

# Environmental Sustainability in Spain

## *Custom, experiential learning abroad*



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Even before stepping foot in Spain most people have seen the iconic images of La Mancha's windmills sprinkling the plains just south of Madrid. These windmills, made famous by Cervantes, were an early use of renewable energy and supported the region's vast agricultural production.

In the early 2000s, thanks to an unprecedented economic boom, the Spanish government made significant investments in renewable energy, offering major subsidies to companies working in the sector and becoming the world's fourth top producer of aeolic power. Now, Spain has recovered from a severe economic recession that reached its peak in 2013 and resulted in a halt of the country's environmental policies. The future of renewable energies in Spain is uncertain.

On one hand, there is no time for complacency with European Parliament objectives establishing an increase from 27% to 35% in the production of energy from renewable sources by 2030. But achieving this transition poses important challenges. Spain's dependency on fossil fuels is high and substituting coal mines or nuclear plants for solar panels or windmills would result in labor disputes. Oil and gas industries currently interested in finding petroleum reservoirs or investing in fracking techniques would oppose. Nevertheless, Spain would benefit from producing its own renewable energy with over 70% of its energy supply coming from abroad.

Madrid is an ideal location to study the effectiveness of Spain's renewable energy campaign, understanding the technologies implemented and policies enacted, and considering environmental sustainability through a transdisciplinary approach that takes into account social, political, economic, and environmental factors. Students will evaluate the feasibility of Spain's initiatives and successes and failures within various segments of energy production, while analyzing the potential for the country to reach its goals and understand the impact of the work accomplished.

Specific initiatives will be considered from Endesa, Unión Fenosa, Forestalia, and Repsol, all headquartered in Madrid; and Iberdrola headquartered in Bilbao.



### *Experiential learning highlights*

- A workshop with **Ecosistema Urbano Architects**, the designers of the award-winning "Air Tree" concept, a sustainable urban structure that produces oxygen and energy while also cooling the space in its immediate area.
- A study tour to the region of **Navarra**, honored with an EU award for the best regional energy policy, including a visit to the **Pamplona city hall** to discuss the development of the region's energy initiatives, and a meeting at the headquarters of CENER, the **National Renewable Energy Center**, one of Europe's leading research laboratories for wind energy, solar thermal, photovoltaic, biomass, energy efficient buildings, and renewable grid integration.
- Tour of **Real Madrid Bernabeu Soccer Stadium**, including discussion of its planned 2019 renovation to make it one of the most eco-friendly soccer stadiums in Europe.
- Company visit to **Madrid Metro**, honored in 2010 for reducing energy consumption by approximately 10% in one of Europe's most extensive underground transport networks, measuring over 300km in length.
- Visit to **EDAR Arroyo Culebro**, a waste water treatment plant that produces half of its own electricity through the biogas derived from the treatment's by-products.
- Visit to **IDEA Institute for Energy Diversification and Savings**, a body associated with the Ministry of Energy, Tourism and Digital Agenda whose aim is to work towards the completion of Spain's goals in its transition into renewable energies.
- Visit to **Forestalia**, the company that is building the biggest solar park in Europe in the province of Aragón.
- Meeting with leadership of **Greenpeace Spain**.