



A RAIA profile on: **Minister for the Ecological Transition of Spain  
Teresa Ribera Rodríguez**

Third part of a five series on climate leaders ahead of the  
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## Table of Contents

<b>Introduction.....</b>	<b>2</b>
<b>Teresa Ribera's Stake.....</b>	<b>3</b>
Energy Poverty in Spain.....	3
Decentralisation and Political Opposition.....	4
Droughts in Spain.....	5
España Vacuada - the emptying of the Spanish rural areas.....	6
<b>Defining moment.....</b>	<b>8</b>
<b>Policy Outlook.....</b>	<b>12</b>
Integrated National Energy and Climate Plan.....	12
National Climate Change Adaptation Plan.....	13
Spanish Hydrogen Roadmap.....	14
<b>Teresa Ribera's Impact.....</b>	<b>16</b>
Integrated National Energy and Climate Plan (PNIEC).....	16
National Climate Change Adaptation Plan (PNACC).....	18
Spanish Hydrogen Roadmap.....	20
<b>Bibliography.....</b>	<b>23</b>
Introduction.....	23
Teresa Ribera's Stake.....	23
Defining moment.....	24
Teresa Ribera's Solutions.....	25
Teresa Ribera's Impact.....	26

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## Introduction

Teresa Ribera Rodríguez has been the minister for the Ecological Transition of Spain since 2018 and the third vice president of the Government of Spain since July 2021.<sup>1</sup> Her career ranges from academic to political work, and she has a background in political science and constitutional law. Teresa Ribera's first governmental position was in the Spanish Office of Climate Change in 2004. Since then, she has become the Spanish Secretary of State for Climate Change and Biodiversity between 2008 to 2011. As such, she was responsible for environmental and climate policies as well as key issues in the Meteorological Department.

As for her academic career, she became the director of the IDDRI (Institute for Sustainable Development and International Relations) in 2014, a position she kept until entering the Spanish ministry in 2018. At IDDRI, she was involved in academic documents and publications with regard to climate change, paving the way for her to be familiarised with the Paris Climate Agreement when she was appointed as an advisor to the board.<sup>2</sup> Her career finally reached its peak political point when she registered with the Spanish Socialist Workers' Party in 2015 and started working with Pedro Sanchez who has assisted her in dealing with political issues such as accusations on her department and opposition both within the party and from the conservatives in the country.<sup>3</sup>

Teresa Ribera is a relevant climate leader because she is in the spotlight in the European fight against climate change. If she achieves her aim of making all sections of the society adapt to climate action policies then it will be an example to most of the EU regarding efficient climate action.

The first section will focus on Teresa Ribera's stake in climate policy including her ideological outlook throughout her time in the government, especially considering the issues that are facing Spanish society. The stake also looks at Spain-specific challenges in depth such as drought, energy poverty and the status of Spain in the European Union. Furthermore, the report will focus on the Defining Moment of Ribera's climate career, analysing its importance and influence on her. Along with this, the following section will focus on Ribera's policy outlook, with an emphasis on the roadblocks in the implementation of her policies, especially the conflict between regional politics and national politics. Further on, the report analyses the implementation of her policies and their impact. Lastly, a conclusion will be drawn which will analyse why Teresa Ribera can be considered a climate leader.

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<sup>1</sup> "Teresa Ribera Rodríguez." [www.lamoncloa.gob.es](http://www.lamoncloa.gob.es), [www.lamoncloa.gob.es/lang/en/gobierno/Paginas/Govern-2020-01/20200114teresaribera.aspx](http://www.lamoncloa.gob.es/lang/en/gobierno/Paginas/Govern-2020-01/20200114teresaribera.aspx).

<sup>2</sup> "European Commission - EU Sustainable Investment Summit 2022 - Teresa Ribera." [Ec.europa.eu](http://ec.europa.eu), [ec.europa.eu/economy\\_finance/sustainable-investment-summit-2022/speakers/ribera.html](http://ec.europa.eu/economy_finance/sustainable-investment-summit-2022/speakers/ribera.html).

<sup>3</sup> Romero, Juanma. "Sánchez Se Queda Un Área Estratégica Y Mimada: Teresa Ribera Seguirá En Transición." [Elconfidencial.com](http://Elconfidencial.com), 13 Nov. 2019, [www.elconfidencial.com/espana/2019-11-13/pedro-sanchez-area-estrategica-gobierno-teresa-ribera-transicion-ecologica\\_2335752/](http://www.elconfidencial.com/espana/2019-11-13/pedro-sanchez-area-estrategica-gobierno-teresa-ribera-transicion-ecologica_2335752/)



## Teresa Ribera's Stake

Beginning with the broader environmental challenges that Spain is facing and urgently need to be addressed by Teresa Ribera, one can highlight energy poverty, drought, political opposition and decentralisation, and the de-ruralization of the Spanish population. While all of them are interconnected, the general link between them is climate change, both in the environmental consequences that it has produced to the political contention of the subject between different Spanish political factions.

### Energy Poverty in Spain

The whole of the European Union including Spain has been facing a steep rise in energy prices, especially due to the prolonged uncertainty of Liquefied Natural Gas (LNG) supply.<sup>4</sup> In this regard, despite Spain's shifting gradually towards more renewable, alternative resources, the country's industries and households still heavily rely on gas, obtained through one of its six LNG terminals and imported from countries like Algeria and Russia. Moreover, while having one of the highest levels of natural gas consumption in Europe, Spain produces less than 0.5% of the gas it consumes.<sup>5</sup> Figures by Eurostat illustrate the impact of energy poverty on the citizens of Spain. For instance, 10.9% of Spanish citizens were not able to keep their homes warm in 2020, a figure that has continued to grow throughout the years, from 7.5% in 2019.<sup>6</sup> Teresa Ribera's stake here is to ensure a stable energy transition to avoid increasing energy poverty.

Another issue that Teresa Ribera must contend with are rising costs caused by pan-European programs, such as *Fit for 55*.<sup>7</sup> Spain is likely to stay dependent on fossil fuels during its transition, which will be seemingly expensive for the citizens of Spain if they wish to keep up with the industries and services powered by fossil fuels. The *Fit for 55* program contains a set of regulations aiming to revise certain policies, such as the EU emissions trading system or aviation emissions, as well as to ensure reducing net greenhouse gas emissions by 55% by the year 2030.<sup>8</sup>

The program is a branch of the EU's green transition, focused on reaching climate action objectives. Ribera wants to ensure a fair transition while not compromising EU industries and economic agents. She wants to set the track for the European Union to become a leading actor in climate action and the fight against climate change.

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<sup>4</sup> "EU Action to Address the Energy Crisis." *European Commission*, [commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/eu-action-address-energy-crisis\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/eu-action-address-energy-crisis_en).

<sup>5</sup> King & Spalding. *An Overview of LNG Import Terminals in Europe*. King and Spalding, 2018.

<sup>6</sup> Gumbau, Anna. "Spain's Rising Energy Poverty: A Cautionary Tale for Europe." *Energy Monitor*, 19 Jan. 2022, [www.energymonitor.ai/policy/just-transition/spains-rising-energy-poverty-a-cautionary-tale-for-europe/](https://www.energymonitor.ai/policy/just-transition/spains-rising-energy-poverty-a-cautionary-tale-for-europe/).

<sup>7</sup> Council of the EU. "*Fit for 55*": *Council Adopts Key Pieces of Legislation Delivering on 2030 Climate Targets*. 25 Apr. 2023, [www.consilium.europa.eu/en/press/press-releases/2023/04/25/fit-for-55-council-adopts-key-pieces-of-legislation-delivering-on-2030-climate-targets](https://www.consilium.europa.eu/en/press/press-releases/2023/04/25/fit-for-55-council-adopts-key-pieces-of-legislation-delivering-on-2030-climate-targets).

<sup>8</sup> *Fit for 55 - the EU's Plan for a Green Transition - Consilium*, European Council, [www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/](https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/).



This program also includes mechanisms such as the carbon border adjustment mechanism (CBAM), decisions on market stability reserve and professional deals for reducing flight emissions.<sup>9</sup> *Fit for 55* was discussed among EU member states to reach a conclusion and to meet the needs and requirements of the member states involved. In this sense, Teresa Ribera has to make sure that her policies are in line with this program in order to be in a favourable position with the European Union and for a fair transition within Spain.

Another policy that will influence Teresa Ribera's final success is the National Energy Poverty Strategy, which has not yet been fully effective in its implementation. The plan contains four main priorities for action: improving the knowledge of energy poverty as well as the response to it, implementing structural changes to reduce energy poverty, implementing measures to protect all consumers and improving societal awareness of the need for energy efficiency.<sup>10</sup> If Ribera's Ministry wishes to successfully implement this strategy, it must address the country's overall unemployment rate, which happens to go hand-in-hand with energy poverty.<sup>11</sup> If there is a delay in implementing these policies, it could cost her a decline to her party's popular support, in the wake of the recent elections.

## **Decentralisation and Political Opposition**

Another factor that Teresa Ribera and Pedro Sanchez's government must consider is the issue of decentralised politics. Spain is divided into seventeen autonomous communities, each with its own regional government and varying levels of legislative and administrative powers. These autonomous communities have control over areas such as education, healthcare, culture, and transportation, while certain matters, like defence and foreign affairs, remain under the authority of the central government in Madrid.<sup>12</sup> The decentralisation of politics and administration has provided advantages as well as disadvantages.

While it maintained stability and contributed to greater parity among the communities and the social and economic development of those communities individually, it also brought forward certain challenges such as conflicts between these regional communities and the government, particularly in regards to the justice system and the courts. Moreover, many of the national-level laws, policies and regulations are left open to specification and implementation by the autonomous and regional governments, who can, among others, modify the severity and margin of the measures.

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<sup>9</sup> *ETS Aviation: Council and Parliament Strike Provisional Deal to Reduce ...*, European Council, [www.consilium.europa.eu/en/press/press-releases/2022/12/07/ets-aviation-council-and-parliament-strike-provisional-deal-to-reduce-flight-emissions/](http://www.consilium.europa.eu/en/press/press-releases/2022/12/07/ets-aviation-council-and-parliament-strike-provisional-deal-to-reduce-flight-emissions/).

<sup>10</sup> Rodríguez Cabrero, Gregorio. "Spain: National Strategy against Energy Poverty 2019-2024". *ESPN Flash Report 2020/04*. European Commission. Available at: <https://ec.europa.eu/social/BlobServlet?docId=22466&langId=en>

<sup>11</sup> Popirlan, Claudiu Ionut, et al. "Predicting the Unemployment Rate and Energy Poverty Levels in Selected European Union Countries Using an ARIMA-ARNN Model." *PeerJ*, vol. 9, PeerJ, Inc., July 2023, p. e1464. <https://doi.org/10.7717/peerj-cs.1464>.

<sup>12</sup> Archives. "Decentralizing Spain's Democracy." *Harvard International Review*, 24 May 2019, [hir.harvard.edu/decentralizing-spains-democracy/](http://hir.harvard.edu/decentralizing-spains-democracy/).



The question of climate action also ties into this issue. Out of the seventeen autonomous communities, only three communities had specific laws that focused on climate change before any national-level jurisdiction was introduced (in this case, Catalonia, Andalusia and the Balearic islands). Adding on, only three autonomous communities have incorporated the term “climate change” into their corresponding ministries.<sup>13</sup> This can show how, unless pressured by the central government, many may not have even developed these kinds of policies in the first place.

Various regional representatives have already opposed Teresa Ribera and her efforts, while also speaking against the centralised structure of ecological transition. For instance, one of the critics, Lorena Ruiz Huerta, a lawyer at Greenpeace, praises the efforts of the regional governments trying to implement climate laws and says that they will be more effective if implemented by the regional bodies in their own communities.<sup>14</sup>

However, as aforementioned, other communities will not implement primary norms if not pushed by the national government itself. Teresa Ribera must apply pressure on these communities and convince them to implement certain climate change laws in order to make the ecological transition more effective. If Teresa Ribera is not able to do this, the opposition can capitalise on this issue while Ribera's cabinet efforts in implementing her initiatives in the whole country would be halted.

## Droughts in Spain

Another issue that ties into Ribera's outlook are the severe and repetitive droughts affecting the Iberian peninsula. Drought is one of the key factors leading to rising food prices since it has dramatically affected the production of rice, cereals and olives. Due to climate change affecting seasonal rainfall and temperatures, towns are running dry and soil moisture recovery is not sufficient.

