



Driemaandelijks overzicht van relevante literatuur over windenergie en gezondheid Q1-2026

Periode: Januari t/m Maart 2026

Het Expertisepunt Windenergie en Gezondheid houdt voor haar kennisbasis de wetenschappelijke literatuur bij over windenergie en gezondheid. Elke drie maanden wordt een overzicht gemaakt van de nieuwgevonden wetenschappelijke en grijze literatuur.

In dit document vindt u het overzicht van de literatuur gevonden in de hierboven aangegeven periode.

Literatuuropbrengst

Hieronder wordt eerst een overzicht gegeven van de wetenschappelijke artikelen gevonden in diverse literatuurdatabanken. Daarna volgt een (niet-uitputtende) opsomming van overige relevante bronnen, zoals (Nederlandse) onderzoeksrapporten en conferentieverslagen, ook wel grijze literatuur genoemd.

Disclaimer

Deze selectie is tot stand gekomen met behulp van een zoekprofiel (zie bijlage Methode Zoekstrategie 2026) en toepassing van inclusie en exclusiecriteria. Op deze documenten is geen dataextractie toegepast noch is er een algemeen kwaliteitsoordeel aan gegeven.

Literatuur gepubliceerd in wetenschappelijke tijdschriften

Tabel 1 Overzicht van het aantal gevonden studies

Fase	Januari – Maart 2026
Aantal artikelen gevonden met zoekstrategieën voordat selectie heeft plaatsgevonden	62
Aanvullende referenties gevonden via andere bronnen (dit betreft niet de grijze literatuur)	0
Aantal referenties na verwijdering van duplicaten	46
Verwijderde referenties omdat ze niet relevant zijn (voldoen niet aan inclusie en exclusie criteria)	29
Aantal relevante artikelen geselecteerd door reviewers	4
Aantal artikelen waarover reviewer 1 en reviewer 2 hebben afgestemd (grensgevallen)	13
Totaal aantal relevante artikelen (na afstemmen)	5

RIVM

A. van Leeuwenhoeklaan 9
3721 MA Bilthoven
Postbus 1
3720 BA Bilthoven
www.rivm.nl

T 088 689 9111

Datum:

30 april 2026

Kenmerk:

EP WE&G

Contact:

windenergie@rivm.nl

Overzicht van de relevante studies

1. Titel: Visual Assessment of Wind Turbine Impacts on Rural Landscapes in Poland: A Model-Based SBE Study Considering Distance from Residential Areas

Samenvatting (gekopieerd uit artikel): Wind turbines can affect perceived landscape quality, particularly in open rural settings where their scale and distinctive form make them a strong visual dominant. This article presents model-based research on how turbine setback distance from residential buildings influences the visual perception of rural landscapes in Poland. A modified Scenic Beauty Estimation (SBE) method was applied, using standardized computer-generated visualizations instead of real-world photographs of seven rural landscape types. For each type, four variants were assessed: a reference view and three scenarios with turbines located 500, 750, and 1000 m from residential buildings. Shorter setback distances significantly reduced visual ratings (ANOVA, $p < 0.001$). The lowest ratings occurred at 500 m, particularly in the large-scale arable farming landscape ($Z = -0.886$), while the highest ratings were recorded for reference variants, especially in the mountain agricultural landscape ($Z = 1.20$). Landscape type was also significant, with open areas proving more sensitive to turbine presence than structurally complex landscapes. Linear trend analysis confirmed that increasing setback distance is associated with higher visual ratings ($F(1, 2140) = 31.60$; $p < 0.001$; $R^2 = 0.01$). These findings indicate that perceptual landscape assessment supports wind turbine siting and, when combined with geographic information systems (GIS) and Landscape and Visual Impact Assessment (LVIA), enables a more comprehensive evaluation of project-related environmental effects. © 2026 by the authors.

Referentie: Barwicka, S., Barwicki, P. & Milecka, M. (2026). Visual Assessment of Wind Turbine Impacts on Rural Landscapes in Poland: A Model-Based SBE Study Considering Distance from Residential Areas. *Land*, 15(3). doi:10.3390/land15030435

Link naar bron: <https://doi.org/10.3390/land15030435>

2. Titel: Climate policy beliefs, not problem visibility, drive rural opposition to wind energy projects

Samenvatting (gekopieerd uit artikel): Scholars note an increasing number of cases of rural opposition to wind energy projects (WEPs), commonly attributed to their visual impacts, as their tall steel structures appear out of place in rural settings. In other words, WEPs stand out as 'visible problems' in rural areas. Through a pre-registered online survey experiment administered to a representative sample of the U.S. population ($n = 1,489$), we examine whether WEP's visual impacts, shaped by their size and the surrounding landscape, drive the rural-urban WEP support gap. We find that urban respondents favor larger WEPs in rural landscapes. In contrast, rural respondents show less support for WEPs irrespective of their size or the surrounding landscape. Mediation analysis suggests that rural opposition stems from rural residents being less likely than urban residents to prioritize climate policies over economic concerns. To ensure rural support, we suggest that policymakers and project developers should not only frame but also design WEPs as viable options to support the rural economy and electricity affordability. © 2026 The Author(s). Published by IOP Publishing Ltd.

