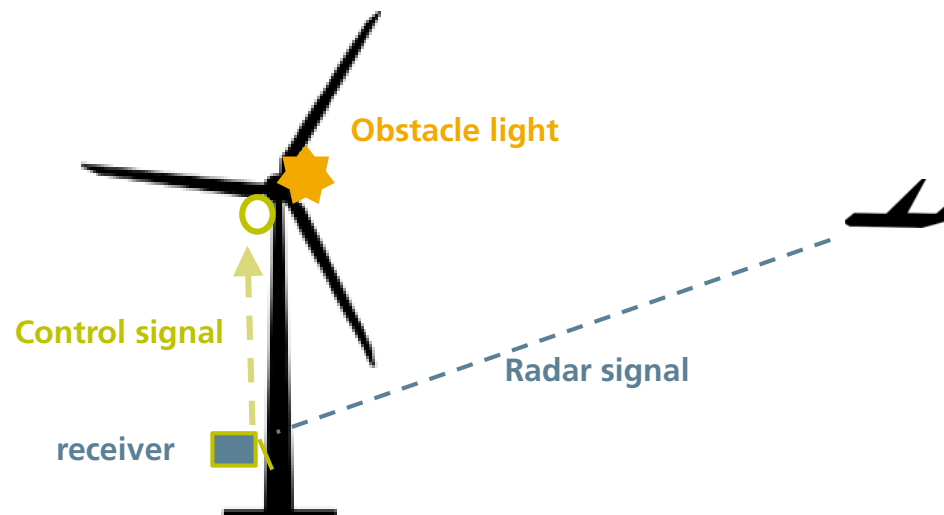
on the basis of a decision
by the German Bundestag



1. Technical Basics
2. Legal implementation and Foundation
3. Approval procedure
4. Outlook and Challenges

What is on-demand night-time marking?

- Air traffic law: (permanent) Obstacle lights a night mandatory for wind Turbine with height from 100 meters
- detection system recognises approaching aircrafts, notifies the control unit and the obstacle lights turn on (bedarfsgerechte / bedarfsgesteuerte Nachtkenzeichnung; BNK)
- During the rest of the night obstacle lights are switched off (95 %)





Why on-demand night-time marking?

- Significant **annoyance factors** for residents when perceiving wind turbines:
 - landscape change
 - shadow flicker
 - noise
 - **Obstacle lights**

➡ Reducing obstacle lights = reducing annoyance factor / increasing acceptance (Hübner, Pohl, 2019 "Monitoring annoyance and stress effects of wind turbines on nearby residents")

- Important impact on the whole **planning process**
 - Those who experienced the planning and construction process as positive accepted the WTG more strongly and felt less or not at all disturbed by their immissions" (Hübner, Pohl, Mehr Abstand - mehr Akzeptanz?, 2015)