Areas such as Asturias and Murcia are being especially impacted by the drought.<sup>15</sup> The issue didn't take long to be politicised and on discussions between various factions, including the conservatives who are aligned with the farmers against PSOE's government. Conservative factions, mainly the People's Party (PP), have capitalised on the campaign of farmers against Spain's socialist foreign minister Luis Planas by threatening to label him 'persona non grata'.<sup>16</sup> The PP has also followed up with advertisement campaigns and saying 'hands of the CAP'.

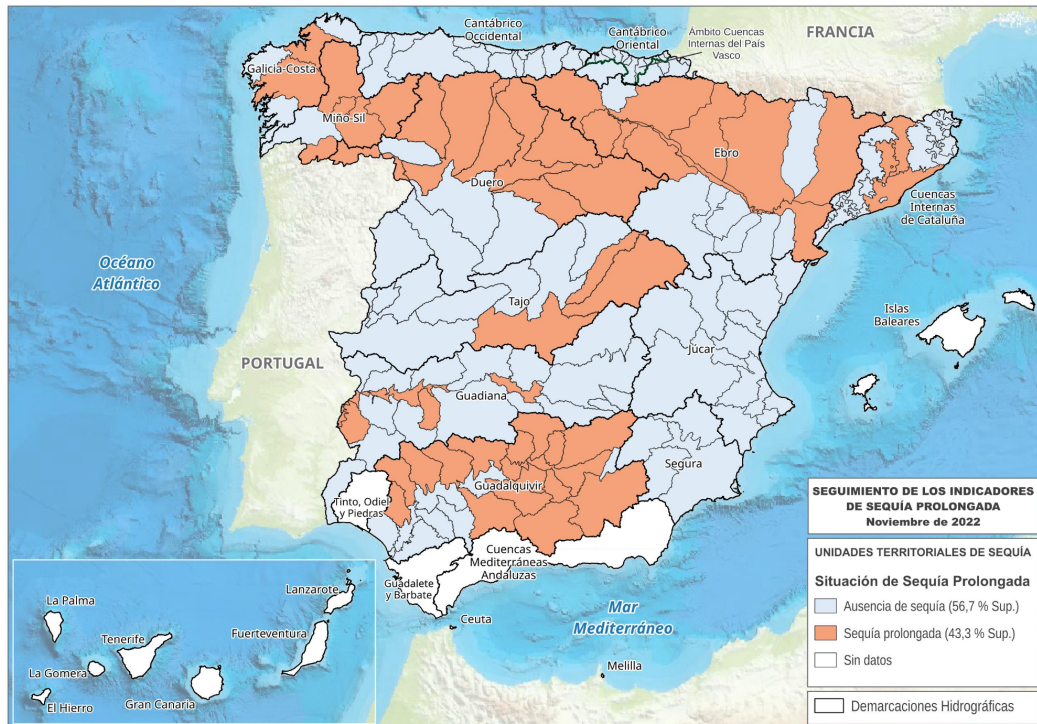
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<sup>13</sup> “Las Comunidades Autónomas Frente Al Cambio Climático.” *Climática*, 5 Mar. 2021, [www.climatica.lamarea.com/comunidades-autonomas-cambio-climatico/](http://www.climatica.lamarea.com/comunidades-autonomas-cambio-climatico/).

<sup>14</sup> *Idem*.

<sup>15</sup> “Water War: Why Drought in Spain Is Getting Political.” *POLITICO*, 24 May 2023, [www.politico.eu/article/climate-change-andalusia-spain-on-the-frontline-of-europes-worst-water-war/](http://www.politico.eu/article/climate-change-andalusia-spain-on-the-frontline-of-europes-worst-water-war/).

<sup>16</sup> “Spanish Right Woos Farmers to Shore up Southern Takeover.” *POLITICO*, 9 Feb. 2021, [www.politico.eu/article/spain-agriculture-andalusia-right-woos-farmers/](http://www.politico.eu/article/spain-agriculture-andalusia-right-woos-farmers/).



INE - Instituto Nacional de Estadística. "Estadísticas Territoriales (INE)." INE, [www.ine.es/dynInfo/Infografia/Territoriales/galeriaCapitulo.html?capitulo=4334](http://www.ine.es/dynInfo/Infografia/Territoriales/galeriaCapitulo.html?capitulo=4334).

Also, Teresa Ribera and her party faced backlash in regard to the inefficiency of the solutions offered when the regional government in Andalusia promised to legalise all the illegal farms around Doñana National Park. By this, the centre-left faces the challenge of coming up with solutions that can please the farmers while preventing any environmental damage as well as any undue advantage to the illegal farmers, who may potentially receive access to water.<sup>17</sup>

Furthermore, Teresa also has to deal with pacifying aggravated groups like *Rebelión por el Clima* who have come to despise policies and regional government solutions, considering them insufficient and profit-centred.

## España Vacuada - the emptying of the Spanish rural areas

Another important challenge that the Spanish government is addressing is the demographic 'de-ruralization' of Spain, the concept of *España Vacuada*. There is a migratory trend towards the big cities, emptying rural areas and abandoning activities focused on the primary and secondary sectors.<sup>18</sup>

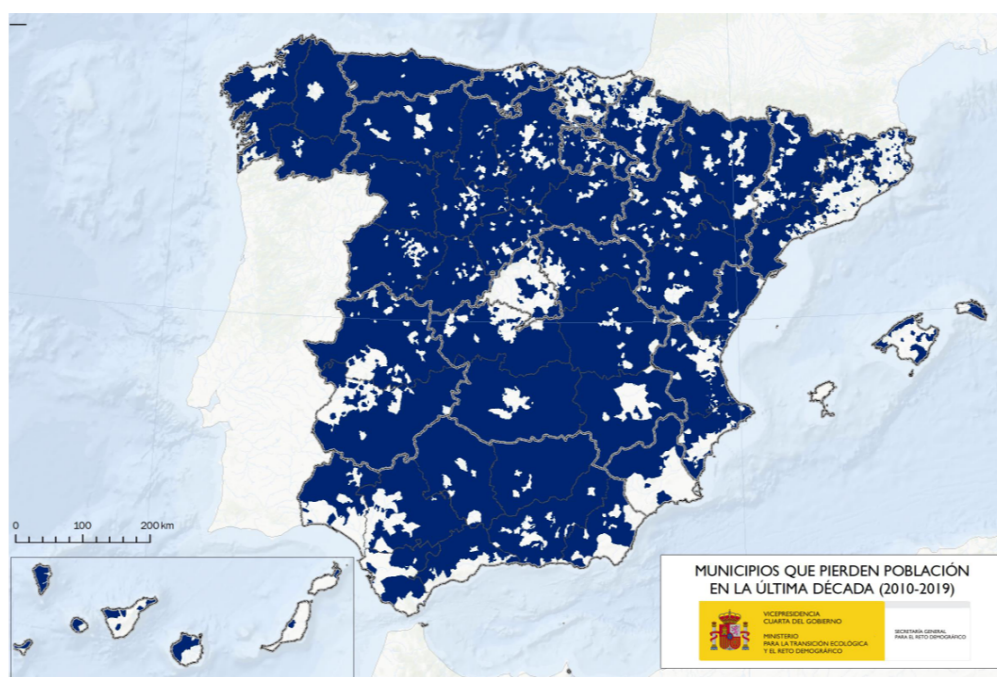
<sup>17</sup> Europa Press. "Parlamentarios Alemanes Viajan El Domingo España Preocupados Por La 'Extracción Ilegal De Agua' En Doñana." [europapress.es](http://europapress.es), [www.europapress.es/sociedad/medio-ambiente-00647/noticia-parlamentarios-alemanes-viajan-domingo-espana-preocupados-extraccion-ilegal-agua-donana-20230602185624.html](http://www.europapress.es/sociedad/medio-ambiente-00647/noticia-parlamentarios-alemanes-viajan-domingo-espana-preocupados-extraccion-ilegal-agua-donana-20230602185624.html).

<sup>18</sup> Hedgecoe, Guy. "'Empty Spain' in the Spotlight as Countryside Fights Back." *POLITICO*, 11 Feb. 2022. [www.politico.eu/article/the-revenge-of-empty-spain-rural-region-castile-and-leon](http://www.politico.eu/article/the-revenge-of-empty-spain-rural-region-castile-and-leon).



Teresa Ribera wants to bridge the gap between rural and urban areas while also improving the quality of life in such rural areas. She aims to make sure that people can live, or move back, to the countryside without having to focus their concerns on the quality of services there.

Statistics from the Ministry of Territorial Policy and Public Function and the National Institute of Statistics (INE) highlight the severity of the depopulation issue in Spain. Approximately 90% of the population lives in only 30% of the territory, concentrated in Madrid and coastal areas.<sup>19</sup> This problem is further exacerbated by the high life expectancy of Spaniards.<sup>20</sup> According to population projections, Spain is expected to have 49 million inhabitants by 2033, with one in four being 65 years or older.



*El Reto Demográfico Y Las Despoblación En España En Cifras. Ministerio Para La Transición Ecológica Y El Reto Demográfico, 2017.*

[www.lamoncloa.gob.es/presidente/actividades/Documents/2020/280220-despoblacion-en-cifras.pdf](http://www.lamoncloa.gob.es/presidente/actividades/Documents/2020/280220-despoblacion-en-cifras.pdf).

Her personal motivation lies in bringing together all aspects of Spanish society in order to adapt to the climate action policies which she is implementing. To elaborate on this further, Teresa shares the concerns and vision of the European Union, which has its own demography commissioner to deal with the trend of increased differences between the two groups that are the haves and the have-nots. In this case, Ribera wants to prevent any populism from rising in the country due to these differences and wants to showcase

<sup>19</sup> INE - Instituto Nacional de Estadística. "Estadísticas Territoriales (INE)." *INE*, [www.ine.es/dynInfo/Infografia/Territoriales/galeriaCapitulo.html?capitulo=4334](http://www.ine.es/dynInfo/Infografia/Territoriales/galeriaCapitulo.html?capitulo=4334).

<sup>20</sup> *El Reto Demográfico Y Las Despoblación En España En Cifras*. Ministerio Para La Transición Ecológica Y El Reto Demográfico, 2017. [www.lamoncloa.gob.es/presidente/actividades/Documents/2020/280220](http://www.lamoncloa.gob.es/presidente/actividades/Documents/2020/280220)





herself as a leader who can bridge the gap between these groups as well as leave her legacy as one of Spain's most influential leaders.

However, if she wants to continue her plans for ecological transition, she will have to secure a strong position in the elections as opposed to the conservatives. Teresa Ribera is actively pushing for such climate policies because her policies might give Spain an influential role geopolitically within the European Union. Her ecological transition model may transform Spain into a new leading power in the region with regard to climate action since it is an issue that's increasing and seriously affecting many countries in Europe, as well as boiling down to other issues such as demographic issues and energy-related issues.

## Defining moment

Considered by many as an excellent negotiator and highly regarded in the climate sphere, Teresa Ribera's path has seen itself intertwined with diverse ministries, organisations, and institutes. When discerning the critical moment for who Teresa Ribera is today and who she was during her climate formation, one can find a distinctive before and after for her career. Having served as the Spanish Secretary of State for Climate Change from 2008 to 2011 and as the Spanish Minister for the Ecological Transition and the Demographic Challenge since 2018, a pivotal moment comes in the form of the leadership of a sustainable development think tank.

In between two ministerial stints came her role as director of the Parisian-based IDDRI (Institute for Sustainable Development and International Relations), where Teresa Ribera's name became elevated among experts in the European climate arena and where her climate policy aims were distinctly shaped.

After her first ministerial stint within the Spanish administration, her position as director of the IDDRI made Teresa Ribera's name assume greater importance and influence within the European policy dimension. Taking into account the high esteem and reputation of the IDDRI, Ribera's head position highlighted her abilities to navigate climate negotiations successfully with many of the institute's targets — comprised of academic communities, governments, civil society, and the private sector.<sup>21</sup>

By coming into the institute with new challenges facing the climate action community, her role encompassed leading impact strategies on climate governance, and the building of IDDRI's networks and interventions.<sup>22</sup> Being a leading think tank on sustainable development worldwide, IDDRI has been highly recognized for its contribution to the Paris Agreement during Ribera's leadership of the institute — with the agreement following IDDRI's ambition for international cooperation and transformation.