Referentie: Ko, I., Dolšak, N., Cansunar, A. & Prakash, A. (2026). Climate policy beliefs, not problem visibility, drive rural opposition to wind energy projects. *Environmental Research Communications*, 8(3). doi:10.1088/2515-7620/ae30d7

Link naar bron: <https://doi.org/10.1088/2515-7620/ae30d7>

3. Titel: Proposing a value-sharing mechanism for wind power: Impacts of benefit-sharing and community engagement on acceptance and environmental awareness

Samenvatting (gekopieerd uit artikel): As governments increasingly promote installing wind power plants, conflicts with residents have emerged. Some wind farm villages implement financial benefit-sharing schemes and organize public hearings, yet empirical evidence on the effectiveness of such mechanisms remains limited. This study examines whether financial benefit-sharing and community participation are associated with residents' acceptance of wind turbines and with environmental awareness. We propose a Value-sharing Mechanism (VSM) framework by comparing villages with different benefit-sharing types and participation levels. A survey of 95 residents from three wind farm villages in Jeju Island, South Korea, classified as utility-focused, benefit-focused, and participation-focused models, was conducted. The Kruskal-Wallis test, correlation analysis, and linear regression were employed to assess the relationships among perception of benefit-sharing, community engagement, local acceptance, and environmental awareness. Results indicate that both benefit-sharing and community engagement are positively associated with local acceptance, but not with environmental awareness. These findings inform theoretical insights through the lens of commons theory and may inform practice for designing self-governing sustainable renewable energy projects under the VSM framework. © 2026 The Authors.

Referentie: Lee, K., Yun, S. J. & Myeong, J. Y. (2026). Proposing a value-sharing mechanism for wind power: Impacts of benefit-sharing and community engagement on acceptance and environmental awareness. *Energy Research and Social Science*, 132. doi:10.1016/j.erss.2026.104537

Link naar bron: <https://doi.org/10.1016/j.erss.2026.104537>

4. Titel: Wind energy acceptability across five major economies: A comparative analysis

Samenvatting (gekopieerd uit artikel): Wind power is a cornerstone of global efforts to decarbonize energy systems, yet its expansion is often hindered by local opposition. Previous studies suggest that perceptions of distributive injustice and perceived lack of community benefits are common sources of contention. Compensation schemes have therefore been proposed to enhance public acceptance, but little is known about their effectiveness across diverse national contexts. To address this gap, this article assesses public support for wind energy, with and without compensation, using original survey data from five democratic countries spanning five continents: Brazil, Germany, India, South Africa, and the United States. The findings show consistently high levels of support for wind energy, with stronger acceptance observed in emerging economies compared to Germany and the United States. Left-leaning ideology and climate concern are associated with stronger support for wind energy across all countries, yet the results are otherwise context-dependent. While this study finds that compensation to residents living near wind turbines tends to increase support among individuals initially negative to wind power, the effects are modest. In contrast, supportive individuals may become more skeptical when monetary incentives are introduced, suggesting that such measures may undermine altruistic or pro-environmental motivations. In the United States, right-leaning individuals who are typically more skeptical of wind energy respond more favorably to compensation, while the opposite effect is observed in India and South Africa. By providing a cross-continental comparison, this study offers a more globally inclusive perspective on the social factors shaping public acceptance of wind energy. © 2025 The Authors

Referentie: Lindvall, D., Elwing, E., Marzelius, M. & Haring, N. (2026). Wind energy acceptability across five major economies: A comparative analysis. *Renewable and Sustainable Energy Reviews*, 228. doi:10.1016/j.rser.2025.116564

Link naar bron: <https://doi.org/10.1016/j.rser.2025.116564>

5. Titel: Variability in human preference for wind turbines: landscape characteristics, turbine distribution, and sociodemographic factors