➡ More **positive perception** of the wind turbine

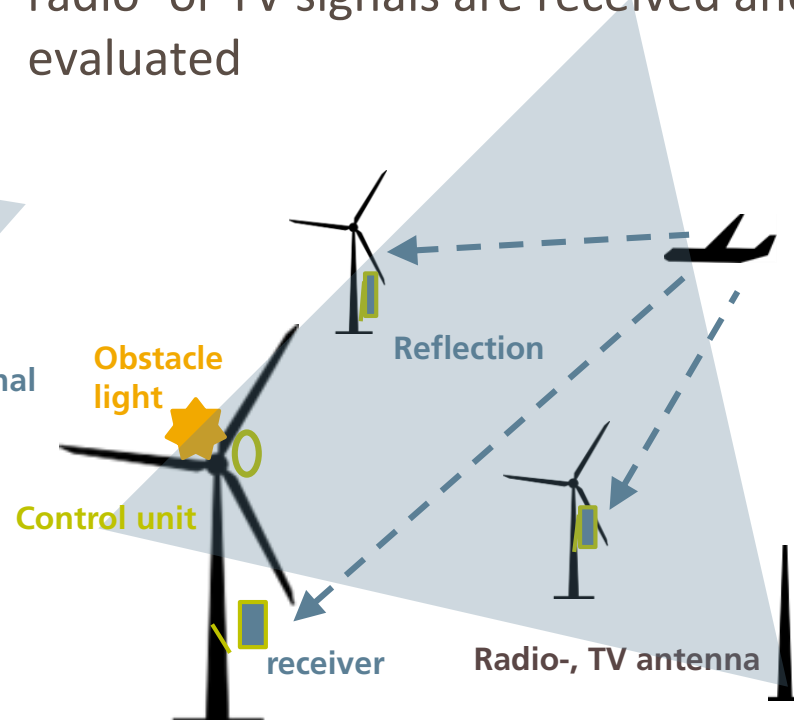
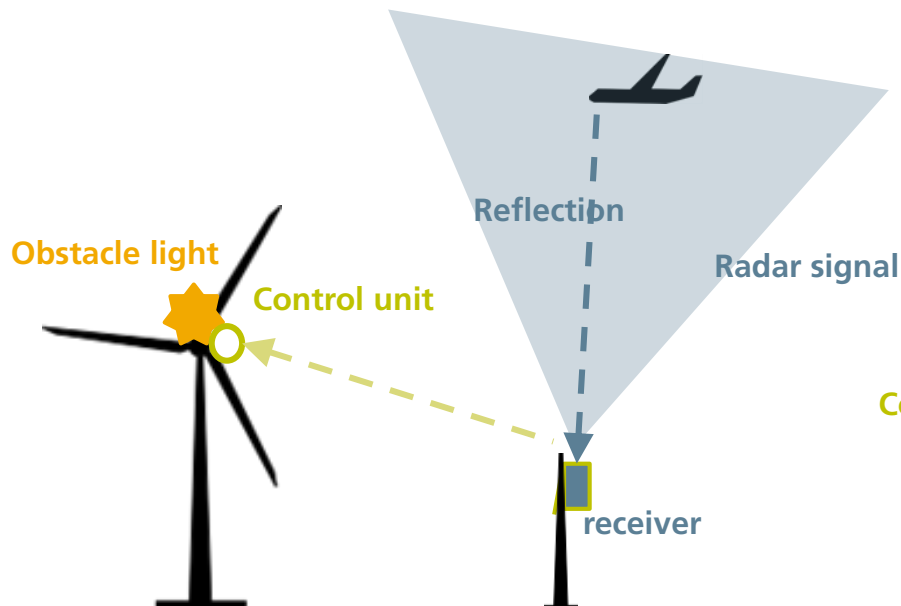


Technical variations

Primary radar: the radar (sends signal), receives reflections and generates information (height, distance of aircraft) from them (since 2015)

Active radar: transmits pulses which are reflected by flying objects

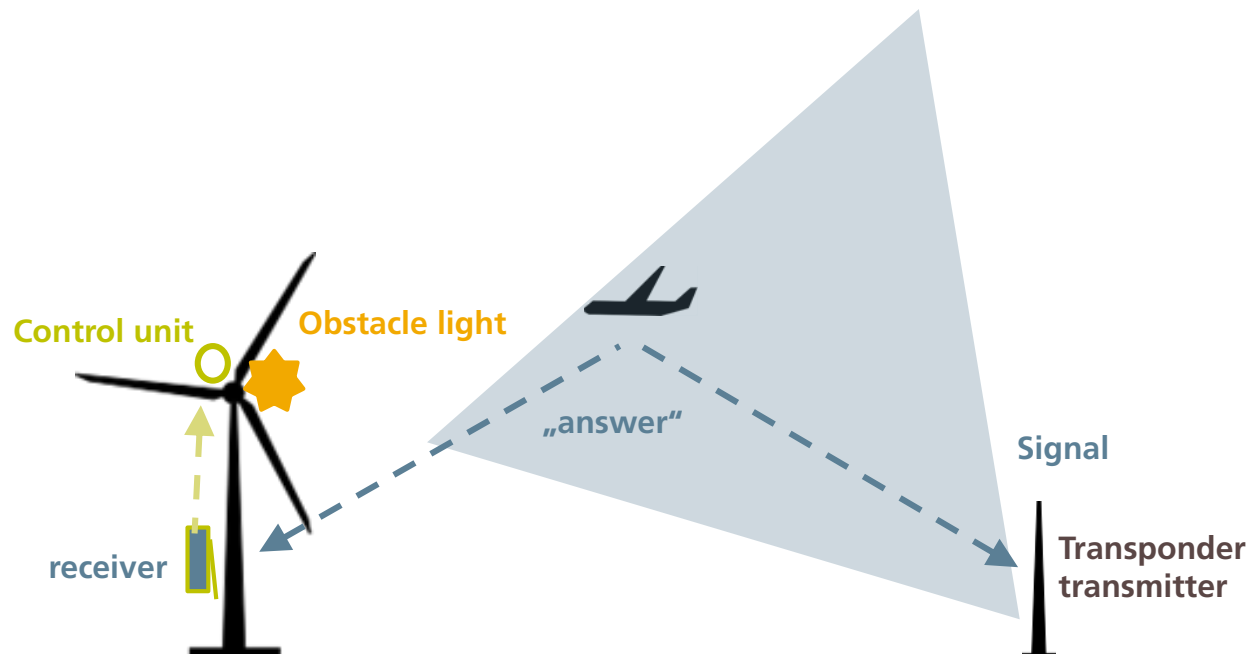
Passive radar: existing and reflected radio- or TV signals are received and evaluated