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<sup>21</sup>Entrevista a Teresa Ribera, Directora Del IDDRI | *Eco-Circular.com: Noticias De Economía Circular*. 6 Apr. 2018, [eco-circular.com/2018/04/06/entrevista-a-teresa-ribera-directora-del-iddri](https://eco-circular.com/2018/04/06/entrevista-a-teresa-ribera-directora-del-iddri).

<sup>22</sup>"Climate Director, IDDRI." *Oxford HR*, Oxford HR, Apr. 2023, <https://oxfordhr.com/wp-content/uploads/2023/04/IDDRI-Climate-Director-Candidate-Pack.pdf>



The institute's mission statement reflects a call to rebuild multilateralism, accompanied by trust, partnership, collective action, and democracy.<sup>23</sup> Its mission has made it an influential institute in the international arena, covering its expertise in the following climate-related areas: climate, biodiversity, ocean, Agenda 2030, deep decarbonization pathways, agriculture, and lifestyles.

Most notably before her leadership at the IDDRI, as Spanish Secretary of State for Climate Change, Ribera was responsible for environmental policies and the National Meteorological Agency.<sup>24</sup> It was only after her time as Secretary that Ribera gained new insights at IDDRI that would later shape her view and take on climate policy and its implementation.

Now, Ribera looks back at her leadership as Secretary of State for Climate Change with a different perspective, highlighting actions that were amiss during her time in office. Key aspects that were not taken into consideration can be encompassed in the following two points. Firstly, the office lacked organised development and implementation strategies, with Ribera now admitting a lack of understanding at the time to develop phase-out plans for certain energies and the needed strategies to implement renewable energy incentives. Secondly, the ecological transition policies were deemed by Ribera as one-dimensional and without the adjective of just being added to transition plans.

Now, with the placing of people at the centre of discussions in just transitions, Ribera understands the implications of accepting endpoints in discussions for long-term results. Attributing these new-found insights to her time at the IDDRI, Ribera gained a different perspective in major part due to her collaboration during the Paris Agreement drafting process. During this time, the institute's understanding of sustainability and climate issues provided her with a greater comprehension of the necessity to find common grounds within multilateral agendas when drafting possible adaptation and transition routes.<sup>25</sup>

Furthermore, changes in the landscape from the past decade have meant a radical change and ambition for an ecological transition, with actions undertaken from 2008 to 2011 during Ribera's first ministerial stint viewed now with drastically different lenses.<sup>26</sup> Before the Paris Agreement and Ribera's participation in negotiation talks, environmental action was targeting transitory solutions with a reductionist aim and not a transformative one. The need for drastic changes, net zero and long-term ambitions came after negotiations in Paris.<sup>27</sup>

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<sup>23</sup>Entrevista a Teresa Ribera, Directora Del IDDRI | *Eco-Circular.com: Noticias De Economía Circular*. 6 Apr. 2018, [eco-circular.com/2018/04/06/entrevista-a-teresa-ribera-directora-del-iddri](https://eco-circular.com/2018/04/06/entrevista-a-teresa-ribera-directora-del-iddri).

<sup>24</sup>"Teresa Ribera, Director of IDDRI, Appointed Minister for the Ecological Transition in the New Spanish Government." *IDDRI*, [www.iddri.org/en/about-iddri/press-releases/teresa-ribera-director-iddri-appointed-minister-ecological-transition](https://www.iddri.org/en/about-iddri/press-releases/teresa-ribera-director-iddri-appointed-minister-ecological-transition).

<sup>25</sup> Harrisson, Thomas. "The Carbon Brief Interview: Teresa Ribera." *Carbon Brief*, Dec. 2018, [www.carbonbrief.org/the-carbon-brief-interview-teresa-ribera/#aware](https://www.carbonbrief.org/the-carbon-brief-interview-teresa-ribera/#aware).

<sup>26</sup>"The Paris Climate Agreement on Its 5th Anniversary: What Has It Changed?" *IDDRI*, 2015, [www.iddri.org/en/publications-and-events/blog-post/paris-climate-agreement-its-5th-anniversary-what-has-it-changed](https://www.iddri.org/en/publications-and-events/blog-post/paris-climate-agreement-its-5th-anniversary-what-has-it-changed).

<sup>27</sup>*Idem*.



By engaging in collective action in order to strengthen the ecological tradition, the agreement's understanding of interdependent action introduced other agents — including the involvement of local governments and businesses.<sup>28</sup> Ribera's actions, thus, shifted from a previous climate action landscape of 2011 to have as priorities for climate action the establishment of governance systems based on cooperation between the different levels and areas of society, alongside consistent shifts with instructions for both transformation and adaptation guidelines.

Subsequently, it could be stated that Ribera's time at the IDDRI consolidated her interest and aim towards an environmental transition that considered the economic and social aspects, creating a just transition agenda for her second and current ecological ministerial stint.<sup>29</sup> Understanding the importance of multidimensional agendas for solving climate-related issues, Ribera took on IDDRI's centre points as a personal conviction for her next position: mitigation of climate change, ensuring food and resource security and creating an environment for sustainable economic growth in Spain.<sup>30</sup> Additionally, her work towards the Paris Agreement likewise meant a close follow-up with the need for the implementation of long-term emission development strategies, fair transition measures, and involvement of all economic stakeholders.<sup>31</sup>

The expertise Ribera obtained on various climate-related areas during her time leading the institute created the following understandings and 'non-negotiables' for her work in the ecological transition of Spain. In terms of an energy transition, Ribera took IDDRI's focus on decarbonising the economy alongside the transition. Likewise, she reached a bigger understanding of the importance of effective cooperation within Europe for a change as big as an ecological transition would require, with a priority on instruments that facilitate multilateral agreements which recognize the interconnectedness of the region. Ribera's focus on a regional level also elevated itself to a global one, with a particular emphasis on the IDDRI's understanding of global supply chains, their affectations on the climate, and sustainably just configurations.<sup>32</sup>

On another side, the IDDRI's focus on international affairs grouped for the particular focus Ribera created during her time as chief at the institute. Questioning the role of Europe in the geopolitical global landscape, she understood the available opportunities and importance of a demand for and the benefits of having domestic sustainable development agendas that place member states in positions of gaining traction towards achieving climate goals by 2030 — both for geopolitical gain and a transformation of

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<sup>28</sup> Stockholm Environment Institute. "Q&A: 'We Need to Recover Our Confidence in Cooperation.'" *SEI*, 12 Feb. 2018, [www.sei.org/featured/qa-with-teresa-ribera](http://www.sei.org/featured/qa-with-teresa-ribera).

<sup>29</sup>Harrison, Thomas. "The Carbon Brief Interview: Teresa Ribera." *Carbon Brief*, Dec. 2018, [www.carbonbrief.org/the-carbon-brief-interview-teresa-ribera/#aware](http://www.carbonbrief.org/the-carbon-brief-interview-teresa-ribera/#aware).

<sup>30</sup>"Nadie Sabe Qué Sistema Eléctrico Quiere España" // Teresa Ribera." *Alternativas Económicas*, [alternativaseconomicas.coop/articulo/entrevista/nadie-sabe-que-sistema-electrico-quiere-espana-teresa-ribera](http://alternativaseconomicas.coop/articulo/entrevista/nadie-sabe-que-sistema-electrico-quiere-espana-teresa-ribera).

<sup>31</sup> Thomson Reuters Foundation. "Time to Put Sustainable Development Into Practice." *news.trust.org*, [news.trust.org/item/20160509200026-60zc5](http://news.trust.org/item/20160509200026-60zc5).

<sup>32</sup>"Taking Action on Global Commodity Supply Chains: A Tool for Sustainable Development." *IDDRI*, [www.iddri.org/en/publications-and-events/blog-post/taking-action-global-commodity-supply-chains-tool-sustainable](http://www.iddri.org/en/publications-and-events/blog-post/taking-action-global-commodity-supply-chains-tool-sustainable).



society in terms of economic and political interests, while achieving sustainable development objectives directly and indirectly.

Additionally, while developing a complex analysis of the global reality through the focus on global affairs, phenomena such as globalisation have provided Ribera with a grasp and critical analysis ability on the affectations that current economic and societal models have implicated for inequality and its proportionate relation with the climate.<sup>33</sup> Thus, following IDDRI's emphasis comes an understanding of public budgets to be orientated towards investments for future innovation, and further progress for economic and social models aligned with earthly limits.

Now, Teresa Ribera's name presents a voice in the climate arena formed and elevated during her stint as the IDDRI's director. From 2014 to 2018, Ribera gained credibility and headed IDDRI as an international advisory body on climate governance systems, with Ribera effectively becoming an acting knowledge broker for climate decision-making and the link between the economy, science, societal aspects, and their intersection.<sup>34</sup> Working along with the private sector, international policy processes, and research, Ribera thus became a name associated with informed political choices that do not confine themselves to passivity and instead aim to be confrontational and engaging.<sup>35</sup>

Said ambition reflects itself on challenges to be solved after Ribera's time at the IDDRI, with economic and emissions neutrality presenting themselves as the factors that Ribera's formation as the institute's director prepared her for. In order to take action, Ribera went into her role as Minister for the Ecological Transition and Demographic challenge with the reputation and authority to implement her previous work to begin involving local authorities, the private sector, and civil society in endorsing her climate and social agenda, whilst translating her findings on the international arena to domestic implementations for stakeholders within Spain.<sup>36</sup>

With a clear and pressing need for a successful ecological transition, Ribera's implementation started a path toward the feasibility of a transition supported by short, medium, and long-term plans for the Spanish energy sector, the economy, and society as a whole that present a basis for the construction of sustainable development and a coherent path for societal transformations.

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<sup>33</sup> *Entrevista a Teresa Ribera, Directora Del IDDRI | Eco-Circular.com: Noticias De Economía Circular*. 6 Apr. 2018, [eco-circular.com/2018/04/06/entrevista-a-teresa-ribera-directora-del-iddri](https://eco-circular.com/2018/04/06/entrevista-a-teresa-ribera-directora-del-iddri).

<sup>34</sup> Evans, Nick, and Matthias Duwe. "Climate Governance Systems in Europe: The Role of National Advisory Bodies." *Ecologic Institute, IDDRI*, May 2021, [www.ecologic.eu/sites/default/files/publication/2021/Evans-Duwe-Climate-governance-in-Europe-the-role-of-national-advisory-bodies-2021-Ecologic-Institute.pdf](https://www.ecologic.eu/sites/default/files/publication/2021/Evans-Duwe-Climate-governance-in-Europe-the-role-of-national-advisory-bodies-2021-Ecologic-Institute.pdf).

<sup>35</sup> Trimmer, Caspar. "Q&A: 'We Need to Recover Our Confidence in Cooperation.'" *Stockholm Environment Institute*, 12 Feb. 2018, [www.sei.org/featured/qa-with-teresa-ribera](https://www.sei.org/featured/qa-with-teresa-ribera).

<sup>36</sup> Ribera, Teresa. "Time to Put Sustainable Development Into Practice." *Thomson Reuters Foundation*, May 2016, [news.trust.org/item/20160509200026-60zc5](https://news.trust.org/item/20160509200026-60zc5).

