WE MEAN BUSINESS COALITION

ELECTRIC ADVANTAGE

ELECTRIFICATION COMPETITIVENESS INDEX

How countries are enabling businesses to electrify and compete

In partnership with RMI

CONTENTS

04 Executive summary

08 Introduction and results

15 Findings for policymakers and advocacy

22 Policy sequencing and tipping points for electrification

25 Annex: Country profiles

26 Australia
30 Brazil
34 China
38 Ethiopia
42 France
46 Germany
51 India
55 Indonesia
59 Italy
63 The Philippines
67 Poland
71 South Africa
76 South Korea
80 Spain
85 United Kingdom
91 United States of America

95 Annex: List of abbreviations

96 Annex: Methodology

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EXECUTIVE SUMMARY

Most countries have at least some policies on electrification, but delivery is lagging. The countries that close that implementation gap will gain a competitive edge.

The Electrification Competitiveness Index, developed by We Mean Business Coalition (WMBC) with support from RMI, assesses how competitive countries are at providing the systemic conditions required to shift from fossil-powered operations to electrified ones. It covers 16 countries across 52 indicators comprising grids and power markets, road transport, industry, buildings, and cross-cutting readiness. The Index measures market conditions and deployment ("Deployment") and policies and other enabling conditions ("Enablers") separately to show not simply how electrified countries are today, but whether they are creating the conditions for further investment.

16

The Index covers 16 countries across 52 indicators

Countries that deliver a level playing field for electricity prices against fossil fuels, paired with well-performing grids and cleaner power systems, stand to improve their competitiveness. Countries that fail to modernize their electricity systems and regulatory frameworks risk losing investment, industrial capacity and economic opportunities. Commitments and policies are essential, but real progress requires transforming the underlying market, infrastructure and regulatory conditions that enable businesses to invest and electrify at scale. Policy discontinuity and uncertainty can undermine investments, which is why businesses need better aligned and consistent policies that reinforce each other.

EXECUTIVE SUMMARY

The 16 countries analyzed in the Index are at very different stages of electrification. The Index categorizes the countries assessed in the following four quadrants:

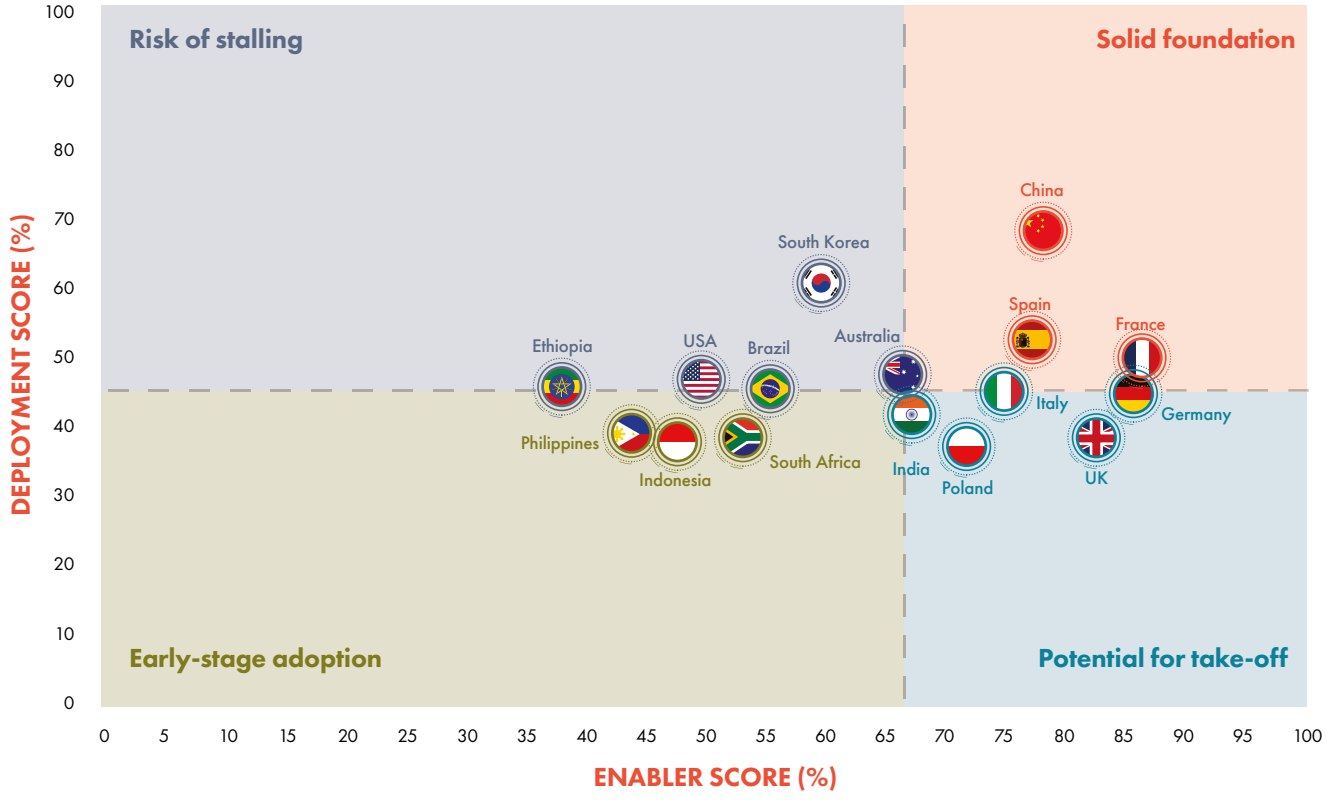
Solid foundation (China, Spain, France): all combine relatively strong deployment with strong enabling conditions. China has the highest deployment score at 68%, with electrification overall increasing 5-10 times faster than in the US and Europe, and is the only country to score full points across uptake metrics for every vehicle segment; France and Spain also benefit from strong grid performance and clean power shares of 95% and 75% respectively.

Potential for take-off (India, Italy, Poland, the U.K., Germany): enabling conditions score better than deployment, with recent policy changes not yet fully reflected on the ground. Grid constraints, relatively high electricity costs and weak uptake in areas such as vans and trucks are among the barriers identified.

Risk of stalling (Ethiopia, the U.S., Brazil, Australia, South Korea): deployment sits at or above the sample median while enabling conditions are below the sample median. South Korea has the second-highest deployment score at 60%; in the U.S., more than 2 TW of generation and storage is waiting in interconnection queues.

Early-stage adoption (the Philippines, South Africa, Indonesia): all three sit below the sample median on both measures. Clean power accounts for 18% of generation in Indonesia and South Africa and 23% in the Philippines, while grid investment in all three is below 0.4% of GDP, against a 0.65% average across the sample.

Exhibit 1 Summary of country scores across Deployment and Enablers



Note: the dotted lines indicate the sample median scores for Deployment and Enablers. For more details, see the Annex on Methodology.

EXECUTIVE SUMMARY

KEY TAKEAWAYS

1

The gap between deployment and enablers can be explained by different factors in different countries.

These include policy discontinuity, uncertainty, inconsistency, and fragmentation of policies and incentives; physical constraints such as grid connection delays; and the misaligned financial incentives between fossil fuels and clean electricity in some countries. From a methodological standpoint, a part of the gap can also be explained by the recency of some of the relevant policies (many introduced in 2026 in response to the energy crisis sparked by the blockade of the Strait of Hormuz) and the deployment data sources (mostly from 2024 – 2025).

2

Electricity still doesn't have a level playing field compared to natural gas in terms of cost, the situation being the worst in the U.K. and Poland.

Affordable electricity is a prerequisite for affordable electrification, but it is not sufficient on its own as grids, infrastructure, and technology costs also influence the investment case.

3

Disruptive transitions like the rapid uptake of electric vehicles (EVs) are driven by policy packages, not single incentives.

China pairs emissions standards, trade-in schemes and tax breaks with a nationwide charging framework and leads on new EV sales across all vehicle segments. Ethiopia has combined an import ban on internal combustion engine vehicles with tax and tariff cuts, leading to over 60% EV sales share.

4

Grid readiness can be a deployment driver or a bottleneck.

Balancing reliability with affordability lifts a country's deployment score. South Korea scores well on both, helped by an increasingly sophisticated grid, clean power procurement and demand flexibility, though its low prices have come with rising utility debt. Poland is moving beyond first-come-first-served connections with new grid planning and decongestion solutions, which can help new electricity loads connect faster.

5

A national target signals priority, but needs sectoral roadmaps to implement it.

Only China, Spain, France, and Indonesia have national electrification targets, set as a share of final energy consumption. The report notes that this elevates electrification as a priority and inspires action, but a headline target alone doesn't give businesses and investors enough granularity.

6

Storage needs dedicated policy support.

Energy storage capacity relative to total grid generation is a key driver of electrification, and the countries that lead in this area do so with robust policy support. Australia, Germany, and Italy score highest.

EXECUTIVE SUMMARY

WHAT SHOULD HAPPEN NEXT

For Policymakers

For countries in the **solid foundation** quadrant, it's important to protect policy continuity and to build on current success to tackle harder-to-electrify end uses.

For countries in the **potential for take-off** quadrant, policy conditions start to take shape and the priority should be to follow through on implementation and deployment by tackling physical and market barriers.

Countries in the **risk of stalling** quadrant have strengths in certain sectors but would benefit from accelerating progress across others to ensure that deployment is not constrained to individual end uses.

Countries in the **early-stage adoption** quadrant would benefit from reinforcing market conditions for clean electrification by supporting investments in clean and reliable electricity supply and stronger grids.

For Businesses

Know the conditions where you operate. The Index shows what is holding back electrification in each country. Businesses can use the Index findings to understand what policy conditions and enablers could accelerate electrification across the countries they (and their suppliers) operate in.