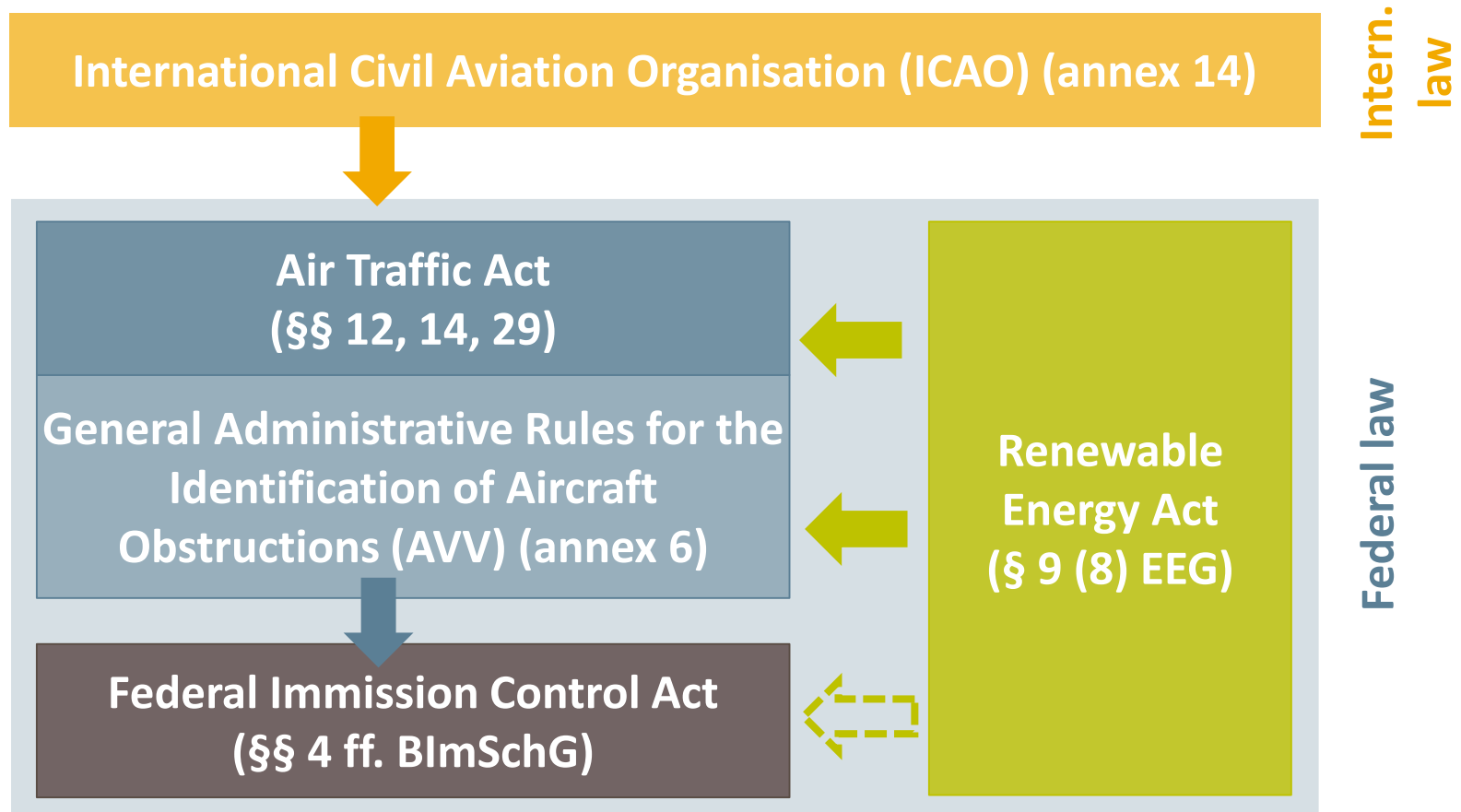
Technical variations

Secondary radar / Transponder: Systems sends data signal, which is actively answered by the transponder with an (Mode A) or receives continuous signal from the transmitter without direct request (Mode S). The receiver determines height and distances based on incoming information's (since Mai 2020)