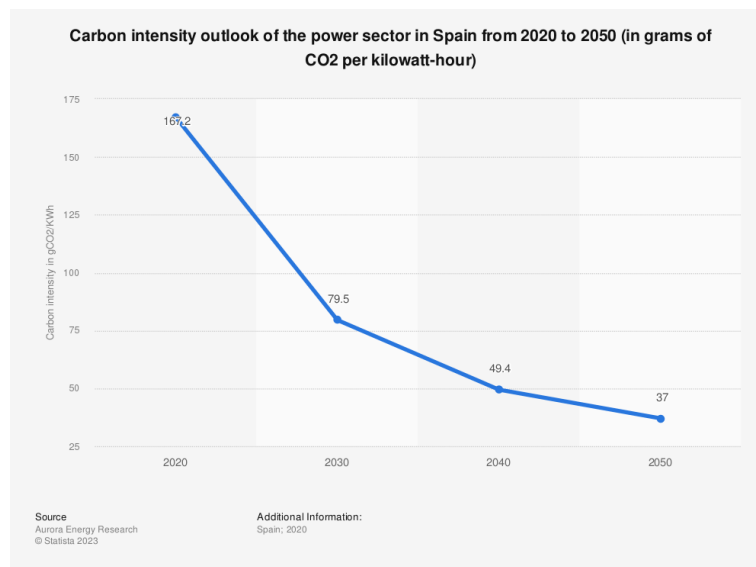


## Policy Outlook

### Integrated National Energy and Climate Plan

Among the policies at the forefront of her actions, the **Integrated National Energy and Climate Plan** (PNIEC) is arguably one of the most important of her career. The PNIEC sets ambitious climate and energy objectives, aiming for a 32% reduction in greenhouse gas emissions by 2030 compared to 1990 levels, a 48% share of renewables in final energy consumption, and a 44% improvement in energy efficiency.<sup>37</sup> The plan also aims to contribute to reaching carbon neutrality by 2050, as well as to enhance the country's efforts to curb the impact of global warming and modernise the economy. The number of planned energy policies and measures has increased, with specific actions introduced for areas like railways, aviation, rural development, and cybersecurity, among others.

The PNIEC also sets its focus on decarbonisation and the increase of the share of renewable sources in the Spanish electricity sector. By 2018, Spain's share of renewables in total energy consumption (17%)<sup>38</sup> was slightly higher than the rest of the IEA's median of 16%. Along with this, it also enables various sectors of Spanish society to recognise and evaluate the impact that climate change may have on their livelihoods, along with encouragement for them to adapt to climate change. Another socioeconomic impact is its estimated mobilisation of €294 billion in investment,<sup>39</sup> with 85% coming from private sources, and the projection to create 522,000 jobs by 2030, respectively. This employment impact aims to reach various economic sectors, including industry, energy, and construction, leading to increased job opportunities and economic growth.



<sup>37</sup> "Teresa Ribera Rodríguez" *La Moncloa*. Teresa Ribera Rodríguez [Government]. Available at: <https://www.lamoncloa.gob.es/lang/en/gobierno/Paginas/Govern-2020-01/20200114teresaribera.aspx>

<sup>38</sup> "Spain 2021. Energy Policy Review [77-79]". *International Energy Agency*. 2021. IEA, <https://www.iea.org/reports/spain-2021>.

<sup>39</sup> "Spain Presents the New National Integrated Energy and Climate Plan (PNIEC) 2023-2030".

*Global Factor*, 29 June 2023, Available at:

[www.globalfactor.com/en/spain-presents-the-new-national-integrated-energy-and-climate-plan-pniec-2023-2030](http://www.globalfactor.com/en/spain-presents-the-new-national-integrated-energy-and-climate-plan-pniec-2023-2030)



Ian Tiseo and J. (2023) *Spain: Power sector carbon intensity 2022*, Statista. Available at: <https://www.statista.com/statistics/1290486/carbon-intensity-power-sector-spain/>.

Guaranteeing successful coordination during its implementation can also be identified as one of the objectives —or challenges— of the plan, building towards strengthening the link with the Spanish urban agenda and integrating climate change adaptation into urban planning. The involvement of various stakeholders and private actors presents hurdles to overcome, as different interests and priorities may influence the application of the policies.

The plan's success also relies on effective coordination between the central and regional governments to prevent bureaucratic obstacles from hindering policy implementation. These interested parties (such as regional strongholds of PP), may or may not choose to adapt to these policies based on their own, and their electorate's, interest. In the past, some bureaucratic blocks have affected the creation of projects such as renewable parks and the phasing out of nuclear energy.<sup>40</sup>

Despite these challenges, the PNIEC has made considerable progress and set Spain on the right track towards a more sustainable and climate-resilient future. With continued dedication, collaboration, and support from all relevant parties, this plan has the potential to make a significant and lasting impact, not only on the Spanish energy sector but also on the global fight against climate change.

## National Climate Change Adaptation Plan

The **National Climate Change Adaptation Plan 2021-2030**<sup>41</sup> (PNACC) is a fundamental planning instrument aimed at promoting coordinated and coherent action to address the impacts of climate change in Spain. While respecting the roles of various Public Administrations, the PNACC establishes objectives, criteria, work areas, and lines of action to foster adaptation and resilience to climate change. Teresa Ribera's Ministry draws attention to promoting coordinated action in order to prevent, or reduce, present and future damages caused by climate change, all while building a more resilient economy and society.

The plan has a strong emphasis on guiding principles for adaptation policies and measures, such as considering social and territorial dimensions, relying on the best available science and knowledge, ensuring cross-sectoral integration, and promoting institutional cooperation. It also highlights universal principles like respecting human rights and intergenerational justice. To facilitate effective adaptation initiatives, the PNACC identifies four strategic components: knowledge generation, integration of adaptation into sectoral plans, programs, and regulations, mobilisation of stakeholders, and monitoring and evaluation.

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<sup>40</sup> "Plan Nacional Integrado de Energía Y Clima (PNIEC) 2021-2030." *Ministerio Para La Transición Ecológica Y El Reto Demográfico*, 2020. , [www.miteco.gob.es/es/prensa/pniec.html](http://www.miteco.gob.es/es/prensa/pniec.html). Accessed 3 Aug. 2023.

<sup>41</sup> "Plan Nacional De Adaptación Al Cambio Climático." *Ministerio Para La Transición Ecológica Y El Reto Demográfico*, 2020. [www.miteco.gob.es/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/plan-nacional-adaptacion-cambio-climatico.html](http://www.miteco.gob.es/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/plan-nacional-adaptacion-cambio-climatico.html).



The PNACC's extensive reach outlines 18 work areas with specific objectives for each, including climate scenarios, human health, water resources, natural heritage, agriculture, fisheries, coastal and marine environments, forestry, urban development, cultural heritage, energy, mobility, industry, tourism, finance, disaster risk reduction, research, education, society, peace, security, and social cohesion. For each work area, the plan defines lines of action while indicators are set for future evaluation of progress.

Additionally, the PNACC includes seven cross-cutting aspects,<sup>42</sup> such as analysing vulnerability's geographic and social components, addressing transboundary effects, considering gender perspectives, preventing maladaptation and perverse incentives, analysing costs and benefits of action and inaction, and fostering an action-oriented approach. The PNACC aims to provide a comprehensive framework for adapting to climate change and building resilience across various sectors and areas of governance in Spain.

Ribera expects the plan to contribute to "generating a more resilient primary sector, cohesion and structuring the rural environment, preparing for higher quality tourism, creating safer infrastructures and recovering biodiversity, among other issues".

## Spanish Hydrogen Roadmap

Along with these, another solution that Teresa Ribera's ministry is implementing is the **Spanish Hydrogen Roadmap**.<sup>43</sup> As the name suggests, this policy has a special emphasis on green hydrogen, which seems to be offering positive results, in addition to the special financial interest it is generating.<sup>44</sup> Among the examples of successful programs, one can find the construction of a green hydrogen plant in the town of Puertollano, currently the largest European plant.<sup>45</sup> In addition, 17 Spanish Autonomous communities that have presented hydrogen plans seem to show effective progress in this regard.

The specifics of the policy include new frameworks in order to prioritise and effectively deploy projects regarding renewable hydrogen production. It also emphasises the recognition of renewable hydrogen as a valuable energy source and looks at it as a resource for decarbonization, especially in sectors such as long-distance transportation and aviation.

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<sup>42</sup> González, Daniela. "España Ya Tiene Aprobado El Plan Nacional De Adaptación Al Cambio Climático (PNACC)." *El Global*, Sept. 2020, [elglobal.es/politica/espana-ya-tiene-aprobado-el-plan-nacional-de-adaptacion-al-cambio-climatico-pnacc](http://elglobal.es/politica/espana-ya-tiene-aprobado-el-plan-nacional-de-adaptacion-al-cambio-climatico-pnacc).

<sup>43</sup> Escribano, G., and I. Urbasos. "Spain's Hydrogen Ambition: Between Reindustrialisation and Export-led Energy Integration With the EU." *Research Institute for Sustainability*, 2023, [www.rifs-potsdam.de/en/output/publications/2023/spains-hydrogen-ambition-between-reindustrialisation-and-export-led-energy](http://www.rifs-potsdam.de/en/output/publications/2023/spains-hydrogen-ambition-between-reindustrialisation-and-export-led-energy).

<sup>44</sup> Hernández, Leandro, et al. "Las Inversiones Proyectadas En Hidrógeno En España Ya Superan Los 21.000 Millones." *Cinco Días*, 7 July 2023, [cincodias.elpais.com/companias/2023-07-07/las-inversiones-en-hidrogeno-en-espana-ya-superan-los-21000-millones.html](http://cincodias.elpais.com/companias/2023-07-07/las-inversiones-en-hidrogeno-en-espana-ya-superan-los-21000-millones.html).

<sup>45</sup> "Iberdrola Builds the Largest Green Hydrogen Plant for Industrial Use in Europe." *Iberdrola*, [www.iberdrola.com/about-us/what-we-do/green-hydrogen/puertollano-green-hydrogen-plant](http://www.iberdrola.com/about-us/what-we-do/green-hydrogen/puertollano-green-hydrogen-plant).



This roadmap also targets specific Industries that have been using hydrogen as raw material production, such as oil refining and fertilisers. The policy is also effective in the sense that it can serve as an alternative in areas where electrification is not possible or is not the perfect solution, such as in public transportation. Teresa Ribera's Ministry has also opened a range of support for innovation projects regarding electrization projects, such as the demonstration of hydrogen vehicles and experimental research in this regard.<sup>46</sup>

Last, it is also worth mentioning the "H2 pioneers" program<sup>47</sup> for fostering unique renewable hydrogen with commercial viability for local production and consumption in sectors that are difficult to decarbonize. Overall, the plan offers a positive outlook as it shows that the Spanish industry may transition into a more sustainable environment while not affecting the sectors of society locally nor hampering industries and their livelihoods.

These policies are pursued and implemented with the support of the European Union and the United Nations Framework Convention on Climate Change (UNFCCC). In this regard, these policies are expected to increase Spain's prestige in the European Union not just on a regional level but also as an international actor. Spain's "Green Transformation" may turn the country into a role model for sustainable development, at the same time that it might boost Teresa Ribera's image personally as a capable leader. As such, her position within Pedro Sanchez's cabinet could also be strengthened. This may lead to better prospects in the future, as it can transform into an interconnection with countries like France and the rest of Europe, which could in turn improve Spain's sphere of influence in this region.

Nonetheless, a roadblock in Teresa Ribera's attempt to pursue these solutions is the aforementioned Spanish bureaucratic division and opposition. The main trend in Ribera's opposition is currently dominated by the agricultural sector (notably those who specialised in rice, cereal and rain-dependent crops) which is being burdened by the intense episodes of drought and that, at the same time, does not show a willingness to work towards a green future until their livelihoods are secured.<sup>48</sup>

Furthermore, when switching to more clean energy resources, the prospect of denuclearisation (or reducing the dependency on nuclear energy) is hampered by the right-wing party, the Partido Popular, which is particularly optimistic regarding the reliance on nuclear energy. As such, the National Climate Plan may not reach all sectors of society, especially the industries and political factions that have a positive sentiment about nuclear energy, rendering her plan incomplete, especially during the election process

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<sup>46</sup> "Spain – the Government Increases Its Commitment to Hydrogen With New Aid for 74 Million Euros." *Hydrogen Central*, Jan. 2023, [hydrogen-central.com/spain-government-increases-commitment-hydrogen-new-aid-74-million-euros](https://hydrogen-central.com/spain-government-increases-commitment-hydrogen-new-aid-74-million-euros).

<sup>47</sup> "Programa H2 Pioneros." *Instituto Para La Diversificación Y Ahorro De La Energía (IDAE)*, 2022, [www.lamoncloa.gob.es/serviciosdeprensa/notasprensa/transicion-ecologica/paginas/2023/300523-transicion-ecologica-ayudas-hidrogeno.aspx](https://www.lamoncloa.gob.es/serviciosdeprensa/notasprensa/transicion-ecologica/paginas/2023/300523-transicion-ecologica-ayudas-hidrogeno.aspx).

