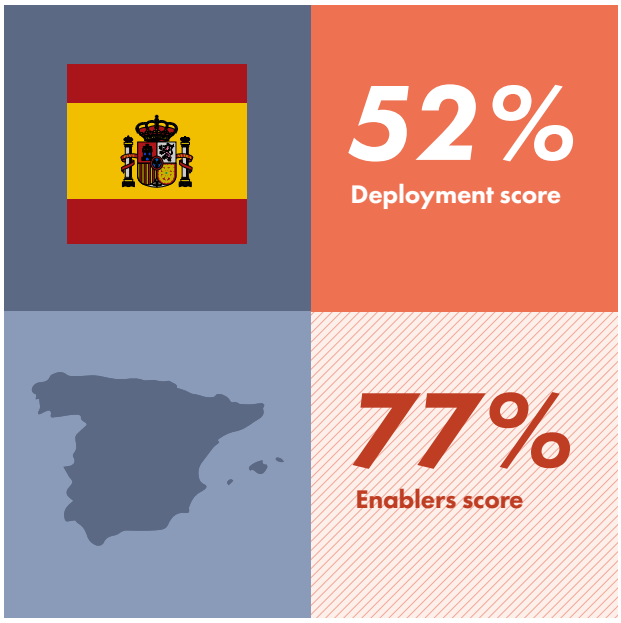
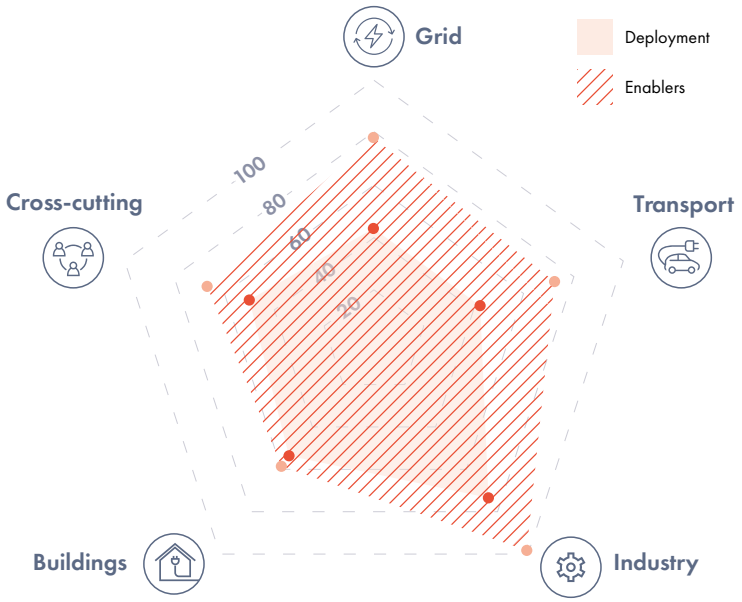
ANNEX: COUNTRY PROFILES

SPAIN





Spain ranks in the top five countries assessed for both deployment (52%) and enablers (77%) — but the gap between the two scores shows that implementation is not yet keeping pace with the strength of its policy framework, especially on transport and grids.

Spain's strengths include a power market that is liberalized and increasingly flexibility-ready, with demand-response, aggregation (bundling many small flexible loads so they can act as one in the market), dynamic pricing and storage frameworks all continuing to develop. Clean generation already supplies 75% of Spain's electricity — a strong base for further electrification. Recent reforms have strengthened anticipatory grid planning and flexible connections, and Spain has moved beyond pilots into actual deployment of grid-enhancing technologies, including Dynamic Line Rating in the Balearic Islands. Spain has yet to tap fully into its significant industrial electrification potential, while buildings start from a relatively strong electrification base already, with electricity accounting for 55% of final energy.

Yet deployment remains uneven, and implementation is not keeping pace with the speed of change in the electricity system. Storage investment remains below the level needed to support further electrification. On grids, the central challenge is how connection capacity gets planned and allocated as new demand emerges from industry, data centers, storage and other electricity users. Network investment and timely grid connections should be coordinated with the deployment of storage, demand-side flexibility and new clean electricity supply to accommodate growing electrification demand. Strengthening strategic capacity planning and allocation, using project-readiness and system-need criteria to allocate that capacity, would help the network keep pace with demand rather than lag it. Flexibility and grid-enhancing technologies should be considered alongside network expansion to maximize the use of existing infrastructure.

The remaining gaps sit in specific sectors: transport electrification beyond passenger cars and heat-pump deployment both lag, and a persistent price gap between electricity and gas continues to undercut the business case for electrification in industry and buildings. Closing these means three things: strengthening sector-specific electrification targets; direct support for deploying electric technologies where the business case is weakest; and tackling the price distortions between electricity and fossil fuels, including phasing out fossil fuel subsidies. None of this sits within a single sector — stronger coordination between national, regional, and local authorities, network operators, businesses, and other actors will be important to turn Spain's strong policy foundations into faster deployment.