Advocate for the barriers that matter most. Many of the biggest barriers, such as electricity-to-fossil-fuel costs and grid congestion, are ones that businesses can advocate for. Combining the Index findings with the WMBC Responsible Policy Engagement framework helps businesses assess how to advocate for better policies either directly or through the trade associations and business groups that represent them.

ABOUT THE INDEX AND HOW TO READ THE REPORT

The Electrification Competitiveness Index, developed by WMBC with support from RMI, scores 16 countries on deployment and enablers. The report covers the methodology and key findings, implications, best practices for policymakers, and country profiles that provide specific findings and recommendations.

INTRODUCTION AND RESULTS

CONTEXT

Electrification is a critical lever for **economic growth, competitiveness,** and **energy transition.** Conflicts and related supply disruptions and price spikes have exposed the risks of relying primarily on fossil fuels to meet growing energy needs. In the first six months of the energy crisis sparked by the blockade of the Strait of Hormuz, fossil-fuel importing countries paid an extra USD 330 billion for seaborne oil and LNG, while clean power saved importing countries an estimated USD 36 billion in the first five months. Faster electrification could **cut import costs further by USD 400 billion annually in 2035, equating to 10-40% of country bills.**

23%

Globally, electricity accounts for 23% of final energy consumption

Globally, electricity accounts for 23% of final energy consumption, while supplying almost 40% of useful energy due to fewer losses compared to fossil fuels. The share of final energy consumption could rise to around 33% with technologies that are already cost effective. Electricity is currently the **main source of energy for activities that generate nearly half the world's GDP.** Accelerating electrification, combined with clean power supply and smart and robust electricity grids, offers an opportunity to create energy systems that are more **affordable, secure,** and **resilient to price shocks.** Rapid electrification could also reduce household bills by 15% in 2035. This opportunity is underpinned by the rapid and continued decline in the cost of electrification technologies and their growing adoption.

90%

90% of business leaders expect to be largely electric by 2035

For businesses, electrification constitutes a fundamental **strategic decision** that shapes how companies compete, invest, and grow. Early moving companies are expected to develop a competitive advantage by reducing their exposure to fossil-fuel price volatility and geopolitical risks, strengthening resilience, improving productivity, and unlocking new markets. Based on We Mean Business Coalition's (WMBC) global business poll, 90% of business leaders expect to be largely electric by 2035 and **88% believe it will help their competitiveness.**

88%

88% of business leaders believe electrification will help their competitiveness

In industry, electrification revenues have more than doubled over the past five years, growing more than five times faster than the average economy. And in terms of jobs, the electricity sector has grown three times faster than the economy average. Electrification also creates an important opportunity to place **energy efficiency** at the center of the transition, as electric technologies, when paired with demand flexibility and renewable generation, can deliver the same useful energy services **two to five times more efficiently** than fossil-fuel alternatives.

The **Electrification Competitiveness Index** is a cornerstone analysis for the WMBC's Electric Advantage program, launched in 2026 to enable collective business leadership to modernize policy, unlock investment, and accelerate electrification at scale.

The Index analyses **how competitive countries are creating the conditions that businesses and consumers need to electrify affordably, reliably, and at scale**. It covers 16 countries (Australia, Brazil, China, Ethiopia, France, Germany, India, Indonesia, Italy, the Philippines, Poland, South Africa, South Korea, Spain, the United Kingdom, and the United States) with potential to expand coverage in future editions.

INTRODUCTION AND RESULTS

METHODS

The Electrification Competitiveness Index assesses each country's progress and outlook on its journey to establish the conditions that businesses need to electrify, meaning to **switch from fossil-fuel powered operations** (such as fossil boilers and vehicles with internal combustion engines, or ICE vehicles) to **electric alternatives.** Electricity demand from data centers and cooling is outside the scope of the assessment, even though the developments in these end uses will influence the overall opportunities and challenges for electrification. Policymakers in countries with notable load growth forecast from data centers and cooling demand should consider their implications for designing an electricity system that leverages the flexibility and cross-sectoral opportunities, when possible, to reduce strain on the grid, maximize its utilization, and enable synergistic power supply developments.

Countries have been assessed using a rigorous methodology covering the **deployment** of and market conditions for electrification, as well as the policies and other **enabling conditions** supporting investments in electrification across two main categories and five subcategories:

Table 1 Description and example metrics for the Deployment and Enablers scores

CATEGORY	DESCRIPTION	EXAMPLE SUBCATEGORY METRICS*
Deployment and market conditions ("**Deployment**")	Assesses the **current reach** of clean electrification across different end-uses, as well as the **market conditions** shaping deployment.	**Grids and power market:** grid reliability, investments in infrastructure per GDP, residential and retail electricity prices, share of clean electricity generation **Road transport:** share of electricity in transport, EV sales across vehicle classes, charging infra coverage **Industry:** electricity's share of total final energy consumption in industry, electricity-to-gas price ratio for businesses **Buildings:** electricity's share of total final energy consumption in the residential sector, residential electricity-to-gas price ratio **Cross-cutting:** construction costs, electrical trade workers per capita
Enabling conditions and policies ("**Enablers**")	Assesses the policies and other enabling conditions that are likely to influence further deployment of electrification **in the future**.	**Grids and power market:** demand flexibility programs, storage capacity support schemes, clean power procurement mechanisms, grid planning and connection allocations, grid digitalization and grid enhancing technologies **Road transport:** EV sales mandates, incentives for EV adoption, programs to accelerate EV charging infrastructure buildout **Industry:** programs to accelerate industrial energy efficiency and electrification **Buildings:** programs to accelerate buildings' energy efficiency and electrification **Cross-cutting:** national electrification targets, carbon pricing, fossil fuel subsidies, workforce reskilling programs

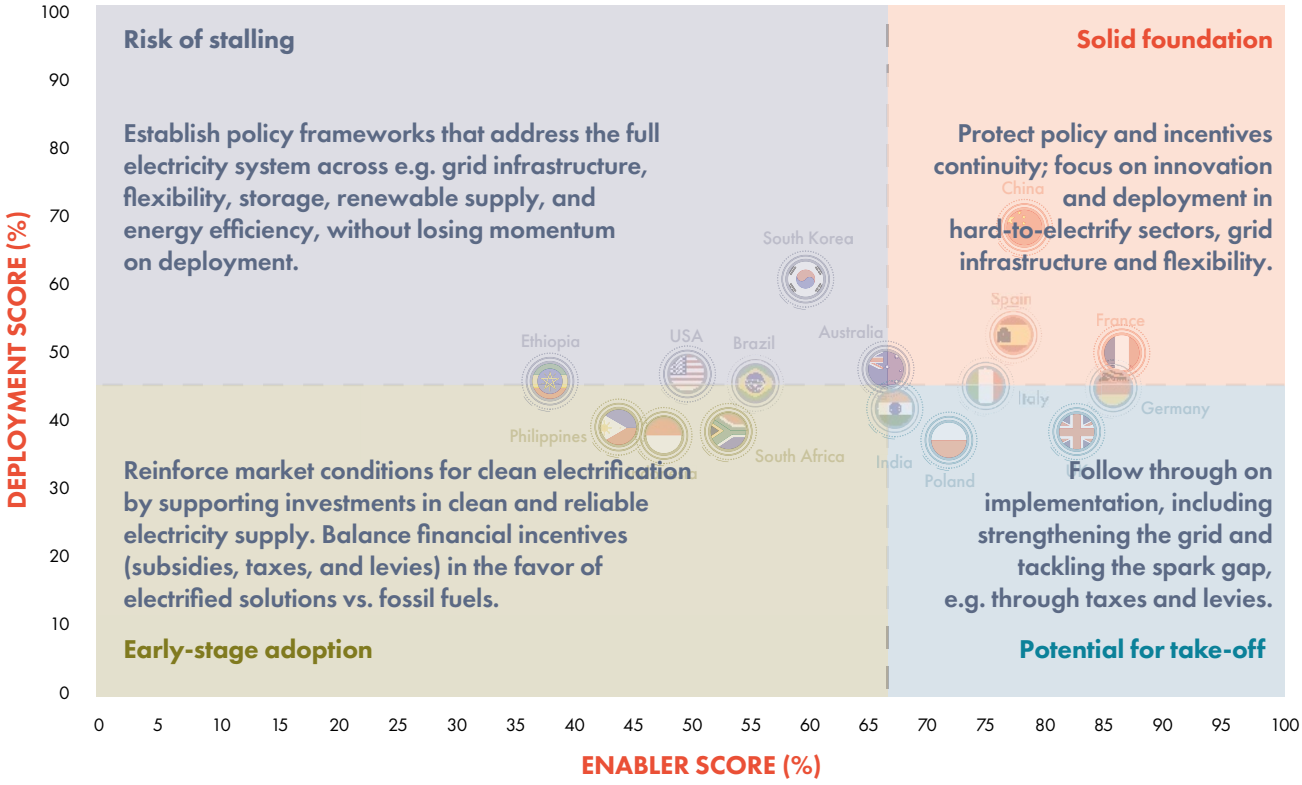
**For full list of subcategory metrics, sources, and research limitations please see the Annex on Methodology.*

INTRODUCTION AND RESULTS

SUMMARY OF INSIGHTS

Plotting the 16 countries' scores on Enablers-Deployment (x-y) axes, we have split the group into four quadrants divided by the sample medians of each score, which is 45% for the Deployment score and 67% for the Enablers score (indicated in the graph below by the dotted lines). This means that half of the countries have Deployment scores higher than 45% while the other half have scores below 45%, and half have Enablers scores higher and below 67%.