<sup>48</sup> "Spanish Farmers Protest Against Plans to Curb Water Supply for Irrigation." *Reuters*, 11 Jan. 2023, [www.reuters.com/world/europe/spanish-farmers-protest-against-plans-curb-water-supply-irrigation-2023-01-11](https://www.reuters.com/world/europe/spanish-farmers-protest-against-plans-curb-water-supply-irrigation-2023-01-11).





## Teresa Ribera's Impact

### Integrated National Energy and Climate Plan (PNIEC)

In par with the Integrated National Energy and Climate Plan (PNIEC), Spain has brought forward the decarbonization and increase of renewables in the energy mix through various actions. Firstly, it halted licences for oil and gas explorations and began the phase-out of both nuclear and coal production – with traditional energy sectors being involved in training schemes for clean energy production.<sup>49</sup> Committing to expanding solar capacity, the Totana Solar Plant has utilised sunshine to become a major contributor to Spain's national power network.

Furthermore, a €250m deal was set in place to close coal mines whilst investing in mining regions, re-skilling, and providing benefits to miners.<sup>50</sup> As for the nuclear phase-out element of the PNIEC, Spain is now on track to complete it by 2035 – with the decommissioning of the country's seven nuclear power reactors being offset by an increase in renewable power capacity.<sup>51</sup>

However, it must be noted that the phase-out could be suspended during the aftermath of the 2023 Spanish General Elections, with intentions of the Popular Party (PP) to reverse the planned decommissioning of plants. Following the planned change in the energy mix, Spain's leading provider of electricity is now renewable energy, surpassing half of the National objective to reach 74% of renewable electricity generation in 2030<sup>52</sup>. Additionally, the increase in domestic energy production has meant that energy dependency on foreign sources has fallen from 73% (2021) to 51% (2023)<sup>53</sup>. This adds to the €280m initiative by Ribera's ministry to drive the creation of energy storage projects for an increasingly stable and safer domestic energy supply.<sup>54</sup>

Following the mobilisation of investment from private and public sources (85% and 15%, respectively), economic literature and similar examples elsewhere point to a transition towards renewables which highlights a possible decoupling of economic growth from carbon emissions – as well as the International Energy Association's remarks on solar and wind power being able to competitively replace costs of fossil fuels during the

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<sup>49</sup> Heggie, Jon. "Spain: Taking Sustainable Energy to the Next Level." *Science*, 4 May 2021, [www.nationalgeographic.com/science/article/partner-content-setting-standard-for-sustainability](http://www.nationalgeographic.com/science/article/partner-content-setting-standard-for-sustainability).

<sup>50</sup> Rentier, Gerrit, et al. "Varieties of Coal-fired Power Phase-out Across Europe." *Energy Policy*, vol. 132, Elsevier BV, Sept. 2019, pp. 620–32. <https://doi.org/10.1016/j.enpol.2019.05.042>

<sup>51</sup> "Spain Power Market Size and Trends by Installed Capacity, Generation, Transmission, Distribution, and Technology, Regulations, Key Players and Forecast, 2022-2035." *Market Research Reports & Consulting | GlobalData UK Ltd.*, 26 June 2023.

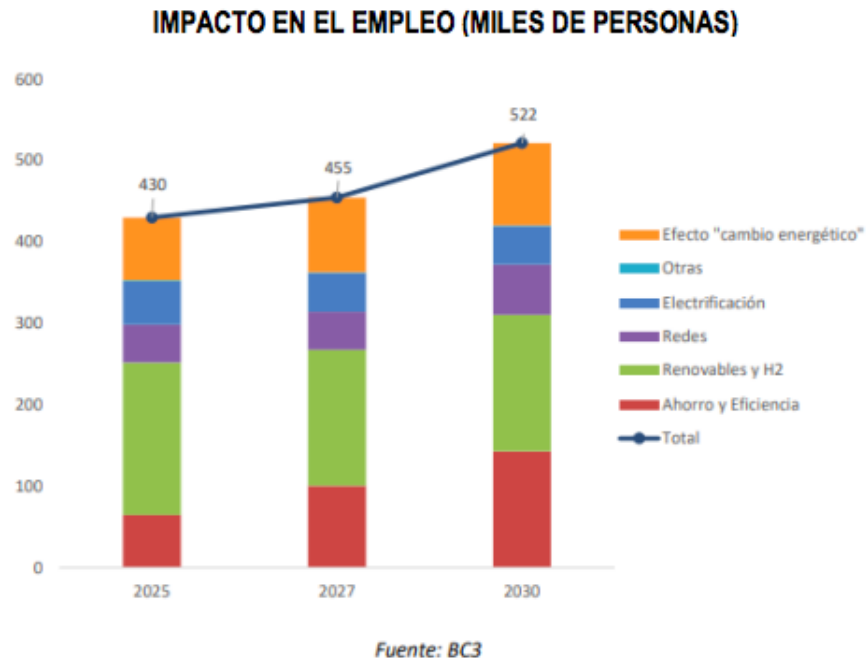
<sup>52</sup> "Spain Electricity Security Policy – Analysis - IEA." *IEA*, [www.iea.org/articles/spain-electricity-security-policy](http://www.iea.org/articles/spain-electricity-security-policy).

<sup>53</sup> "Ministerio para la Transición Ecológica y el Reto Demográfico." "Plan Nacional Integrado De Energía y Clima 2021-2030." *MITECO*. 2020

<sup>54</sup> "El MITECO Activa 280 Millones En Ayudas Para Proyectos Innovadores De Almacenamiento." *Ministerio Para La Transición Ecológica Y El Reto Demográfico*, [www.miteco.gob.es/es/prensa/ultimas-noticias/2023/07/el-miteco-activa-280-millones-en-ayudas-para-proyectos-innovador.html](http://www.miteco.gob.es/es/prensa/ultimas-noticias/2023/07/el-miteco-activa-280-millones-en-ayudas-para-proyectos-innovador.html).



upcoming years for lower wholesale electricity prices in the European market.<sup>55</sup> Likewise, for interconnectivity with Europe, Spain's current production capacity on renewable energy<sup>56</sup> and the development of pan-European imbalance netting services are introducing Spain's participation in interconnected balancing markets.<sup>57</sup>



*Ministerio para la Transición Ecológica y el Reto Demográfico. "Plan Nacional Integrado De Energía y Clima 2021-2030." MITECO, 2020*

On another hand, with the phase-out of nuclear power, Spain could become a European leader in renewables, turning attention away from nuclear's financial burden and into investments in renewable power.<sup>58</sup> This proves most fossil studies have concluded the feasibility of short-term phase-outs of nuclear and coal power.

plants in the country — including scenarios of delays in the phase-out, worsening droughts, and increments in electricity demand.<sup>59,60</sup>

<sup>55</sup> Piłatowska, Mariola, et al. "The Effect of Renewable and Nuclear Energy Consumption on Decoupling Economic Growth From CO<sub>2</sub> Emissions in Spain." *Energies*, vol. 13, no. 9, Multidisciplinary Digital Publishing Institute, Apr. 2020, p. 2124. <https://doi.org/10.3390/en13092124>.

<sup>56</sup> "Spain 2021 Energy Policy Review." *International Energy Agency*, 2021.

<sup>57</sup> "Spain Electricity Security Policy – Analysis - IEA." *IEA*, [www.iea.org/articles/spain-electricity-security-policy](http://www.iea.org/articles/spain-electricity-security-policy).

<sup>58</sup> Haywood, Luke, et al. "Why Investing in New Nuclear Plants Is Bad for the Climate." *Joule*, July 2023, <https://doi.org/10.1016/j.joule.2023.07.006>

<sup>59</sup> Victoria, Marta, and Cristobal Gallego-Castillo. "Hourly-resolution Analysis of Electricity Decarbonization in Spain (2017–2030)." *Applied Energy*, vol. 233–234, Elsevier BV, Jan. 2019, pp. 674–90. <https://doi.org/10.1016/j.apenergy.2018.10.055>.

<sup>60</sup> Ministerio para la Transición Ecológica y El Reto Demográfico. "El Gobierno Incrementa La Ambición Del Plan Nacional Integrado De Energía Y Clima, Impulsando La Modernización De La Economía, La Protección Del Medioambiente, La Creación De Tejido Productivo Y Empleo, Y La Mejora De La Salud De Los Ciudadanos". *MITECO*. June 2022,



For the energy transition, an economic and social opportunity for Spain to lead Europe in the fight against global warming presents itself to its framework on decarbonization and emerging clean-energy leading industry, including attraction for investments and the growing presence of Spain in the European Union through Teresa Ribera's ministry presenting Spain as a frontrunner and leader on renewables<sup>61</sup> – all whilst domestically creating high value and sustainable economic activity in Spain.

As the PNIEC seeks to reverse carbon emissions, focus on renewable energy projects has meant a fall in CO<sub>2</sub> emissions. For instance, the Totana Solar Plant is now replacing the generation of 104,000 tonnes of carbon dioxide annually,<sup>62</sup> while the phase-out of nuclear and coal power plants is estimated to cause carbon emissions to decline by 36-60 million tonnes until 2030.<sup>63</sup>

Additionally, air pollutants emissions are projected to significantly reduce and improve air quality,<sup>64</sup> alongside the removal of nuclear power damage to the environment in the form of greenhouse gas emissions from uranium mining, transport, processing, and construction time. On another hand, the use of renewables presents a more affordable and faster deployment than nuclear, providing a rapid and larger possible implementation of renewable facilities by 2050.<sup>65</sup>

Finally, Spanish projects underway for biofuels with low-emission intensity are expected to account for more than half of fuel consumption in domestic aviation and one-third in domestic maritime transport, introducing transitional energy to sectors that have been harder to decarbonize.<sup>66</sup>

## National Climate Change Adaptation Plan (PNACC)

The National Climate Change Adaptation Plan has proved to be a useful instrument for the implementation of a just and efficient climate transition, having made it possible state-and-regional wise for adaptation to be introduced into the agendas of institutions,

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[www.miteco.gob.es/es/prensa/230628\\_ndpelgobiernoincrementalaambiciondelplannacionalinte gradodeenergiayclima\\_tcm30-590340.pdf](http://www.miteco.gob.es/es/prensa/230628_ndpelgobiernoincrementalaambiciondelplannacionalinte gradodeenergiayclima_tcm30-590340.pdf).

<sup>61</sup> Sauer, Natalie. "Can Teresa Ribera Transform Spain Into a Green Champion? - Energy Post." *Energy Post*, 15 Nov. 2018,

[energypost.eu/can-teresa-ribera-transform-spain-into-a-green-champion](http://energypost.eu/can-teresa-ribera-transform-spain-into-a-green-champion).

<sup>62</sup> "Spain: Taking Sustainable Energy to the Next Level." *Science*, 4 May 2021,

[www.nationalgeographic.com/science/article/partner-content-setting-standard-for-sustainability](http://www.nationalgeographic.com/science/article/partner-content-setting-standard-for-sustainability).

<sup>63</sup>Victoria, Marta. "Hourly-resolution Analysis of Electricity Decarbonization in Spain (2017–2030)." *Applied Energy*, vol. 233–234, Elsevier BV, Jan. 2019, pp. 674–90.

<https://doi.org/10.1016/j.apenergy.2018.10.055>.

<sup>64</sup> "Spain Presents the New National Integrated Energy and Climate Plan (PNIEC) 2023-2030 - Global Factor." *Global Factor*, 29 June 2023,

[www.globalfactor.com/en/spain-presents-the-new-national-integrated-energy-and-climate-plan-pniec-2023-2030](http://www.globalfactor.com/en/spain-presents-the-new-national-integrated-energy-and-climate-plan-pniec-2023-2030)

<sup>65</sup> Haywood, Luke, et al. "Why Investing in New Nuclear Plants Is Bad for the Climate." *Joule*, July 2023, <https://doi.org/10.1016/j.jjoule.2023.07.006>

<sup>66</sup>"Net-zero Spain: Europe's Decarbonization Hub." *McKinsey & Company*, 23 Sept. 2022,

[www.mckinsey.com/capabilities/sustainability/our-insights/net-zero-spain-europes-decarbonization-hub](http://www.mckinsey.com/capabilities/sustainability/our-insights/net-zero-spain-europes-decarbonization-hub).



and third-sector organisations, included in the transition headed by Teresa Ribera. From its implementation, it has become a reference for public policies and the enabling of data consultation, economic, and technical backing towards adaptation of sectors and territories affected by the climate crisis— including those that have to do with water resources, agriculture, and livestock, coasts, etc.<sup>67</sup>. For instance, the approval of the Third Cycle Hydrological Plans has gathered an investment of €22.84 billion towards the modernization of water management.<sup>68</sup> Additionally, other implementations include the Flood Risk Management Plans, and notable actions in Benidorm and Valencia<sup>69</sup> — with projects of reintegration of green infrastructure and environmental improvement and protection of the coast from urbanisation, respectively.