Samenvatting (gekopieerd uit artikel): In contemporary discussions surrounding wind energy development, one of the most significant challenges is public opposition, primarily due to the visual impact of wind farms. It is crucial to evaluate this visual impact from the perspective of residents living near these installations or those affected daily. This study investigates how the public perceives the visual aesthetics of wind turbines, with a particular focus on the Ústecký region in the northwest of the Czech Republic. The research team utilized image simulations in a comprehensive survey to examine how factors such as landscape type, turbine distribution, and socio-demographic variables influence public preferences regarding wind farms. What sets this research apart is its innovative approach to employing a precise and accessible method for generating image simulations and subsequently integrating them into a multidimensional survey. The results reveal a notable correlation between socio-demographic factors and the visual preferences of the public concerning wind turbines. The study compared Czech and non-Czech respondents to examine the possible impact of cultural or national context on visual preferences, as many studies have demonstrated that public acceptance of wind energy varies significantly across nations. Furthermore, while a positive correlation exists between having visited wind farms and general support for global wind energy development, this relationship is not yet at a statistically significant level to be considered a reliable predictor. This research enhances our understanding of the visual impact of wind turbines and their connection to public acceptance, highlighting the necessity for culturally sensitive approaches to foster greater public acceptance of wind farms. © The Author(s) under exclusive licence to International Consortium of Landscape and Ecological Engineering 2025.

Referentie: Yazdanmehr, S., Danesh, A. & Kumble, P. (2026). Variability in human preference for wind turbines: landscape characteristics, turbine distribution, and sociodemographic factors. *Landscape and Ecological Engineering*, 22(1), 105–126. doi:10.1007/s11355-025-00695-0

Link naar bron: <https://doi.org/10.1007/s11355-025-00695-0>

Tabel 2 Indeling van de wetenschappelijke literatuur naar type en onderwerp.

Soort onderzoek	Hinder	Slaap	Gezondheid divers	Anders (bijv. co-determinanten)
Tekstmining (bijv. sentiment analyse van (sociale) media artikelen)				
Case study				
Observationeel (bijv. Cross-sectionele, cohort, of case control studies)				Lee (2026), Lindvall (2026), Yazdanmehr (2026)
Experimenteel				Barwicka (2026), Ko (2026)
Review				
Anders (bijv. theoretisch model, opinie,...)				

Relevante Nederlandse onderzoeksrapporten en overige relevante grijze literatuur

Overzicht van relevante grijze literatuur

1. Titel: *WWEA Annual Report 2025, Global Wind Power in 2025: Record Growth and Emerging Challenges*

Beschrijving (gekopieerd): A Year of Unprecedented Expansion

2025 marked a watershed moment for the global wind power sector. According to preliminary statistics released by the World Wind Energy Association (WWEA), the world added 169'014 Megawatts (MW) of new wind capacity – a 35% increase over 2024 – bringing total global installations to 1'346'866 MW. This surge represents the highest annual growth rate since 2020, with wind power now generating nearly 3'000 terawatt-hours (TWh) of electricity and meeting over 11% of global demand.

The record-breaking expansion was overwhelmingly driven by China, which alone accounted for 77% of global additions by installing 130 Gigawatts (GW) in a single year. China has now an overall share of more than 50% of the world total capacity.

Referentie: (WWEA), W. W. E. A. (2026). *WWEA Annual Report 2025, Global Wind Power in 2025: Record Growth and Emerging Challenges*. WWEA.

Datum van publicatie: 2026

Link naar bron: <https://www.wwindea.org/ss-uploads/media/2026/4/1775128035-cffcb332-90e1-4364-8ea1-c1622b6bf170.pdf>

2. Titel: *Wind Turbines and Public Health*

Beschrijving (gekopieerd): Background

University researchers, government scientists, and medical and public health authorities have published over 100 peer-reviewed scientific studies on health and living in proximity to wind turbines. These studies have investigated the wide range of purported negative health claims with respect to wind turbines including sound, low frequency noise and infrasound, shadow flicker, and electromagnetic field emissions (EMF). Furthermore, independent health experts have conducted comprehensive reviews of the

existing research and repeatedly conclude that wind turbines do not pose a threat to public health.

Misinformation about the health impacts of wind turbines can contribute to harmful impacts through the “nocebo effect”, which is the opposite of the placebo effect. It describes a situation where a negative outcome occurs due to a belief that the action will cause harm.