Exhibit 2 Findings for policymakers and advocacy by quadrant



The quadrants have been named based on where the countries are in their electrification journey compared to other countries in the assessment. The purpose is not to classify countries into "leaders and laggards" but rather to identify roughly where each country is — and who their closest peers are — to understand what kind of policies and enabling conditions are required to spur the competitiveness of electrified technologies. When looking at the quadrants, one should first note that some countries are practically at the median scores for Deployment (Brazil, Ethiopia, Germany, Italy, the U.S.), Enablers (India), or both (Australia). Hence, very small changes in the sample or the scoring could tilt for example Australia or Germany in the "On a solid track" quadrant.

INTRODUCTION AND RESULTS

SUMMARY OF INSIGHTS *(continued)*

Countries in the **Solid foundation** quadrant (China, France, Spain) have a few things in common. Firstly, their electricity-to-gas price ratio ("spark gap") is lower than in most other countries (around 2 or less) indicating a more level playing field between the two. The lower the spark gap, the more competitive electric heating (such as heat pumps and boilers) are for buildings and industry. The contrast to some of the countries in the "Poised for take-off" category is starker in industry, where the spark gap is around 3 in Italy and Poland, and around 5 in the U.K. Countries on a solid track also benefit from high scores on our grid metrics (e.g. investments in grids, grid reliability, and grid flexibility). There is also a high share of clean generation in France (95%) and Spain (75%), whereas China is on par with the global average at 42%. All three have incentives/programs to support battery and long-duration energy storage capacity buildout and regulatory frameworks for grid digitalization and grid enhancing technologies.

China leads on transport due to high EV sales across vehicle categories and sets the benchmark for high EV sales across all vehicle categories in our scoring: more than 50% for passenger cars, two- and three- wheelers, and buses; more than 10% for vans; and more than 25% for trucks. China leads also on industrial electrification and is one of the major producers of electrification technologies and components, such as EVs and battery cells, giving it a competitive advantage in access to electrified solutions.

The top European Union countries (Spain and France, as well as Germany although it is slightly below the median on deployment) have more balanced strengths across buildings, transport, and industry. All are relatively strong on policies thanks to EU-level regulation, but France and Germany have more robust programs on electrification than Spain to implement some of the planned changes.

The **Potential for take-off** quadrant (Germany, India, Italy, Poland, the U.K.) includes countries that score above the median on overall policies and enabling conditions, however score below the median on deployment and market conditions. This can partly be due to introduced policies being so recent that their impact hasn't been translated into a change in the deployment metrics yet (e.g. many of the European grid connection regulations reforms), especially in cases where comparable deployment data sources date back to 2024 or 2023.

The majority of these countries are still struggling with a high spark gap for industry and buildings (e.g. 3-5x in Italy, Poland, and the U.K.), relatively high grid losses (6-10% in Italy, Poland, and the U.K.; 14% in India, all as of 2023) and a low share of EV sales across trucks and vans. All these countries score above the median on overall policies and enabling conditions, however either those policies are so recent that their impact is not yet visible in the deployment data (e.g. the EU Electrification Action Plan, which was introduced in 2026), or their impact may be constrained by physical limits (for example, Germany is facing a backlog of hundreds of GW grid connections, while in the U.K. there is up to a 10-year wait for grid connection).

The **Risk of stalling** quadrant (Australia, Brazil, Ethiopia, South Korea, the U.S.) includes countries that score above the median on deployment while scoring below the median on policies and other enabling conditions. This indicates that the deployment and business case are already relatively strong, but they risk stalling unless determined policy action can enable the transition across the more difficult to electrify areas such as heavy road transport and industrial process heat.

Australia and South Korea have a relatively reliable and efficient power grid, and a high electrification rate in buildings (Australia) or industry (South Korea). However, both are at risk of stalling behind China and Europe on road transport electrification due to a weaker policy environment on EV mandates and programs to accelerate EV charging infrastructure.

INTRODUCTION AND RESULTS

SUMMARY OF INSIGHTS *(continued)*

South Korea's deployment score is significantly above the median (+16 ppt) and above all the countries in the top right quadrant apart from China. This is due to affordable electricity prices (which have, however, come at the expense of a rising power utility debt), strong grid reliability and efficiency that outperforms several European countries, and a high share of electricity in total final energy consumption for industry (partly driven by high share of electronics and battery manufacturing within industry, and by the affordable power prices).

Brazil and the U.S. are both strong on building electrification, and score average on grids, power markets, and industry; but lag peers on road transport electrification. In Brazil this is partly due to the prominent role of bioenergy, whereas in the U.S., promising development has been stalled by backsliding on federal EV policy. Both face the fundamental question on where road transport energy consumption should be steered with policy. They could benefit from federal EV sales mandates and support programs that some US states have already introduced. While not visible in scores derived from federal policy, action may still be spurred by state-level policies in support of electrification and grid infrastructure development being led by the state-level authorities and by private investments (e.g. through voluntary commitments), such as actions in California and Texas on load shifting, large-load queue reform, transmission expansion, and rapid storage deployment.

Ethiopia is an interesting outlier as it falls on the median line for Deployment but ranks last on enabling policy and other conditions, making it the only country in the analysis with a deployment score (45%) higher than its enabler score (38%). The achievements on deployment are driven by the abundant clean and affordable electricity (from hydropower generation) and the high EV sales share across passenger cars and buses. However, the country has only around 60% of electricity access. Policy focus is therefore more focused on improving electricity access and grid development, yet it has still introduced robust incentives, standards, and programs to accelerate EV deployment.

The **Early-stage adoption** quadrant (Indonesia, the Philippines, South Africa) includes countries that score below the median both on overall policies and enabling conditions, as well as on deployment and market conditions. There are varied circumstances for this, but these countries are at an earlier stage of development and have several other policy priorities competing for resources beyond electrification. However, all of them score over 35% on deployment and show a tighter alignment between Enablers and Deployment scores. This indicates that they are all moving on at least some of the important areas for electrification.

All three countries are at a relatively early stage of their clean electrification journey. South Africa still has some issues with electricity access (88%, compared to 98% in the Philippines and 99% in Indonesia). Unlike Ethiopia, all three still have fossil-fuel heavy grids; clean generation is at 18% in Indonesia and South Africa, and 23% in the Philippines. EV sales shares are still quite nascent in all three, albeit Indonesia and the Philippines are showing early signs of progress. Grid infrastructure investments per GDP are below 0.4% in all three countries (compared to the sample average of 0.65%), though Indonesia and the Philippines are the only countries in the sample consisting of a group of islands rather than one large landmass.

INTRODUCTION AND RESULTS

COUNTRIES' SUCCESS STORIES AND LEARNINGS

As we dive into the success stories that emerged from this assessment, there are some usual suspects and some surprises in the leading examples that are worth highlighting. The list below is not exhaustive but rather features select interesting examples from across the world.

China is leading on road transport electrification, being the only country scoring full points across all vehicle segments' uptake metrics. This uptake has been triggered and supported by several policy mechanisms such as **vehicle trade-in schemes, numerous tax breaks, and a solid framework for the nationwide charging infrastructure development** included in the three-year action plan from 2025. Going forward, China should focus on reinforcing recent actions to increase the shift towards full EVs over plug-in hybrid electric vehicles, increase the share of EV sales among trucks, and deploy bidirectional charging at larger scale. China's progress is also more balanced across end uses, with good performance also on industrial electrification, as well as progress made on clean supply and holistic policies implemented across the power market. The country can benefit in the future from accelerating heat pumps and electric cooking deployment and strengthening appliance efficiency standards. Significant potential also remains to deepen industrial electrification, particularly through the deployment of electric technologies for low- and medium-temperature process heat and greater integration of flexible electric loads in industrial parks.

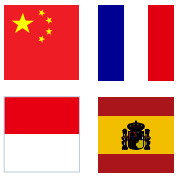
South Korea has the best balance of grid reliability and affordability, which contributes to the second highest deployment score (60%). The grid is also becoming more sophisticated thanks to the growing storage auctions, clean power procurement, and demand flexibility efforts (such as time-of-use regulations) although the power market is still dominated by the state-owned utility. The reliability (with lower outage times per household than Germany, Italy, and France) and efficiency of the grid are also in part contributors to the country's solid electrification rates of industry and buildings (among the highest of this assessment), together with some examples of robust efficiency standards and/or funding schemes for building retrofits. However, electricity prices have been frozen since October 2024 (residential since May 2023) at the expense of high power utility debt, while gas tariffs have been rising in stages. As identified by the National Assembly Research Service, this poses a risk of causing market distortion that will result in deferred bills rather than cost-competitive market conditions. Moving forward, South Korea could focus on detailing a market liberalization plan and establishing an independent regulator empowered to open the grid to transparent planning and market-based clean energy investments to spur competition and to drive innovation and cost-efficiency.

Ethiopia is the only country scoring the maximum points on phasing out fossil fuel subsidies, as the country initiated the removal of subsidies on gasoline, jet fuel, white diesel, and other petroleum products in 2022. **Another exemplary policy action is the ban of imports of all ICE vehicles, which contributed to 60% of electric new passenger cars purchases in 2024** together with incentives such as eliminating taxes and tariffs for Completely Knocked-Down EVs and a 5% import tariff for Semi Knocked-Down EVs. The learnings in these sectors could be replicated and expanded to accelerate electrification in industry and buildings, supporting this through a national plan that sets out clear targets for electrification across the economy and the roadmap to implementation across critical enablers, such as workforce and grid infrastructure.