Guiding the plan on previous preliminary assessments of climate change impacts, the implementation is based on previous efforts and knowledge gained from them. Through the Hydrological Plans, the Spanish scenario is expected to incorporate climate change scenarios into plans for bodies of water, which will also promote investments towards regional governments affected by the driest basins in the Levante region to promote desalination plants and interconnected infrastructure on a national level.<sup>70</sup>

On another hand, for a just adaptation, farmers and consumers affected by drought will receive the help of €2.2 billion for production and food availability, securing the ambition of Ribera's ministry for a productive and resilient primary sector which likewise provides security for investment in the transition. Additionally, the initiative of Energy Saving Certificates has provided wholesale oil traders with greater liquidity and saving quotas for an increase in employment, production, and competitiveness— as well as efficiency in savings and energy consumption.<sup>71</sup>

The interventions recommended and set in motion by the PNACC aim at building a more resilient system in Spain for changes, and the prevention of future adaptation needs by introducing actions for decreasing soil erosion and their storage capacity, improving soil organic carbon stocks by reducing chemical inputs, and increasing crop diversification. Additionally, marine species have been positively impacted. through fluvial connectivity and the elimination of barriers, restoration of wetlands, and protection of protected

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<sup>67</sup>Ministerio para la Transición Ecológica. "Evaluation Report of the Spanish National Climate Change Adaptation Plan" *MITECO* [N/D].

[www.miteco.gob.es/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/executivesummary\\_informeevaluacionpnacc\\_tcm30-499189.pdf](http://www.miteco.gob.es/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/executivesummary_informeevaluacionpnacc_tcm30-499189.pdf).

<sup>68</sup> Council of Ministers. "The Government of Spain Approves the Third Cycle Hydrological Plans to Modernise the Management of Water Resources Until 2027." *La Moncloa*, Jan. 2023, [www.lamoncloa.gob.es/lang/en/gobierno/councilministers/Paginas/2023/20230124\\_council.aspx](http://www.lamoncloa.gob.es/lang/en/gobierno/councilministers/Paginas/2023/20230124_council.aspx).

<sup>69</sup> Almodóvar, Esther Sánchez, et al. "Floods and Adaptation to Climate Change in Tourist Areas: Management Experiences on the Coast of the Province of Alicante (Spain)." *Water*, vol. 15, no. 4, Multidisciplinary Digital Publishing Institute, Feb. 2023, p. 807. <https://doi.org/10.3390/w15040807>.

<sup>70</sup> Council of Ministers. "The Government of Spain Approves the Third Cycle Hydrological Plans to Modernise the Management of Water Resources Until 2027." *La Moncloa*, Jan. 2023, [www.lamoncloa.gob.es/lang/en/gobierno/councilministers/Paginas/2023/20230124\\_council.aspx](http://www.lamoncloa.gob.es/lang/en/gobierno/councilministers/Paginas/2023/20230124_council.aspx).

<sup>71</sup> Council of Ministers. "The Government of Spain Approves the Third Cycle Hydrological Plans to Modernise the Management of Water Resources Until 2027." *La Moncloa*, Jan. 2023, [www.lamoncloa.gob.es/lang/en/gobierno/councilministers/Paginas/2023/20230124\\_council.aspx](http://www.lamoncloa.gob.es/lang/en/gobierno/councilministers/Paginas/2023/20230124_council.aspx).



areas.<sup>72</sup> For instance, actions in Valencia have integrated the not-yet urbanised areas of the region's coastline (12%) into a protected seashore.<sup>73</sup>

## Spanish Hydrogen Roadmap

For the implementation of the Spanish Hydrogen Roadmap, Spain presents itself en route to its target of green hydrogen capacity, production, and interconnectivity. Remarkably, Ribera's ministry has been part of the agreement with France, Germany, and Portugal to build a hydrogen pipeline by 2030 — which will transport around 2 million metric tonnes of hydrogen to France each year.<sup>74</sup> Furthermore, the country has managed to over-exceed its initial target for green hydrogen capacity from a targeted 4 GW by 2030 to now having 15.5 GW.<sup>75</sup> As for hydrogen-related project support, the government launched a €1.5 billion plan in 2021, in addition to the investments towards the Spanish so-called "Hydrogen Valley".

These investments are towards the creation of valleys in both the regions of Andalusia and Asturias for the enabling of green hydrogen factories.<sup>76</sup> Additionally, coal mining towns are seeing the reconstruction of former coal plants for green hydrogen plants by the Spanish company Iberdrola, with the company and the rest of Spain's main energy providers (Repsol, BP, and Cepsa) carving plans for the decarbonization of their hydrogen consumption by 2030.<sup>77</sup>

Now, Spain accounts for 20% of the world's green hydrogen projects,<sup>78</sup> turning attention to its attractive green hydrogen competitiveness in the EU. Forming a leading role, production has particularly benefited from its national wind and solar power capabilities and the fifty green hydrogen projects under development in Spain. This points to a future potential production of green hydrogen which could cover Spain's needs, as well as be viable for exports towards northern Europe.

Green hydrogen has found itself useful in decarbonization for sectors harder to electrify during the transition, such as with biofuels, making Spain a competitive producer of

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<sup>72</sup> García Baena, Julián. "Overview of Adaptive Management Actions Undertaken by Spain to Mitigate the Negative Impacts of Climate Change, With an Assessment of the Effectiveness of These Actions, and Lessons Learned." NASCO, 2023.

<sup>73</sup> Nowak, Maciej J., et al. "Spatial Planning Response to the Challenges of Climate Change Adaptation: An Analysis of Selected Instruments and Good Practices in Europe." *Sustainability*, vol. 15, no. 13, Multidisciplinary Digital Publishing Institute, July 2023, p. 10431. <https://doi.org/10.3390/su151310431>.

<sup>74</sup> Inframap, H2. "H2 Inframap." *H2 Inframap*, July 2023, [www.h2inframap.eu/#map](http://www.h2inframap.eu/#map).

<sup>75</sup> "Electrolysers - Energy System - IEA." *IEA*, [www.iea.org/energy-system/low-emission-fuels/electrolysers#tracking](http://www.iea.org/energy-system/low-emission-fuels/electrolysers#tracking)

<sup>76</sup> CEPSA. *Andalusian Green Hydrogen Valle*. [www.cepsa.com/en/businesses/commercial-clean-energies/green-hydrogen/andalusian-valley](http://www.cepsa.com/en/businesses/commercial-clean-energies/green-hydrogen/andalusian-valley), Accessed 1 Aug. 2023.

<sup>77</sup> Escribano, G., & Urbasos, I. "Spain's Hydrogen Ambition: Between Reindustrialisation and Export-led Energy Integration With the EU." *RIFS Discussion Paper*, Apr. 2023, [publications.iass-potsdam.de/rest/items/item\\_6002782\\_1/component/file\\_6002785/content](http://publications.iass-potsdam.de/rest/items/item_6002782_1/component/file_6002785/content).

<sup>78</sup> Flowers, Simon. "How the Energy Crisis Is a Boon for Hydrogen Exporters." *Wood Mackenzie*, 21 Apr. 2022, [www.woodmac.com/news/the-edge/how-the-energy-crisis-is-a-boon-for-hydrogen-exporters](http://www.woodmac.com/news/the-edge/how-the-energy-crisis-is-a-boon-for-hydrogen-exporters).



green hydrogen and continuing its rapid target rate of decarbonization.<sup>79</sup> Additionally, steel producers could see themselves benefitted from the use of hydrogen-fueled equipment, allowing the sector to lower emissions by up to 90 per cent in 2050 with the same rate of production.<sup>80</sup>

Furthermore, Spain's existing and expanding manufacturing capabilities, a network of hydrogen infrastructure, and supportive regulations (brought forward by Ribera's ministry) could facilitate increasing investment and hydrogen produced at lower costs in comparison with other European nations such as Germany— as the production of green hydrogen is expected to have lower costs by 2040 for full decarbonization.<sup>81</sup>

Spain's emphasis on the production of green hydrogen, in comparison with other types such as blue or grey, comes from the difference in the production of it. The electricity used to create green hydrogen comes from renewable sources of energy, which does not create harmful emissions and has made it earn the title of carbon neutral. With ample uses and capacities, such as being transported throughout long distances compressed or liquefied, for use in transportation, as burning fuel, heat for industrial processes, etc., hydrogen brings a capacity to electrify in harder sectors that rely on fossil fuels.<sup>82</sup>

While it must be kept in mind that hydrogen projects could present direct competition with agricultural consumptions during drought, water desalination in coastal areas—which is pushed by the PNACC— can decrease the risk. On another hand, already underway, the transformation of the former mining town of Puertollano by Iberdrola in 2022, will prevent the release of 48,000 tonnes of carbon dioxide annually—<sup>83</sup> adding to the reduction efforts of CO<sub>2</sub> emissions to fight global warming.

## Conclusion

Following the analysis of the profile, it can be affirmed that **Teresa Ribera is a climate leader**. When taking into consideration the findings concerning her trajectory in the climate sphere, the policies implemented during her time as Minister for Ecological Transition and Demographic Challenge, and the recent status of Spain within the European Union, the report includes factual information that led us to comprehend the importance of Ribera's figure in the global climate sphere. By aiming for motivations within the European Union on a geopolitical level, her expertise and track record on climate-related issues have made her image associated with great influential weight in the European policy dimension.

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<sup>79</sup>"Net-zero Spain: Europe's Decarbonization Hub." *McKinsey & Company*, 23 Sept. 2022, [www.mckinsey.com/capabilities/sustainability/our-insights/net-zero-spain-europes-decarbonization-hub](https://www.mckinsey.com/capabilities/sustainability/our-insights/net-zero-spain-europes-decarbonization-hub).

<sup>80</sup> *Idem.*

<sup>81</sup> *Idem.*

<sup>82</sup> Wetselaar, Maarten "7 Reasons Why Spain and Portugal Are About to Become a Green Hydrogen Powerhouse." *World Economic Forum*, 9 Jan. 2023, [www.weforum.org/agenda/2023/01/spain-portugal-green-hydrogen-powerhouse-davos23](https://www.weforum.org/agenda/2023/01/spain-portugal-green-hydrogen-powerhouse-davos23).

<sup>83</sup> Corporativa, Iberdrola. "Iberdrola Builds the Largest Green Hydrogen Plant for Industrial Use in Europe." *Iberdrola*, [www.iberdrola.com/about-us/what-we-do/green-hydrogen/puertollano-green-hydrogen-plant](https://www.iberdrola.com/about-us/what-we-do/green-hydrogen/puertollano-green-hydrogen-plant).



Furthermore, she has succeeded in becoming a European leader in the new era of climate change action, with innovative proposals and practical negotiation skills — with both the private and public sectors— that have put in place an ambitious transformational path for Spain. Now, as a minister, Ribera's authority, accompanied by her reputation of informed and engaging political choices, has allowed her to implement her climate and social agenda, with circles of stakeholders endorsing her proposals.

Addressing global warming in Spain has presented Ribera with pressures from the agricultural sector experiencing the consequences of drought, as well as unemployment rates and expanding energy poverty — in addition to the bureaucratic division in the country for effective implementation. However, her ministry's proposals have introduced plans to reconcile said external pressures.

As a testament to her leadership, the Integrated National Energy Climate Plan (PNIEC) has continued to lower carbon emissions and modernise the economy while re-skilling workforces and creating novel opportunities for job growth in various economic sectors. Likewise, the National Climate Change Adaptation Plan (PNACC) is advancing shock and transitional resilience, taking into account those most affected by global warming, and ensuring cross-examination of policies for best implementation in regards to social and economic parameters, while integrating agendas into regional and local levels throughout Spain. Additionally, the Spanish Hydrogen Roadmap has translated Ribera's plans into effective and swift implementation for renewables, as well as highlighting the real and yielding consequences of working alongside the private sector and Spain's main energy providers during her tasked ecological transition.