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In the table below, 'Deployment' indicators include sales of EVs and heat pumps, grid congestion and flexibility metrics, and share of clean power, as well as key indicators influencing the business case, such as cost differences versus fossil technologies. 'Enablers' covers government plans, incentives, and regulations. See Methodology Annex for details.

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
GRID & POWER MARKET **13/30** DEPLOYMENT **23/30** ENABLERS	Spain has a strong and increasingly flexibility-ready electricity-market framework, supported by a liberalized market, demand response, aggregation, dynamic pricing, storage potential (both batteries and long-duration) and distributed generation. Recent reforms have further strengthened anticipatory grid planning and flexible connections.	Grid planning and capacity allocation continue to present challenges for electrification, while storage deployment falls short of the level needed to support further electrification, with installed storage capacity still below 1% of total grid generation, despite policies. Spain needs to progress from regulatory adoption to implementation of the capacity market (Order TED/966/2026), including through the timely launch of auctions. Better coordination between network investment, storage deployment, demand-side flexibility and new clean electricity supply is also needed to maximize available capacity and accommodate emerging demand. Charging infrastructure, particularly for heavy-duty transport, is also underdeveloped. Electricity has higher taxes and levies than gas (34.6% vs 22.5%).
TRANSPORT **9/20** DEPLOYMENT **15/20** ENABLERS	Auto+ provides an important incentive framework, alongside binding EU CO_2/ zero-emission vehicle standards and Alternative Fuels Infrastructure Regulation-aligned charging infrastructure funding. Passenger EV sales have reached around 20%, with early momentum also visible in buses.	Electrification of vans, trucks, and other vehicle classes remains limited. Smart and bidirectional charging are still largely at the innovation stage, while charging infrastructure for heavy-duty transport and in urban areas requires further expansion. There is room for improvement in streamlining the procedures for bringing charging infrastructure into service.
INDUSTRY **15/20** DEPLOYMENT **20/20** ENABLERS	PERTE de Descarbonización Industrial, the National Energy Efficiency Fund, and transposition of the Energy Efficiency Directive provide a strong policy foundation for industry decarbonization. Spain had the highest number of projects in the IF25 Heat Auction, demonstrating significant potential for industrial electrification.	The electricity-to-gas price gap continues to weaken the business case for electrifying industrial processes. Further support is needed to move projects from development into commercial-scale deployment.

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NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
BUILDINGS **11/20** DEPLOYMENT **12/20** ENABLERS	Electricity accounts for around 55% of buildings' final energy, supported by Spain's mild climate and near-universal smart-meter coverage (99%). Existing efficiency programs and standards provide a strong foundation for further electrification.	Spain has not yet completed transposition of the recast Energy Performance of Buildings Directive. The electricity-to-gas price gap remains a barrier, while heat-pump sales remain low compared with comparable countries. The establishment of a conversion factor (PEF) that accurately reflects the reality of electricity versus gas is still pending.
CROSS-CUTTING **5/10** DEPLOYMENT **7/10** ENABLERS	National Energy and Climate Plan 2023-2030 (Plan Nacional Integrado de Energía y Clima, or PNIEC) sets an economy-wide 35% electrification target by 2030, alongside a target of 5.5 million EVs. The implementation of the EU Emissions Trading Scheme (ETS) provides an economy-wide carbon price signal that can support the shift towards electrification, while existing reskilling institutions provide a basis for developing the workforce needed for electrification.	National ambition is not yet consistently reflected in implementation across levels of government and sectors. PNIEC's economy-wide target is not matched by equivalent sector-specific electrification milestones. Spain has also not adopted a comprehensive national plan with a clear timetable for eliminating fossil fuel subsidies, despite its international commitment to phasing out inefficient fossil fuel subsidies. Workforce capacity could further constrain deployment. Spain has yet to complete transposition of the revised ETS Directive (EU) 2023/959, delaying the implementation of strengthened ETS1 rules and the integration of ETS2 into national legislation.
TOTAL SCORES	**52/100** DEPLOYMENT **77/100** ENABLERS	

*Scores may not sum perfectly due to rounding. Data quality concerns: **low.** Spain had full data coverage across the metrics.*

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The goal of this index is to inspire action, maximize strengths, and work toward improvement opportunities. All stakeholders have a role to play, but policy often sets the conditions for sustained, market-based change.