Poland has recently introduced cutting-edge grid planning and decongestion solutions, moving decisively beyond first-come-first served approaches. The Grid Act (UC84, in force from 30 April 2026) introduces a binding 'milestone mechanism' under which connection agreements automatically expire unless developers demonstrate a final building permit within set windows, directly targeting the contracted-but-undeveloped 'zombie' capacity that had built up. Additionally, Polskie Sieci Elektroenergetyczne legally mandated rolling 10-year Transmission Development Plan provides clear cost recovery, new flexible/configurable connection types, and extended cable-pooling, all of which further unlock capacity ahead of full buildout. It's still too soon to identify the impact of these reforms, but it is a promising development.

INTRODUCTION AND RESULTS

COUNTRIES' SUCCESS STORIES AND LEARNINGS



China, France, Indonesia, and Spain are the only four countries in this analysis with a national electrification target expressed as share of final energy consumption. While national targets alone will not necessarily provide the sufficient granularity to drive investments to electrification, framing a country's electrification ambition in these terms is important because it elevates this lever as a priority and inspires action on a powerful yet historically overlooked part of the energy transition. An economy-wide target should consider national characteristics (e.g. sectoral split within industry and building heating requirements), and it should be followed by sector-specific roadmaps that identify the enabling conditions required to unblock progress that has stalled at roughly 20-27% in many developed economies.

France has published the multiannual PPE3 energy program, which establishes an economy-wide electrification trajectory — electricity's share of final energy consumption rising from 27% in 2023 to 34% by 2030 and roughly 39% by 2035 — backed by a 22-measure plan translating that trajectory into sector-specific actions for mobility, heating, industry, and the public sector.

Spain has established a national electrification objective through the updated PNIEC, which targets electricity accounting for 35% of final energy consumption by 2030. The plan also includes sector-specific measures and projections, though it does not establish explicit sectoral electrification targets.

Indonesia also has an explicit national end-use electrification pathway under Government Regulation No. 40/2025 on National Energy Policy (KEN), including targets of 23-28% in 2030 and 41-47% in 2060. The KEN also explicitly directs fuel switching toward electricity in transport, industry, commercial, and household uses, providing targets for deployment such as numbers of electric cars, motorcycles, buses, trucks, or electric cooking appliances. Setting clear targets and timelines for electrification helps establish it as a strategic priority for the country and signaling commitment to investors and businesses. Going forward, these countries could be leading advocates in the recent efforts to set global ambitious targets on electrification, as well as focus on the implementation of the action plans.

Australia, Germany, Italy, and the U.K. score the top deployment on energy storage, e.g. in terms of storage capacity versus total grid generation. In Italy, this is helped by the Italian TSO Terna's flagship storage mechanism MACSE, which awards 15-year tolling contracts to battery-storage owners toward a 15 GW-by-2030 target. Australia's deployment ranges from GWh-sized utility-scale batteries to the Community Batteries for Household Solar Program, which will give AUD 200 million (approximately USD 143 million) in grants for installations. Germany's Electricity Storage Strategy includes a 20-year grid-fee exemption for battery systems commissioned by 4 August 2029, as well as streamlined connection processes and separate auctions for long-duration storage with 15-year capacity payments. The U.K. also includes long-duration electricity storage through the national energy market regulator Ofgem's Long Duration Energy Storage Cap and Floor scheme, alongside growing strengths in grid flexibility systems and technologies.

Germany and South Africa have the highest penetration of electric cooking, respectively at 90-100% and 80-90%. This end use is often overlooked but its contribution to health impacts (estimated to be around 3.7 million premature deaths a year, according to an International Energy Agency analysis) and the 2 billion people lacking access to clean cooking facilities in 2023 make it an important application for electrification. The types of electric appliances for cooking are also different in energy and time savings, with some research showing 50% or more of monthly cost savings from efficient cooking appliances such as electric pressure cookers and rice cookers, and induction hobs compared to standard electrical hotplates. Going forward, efforts could be made so that these high-efficiency electric appliances are more accessible, affordable, and deployed at scale.

FINDINGS FOR POLICYMAKERS AND ADVOCACY

Switching from fossil-powered processes to electrified solutions at scale depends on coordinated investment in clean generation, transmission and distribution networks, storage, flexibility and supporting infrastructure for electrified solutions such as electric vehicles, electrified heating and (thermal) energy storage. Stable regulatory frameworks, predictable financial incentives and derisking mechanisms can help connect policy ambition with the investment needed to deliver it. Energy buyers are often the ones making the switch in their industrial processes, buildings or vehicle fleets, whereas utilities can contribute across these areas as investors, operators, aggregators, suppliers and customer partners.

For most countries assessed, the 'Policies and other enabling conditions' score is higher than the 'Market conditions and deployment' score (median of 67% compared to 45%). While scoring criteria selection plays a role in explaining the difference, this gap also reflects the fact that many countries still have a long way to go to reach high levels of electrification in total final energy consumption. We have identified several potential drivers for this gap:

Discontinuity and uncertainty

Funding or incentive gaps break end-user and investor confidence even when the underlying instrument is in principle well designed. Examples include Germany's EV subsidy two-year gap before its 2026 relaunch, France's suspension of *MaPrimeRénov'* at the start of 2026 and the lack of successor to the U.K.'s Industrial Energy Transformation Fund. Multi-year incentive schemes and de-risking instruments such as Germany's 15-year contracts for difference (*Klimaschutzverträge*) can convert into deployment more reliably than single grants.

Inconsistency and fragmentation

Several countries might score well on a policy's existence while another measure overall offsets its impact. For example, Germany's Federal Funding for Efficient Buildings *(Bundesförderung für effiziente Gebäude*, or BEG) heat-pump grants coexists with the Building Energy Act's (Gebäudeenergiegesetz) rollback of the mandatory renewable-heating requirement; Poland is tightening heat-pump eligibility (mandatory audits, removing electric-resistance aid) while trying to scale heat pump adoption; the U.K. is running a broad EV incentive suite while consulting on weakening the Zero Emission Vehicle (ZEV) Mandate itself. The enabler score credits the policy's existence without penalizing the contradiction. Auditing for internal consistency across policies will create more credible and reliable frameworks for investors and private consumers' confidence in taking risks and investing in the transition.

Physical constraints

Electrification will depend on unblocking some structural and physical constraints such as grid capacity limitations, permitting delays, and lack of skilled workers. These are bottlenecks that the highest-scoring countries have mitigated better than others. Examples of bottlenecks include Germany's hundreds of GW grid-connection backlog, 2TW+ interconnection queues in the U.S., up to 10 years of waiting time for grid connection in the U.K. and U.K. heat-pump installer capacity covering only ~20% of what's needed. Policymakers' attention must be directed to these infrastructure and systemic enabling conditions, as much as it is focused on supporting demand, otherwise they risk undercutting strong policies. Potential solutions to these barriers can be explored through the Business and Regulatory Navigator, developed by WBCSD, a partner of WMBC's Electric Advantage program, which provides an overview of the business and regulatory actions needed to accelerate electrification.

FINDINGS FOR POLICYMAKERS AND ADVOCACY

High cost of electricity compared to fossil fuel prices

High cost of electricity compared to fossil fuel prices (due to taxes or subsidies) can be a roadblock to electrification deployment, as high electricity prices compared to fossil fuels will work against electrification regardless of generous incentive schemes. Improving electricity affordability can strengthen the conditions for deployment as it strengthens the business case for electrified technologies. Enablers need to progress faster and more boldly in rebalancing the playing field for electricity through, for example, taxes, levies, removal of fossil fuel subsidies, and increasing competition in power generation, while carefully considering how to manage the impacts of the phaseout on lower-income households and small and medium-sized enterprises and avoiding unintended consequences from heavily regulated prices.

Policy recency and data lags

From a methodological perspective, policy recency and data lags also play a role: Several headline policies have been announced only over the last two years and thus have not yet had the time to drive change. Recent policies include e.g. France's energy storage tariff reform taking effect in 2026, Poland's 2025 renewable energy auction framework, Brazil's regulated carbon market established under Law 15.042/2024, India's Carbon Credit Trading Scheme, South Africa's ongoing electricity-market liberalization under the Electricity Regulation Amendment Act, Germany's draft grid-connection reforms, the proposed German long-duration energy storage auction framework, and Australia's Solar Sharer Offer, available from 1 July 2026. Data availability for deployment metrics also presents some limitations, as many international datasets are available only with a two- to three-year lag compared to the time of writing (Q2-Q3 2026). Progress is expected to follow as the policies enter into effect and are implemented.

When assessing the findings of the Index from a policymaker's point of view, it's important to reflect where each country is on their electrification journey. Countries have different reasons for low levels of electrification. For some it might be that electric alternatives are expensive compared to fossil fuel-powered ones, whereas for others the problem might be constraints related to grid infrastructure. We have identified some high-level recommendations for countries in similar situations (quadrants) below. One should note that the top-left quadrant (Risk of stalling) has a higher spread of scores and hence lower cohesion among the countries. Ethiopia and South Korea both stand out as outliers from the rest of the countries and might not benefit as much from peer comparisons.

FINDINGS FOR POLICYMAKERS AND ADVOCACY

For countries in the **Solid foundation** quadrant, it's important to protect policy continuity and to build on current success to tackle harder-to-electrify end uses such as heavy-duty transport and high-temperature industrial process heat. This includes tackling grid constraints for new loads through investments and flexibility mechanisms, ensuring sufficient public and depot charging infrastructure for medium- and heavy-duty vehicles, and supporting industrial heat electrification, e.g. through grid charges and connection queues that incentivize and accelerate the deployment of electricity load-balancing thermal energy storage.