On a broader basis, Ribera's leadership has created a path for Spain to present itself as a leading presence on clean energy and decarbonization in Europe. Thus, it is with a more significant geopolitical presence that Teresa Ribera's ecological transition model has put forward a phenomenon of social and economic opportunities that countries may gain through climate action.

As the benefits of sustainable development present themselves for Spain through green energy innovation, hydrogen projects, supporting regulations, and interconnected manufacturing possibilities, Ribera's understanding of climate cooperation and just configurations for the whole of Europe reckoned as accentuating factors for Spain's status elevation within the EU and the country's presidency over it.

On another hand, It is with an emphasis that this report states her climate leadership in terms of present positions and government configuration. With attention to the volatility that Spain may encounter during its 2023 general election process, Ribera's leadership impact may depend on the future outcome of elections and party alliances. It is thus a possible future configuration of the Spanish government and Ribera's ministry that elections may answer the question in regards to Ribera's leadership. As of now, she continues to craft and mould an image of Teresa Ribera as a climate leader in both Spain and the European Union.



## Bibliography

### Introduction

- Romero, Juanma. "Sánchez Se Queda Un Área Estratégica Y Mimada: Teresa Ribera Seguirá En Transición." *Elconfidencial.com*, 13 Nov. 2019, [www.elconfidencial.com/espana/2019-11-13/pedro-sanchez-area-estrategica-gobier-no-teresa-ribera-transicion-ecologica\\_2335752/](http://www.elconfidencial.com/espana/2019-11-13/pedro-sanchez-area-estrategica-gobier-no-teresa-ribera-transicion-ecologica_2335752/)
- "European Commission - EU Sustainable Investment Summit 2022 - Teresa Ribera." *Ec.europa.eu*, [ec.europa.eu/economy\\_finance/sustainable-investment-summit-2022/speakers/ribera.html](http://ec.europa.eu/economy_finance/sustainable-investment-summit-2022/speakers/ribera.html).
- "Teresa Ribera Rodríguez." *www.lamoncloa.gob.es*, [www.lamoncloa.gob.es/lang/en/gobierno/Paginas/Govern-2020-01/20200114teresa-ribera.aspx](http://www.lamoncloa.gob.es/lang/en/gobierno/Paginas/Govern-2020-01/20200114teresa-ribera.aspx).

### Teresa Ribera's Stake

- Council of the EU. "ETS Aviation: Council and Parliament Strike Provisional Deal to Reduce ...," European Council, [www.consilium.europa.eu/en/press/press-releases/2022/12/07/ets-aviation-council-and-parliament-strike-provisional-deal-to-reduce-flight-emissions/](http://www.consilium.europa.eu/en/press/press-releases/2022/12/07/ets-aviation-council-and-parliament-strike-provisional-deal-to-reduce-flight-emissions/).
- Council of the EU. "Fit for 55": Council Adopts Key Pieces of Legislation Delivering on 2030 Climate Targets. 25 Apr. 2023, [www.consilium.europa.eu/en/press/press-releases/2023/04/25/fit-for-55-council-adopts-key-pieces-of-legislation-delivering-on-2030-climate-targets](http://www.consilium.europa.eu/en/press/press-releases/2023/04/25/fit-for-55-council-adopts-key-pieces-of-legislation-delivering-on-2030-climate-targets).
- Fit for 55 - the EU's Plan for a Green Transition - Consilium, European Council, [www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/](http://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/).
- Gumbau, Anna. "Spain's Rising Energy Poverty: A Cautionary Tale for Europe." *Energy Monitor*, 19 Jan. 2022, [www.energymonitor.ai/policy/just-transition/spains-rising-energy-poverty-a-cautionary-tale-for-europe/](http://www.energymonitor.ai/policy/just-transition/spains-rising-energy-poverty-a-cautionary-tale-for-europe/).
- Hedgecoe, Guy. "'Empty Spain' in the Spotlight as Countryside Fights Back." *POLITICO*, 11 Feb. 2022, [www.politico.eu/article/the-revenge-of-empty-spain-rural-region-castile-and-leon](http://www.politico.eu/article/the-revenge-of-empty-spain-rural-region-castile-and-leon).
- INE - Instituto Nacional de Estadística. "Estadísticas Territoriales (INE)." *INE*, [www.ine.es/dynInfo/Infografia/Territoriales/galeriaCapitulo.html?capitulo=4334](http://www.ine.es/dynInfo/Infografia/Territoriales/galeriaCapitulo.html?capitulo=4334).
- King & Spalding. *An Overview of LNG Import Terminals in Europe*. King and Spalding, 2018.
- Popirlan, Claudiu Ionut, et al. "Predicting the Unemployment Rate and Energy Poverty Levels in Selected European Union Countries Using an ARIMA-ARNN Model." *PeerJ*, vol. 9, PeerJ, Inc., July 2023, p. e1464. <https://doi.org/10.7717/peerj-cs.1464>.
- Rodríguez Cabrero, Gregorio. "Spain: National Strategy against Energy Poverty 2019-2024". *ESPN Flash Report 2020/04*. European Commission. Available at: <https://ec.europa.eu/social/BlobServlet?docId=22466&langId=en>
- "Decentralizing Spain's Democracy." *Harvard International Review*, 24 May 2019, [hir.harvard.edu/decentralizing-spains-democracy/](http://hir.harvard.edu/decentralizing-spains-democracy/).





- "EU Action to Address the Energy Crisis." *European Commission*, [commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/eu-action-address-energy-crisis\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/eu-action-address-energy-crisis_en).
- "El Reto Demográfico Y Las Despoblación En España En Cifras." Ministerio Para La Transición Ecológica Y El Reto Demográfico, 2017, [www.lamoncloa.gob.es/presidente/actividades/Documents/2020/280220-despoblacion-en-cifras.pdf](http://www.lamoncloa.gob.es/presidente/actividades/Documents/2020/280220-despoblacion-en-cifras.pdf).
- "Las Comunidades Autónomas Frente Al Cambio Climático." *Climática*, 5 Mar. 2021, [www.climatica.lamarea.com/comunidades-autonomas-cambio-climatico/](http://www.climatica.lamarea.com/comunidades-autonomas-cambio-climatico/).
- "Parlamentarios Alemanes Viajan El Domingo España Preocupados Por La 'Extracción Ilegal De Agua' En Doñana." *europapress.es*, [www.europapress.es/sociedad/medio-ambiente-00647/noticia-parlamentarios-alemanes-viajan-domingo-espana-preocupados-extraccion-ilegal-agua-donana-20230602185624.html](http://www.europapress.es/sociedad/medio-ambiente-00647/noticia-parlamentarios-alemanes-viajan-domingo-espana-preocupados-extraccion-ilegal-agua-donana-20230602185624.html)
- "Spanish Right Woos Farmers to Shore up Southern Takeover." *POLITICO*, 9 Feb. 2021, [www.politico.eu/article/spain-agriculture-andalusia-right-woos-farmers/](http://www.politico.eu/article/spain-agriculture-andalusia-right-woos-farmers/).
- "Water War: Why Drought in Spain Is Getting Political." *POLITICO*, 24 May 2023, [www.politico.eu/article/climate-change-andalusia-spain-on-the-frontline-of-europes-worst-water-war/](http://www.politico.eu/article/climate-change-andalusia-spain-on-the-frontline-of-europes-worst-water-war/).

## Defining moment

- Evans, Nick, and Matthias Duwe. "Climate Governance Systems in Europe: The Role of National Advisory Bodies." *Ecologic Institute, IDDRI*, May 2021, [www.ecologic.eu/sites/default/files/publication/2021/Evans-Duwe-Climate-governance-in-Europe-the-role-of-national-advisory-bodies-2021-Ecologic-Institute.pdf](http://www.ecologic.eu/sites/default/files/publication/2021/Evans-Duwe-Climate-governance-in-Europe-the-role-of-national-advisory-bodies-2021-Ecologic-Institute.pdf).
- Harrisson, Thomas. "The Carbon Brief Interview: Teresa Ribera." *Carbon Brief*, Dec. 2018, [www.carbonbrief.org/the-carbon-brief-interview-teresa-ribera/#aware](http://www.carbonbrief.org/the-carbon-brief-interview-teresa-ribera/#aware).
- Ribera, Teresa. "Time to Put Sustainable Development Into Practice." *Thomson Reuters Foundation*, May 2016, [news.trust.org/item/20160509200026-60zc5](http://news.trust.org/item/20160509200026-60zc5).
- Stockholm Environment Institute. "Q&A: 'We Need to Recover Our Confidence in Cooperation.'" *SEI*, 12 Feb. 2018, [www.sei.org/featured/qa-with-teresa-ribera](http://www.sei.org/featured/qa-with-teresa-ribera).
- Thomson Reuters Foundation. "Time to Put Sustainable Development Into Practice." *news.trust.org*, [news.trust.org/item/20160509200026-60zc5](http://news.trust.org/item/20160509200026-60zc5).
- Trimmer, Caspar. "Q&A: 'We Need to Recover Our Confidence in Cooperation.'" *Stockholm Environment Institute*, 12 Feb. 2018, [www.sei.org/featured/qa-with-teresa-ribera](http://www.sei.org/featured/qa-with-teresa-ribera).
- "Climate Director, IDDRI." *Oxford HR*, Oxford HR, Apr. 2023, <https://oxfordhr.com/wp-content/uploads/2023/04/IDDRI-Climate-Director-Candidate-Pack.pdf>
- "Entrevista a Teresa Ribera, Directora Del IDDRI" *Eco-Circular*. Apr. 2018, [eco-circular.com/2018/04/06/entrevista-a-teresa-ribera-directora-del-iddri](http://eco-circular.com/2018/04/06/entrevista-a-teresa-ribera-directora-del-iddri)
- "Nadie Sabe Qué Sistema Eléctrico Quiere España' // Teresa Ribera." *Alternativas Económicas*, [alternativaseconomicas.coop/articulo/entrevista/nadie-sabe-que-sistema-electrico-quiere-espana-teresa-ribera](http://alternativaseconomicas.coop/articulo/entrevista/nadie-sabe-que-sistema-electrico-quiere-espana-teresa-ribera).
- "Taking Action on Global Commodity Supply Chains: A Tool for Sustainable Development." *IDDRI*,



[www.iddri.org/en/publications-and-events/blog-post/taking-action-global-commodity-supply-chains-tool-sustainable](http://www.iddri.org/en/publications-and-events/blog-post/taking-action-global-commodity-supply-chains-tool-sustainable).

"Teresa Ribera, Director of IDDRI, Appointed Minister for the Ecological Transition in the New Spanish Government." *IDDRI*,

[www.iddri.org/en/about-iddri/press-releases/teresa-ribera-director-iddri-appointed-minister-ecological-transition](http://www.iddri.org/en/about-iddri/press-releases/teresa-ribera-director-iddri-appointed-minister-ecological-transition)

"The Paris Climate Agreement on Its 5th Anniversary: What Has It Changed?" *IDDRI*, 2015, [www.iddri.org/en/publications-and-events/blog-post/paris-climate-agreement-its-5th-anniversary-what-has-it-changed](http://www.iddri.org/en/publications-and-events/blog-post/paris-climate-agreement-its-5th-anniversary-what-has-it-changed).

## **Teresa Ribera's Solutions**

Escribano, G., and I. Urbasos. "Spain's Hydrogen Ambition: Between Reindustrialisation and Export-led Energy Integration With the EU." *Research Institute for Sustainability*, 2023.

[www.rifs-potsdam.de/en/output/publications/2023/spains-hydrogen-ambition-between-reindustrialisation-and-export-led-energy](http://www.rifs-potsdam.de/en/output/publications/2023/spains-hydrogen-ambition-between-reindustrialisation-and-export-led-energy).

Hernández, Leandro, et al. "Las Inversiones Proyectadas En Hidrógeno En España Ya Superan Los 21.000 Millones." *Cinco Días*, 7 July 2023,

[cincodias.elpais.com/companias/2023-07-07/las-inversiones-en-hidrogeno-en-espana-ya-superan-los-21000-millones.html](http://cincodias.elpais.com/companias/2023-07-07/las-inversiones-en-hidrogeno-en-espana-ya-superan-los-21000-millones.html).

