

# Renewable energy installations: regulatory challenges of the energy transition

Lithuania's experience in  
implementing wind farm  
maintenance

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# ucrt BACKGROUND OF THE LEGAL FRAMEWORK

- Major development of RES started in 2011 (supported by FIT scheme)
- Support initially applied to used wind power plants
- In 2019, requirements were introduced to ensure that the support scheme applied only to new power plants
- 2022–2024: 4 wind turbines collapsed in different districts
- From the end of 2024, wind power plant operators are required to submit a declaration on the technical condition and operation of their installations





# DECLARATION OF OPERATION

- The declaration requirement applies to wind power plants with an installed capacity above 30 kW
- 60+ used wind turbines installed in Lithuania (since 2004, <1 MW each)
- 137 wind power plant operators -> 373 turbines -> 785 MW total (quarterly reports)

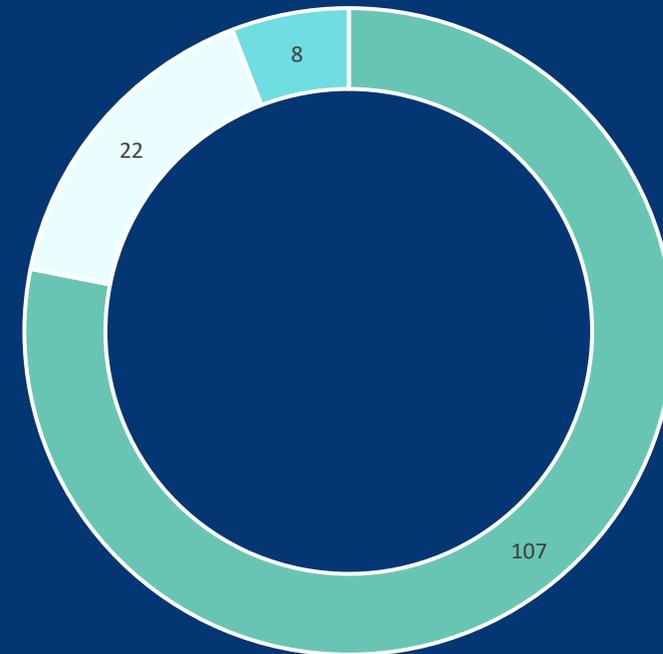
Year of commissioning	Wind power plant operators	Number of turbines	Installed capacity, MW		
			0,03-0,99	1,00-4,99	5,00-9,99
1983-2024	137	373	59,69	481,73	245,94



# PROCEDURE

- Quarterly declaration must be submitted within 15 days after the reporting period;
- Operators who fail to submit the declaration may face suspension or revocation of their operating permit;
- Wind power plants may also be subject to on-site inspections;
- Improved guidance and accumulated experience have led to more accurate and complete declarations.

## Declaration for Q IV 2025



■ Properly submitted   ■ Not submitted  
■ Improperly submitted



# DECLARATION OF OPERATION

**Declarations don't directly identify technical failures; they only ensure that proper maintenance and inspections are carried out**

No.	Questions	Answers
	<b>Questions on the operation of electrical equipment and structures</b>	<b>Document number / inspection date</b>
1	Comprehensive inspection report in accordance with the manufacturer's regulations, including conclusions:	
A	Periodicity established in the manufacturer's regulations	
B	Protocol number	
C	Inspection date	
D	Number of the document proving the qualification of the person who performed the inspection	
	<b>Questions on the compliance of wind turbine operation with the requirements set out in legislation</b>	<b>Yes/No/Not applicable</b>
34	Is a blade heating system installed in the wind turbine blades according to the manufacturer's design? (According to the manufacturer's regulations)	



# WIND FARM MAINTENANCE: PROSPECTS FOR FURTHER SYSTEM DEVELOPMENT

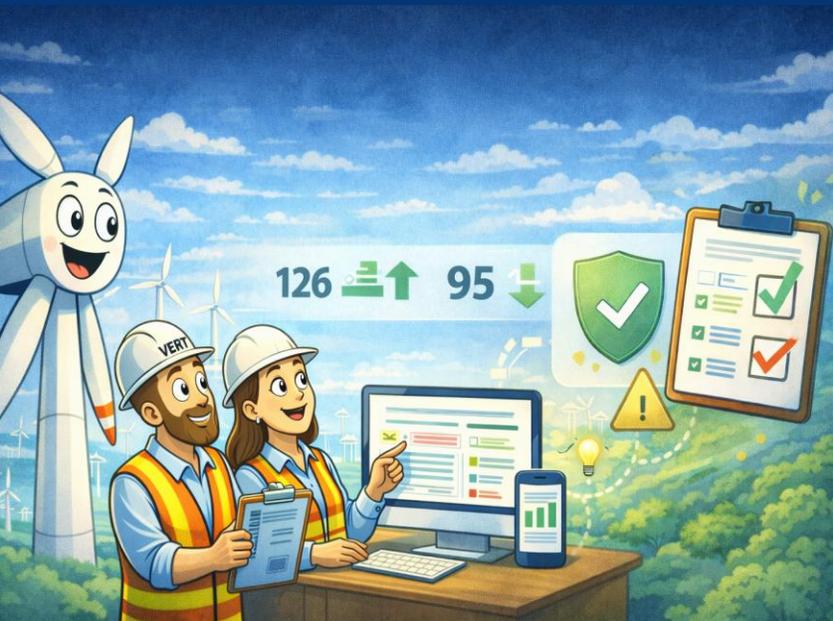
Challenges we encountered and corresponding solutions:

- Enhancing the quality of declarations and the supervision process;
- Integrating risk-based criteria for on-site inspection selection;
- Providing the public with structured and up-to-date analytics.