For countries in the **Potential for take-off** quadrant, the priority should be to follow through on implementation and deployment by tackling physical and market barriers. Tackling the spark gap is an important place to start from through measures such as phasing out fossil fuel subsidies and rebalancing taxes and levies on electricity vis-a-vis fossil fuels. The different conditions of grid infrastructure and performance may call for different measures and different investment programs, with the objective of enabling speedy connections, demand-side flexibility, and an overall reliable and efficient grid.

Countries in the **Risk of stalling** quadrant are at very different points in the electrification journey. They already showcase decent deployment across at least one area (e.g. Ethiopia for road transport, Australia, the U.S. and Brazil for buildings, South Korea for industry), however would benefit from accelerating progress across other sectors to ensure that deployment is not constrained to individual end uses.

Countries in the **Early-stage adoption** quadrant would benefit from reinforcing market conditions for clean electrification by supporting investments in clean and reliable electricity supply through grid investments and subsidies for clean power generation and balancing financial incentives in favor of electrified end uses versus fossil fueled ones.

63%

63% of interviewed business leaders say that their country's power system is not keeping pace with their electrification needs

There are also sequencing considerations in the policy priorities and the overall electrification journey. Access to clean power and solid plans for grid infrastructure development are necessary for businesses to feel confident in switching to electric technologies and to de-risk their investments. Businesses want to be able to see the impact on emissions savings that they aim to achieve with this transition. Based on WMBC's global business poll, up to 63% of interviewed business leaders say that their country's power system is not keeping pace with their electrification needs, and half of corporate executives have talked about delaying or cancelling electrification projects because of grid infrastructure bottlenecks.

Energy efficiency and flexibility are critical levers in this regard, as they allow better utilization of existing grid resources. Research shows that energy efficiency can increase grid capacity 5-10x faster than supply side solutions, and Virtual Power Plants, Grid Enhancing Technologies and efficiency could together meet most of the peak growth in the U.S. to 2034. Regulatory frameworks that holistically address grid planning, grid infrastructure deployment (e.g. through anticipatory planning and flexible connections), and digital smart operations (e.g. through grid enhancing technologies or EV bidirectional charging) can provide transparency and confidence. Stronger collaboration and coordination across national, regional and local authorities, utilities and network operators, businesses, and civil society can enable faster translation from policy frameworks into deployment.

FINDINGS FOR POLICYMAKERS AND ADVOCACY

BEST PRACTICE POLICIES

Through consultations with private sector representatives and business networks, WMBC has identified 10 policy principles that can help policymakers strengthen and accelerate their progress on electrification and seize the electric advantage. In the research and assessment of the countries' electrification journey, the principles articulated policy actions to tackle areas of improvement.

The research revealed several cutting-edge, effective, and holistic policies in their coverage. This is not an exhaustive list of good policies, but it is intended to provide policymakers across geographies with tangible example measures that can help accelerate deployment and establish credibility and a stable foundation on the path toward a whole-economy electrification. More detailed, country-specific scores and targeted recommendations can be found in the country profiles section in the Annex.

Table 2 Example best practice policies across the 10 policy principles

POLICY PRINCIPLE	EXAMPLE BEST PRACTICE POLICIES
1 ***Reinforce clean electrification as a shared strategic priority across international forums***	**Australia, Brazil, the European Union, Ethiopia, Germany, the Philippines, South Korea, and the U.K.** (among others not in this assessment): These actors are either founding members or early joiners of the Electrify Now government coalition, part of the broader Electrify Now movement and complementary to the Electrify Now campaign, which has helped electrification become a priority topic at COP31 and beyond.
2 ***Set clear targets and timelines for electrification***	**France:** Electricity's share of final energy consumption target, rising from 27% in 2023 to 34% by 2030 and roughly 39% by 2035 is established by the *Programmation Pluriannelle de l'Energie* (third edition) (PPE3). This is backed by a 22-measure plan translating that trajectory into sector-specific actions for mobility, heating, industry, and the public sector. **Indonesia:** Electrification targets of 23-28% in 2030 and 41-47% in 2060 are included in Government Regulation No. 40/2025 on *Kebijakan Energi Nasional* (KEN), or National Energy Policy. The KEN also explicitly directs fuel switching toward electricity in transport, industry, commercial, and household uses, providing targets for each. **Spain:** National electrification target of 35% of final energy consumption by 2030 is established by the updated National Energy and Climate Plan 2023-2030 (PNIEC).
3 ***Realign financial incentives and taxation to support electrification***	**Ethiopia:** Fossil fuel subsidies phaseout kicked off in 2022 and now only subsidies for low-income households as direct cash remain. **Germany:** The national Fuel Emissions Trading Act (BEHG since 2021) is a national emissions trading scheme that applies a CO_2 price to fuels used predominantly for heating and transport, with a fixed carbon price reaching EUR 55/ton in 2025; a price corridor of EUR 55-65/ton applies for 2026, the first-year allowances are auctioned (rather than sold at a fixed price). **India:** The Prime Minister's Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) provides direct demand incentives for electric two- and three-wheelers, buses, ambulances, and N2/N3 electric trucks. Its dedicated e-truck scheme offers an upfront purchase-price reduction of up to INR 9.6 lakh (~USD 11,000) per vehicle and supports medium- and heavy-duty freight electrification; the wider scheme also funds charging infrastructure. **Poland:** *Czyste Powietrze* offers up to a 100% subsidy for lowest-income households (max. PLN 170,000 or ~USD 46,000) to replace coal heat sources with heat pumps paired with energy efficiency retrofits.

FINDINGS FOR POLICYMAKERS AND ADVOCACY

BEST PRACTICE POLICIES

Table 2 Example best practice policies across the 10 policy principles (continued)

POLICY PRINCIPLE	EXAMPLE BEST PRACTICE POLICIES
4 ***Ensure electricity markets reward clean, flexible supply and demand***	**Australia:** Solar Sharer Offer program, available since July 2026, provides free electricity for three hours a day when solar generation is at its peak. Eligible citizens must live in one of three states included in the program and have a smart meter currently installed at their residence. **The Philippines:** The Electric Power Industry Reform Act, adopted in 2001, unbundled generation and distribution, established a wholesale electricity market for independent power producers, and created a class of "contestable customers" that can exercise more choice in energy supply. **U.K.:** The National Energy System Operator's Demand Flexibility Service, approved by Ofgem for 2026, pays households and businesses to shift consumption at system-stress periods. It became a year-round tool in November 2024, and its April 2026 expansion added bidirectional flexibility, zonal procurement and a lowered 0.1 MW eligibility threshold, with over 2.46 million participants enrolled by March 2026. **South Africa:** Facilitating a coal transition through a comprehensive Just Energy Transition framework and renewable repurposing plans for phased-down coal power plants.
5 ***Deliver modern electricity systems including grids and enabling infrastructure***	**Spain:** EUR 17 billion investment pledge included in the Electricity Network Plan with a 2025-2030 investment horizon and implementation of grid-enhancing-technologies with Dynamic Line Rating in the Balearic Islands. **South Korea:** Statutory smart-grid plans and investment support require operational deployment of advanced metering infrastructure, digital substations, predictive control, flexible AC transmission systems, and high-voltage DC. **Italy:** *Meccanismo di Approvvigionamento di Capacità di Stoccaggio Elettrico* (MACSE) is Transmission System Operator (TSO) Terna's flagship storage mechanism, awarding 15-year tolling contracts to battery energy storage system owners in return for making capacity available to the system with a target of 15 GW of storage by 2030. **China:** Three-year action plan from 2025 lays out framework for nationwide charging infrastructure expansion. This will include a network of 28 million charging stations with a capacity of over 300 million kW (enough for 80 million EVs). The plan will prioritize upgrading urban fast-charging networks, expediting charging facility upgrades in expressway service areas, and tackling rural charging infrastructure shortages. The Implementation Plan for Promoting the Large-Scale Application of New Energy Heavy-Duty Trucks also lays out a plan for vastly expanding heavy-duty charging by 2030.
6 ***Streamline permitting and grid connection processes***	**China:** The 2025 Guiding Opinions on Promoting High-Quality Development of Power Grid by the National Development and Reform Commission and the National Energy Administration requires unified planning of backbone, distribution and microgrids; rolling system design; moderately forward investment; stronger investment assessment; and coordinated national/provincial construction. **Poland:** Around 150 GW of new connection potential is estimated to be unlocked by April 2026 as part of the Grid Act's reforms on flexible connections and cable-pooling, beyond targeting the contracted-but-undeveloped "zombie" capacity through a milestone mechanism.

