

SPAIN

How strong laws and multistakeholder collaboration are effectively tackling bird-grid mortality and fostering bird-safe power lines

Spain's Royal Decree (2008) establishes technical measures and requirements to avoid bird mortality from electrocution and enables funding procedures from public sources to make powerline infrastructure safe for birds. Regional authorities identify 'protected areas' and reach a consensus on technical requirements to prevent electrocution. An ongoing upgrade to this law is expected to include collision with power lines and wind farms.

The law laid the foundations for bilateral collaborations between grid operators, NGOs and regional authorities. Furthermore, the process has inspired high ambition among grid operators to retrofit huge parts of the grid and take measures to prevent electrocution and collision.



Public funds started the retrofitting at scale, which is increasingly supplemented by private grid operators' finances.



Technical standards for were stipulated through consultation with diverse experts. Bird-safe infrastructure is also more energy efficient and less at risk of malfunctioning and causing fires.



Compliance is incentivised through financing and potential fines and a quarterly reporting obligation to authorities.

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- National and regional investment funds were used for retrofitting. Since 2008, more than €120m has been invested, of which €60m came from the EU Covid Recovery Fund.
- Grid operators also put in their own funds into action, including for collaborations with NGOs, administrations and universities, and for anti-collision measures, such as wire markers (not compulsory in the original Law).

MONITORING

- The Law involved a mapping process to identify priority 'protected areas', based on critical species habitats, Natura 2000 and Bird Protection Zones, and GPS bird-tagging. Regional authorities then choose where to invest.
- In 2016, Spanish TSO, Redeia published risk maps to identify and flight maps of important species overlapping with their infrastructure. As of 2025, Redeia had installed visible wire markers to almost 100 percent of most critical spans.

ENGAGEMENT

- The Ministry for the Ecological Transition and the Demographic Challenge (MITECO) led consultation with experts to stipulate technical requirements for safe power lines.
- Collaboration between public, private and civil society actors is ongoing and continually refines technical and practical solutions, including through joint working groups.

LAW & POLICY

- Under Spain's decentralised governance system, all regions must identify 'Protected Areas', and some of them enter into bilateral agreements with electricity companies.
- The Royal Decree 2008 will soon be updated a new Royal Decree that is broader in scope.
- NGOs in Spain have also mobilise the EU Environmental Liability Directive to launch cases against operators and oblige retrofitting.

KEYS TO SUCCESS

ENGAGEMENT

- While NGOs provide expert knowledge, grid operators provide funding for support risk mapping, installation of nest boxes or for specific species protection.
- Anti-collision measures are voluntary in the Royal Decree, but grid operators, NGOs and regional authorities often establish bilateral agreements to tackle the issue of mortality by collision. As of 2023, TSO Redeia had installed wire markers to 22% of all power lines.

DATA & MONITORING

- Article 9 of Royal Decree 542/2020, of May 26, compels owners to report the mortality of protected species due to electrocution or collision with power lines.
- Both the DSO, i-DE and TSO, Redeia, log mortalities in a digital tracking system and use this to inform retrofitting.
- As insulation devices can degrade over time, MITECO promotes safe distances between electrified parts and potential perching sites on pylons, insulating material crossarms, and ideally, underground cabling and wire bundling.

LAW & POLICY

- For Spain's largest DSO, i-DE, 40% of power lines lie within protected area and pose a risk to birds. They will retrofit all 300,000 poles by 2030/32, so far reaching 40-50%.
- TSO, Redeia, has installed wire markers in 29% (approx. 6.000 Km) of power lines in the protected area.
- Redeia seeks a net positive impact of new power lines and has created a compensatory measures office, created by an external group of experts to decide on measures.

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- On the distribution grid, each pole costs approx. €2-3,000 to retrofit. Upgraded poles are safer for birds, more efficient in transmitting electricity, and less likely to fault and potentially cause a fire.
- On the transmission grid, upgraded power lines with bird saving devices costs approx. €3500/Km.

Did you know?

At the time of writing, an updated version of the Royal Decree is being finalised. Its scope is likely to be much broader than the 2008 law, and will apply additionally to power lines outside of 'protection zones', where electrocution has been verified; wind farms; newly constructed lines and extensions or modifications of existing lines; collision with power lines, with mandatory implementation of visual wire markers

Collaboration Corner

Collaboration between grid operators and civil society is enabling species conservation and reintroduction!

By financing captive breeding and reintroduction efforts by the NGO, MIGRA, Iberdrola is supporting populations of Red Kite (*Milvus milvus*), Bonelli's eagle (*Aquila fasciata*), Lesser Kestrel (*Falco naumanni*) and Osprey (*Pandion haliaetus*).

TSO, Redeia, is working with the Bearded Vulture Foundation to identify key lines where wire markers should be applied to prevent collision of *Gypaetus barbatus* and with Valencia University to identify building power lines effects on Bonelli's eagle (*Aquila fasciata*).



Learn more about
bird protection

Renewables
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Co-funded by
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