## KEY CHALLENGES AND SOLUTIONS:



**01**

Justifying to owners the administrative burden created by the required volume and frequency of declarations.

**02**

Moving from general informational guidance declarations to identifying the most relevant and likely issues.

**03**

Encouraging inactive wind farm owners to submit declarations.

**04**

Insufficient initial quality control of submitted data.

**05**

Automating the assessment of information in declarations to reduce the administrative burden to supervisory officers.

**06**

Not using declarations for object risk assessment and for organizing on-site inspections.

**07**

Additional use of information from declarations to better inform the public about renewable energy.



# ENHANCING THE QUALITY OF DECLARATIONS AND THE SUPERVISION PROCESS:



Wind farm owners currently provide 126 data points in their declarations. We aim to reduce this by about 20%, based on how often each data point has helped identify deficiencies.



Expanded data-validation checks during entry, including a wind-turbine classifier by manufacturer and model, required-field alerts, and a standardised date-entry format to prevent technical errors.



Cross-checking data within a declaration and against previous submissions, including checking whether wind turbine technical inspections are performed at the regulatory intervals.



Automated alerts to supervisory officers about significant performance issues in wind power installations.



# INTEGRATING RISK-BASED CRITERIA FOR ON-SITE INSPECTION SELECTION

Taking into account OECD best practices, the declarations should include questions related to the risk assessment of wind power installations, such as:

*The aim of the NERC 2026 inspection plan was to increase the number of wind farms declarations. Therefore, the most significant risk selected for on-site inspections was wind farms that had not submitted any declarations.*



Location of the energy facility or installation in proximity to, or directly on, public or commercial facilities, state-owned transport infrastructure, cultural heritage sites, or protected areas.



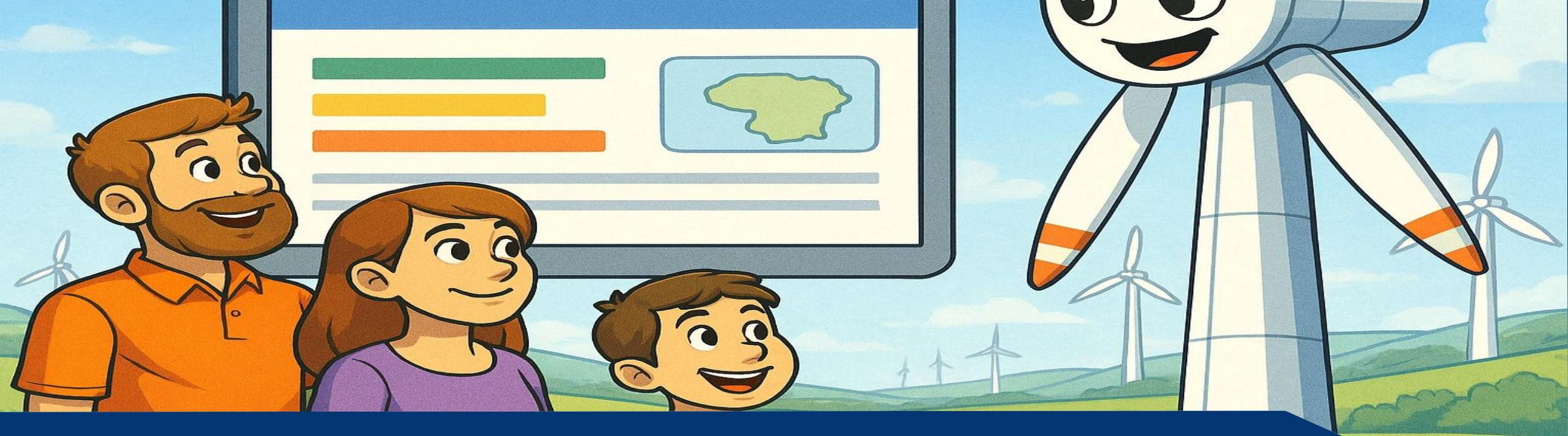
Description of significant deficiencies identified during mandatory expert inspections.



Technical performance anomalies or repeated operational failures.



Compliance with instructions issued during state supervision activities.



## PROVIDING THE PUBLIC WITH ANALYTICS FROM THE DECLARATIONS

It is intended that the information collected and automatically analyzed from the declarations will be published on the NERC website:

- *This includes data on wind power development by type, age, location, capacity and other relevant characteristics;*
- *These declaration-based insights **provide additional value** by offering the public clear, structured and regularly updated information on renewable energy generation and its development in Lithuania.*

**Thank you for your attention !**