FINDINGS FOR POLICYMAKERS AND ADVOCACY

BEST PRACTICE POLICIES

Table 2 Example best practice policies across the 10 policy principles (continued)

POLICY PRINCIPLE	EXAMPLE BEST PRACTICE POLICIES
6 ***Streamline permitting and grid connection processes*** *(Continued)*	**France:** Distribution system operator Enedis and TSO RTE are granted a financial bonus for using flexibility instead of network reinforcement thanks to storage-specific connection-queue reforms with the regulated network fee (*Tarif d'Utilisation des Réseaux Publics d'Électricité*), including binding deadlines to offer flexible connections to all storage by August 2026 and all medium-voltage users by August 2027. **South Africa:** Progressive reforms have removed licensing barriers to distributed energy resources, which today represent ~15% of the total power generation installed capacity. This happened by first raising the licensing exemption from 1 MW to 100 MW in 2021 and subsequently removing the threshold, while retaining registration and technical grid-connection requirements.
7 ***Mobilize finance and de-risk investment***	**Germany:** First auction for 4.5 GW of dispatchable capacity and long-duration storage in the new Electricity Supply Security and Capacity Act (StromVKG) launched in July 2026, with 15-year capacity payments, alongside a planned 0.5 GW long-duration storage tender within the hydrogen power-plant strategy. **Italy:** Strong de-risking innovation with a government-backed guarantor of last resort role through the state-owned company Gestore dei Servizi Energetici in the new organized power purchase agreement (PPA) market. **India:** Several examples of at-scale public procurement and public private partnerships models to de-risk investments and support at scale deployment that translates also into steeper cost declines, like the UJALA bulk procurement of LED bulbs and the largest electric bus tender launched by Convergence Energy Services Ltd under the PM E-Drive scheme that includes the procurement, supply, operation, and maintenance of 10,900 electric buses, as well as the development of associated civil and electrical infrastructure, by aggregating the procurement for lower costs and guaranteeing payments per kilometers to operators to de-risk their investments.
8 ***Use regulatory standards and mandates to accelerate deployment of electric solutions***	**France:** Incentivizing efficiency upgrades for residential rental properties through a phased rental ban based on Energy Performance Credit (DPE in French) for low efficiency homes, alongside standards for new-build and existing commercial stock. **Poland:** A public-procurement ZEV quota goes beyond the EU baseline, using government purchasing power to accelerate fleet electrification. **Ethiopia:** EV sales share raised to 60% in 2024 thanks to the ICE vehicle import ban and solid incentives as eliminations of taxes and tariffs for Completely Knocked-Down EVs and a 5% import tariff for Semi Knocked-Down EVs.
9 ***Integrate electrification into industrial strategies and trade policy***	**U.K.:** Introduced solid strategies for scaling domestic manufacturing of EVs, batteries, and heat pumps (e.g. Advanced Manufacturing Sector Plan, Clean Energy Industries Sector Plan, GBP 4 billion DRIVE35 Automotive Transformation Fund). **Brazil:** The Green Mobility and Innovation Program (MOVER) provides a significant investment and incentive framework, including an estimated USD 26 billion in automaker investment and USD 4.8 billion in R&D-linked credits. **India:** Green Steel Mission and battery-cell/specialty-steel production-linked incentives constitute an integrated industrial-electrification strategy spanning steel, batteries, and specialty steel. China: Early innovation for electrification via encouraging localities to build zero-carbon industrial parks that aim to achieve net zero emissions through advanced planning, design, technology, and management; funded via existing funding channels and through local government's budget.

FINDINGS FOR POLICYMAKERS AND ADVOCACY

BEST PRACTICE POLICIES

Table 2 Example best practice policies across the 10 policy principles

POLICY PRINCIPLE	EXAMPLE BEST PRACTICE POLICIES
9 ***Integrate electrification into industrial strategies and trade policy*** *(Continued)*	**France:** Distribution system operator Enedis and TSO RTE are granted a financial bonus for using flexibility instead of network reinforcement thanks to storage-specific connection-queue reforms with the regulated network fee (*Tarif d'Utilisation des Réseaux Publics d'Électricité*), including binding deadlines to offer flexible connections to all storage by August 2026 and all medium-voltage users by August 2027. **South Africa:** Progressive reforms have removed licensing barriers to distributed energy resources, which today represent ~15% of the total power generation installed capacity. This happened by first raising the licensing exemption from 1 MW to 100 MW in 2021 and subsequently removing the threshold, while retaining registration and technical grid-connection requirements.
10 ***Build the skilled workforce needed to electrify the economy***	**The Philippines:** The Green Jobs Act builds on existing fiscal incentives to promote the training and certification of workers needed for a transition to the green economy. **South Africa:** PowerUp, an Energy and Water Sector Education and Training Authority initiative, bridges the skills gap between industry needs and post-secondary school education institutions by providing a national, digital facilitation hub with resources to facilitate a just labor transition to a green economy. **Indonesia:** The Renewable Energy Skills Development (RESD) program supports renewable-energy curricula at state polytechnics, industry-standard labs, instructor training and strong industry partnerships. RESD Phase II began in 2026 to further align vocational education with clean-energy workforce needs. **South Korea:** The Korea Green Transformation strategy's inclusive-transition pillar and the 2026 Special Act for coal-plant workers provide retraining for people transitioning out of coal into green jobs.

POLICY SEQUENCING AND TIPPING POINTS FOR ELECTRIFICATION

The switch from fossil-fueled technologies to electrified alternatives is a technology transition, as several others we have seen in history, and technology transitions tend to follow a predictable pattern. First, there is a slow build-up phase where innovators move a concept from prototype to pilot. Then a niche phase, in which early adopters absorb a cost premium. Finally, once the technology beats the incumbent on cost or performance, it becomes self-reinforcing and starts to climb steeply into the mass market, driven by learning curves, economies of scale and social diffusion, before growth plateaus at saturation following a shape that is known as an "S-curve". Because the pace of diffusion is shaped by systemic interactions rather than merit alone, transitions can be deliberately accelerated by coordinated, sector-specific policy action targeted at the right lever for the right phase, rather than a single economy-wide instrument.

Some levers are not confined to one sector, as several technologies and components serve different uses. Heat pumps serve buildings and industrial process heat. Batteries underpin EVs, grid storage, and back-up power. Demand-side flexibility links building, industrial, and grid decarbonization, shifting electricity load to meet clean supply or solve grid constraints cost effectively. Progress on one of these cross-cutting technologies feeds directly into the others, making them capable of triggering cascading change across sectors at once. Prioritizing these cross-cutting levers, rather than treating each sector's transition as a separate problem, is one of the clearest ways to accelerate systemic change.

In complex systems, one tipping point can increase the likelihood of triggering another at a larger scale, resulting in a domino effect. The economy can be seen as an ecosystem with these tipping points in supply and demand for zero carbon technologies competing with fossil fuels, triggered by targeted holistic policy interventions. Examples include how coal has been phased out from the U.K. power system from 40-1% of electricity generation between 2012 and 2020, using a relatively modest tax on carbon emissions, and how Norway stimulated sales of EV cars 10 times faster than other countries by targeted subsidies and taxes. In India, the UJALA scheme's bulk LED bulbs procurement triggered sharp and lasting price decline and near-universal adoption, while the PM-eBus Sewa scheme aims to deploy 10,000 e-buses across India through aggregated procurement on a Public Private Partnership model.

Thanks to this domino effect or triggering tipping cascades, large positive outcomes can come from a few relatively small interventions where each positive tipping point passed increases the chance of activating others. The latest synthesis of tipping-point research talks about "super-leverage points," actions that are both the highest-leverage moves within their own sector and have a positive, high-probability, and high-impact influence on at least one other major-emitting sector. One example of such a policy archetype is the electric vehicle mandate. Lifting EVs to 60% of global car sales by 2030 would multiply battery production tenfold, cutting battery costs and pulling forward cost parity for both grid storage and heavy-duty electric trucks. EV mandates (like the ones planned but currently at risk of dilution in the U.K. and the EU) are therefore not merely strong domestic electrification policy but also an example of "super-leverage-points".

POLICY SEQUENCING AND TIPPING POINTS FOR ELECTRIFICATION

Matching the stage of transition with the right sequence of policies

Policymakers should first look at which stage of electrification deployment they are in each sector and match the policy to the stage of transition. Read through the lens of technological transition phases and tipping points, a Deployment score in the Index is a snapshot of where a country's system currently sits along the transition from fossil-powered economies to electrified ones. An Enablers score, by contrast, measures the policy, institutions, and market design that should, in theory, move electrification through that curve faster and help it break through the incumbent fossil system it is competing against.

A country with high Enabler score and low Deployment score is not necessarily underperforming. The important question is whether its policies and enabling conditions are suited to the phase its energy transition has reached to tip adoption toward the following phases. In the emergence stage for a certain sector or technology, like today for industrial heat pumps or electric trucks, policymakers must first support the invention of new solutions by directing publicly funded R&D and enabling market introduction through public procurement, targeted subsidies for production or consumption, and concessional lending. Luckily for countries in the **emergence stage**, considerable R&D investments in battery and EV technologies have already been undertaken by developed economies, the benefits of which are now trickling down globally thanks to international trade.

In the **diffusion stage** (where electrification is picking up speed), measures to put pressure on fossil-fueled technologies, such as carbon taxes, can begin to play a role, but even more important will be building infrastructure and allowing for scaling and integration into existing (e.g. power grid) or new systems (e.g. EV charging infrastructures), through the removal of barriers such as grid connection queues. Five of the 16 countries researched are in this phase, in what we have called in this Index the "potential for take-off" quadrant, i.e. strong on Enablers but not yet strong on Deployment.

Finally, in the **reconfiguration stage**, old technologies can start to be phased out with bans and taxes on their sale and use. A country with an all-carrots-and-no-credible-stick timeline can seem to have potential for take-off while lacking the instrument that would force the cascading tipping points to take place. On the other hand, identifying the super-leverage points can help accelerate the transition across several end uses and therefore help improve competitiveness and reduce dependence on volatile fossil fuel imports.

The right policy for the right job

Besides looking at the phases of deployment, design complexity and need for customization for different sectors and clean technologies might drive the need for different instruments. Technologies can be categorized into three types. Type 1 technologies are standardized and mass produced, such as solar panels, batteries, and EVs, and they are already climbing the steep part of the S-curve. Their reinforcing feedbacks, learning curves, and economies of scale are strong enough that a market mechanism plus a mandate is often enough to tip them further. Type 2 technologies, i.e. platform-based and dependent on domestic supply chains, such as wind turbines and grid equipment, sit earlier in the transition. The supply chains and manufacturing base that would let reinforcing feedback loops take hold domestically do not yet exist, so sustained national industrial policy is needed to build it.