The table below reviews the findings against WMBC's 10 Policy Principles to Seize the Electric Advantage. Several of the identified gaps point to the importance of Principles 5 and 6 on how to improve grid infrastructure planning, enhance flexibility and streamline grid connections, particularly as grid connection capacity becomes a growing constraint on new industrial demand, data centers, storage, and other electricity users. More strategic planning and capacity allocation, alongside measures to maximize existing network capacity, can help unlock investment while strengthening energy security and competitiveness.

Principles 3 and 4 on financial incentives such as taxes and levies, as well as flexibility markets, are also particularly relevant to the persistent electricity-to-gas taxation gap and limited storage deployment: better-aligned incentives and stronger rewards for clean flexibility can improve the affordability and the business case for electrification while reducing exposure to volatile fossil-fuel prices. Finally, Principles 2 and 8 laying out how clear targets backed by standards and mandates can help address uneven deployment across sectors by strengthening electrification targets and supporting standards and mandates for electric technologies.

STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
1. Reinforce clean electrification as a shared strategic priority across international forums	*This has not been assessed for country comparison, as electrification remains at an early stage of discussion in international forums. Emerging examples of best practice are highlighted under "Best practice policies" in the "Findings for policymakers and advocacy" section.*
2. Set clear targets and timelines for electrification	Extend PNIEC's 35%-by-2030 electrification target into explicit sectoral sub-targets for buildings and industry, matching the specificity already given to transport's 5.5. million electric vehicle (EV) target. Establish a clear delivery roadmap with measures and incentives and regularly monitor progress against these milestones.
3. Realign financial incentives and taxation to support electrification	Review electricity taxes, levies and regulated charges that widen the electricity-to-gas price gap for buildings and industry. Adopt a concrete, timetabled fossil fuel subsidy phaseout plan to move beyond Coalition on Phasing Out Fossil Fuel Incentives Including Subsidies membership towards implementation.
4. Ensure electricity markets reward clean, flexible supply and demand	Continue scaling demand response and aggregation beyond current participation levels. Ensure aggregators can access balancing and flexibility markets on transparent and non-discriminatory terms. Continue scaling storage capacity support schemes and reward clean flexibility.

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STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
5. Deliver modern electricity systems including grids and enabling infrastructure	Improve grid infrastructure planning and capacity allocation to strengthen resilience and accommodate emerging electrification demand, building on the EUR 17 billion investment proposal within Spain's Electricity Network Plan with a 2030 horizon and the anticipatory planning framework established through Real Decreto 640/2026. Strengthen the use of project-readiness and system-need criteria in capacity allocation, alongside better planning, transparency, and coordination to align network investment with emerging electricity demand. Coordinate network expansion and timely grid connections with the deployment of storage, demand-side flexibility and new clean electricity supply. Maximize existing network capacity through flexibility, digitalization, and grid-enhancing technologies, building on Spain's deployment of Dynamic Line Rating in the Balearic Islands. Pair the Energy Storage Strategy's deployment objectives with sufficient network and connection capacity to support greater storage deployment, as well as the operationalization of the capacity market. Expand charging infrastructure, particularly for heavy-duty transport, and improve coordination at the regional and local level. Streamline the administrative procedures for charging infrastructure.
6. Streamline permitting and grid connection processes	Build on new methodology and conditions for access and connection to electricity demand networks (CNMC Circular 1/2024) and the 2026 flexible-access framework by improving transparency and coordination across connection processes. Publish connection-queue and available-capacity data and introduce transparent prioritization criteria based on project readiness and/or system needs where capacity is constrained. Strengthen coordination between national, regional, and local authorities to ensure connection processes support emerging electrification demand.
7. Mobilize finance and de-risk investment	Pair the Energy Storage Strategy's deployment targets with a dedicated long-term financing instrument. Use public investment to crowd in private capital for storage, grid infrastructure, and electrification.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Complete transposition of the recast Energy Performance of Buildings Directive (EU) 2024/1275, addressing the infringement package Spain was included in as of July 2026, while strengthening requirements for electrification-ready building renovation. Establish clearer requirements for smart and bidirectional EV charging.
9. Integrate electrification into industrial strategies and trade policy	Build on PERTE de Descarbonización Industrial by making direct electrification a clear priority within future industrial decarbonization funding, linking it explicitly to Spain's renewable-electricity advantage and competitiveness strategy. Build domestic clean-technology manufacturing capacity to capture the economic, supply-chain resilience, and skilled employment benefits of electrification.
10. Build the skilled workforce needed to electrify the economy	Map expected workforce demand for electricians, heat-pump installers, EV technicians, engineers, and other electrification-related occupations. Introduce electrification-specific specialization tracks within the existing vocational qualifications catalogue, rather than relying on general renewable energy and electrical installation courses.