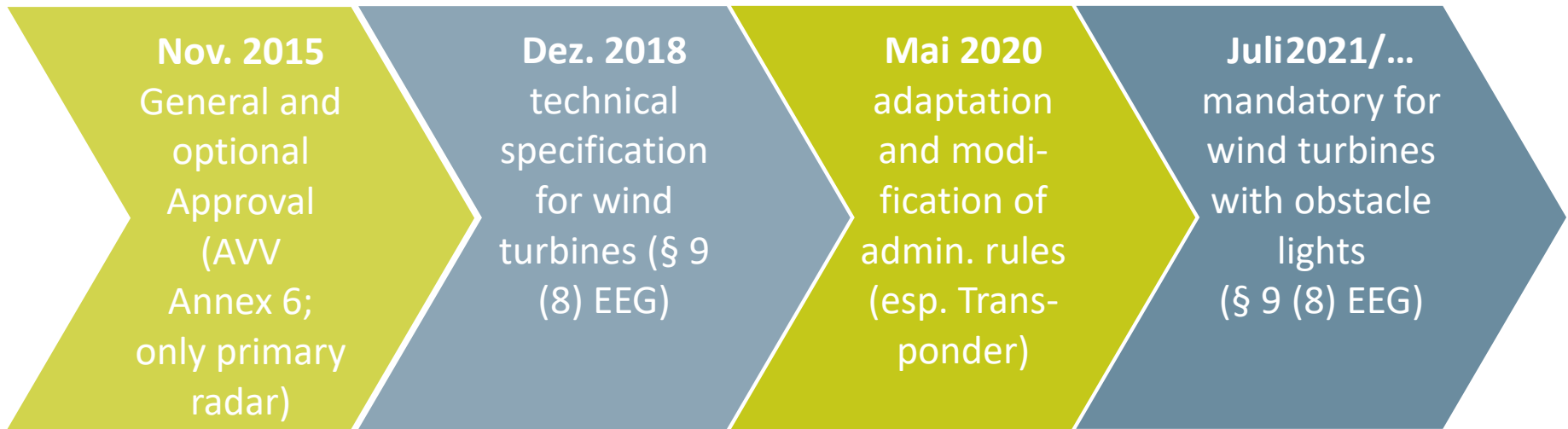


Legal foundations of obstacle marking for WT





Legal implementation in Germany





Legal obligation: § 9 (8) EEG

- **Legal object:** mandatory equipment for wind turbines (>100 meters) with an on-demand night-time marking
- **Legal subjects:** Operators of **new** and **existing** wind turbines (17.000 WT)
- **Violation:** Payment claim (financial subsidy) of the plant operator is reduced by the grid operator to the value of the monthly market value of wind onshore to be invested, § 52 (2) No. 1a EEG



Legal exceptions from § 9 (8) EEG

Individual exception:

- disproportional expenses
(Calculation: expenses exceed sales revenue by 3 %, until end of subsidies)
- short operating time (financial subsidy will expire within 3 year)
- impossibility in law and in fact
(nearby airport, technical reasons)