POLICY SEQUENCING AND TIPPING POINTS FOR ELECTRIFICATION

Type 3 technologies are bespoke and capital-intensive, such as steelmaking and chemical plants. They are not built on production lines and hence do not benefit from economies of scale to the same extent as batteries or solar panels. Subsidy schemes such as Carbon Contracts for Difference (CCfDs), e.g. the German Klimaschutzverträge, can tip the business case in favor of clean technologies but may require more holistic industrial policy paired with international coordination between individual projects to scale globally. Subsidy-style 'carrots' such as the CCfDs, auctions, and purchase incentives can cut emissions substantially on their own but may plateau well short of deep decarbonization, because they make clean alternatives cheaper without making the fossil incumbent more expensive or scarcer. Reaching a full energy transition in the relevant sectors still requires a 'stick': a system-wide constraint, an economy-wide carbon price, or a binding phaseout mandate, that forces the incumbent technology share to shrink. Timing turns out to matter as much as the choice of instrument. Research shows that a carrot-first strategy can match a stick-only pathway's cumulative emissions almost exactly if the shift to sticks happens within about a decade — but if it is delayed by 20 years, the carbon price eventually required is roughly 40% higher, with far greater reliance on unproven carbon-removal technology to close the gap. Worse, inconsistent carrots underperform steady ones even in the near term, resulting in 24% emissions reduction instead of 32% in the modelled case.

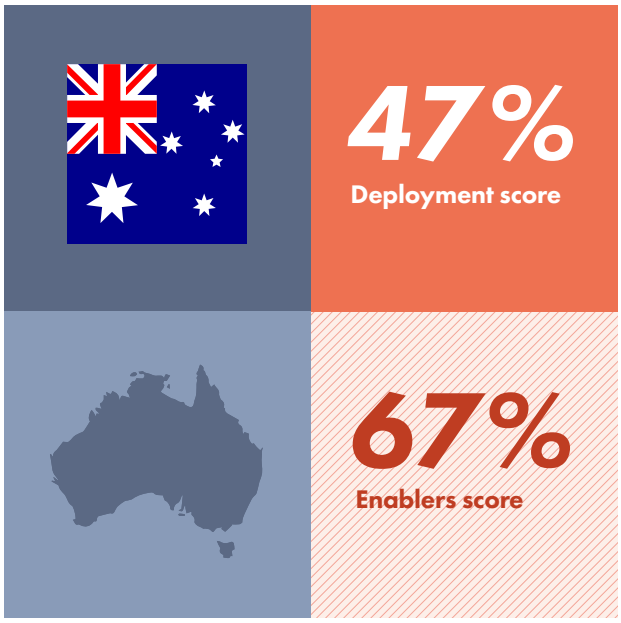
The same stop-start pattern is seen in Germany's EV-subsidy gap, Italy's Ecobonus cliff edge, and Poland's mid-scale-up withdrawal of its EV ownership-tax discount. Read this way, Poland's resistance to the EU ETS2's design and its 2049 coal phaseout timeline are not simply political friction to be worked around; they are exactly the deferred "stick" that research suggests makes the eventual transition costlier, not cheaper, the longer it is delayed.

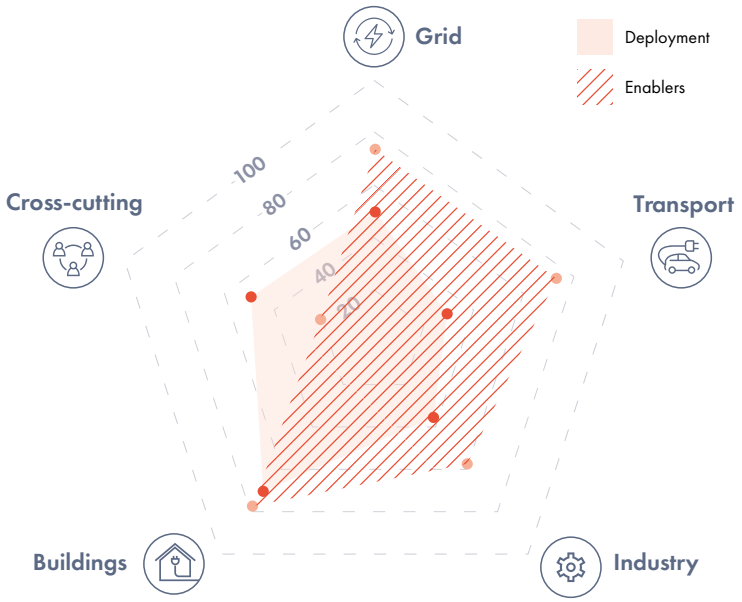
ELECTRIC ADVANTAGE

ANNEX: COUNTRY PROFILES

ANNEX: COUNTRY PROFILES

AUSTRALIA





Australia scores in the middle of the pack both categories (47% for deployment, 67% enablers), with some areas of leadership and other areas of inertia. Long-standing power market reforms, such as the creation of the National Electricity Market in 1998, have helped Australia become a leader on distributed solar and storage and it has strong foundations for demand-side flexibility through time-of-use tariffs and programs like the Solar Sharer Offer.

Other strengths include heat pump adoption and workforce capacity; electric vehicle (EV) car adoption, and green industry (while still early-stage) are also accelerating. On the other hand, most policies retain the structural status quo: fossil fuel subsidies continue to grow, and standards for industrial efficiency lag behind what's needed. Commercial EV adoption and industrial electrification have room to improve. Additionally, two confusing policy signals weaken private sector and capital confidence: the continued support for fossil fuel production operations (e.g. with the approvals of coal and gas projects, and the potential build-out of the first new oil refinery in decades) and the lack of concrete actions and sector-by-sector policies to move from decarbonization targets to implementation.

Australian policymakers can accelerate progress by aligning financial incentives with clean electrification and enforcing clear sectoral standards that complement current project funding programs, which are more voluntary in nature. Even with significant funds available for end-use electrification, several factors undercut the financial case — from high electricity and construction costs to increasing fossil fuel subsidies (such as the Fuel Tax Credits Scheme). Stronger standards for industrial efficiency and demand-side flexibility could also help manage electricity demand growth, helping affordability by reducing the electricity and fuel import costs required to achieve home comfort or industrial output.

ANNEX: COUNTRY PROFILES

AUSTRALIA

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' cover government plans, incentives, and regulations. See Methodology Annex for details.

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
GRID & POWER MARKET **14/30** DEPLOYMENT **22/30** ENABLERS	Distributed solar and storage adoption are among the highest in our assessed countries. Solid market reforms and demand flexibility efforts.	Grid investment has been insufficient to reduce solar curtailment. Annual home electricity costs are among the highest of the countries analyzed.
TRANSPORT **6/20** DEPLOYMENT **15/20** ENABLERS	Early progress for EV passenger vehicles (15% sales share). Strong EV incentives, charging investment, and smart/bidirectional charging initiatives.	EV deployment beyond cars remains low, with diesel higher than most countries. Vehicle CO2 standards are not long-term and exclude heavy trucks.
INDUSTRY **8/20** DEPLOYMENT **12/20** ENABLERS	Some early-stage green iron and steel efforts from several companies. Robust programs support efficiency, decarbonization, and electrification.	Industrial electrification is still early, while efficiency standards lag peers (e.g. IE2 for motors, and no standards for pumps, fans, or air compressors).
BUILDINGS **15/20** DEPLOYMENT **16/20** ENABLERS	Strong building electrification (more than 60% of final energy as electricity), heat pump adoption, and national and state incentive policies.	Smart meter installation and electric cooking have room to expand. Appliance standards (such as air conditioners) are not at Collaborative Labeling and Appliance Standards Program benchmarks.
CROSS-CUTTING **5/10** DEPLOYMENT **2/10** ENABLERS	Australia's workforce has the highest share of electrical trade workers in our assessment.	Fossil fuel subsidies have increased to a near-record high. Construction costs are high for building new infrastructure.
TOTAL SCORES	**47/100** DEPLOYMENT **67/100** ENABLERS	

Scores may not sum perfectly due to rounding. Data quality concerns: ***low.*** *The only hard-to-find data were on non-passenger EVs and heat pumps*

ANNEX: COUNTRY PROFILES

AUSTRALIA

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 tone for sustained, market-based change.

We have reviewed the above findings against WMBC's 10 Policy Principles to Seize the Electric Advantage. Many challenges, from high electricity costs to high fossil fuel subsidies, relate to Principle 3 on realigning financial incentives. Focusing on this policy principle would help Australia improve the affordability of electrification. In tandem, gaps on efficiency standards and mandates (e.g. for industrial motors and heavy-duty vehicles) can be served by Principle 8 and would improve security by reducing volatile oil imports.

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	Pair existing emissions reduction targets with actionable sectoral electrification targets, such as in France.
3. Realign financial incentives and taxation to support electrification	Reverse the trend of fossil fuel subsidy increases and implement a clear phaseout plan, along with strengthening the price signal from the Australian Carbon Credit Unit.
4. Ensure electricity markets reward clean, flexible supply and demand	Focus on utilization of current and future solar and storage resources, building on programs such as the Solar Sharer Offer and other demand flexibility efforts.
5. Deliver modern electricity systems including grids and enabling infrastructure	Increase investment in grid infrastructure and smart, bidirectional charging networks (via programs like the Driving the Nation Fund), to complement strong incentives for distributed generation and battery storage for households and businesses.