González, Daniela. "España Ya Tiene Aprobado El Plan Nacional De Adaptación Al Cambio Climático (PNACC)." *El Global*, Sept. 2020,

[elglobal.es/politica/espana-ya-tiene-aprobado-el-plan-nacional-de-adaptacion-al-cambio-climatico-pnacc](http://elglobal.es/politica/espana-ya-tiene-aprobado-el-plan-nacional-de-adaptacion-al-cambio-climatico-pnacc).

"Iberdrola Builds the Largest Green Hydrogen Plant for Industrial Use in Europe."

*Iberdrola*,

[www.iberdrola.com/about-us/what-we-do/green-hydrogen/puertollano-green-hydrogen-plant](http://www.iberdrola.com/about-us/what-we-do/green-hydrogen/puertollano-green-hydrogen-plant).

"Programa H2 Pioneros." *Instituto Para La Diversificación Y Ahorro De La Energía (IDAE)*, 2022,

[www.lamoncloa.gob.es/serviciosdeprensa/notasprensa/transicion-ecologica/paginas/2023/300523-transicion-ecologica-ayudas-hidrogeno.aspx](http://www.lamoncloa.gob.es/serviciosdeprensa/notasprensa/transicion-ecologica/paginas/2023/300523-transicion-ecologica-ayudas-hidrogeno.aspx).

"Plan Nacional Integrado de Energía Y Clima (PNIEC) 2021-2030." *Ministerio Para La Transición Ecológica Y El Reto Demográfico*, 2020. ,

[www.miteco.gob.es/es/prensa/pniec.html](http://www.miteco.gob.es/es/prensa/pniec.html). Accessed 3 Aug. 2023.

[www.miteco.gob.es/es/prensa/pniec.html](http://www.miteco.gob.es/es/prensa/pniec.html). Accessed 3 Aug. 2023.

"Spain Presents the New National Integrated Energy and Climate Plan (PNIEC) 2023-2030". *Global Factor*, 29 June 2023, Available at:

[www.globalfactor.com/en/spain-presents-the-new-national-integrated-energy-and-climate-plan-pniec-2023-2030](http://www.globalfactor.com/en/spain-presents-the-new-national-integrated-energy-and-climate-plan-pniec-2023-2030)

"Spain 2021. Energy Policy Review [77-79]". *International Energy Agency*. 2021. IEA, <https://www.iea.org/reports/spain-2021>.

"Teresa Ribera Rodríguez" *La Moncloa*. Teresa Ribera Rodríguez [Government]. Available at:

<https://www.lamoncloa.gob.es/lang/en/gobierno/Paginas/Govern-2020-01/20200114teresaribera.aspx>



- "Spain – the Government Increases Its Commitment to Hydrogen With New Aid for 74 Million Euros." *Hydrogen Central*, Jan. 2023, [hydrogen-central.com/spain-government-increases-commitment-hydrogen-new-aid-74-million-euros](https://hydrogen-central.com/spain-government-increases-commitment-hydrogen-new-aid-74-million-euros).
- "Spanish Farmers Protest Against Plans to Curb Water Supply for Irrigation." *Reuters*, 11 Jan. 2023, [www.reuters.com/world/europe/spanish-farmers-protest-against-plans-curb-water-supply-irrigation-2023-01-11](https://www.reuters.com/world/europe/spanish-farmers-protest-against-plans-curb-water-supply-irrigation-2023-01-11).

## **Teresa Ribera's Impact**

- Almodóvar, Esther Sánchez, et al. "Floods and Adaptation to Climate Change in Tourist Areas: Management Experiences on the Coast of the Province of Alicante (Spain)." *Water*, vol. 15, no. 4, Multidisciplinary Digital Publishing Institute, Feb. 2023, p. 807. <https://doi.org/10.3390/w15040807>.
- CEPSA. *Andalusian Green Hydrogen Valle*. [www.cepsa.com/en/businesses/commercial-clean-energies/green-hydrogen/andalusian-valley](https://www.cepsa.com/en/businesses/commercial-clean-energies/green-hydrogen/andalusian-valley). Accessed 1 Aug. 2023.
- Council of Ministers. "The Government of Spain Approves the Third Cycle Hydrological Plans to Modernise the Management of Water Resources Until 2027." *La Moncloa*, Jan. 2023, [www.lamoncloa.gob.es/lang/en/gobierno/councilministers/Paginas/2023/20230124\\_council.aspx](https://www.lamoncloa.gob.es/lang/en/gobierno/councilministers/Paginas/2023/20230124_council.aspx).
- Corporativa, Iberdrola. "Iberdrola Builds the Largest Green Hydrogen Plant for Industrial Use in Europe." *Iberdrola*, [www.iberdrola.com/about-us/what-we-do/green-hydrogen/puertollano-green-hydrogen-plant](https://www.iberdrola.com/about-us/what-we-do/green-hydrogen/puertollano-green-hydrogen-plant).
- García Baena, Julián. "Overview of Adaptive Management Actions Undertaken by Spain to Mitigate the Negative Impacts of Climate Change, With an Assessment of the Effectiveness of These Actions, and Lessons Learned." NASCO, 2023.
- Escribano, G., & Urbasos, I. "Spain's Hydrogen Ambition: Between Reindustrialisation and Export-led Energy Integration With the EU." *RIFS Discussion Paper*, Apr. 2023, [publications.iass-potsdam.de/rest/items/item\\_6002782\\_1/component/file\\_6002785/content](https://publications.iass-potsdam.de/rest/items/item_6002782_1/component/file_6002785/content).
- Flowers, Simon. "How the Energy Crisis Is a Boon for Hydrogen Exporters." *Wood Mackenzie*, 21 Apr. 2022, [www.woodmac.com/news/the-edge/how-the-energy-crisis-is-a-boon-for-hydrogen-exporters](https://www.woodmac.com/news/the-edge/how-the-energy-crisis-is-a-boon-for-hydrogen-exporters).
- Haywood, Luke, et al. "Why Investing in New Nuclear Plants Is Bad for the Climate." *Joule*, July 2023, <https://doi.org/10.1016/j.joule.2023.07.006>.
- Heggie, Jon. "Spain: Taking Sustainable Energy to the Next Level." *Science*, 4 May 2021, [www.nationalgeographic.com/science/article/partner-content-setting-standard-for-sustainability](https://www.nationalgeographic.com/science/article/partner-content-setting-standard-for-sustainability).
- Ministerio para la Transición Ecológica. "Evaluation Report of the Spanish National Climate Change Adaptation Plan" *MITECO* [N/D]. [www.miteco.gob.es/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/executivesummary\\_informeevaluacionpnacc\\_tcm30-499189.pdf](https://www.miteco.gob.es/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/executivesummary_informeevaluacionpnacc_tcm30-499189.pdf).



- Ministerio para la Transición Ecológica y el Reto Demográfico. "Plan Nacional Integrado De Energía y Clima 2021-2030." *MITECO*. 2020.
- Ministerio para la Transición Ecológica y El Reto Demográfico. "El Gobierno Incrementa La Ambición Del Plan Nacional Integrado De Energía Y Clima, Impulsando La Modernización De La Economía, La Protección Del Medioambiente, La Creación De Tejido Productivo Y Empleo, Y La Mejora De La Salud De Los Ciudadanos". *MITECO*. June 2022,  
[www.miteco.gob.es/es/prensa/230628\\_ndpelgobiernoincrementalaambiciondelplan nacionalintegradodeenergíayclima\\_tcm30-590340.pdf](http://www.miteco.gob.es/es/prensa/230628_ndpelgobiernoincrementalaambiciondelplan nacionalintegradodeenergíayclima_tcm30-590340.pdf).
- Nowak, Maciej J., et al. "Spatial Planning Response to the Challenges of Climate Change Adaptation: An Analysis of Selected Instruments and Good Practices in Europe." *Sustainability*, vol. 15, no. 13, Multidisciplinary Digital Publishing Institute, July 2023, p. 10431. <https://doi.org/10.3390/su151310431>.
- "Electrolysers - Energy System - IEA." *IEA*,  
[www.iea.org/energy-system/low-emission-fuels/electrolysers#tracking](http://www.iea.org/energy-system/low-emission-fuels/electrolysers#tracking)
- Pitátowska, Mariola, et al. "The Effect of Renewable and Nuclear Energy Consumption on Decoupling Economic Growth From CO<sub>2</sub> Emissions in Spain." *Energies*, vol. 13, no. 9, Multidisciplinary Digital Publishing Institute, Apr. 2020, p. 2124.  
<https://doi.org/10.3390/en13092124>.
- Rentier, Gerrit, et al. "Varieties of Coal-fired Power Phase-out Across Europe." *Energy Policy*, vol. 132, Elsevier BV, Sept. 2019, pp. 620–32.  
<https://doi.org/10.1016/j.enpol.2019.05.042>
- Sauer, Natalie. "Can Teresa Ribera Transform Spain Into a Green Champion? - Energy Post." *Energy Post*, 15 Nov. 2018,  
[energypost.eu/can-teresa-ribera-transform-spain-into-a-green-champion](http://energypost.eu/can-teresa-ribera-transform-spain-into-a-green-champion).
- Victoria, Marta, and Cristobal Gallego-Castillo. "Hourly-resolution Analysis of Electricity Decarbonization in Spain (2017–2030)." *Applied Energy*, vol. 233–234, Elsevier BV, Jan. 2019, pp. 674–90. <https://doi.org/10.1016/j.apenergy.2018.10.055>.
- Victoria, Marta "Hourly-resolution Analysis of Electricity Decarbonization in Spain (2017–2030)." *Applied Energy*, vol. 233–234, Elsevier BV, Jan. 2019, pp. 674–90.  
<https://doi.org/10.1016/j.apenergy.2018.10.055>.
- Wetselaar, Maarten "7 Reasons Why Spain and Portugal Are About to Become a Green Hydrogen Powerhouse." *World Economic Forum*, 9 Jan. 2023,  
[www.weforum.org/agenda/2023/01/spain-portugal-green-hydrogen-powerhouse-davos23](http://www.weforum.org/agenda/2023/01/spain-portugal-green-hydrogen-powerhouse-davos23).
- "El MITECO Activa 280 Millones En Ayudas Para Proyectos Innovadores De Almacenamiento." *Ministerio Para La Transición Ecológica Y El Reto Demográfico*,  
[www.miteco.gob.es/es/prensa/ultimas-noticias/2023/07/el-miteco-activa-280-millones-en-ayudas-para-proyectos-innovador.html](http://www.miteco.gob.es/es/prensa/ultimas-noticias/2023/07/el-miteco-activa-280-millones-en-ayudas-para-proyectos-innovador.html).
- "H<sub>2</sub> Inframap." *H<sub>2</sub> Inframap*, July 2023, [www.h2inframap.eu/#map](http://www.h2inframap.eu/#map).
- "Net-zero Spain: Europe's Decarbonization Hub." *McKinsey & Company*, 23 Sept. 2022,  
[www.mckinsey.com/capabilities/sustainability/our-insights/net-zero-spain-europes-decarbonization-hub](http://www.mckinsey.com/capabilities/sustainability/our-insights/net-zero-spain-europes-decarbonization-hub).
- "Spain Power Market Size and Trends by Installed Capacity, Generation, Transmission, Distribution, and Technology, Regulations, Key Players and Forecast, 2022-2035." *Market Research Reports & Consulting | GlobalData UK Ltd.*, 26 June 2023



- "Spain Presents the New National Integrated Energy and Climate Plan (PNIEC) 2023-2030 - Global Factor." *Global Factor*, 29 June 2023,  
[www.globalfactor.com/en/spain-presents-the-new-national-integrated-energy-and-climate-plan-pniec-2023-2030](http://www.globalfactor.com/en/spain-presents-the-new-national-integrated-energy-and-climate-plan-pniec-2023-2030)
- "Spain Electricity Security Policy – Analysis - IEA." *IEA*,  
[www.iea.org/articles/spain-electricity-security-policy](http://www.iea.org/articles/spain-electricity-security-policy).
- "Spain 2021 Energy Policy Review." *International Energy Agency*, 2021.
- "Spain: Taking Sustainable Energy to the Next Level." *Science*, 4 May 2021,  
[www.nationalgeographic.com/science/article/partner-content-setting-standard-for-sustainability](http://www.nationalgeographic.com/science/article/partner-content-setting-standard-for-sustainability).