Referentie: Power, A. C. (2026). *Wind Turbines and Public Health*. American Clean Power

Datum van publicatie: January 2026

Link naar bron: https://cleanpower.org/wp-content/uploads/gateway/2026/01/ACP_FactSheet_Turbines_Public_Health_260126_2.pdf

3. Titel: Maughanaclea Renewable Energy Development, Co. Cork – Population and Human Health (EIAR Chapter 5)

Beschrijving (gekopieerd): This section of the Environmental Impact Assessment Report (EIAR) identifies, describes and assesses the potential effects of the Proposed Project on population and human health and has been completed in accordance with the Environmental Impact Assessment (EIA) guidance and legislation set out in Ch. 1: Introduction. The full description of the Proposed Project is provided in Ch. 4: Description of the Proposed Project of this EIAR.

As detailed in Section 1.1.1 in Ch. 1: Introduction, for the purposes of this EIAR, the various project components are described and assessed using the following references: ‘Proposed Project’, ‘Site’, ‘Proposed Wind Farm site’, ‘Proposed Wind Farm’ and ‘Proposed Grid Connection’.

One of the principal concerns during the development process is that human beings, as individuals or communities, should experience no significant diminution of their quality of life from the direct, indirect or cumulative effects arising from the construction, operation and decommissioning of a development. Ultimately, all the effects of a development impinge on human beings, directly and indirectly, positively and negatively. The key issues examined in this chapter of the EIAR include population, human health, employment and economic activity, land use, residential amenity (including visual amenity, shadow flicker and noise), community facilities and services, tourism, property values, traffic and health and safety.

Referentie: MKO. (2026). *Maughanaclea Renewable Energy Development, Co. Cork – Population and Human Health (EIAR Chapter 5)*. MKO.

Datum van publicatie: 2026

Link naar bron:

<https://www.pleanala.ie/publicaccess/Case%20Documentation/324165/Applicant%20Documents/Application%20Documents/EIAR/Volume%201%20-%20Non-Technical%20Summary%20and%20EIAR%20Chapters/Ch.%205%20Population%20and%20Human%20Health%20-%20F%20-%202026.03.26%20-%20240225.pdf>

4. Titel: Global wind and solar 2025: The G7 gap - Briefing: February 2026

Beschrijving (gekopieerd): Global prospective wind and solar reaches almost 5 TW, but the wealthiest nations account for one-tenth of the capacity. The global clean power pipeline surged in 2025. Announced and in-progress wind and utility-scale solar projects expanded by 11%, increasing from 4.4 terawatts (TW) to almost 5 TW worldwide. Globally, utility-scale solar led the expansion of the pipeline. The utility-scale solar pipeline grew by 17% and passed 2.2 TW, while the wind pipeline grew by 7%. The world’s richest economies are not driving that growth. The G7 countries, despite controlling roughly half of global wealth, account for 11% of the world’s prospective wind and utility-scale solar capacity additions. The center of gravity for new clean power has

shifted decisively toward emerging and developing economies. China crossed a historic threshold. Its combined operating wind, utility-scale solar, and distributed solar capacity surpassed 1.6 TW in 2025, triple the combined capacity of its closest peers, the United States and India. Distributed solar is a pillar of the clean energy transition, but it's not evenly spread. While it represents about 42% of all existing and prospective

Referentie: Monitor, G. E. (2026). *Global wind and solar 2025: The G7 gap - Briefing: February 2026*. Global Energy Monitor.

Datum van publicatie: February 2026

Link naar bron: <https://globalenergymonitor.org/report/global-wind-and-solar-2025-the-g7-gap/>

5. Title: The social acceptance of wind energy projects

Beschrijving (gekopieerd): In the context of the energy transition, wind generation is one of the most promising technologies, growing rapidly on a global scale also thanks to its competitive costs. Despite consistent evidence of public support for wind energy, however, specific wind energy projects often meet opposition at the local level, and several countries increasingly show delays in the implementation of their wind expansion plans. Through a review of the relevant literature in social sciences, we provide an overview of the role of objective and subjective drivers of social acceptance of wind projects, such as (perceived) visual impact, (perceived) noise emissions, (perceived) impacts on the local economy, institutional and procedural factors, and attitudinal and behavioural traits characterizing the individuals and communities affected by a proposed wind project. We collect the existing evidence concerning the evolution of social acceptance of specific wind projects over time and describe the role of community engagement and institutional capital in fostering social acceptance of wind projects. We provide a comprehensive overview of the strategies available to policy makers, project developers, and local stakeholders to gather support for wind energy projects at the local level, prevent avoidable conflicts, and ultimately achieve a fast and just energy transition. © The Editor and Contributors Severally 2026.

Referentie: Motz, A. (2026). Chapter: 'The social acceptance of wind energy projects.' In 'The Social Acceptance of Renewable Energy Projects' (pp. 50-76).

URL: <https://www.scopus.com/pages/publications/105032345537?origin=resultslist>