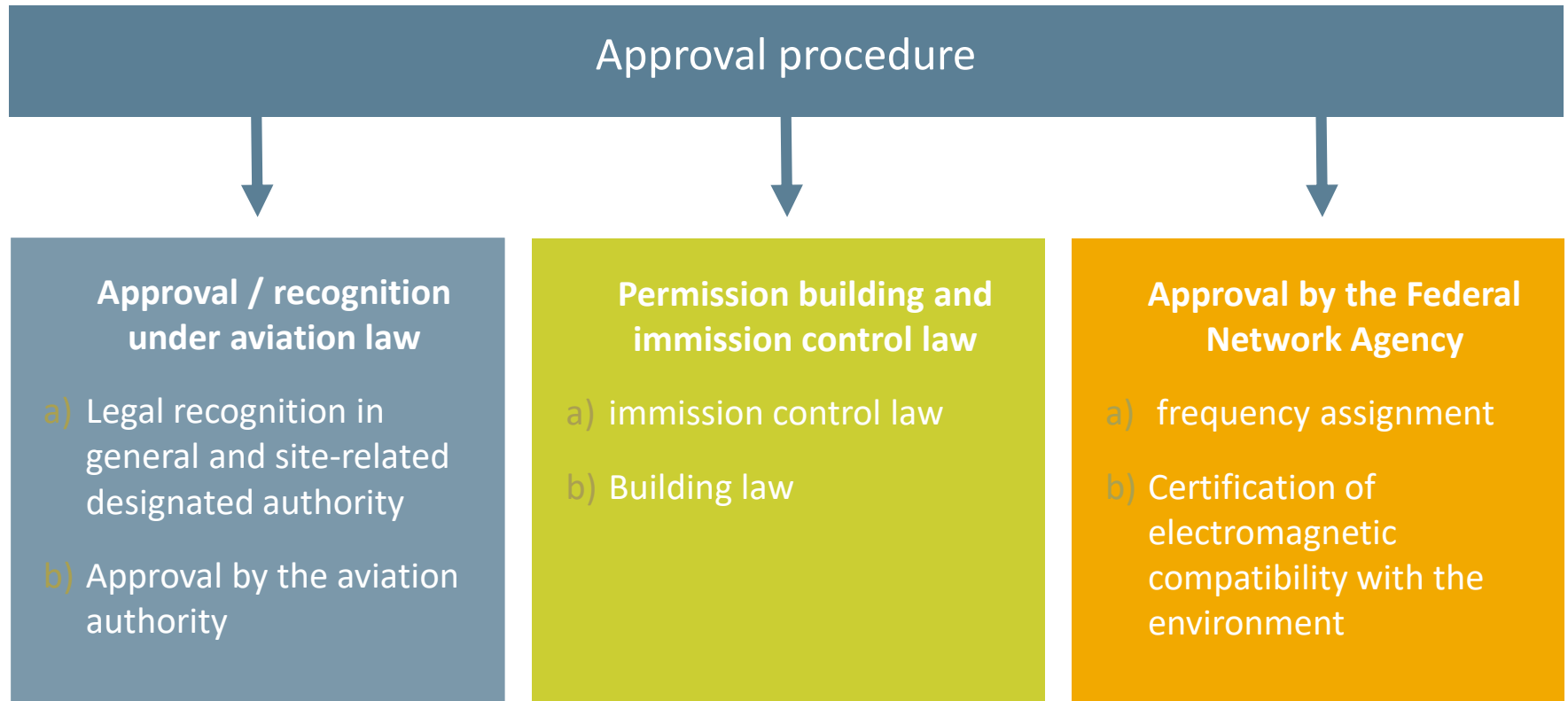
General exception:

extension of the existing deadline for all wind turbines by the federal network agency (§ 85 (2) No. 1a EEG)

- First extension in Nov. 2019:
July 2021
- Upcoming extension?

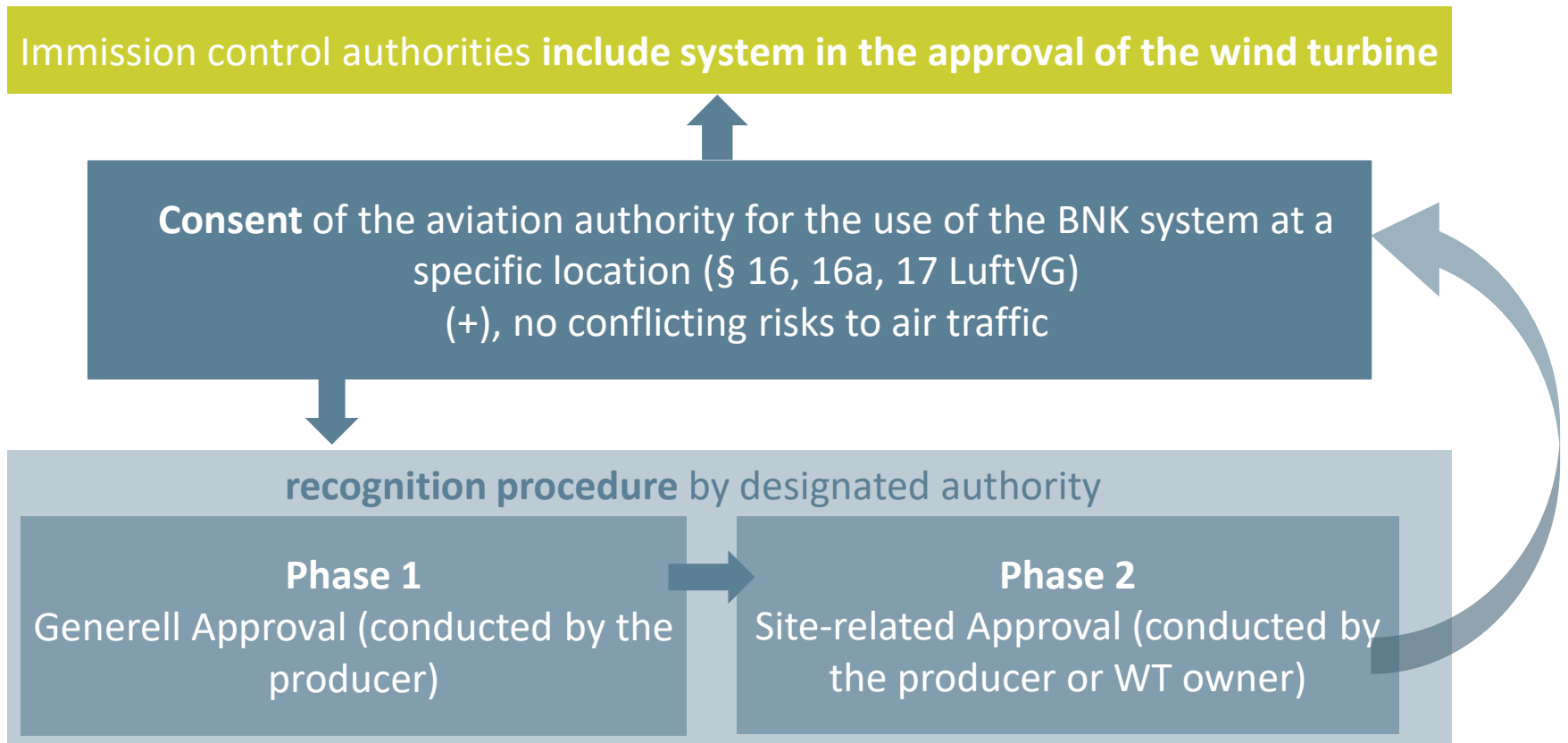


Approval procedure





Approval procedure – Aviation law





Approval procedure – Immission control law

Immission control permit

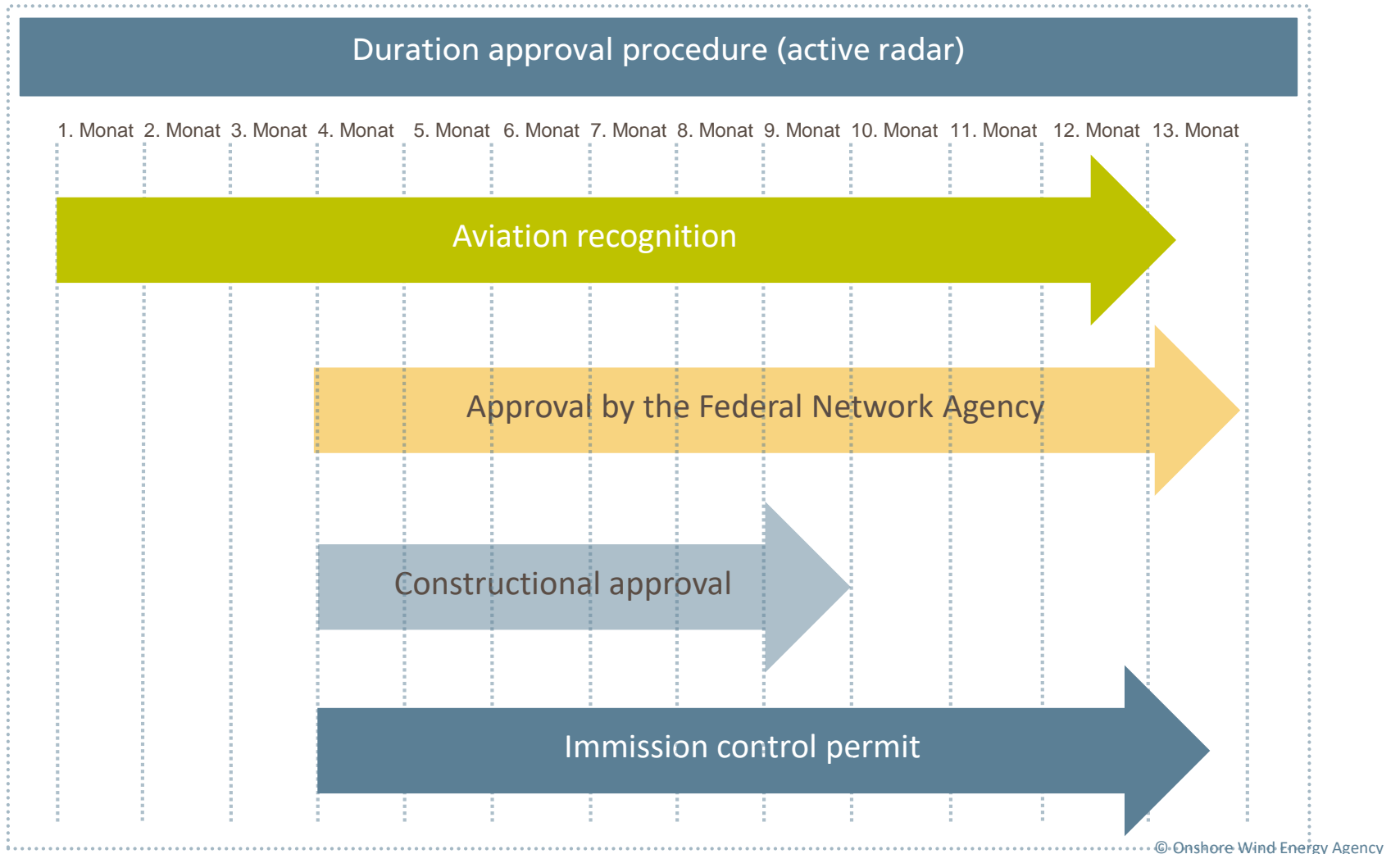
- Obstacle lights and markings as requirements and conditions of the wind turbine permit (§ 12 BImSchG)
- concentration effect of the immissions law permission (§ 13 BImSchG):
 - aviation law is checked by the aviation authority
 - addresses within the immission control permit

New wind turbine permit:
requirements and conditions address
obstacle light (§ 12 BImSchG)

Existing wind turbine permit: Permit
adapted or at least a change notice
(§§15, 16 BImSchG)

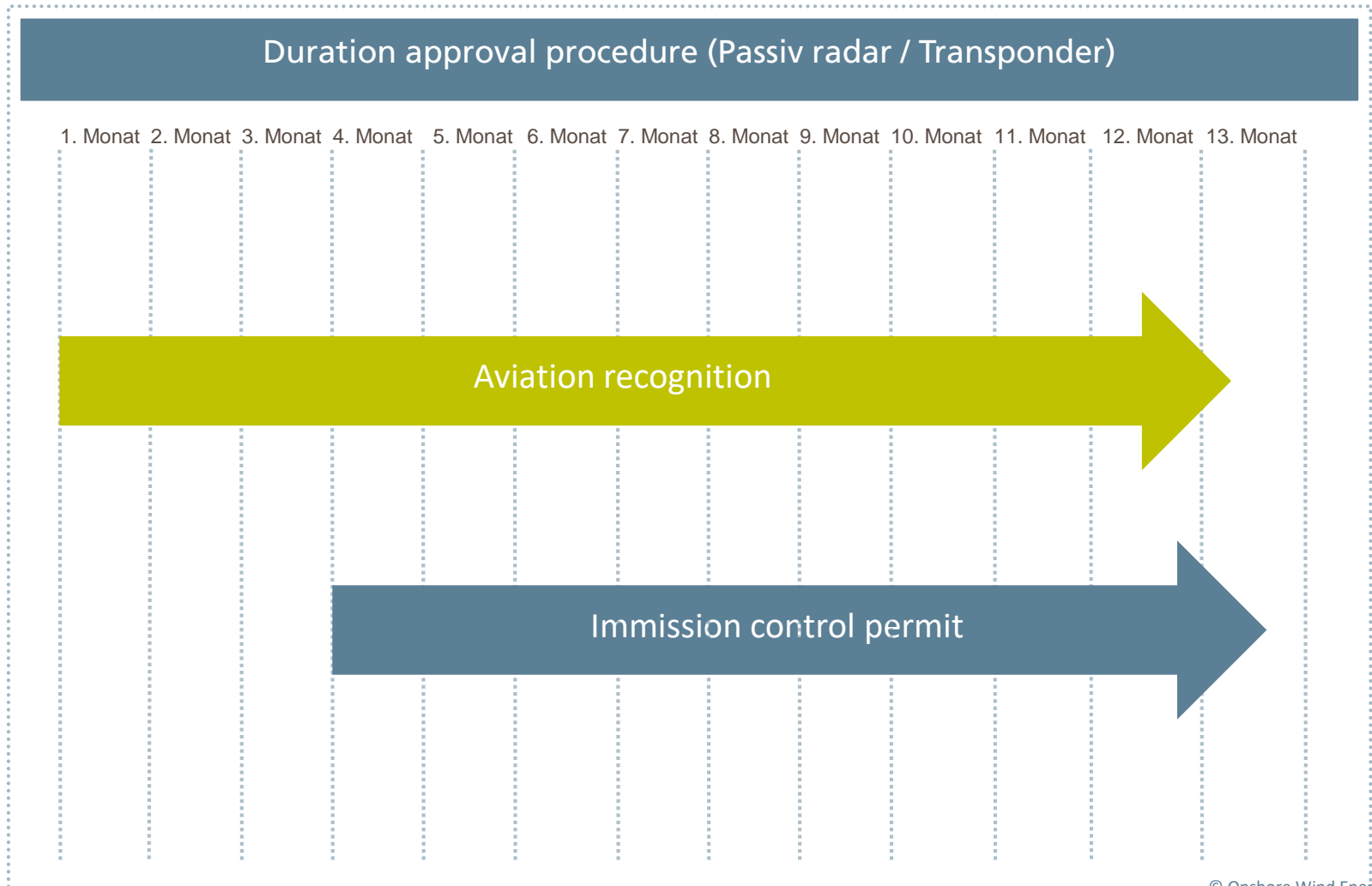


Approval procedure – Duration





Approval procedure – Duration





Outlook and Challenges

Challenges:

- Technical and legal adaptation of approximately 17.000 wind turbines and their permits
 - short-term technical adjustments by qualified personnel
 - several authorities involved in the process / cooperation
- Short time frame

Final result:

- effective measures to increase acceptance
- Significant reduction of light immissions (residents, wildlife and nature)



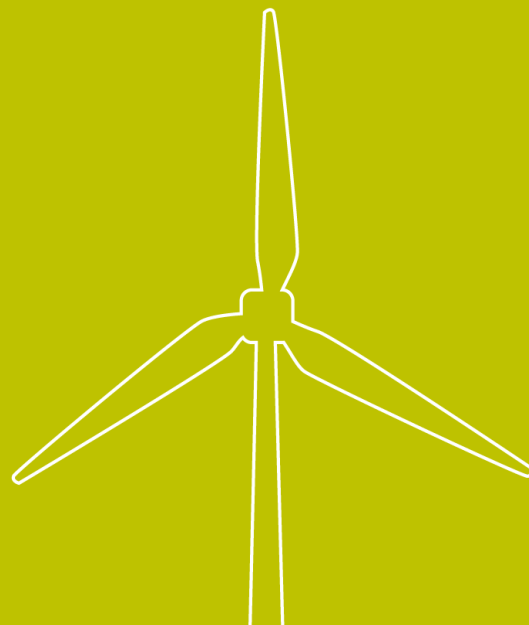
FACHAGENTUR WINDENERGIE AN LAND

Marianna Roscher

T +49 30 64 494 60-63

F +49 30 64 494 60-61

roscher@fa-wind.de



Questions?

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Coming up next...



September 15th | Conference - online

Onshore wind tenders: Between competitiveness and profitability



September 29th | Conference - online

Industry Energy Efficiency: Processes, renewable energies and waste heat recovery



November 3rd | Conference – Berlin & live streaming DE, FR, EN

Franco-German Energy Forum: Europe post Covid-19 – political and economic orientations for the Energy Transition and Climate Change Mitigation



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