ANNEX: COUNTRY PROFILES

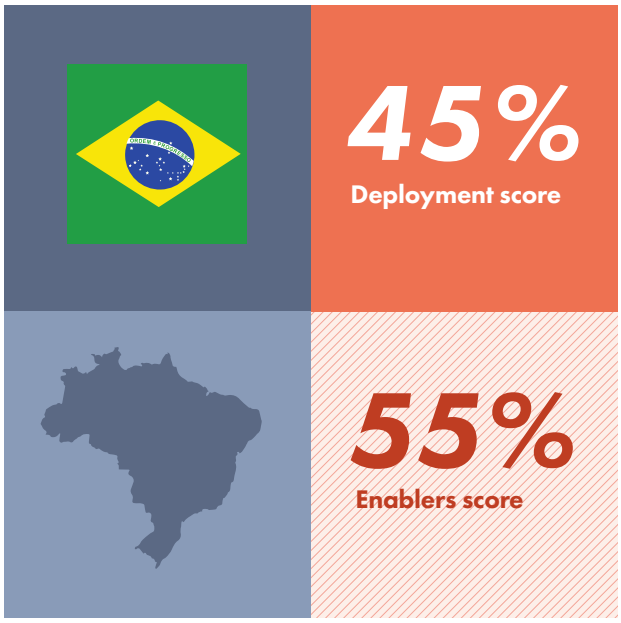
AUSTRALIA

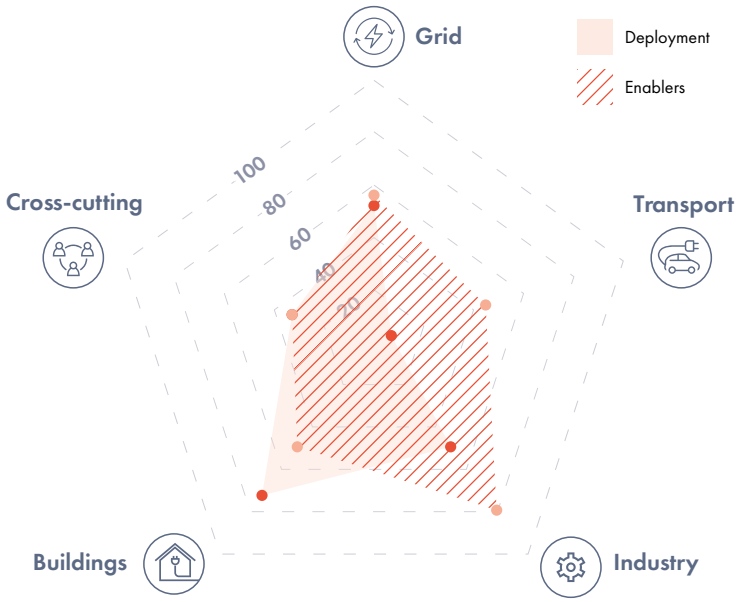
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Implement the Australian Energy Market Operator's Streamlined Connections Process workstream via industry working groups, government project trials, and other business-led initiatives.
7. Mobilize finance and de-risk investment	Minimize deployment cost hurdles to encourage private sector investment alongside the many government incentive programs, while continuing to implement commitments to financially assist neighboring regions in their path towards electrification access.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Improve standards for industrial energy efficiency and electrification (e.g. via the 2025 consultation on improving the IE2 standard for motors), while enforcing recent updates in vehicle standards and the Construction Code for buildings.
9. Integrate electrification into industrial strategies and trade policy	Accelerate deployment of industrial electrification to support Australia's positioning as a first mover, building on expansive government funds for green iron, aluminum, and other sectors.
10. Build the skilled workforce needed to electrify the economy	Deploy recent investments in training capacity, apprenticeship support for small and medium-sized businesses, and teacher preparation among current industry professionals, while supporting the country's strong existing workforce.

ANNEX: COUNTRY PROFILES

BRAZIL





Brazil has a strong starting point for electrification: a high share of clean electricity generation, a rapidly evolving electricity market and affordable electricity. Despite this, there is a gap between its policy with an enabler score of 55% and deployment at 45%. Its electricity generation is already 89% clean and electricity prices are already competitive. Two recent measures are accelerating market reform: Law 15.269/2025 and Decree 13.097/2026 are opening retail electricity access, letting industrial and commercial consumers choose their own supplier from 2027, with other consumers following in 2028. Demand response has been a permanent feature of the market since 2022 and Brazil's National Electric Energy Agency (Agência Nacional de Energia Elétrica, or ANEEL), is running the country's first-ever auctions for battery storage capacity. Buildings are already relatively advanced in their electrification, and the power system gives other sectors a strong foundation to build from.

Some challenges still exist. Brazil has pursued decarbonization firmly, but largely by tapping on its vast bioeconomy resources instead of direct electrification — meaning a much larger share of the economy could be electrified with clean electricity if the right enabling conditions were in place. While major grid projects are undergoing and are expected to be delivered in 2027 and the upcoming years, current grid capacity is insufficient: network losses sit close to 15%, storage capacity is below 1% of total generation, and 93 GW of new supply is currently waiting to be connected to the grid. Transport electrification hasn't extended beyond passenger cars, and industrial electrification is still relatively low. Brazil still lacks a binding economy-wide electrification target, an operational carbon price, and a pathway for reforming fossil fuel subsidies.

In terms of potential actions to overcome these challenges, the first should focus on grids: accelerate investment to cut losses, connect the 93 GW of projects in the queue, and deploy storage so that clean electricity can reach new users. The second could be strengthening targets and price signals. Brazil could introduce a binding national zero-emission vehicle (ZEV) sales mandate alongside charging corridors and depot support; set interim industrial-electrification targets and direct Brazilian Development Bank (Banco Nacional de Desenvolvimento Econômico e Social, or BNDES) and Nova Indústria Brasil finance towards electric process heat; and establish a national program for electric space and water heating. Thirdly, Brazil could set an overarching electrification target, implement the emissions-trading system on schedule, publish a credible fossil-fuel- subsidy reform pathway, and expand the technical workforce needed for deployment. Together, these actions would allow Brazil to convert one of the cleanest power systems in this research into clean electrified end uses at scale.

ANNEX: COUNTRY PROFILES

BRAZIL

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 **16/30** DEPLOYMENT **17/30** ENABLERS	A strong and rapidly evolving policy framework: Law 15.269/2025 and Decree 13.097/2026 advance electricity-market opening, demand response has been permanent since 2022, and ANEEL has established the framework for Brazil's first battery-capacity auctions.	Deployment lags policy: losses remain close to 15%, infrastructure investment is insufficient, storage is below 1% of generation, and 93 GW of supply awaits connection.
TRANSPORT **1/20** DEPLOYMENT **9/20** ENABLERS	Green Mobility and Innovation Program (MOVER) provides a significant investment and incentive framework, including an estimated USD 26 billion in automaker investment and USD 4.8 billion in R&D-linked credits.	Brazil's largest gap: Electric vehicle (EV) deployment remains low outside passenger cars, with no binding national ZEV standard or comprehensive charging program for freight corridors and depots.
INDUSTRY **10/20** DEPLOYMENT **16/20** ENABLERS	Brazilian Development Bank's Climate Fund for Green Industry (Fundo Clima – Indústria Verde, or BNDES), National Energy Conservation Program (PROCEL), and minimum equipment-efficiency standards provide useful building blocks. Brazil's Climate Plan for Industries includes a target to raise electricity's share of industrial energy consumption to at least 24% by 2035.	Support is not yet sector wide. Electricity covers about 20% of final energy and pilot projects are still being built; a broader framework for process electrification is needed. There would be room for higher ambition in terms of the electrification target for 2035 given Brazil's abundant clean electricity, although bioenergy has a strong position in industry.
BUILDINGS **15/20** DEPLOYMENT **10/20** ENABLERS	The strongest combined category: electricity supplies nearly 64% of final energy and costs less than gas for households. Established efficiency programs and Brazil's first mandatory national standard reinforce this advantage.	Explicitly include electric cooking in the National Programme for Access to Clean Cooking, with targeted support for households to adopt electric or induction stoves.
CROSS-CUTTING **3/10** DEPLOYMENT **3/10** ENABLERS	National Climate Plan (Plano Clima) and 10-Year Energy Expansion Plan 2035 provide sectoral direction, while Future Professionals and MME initiatives support reskilling and education.	There is no binding economy-wide electrification target; the Brazilian Greenhouse Gas Emissions Trading System (SBCE) is not operational; fossil-fuel subsidy withdrawal lacks a comprehensive pathway; and the technical workforce base remains thin.
TOTAL SCORES	**45/100** DEPLOYMENT **55/100** ENABLERS	

*Scores may not sum perfectly due to rounding. Data quality concerns: **low.** Brazil had solid coverage across the data metrics; the main challenges concerned EV sales shares for trucks and buses.*

ANNEX: COUNTRY PROFILES

BRAZIL

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

We have reviewed the above 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 (deliver modern electricity systems and streamline permitting and grid connection processes), particularly as insufficient grid investment, network losses, and the volume of supply awaiting connection can constrain new electrification demand. Strengthening grid planning, capacity allocation, and investment can help unlock deployment while improving energy security and competitiveness. Principles 2 and 8 (clear targets and timelines backed by regulatory standards and mandates) are also particularly relevant to the lack of economy-wide electrification targets and limited transport deployment. Clearer mandates would help provide investment certainty and accelerate the uptake of electric technologies. Principle 3 (realignment of financial incentives) is important given the absence of an operational carbon price and a comprehensive fossil-fuel subsidy phaseout pathway, while better-aligned incentives can strengthen the affordability and business case for electrification. Finally, Principles 4 and 7 (reward flexibility mechanisms and mobilize finance) can help scale storage, flexibility, and investment through stronger market signals and mobilization of private finance, while Principle 10 (building a skilled workforce) can help address skill constraints as deployment accelerates.

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	Establish measurable economy-wide and sector-specific electrification targets, including more ambitious targets for industry and medium- and heavy-duty vehicles, supported by clear implementation roadmaps and regular progress monitoring.
3. Realign financial incentives and taxation to support electrification	Operationalize the SBCE carbon market, set a clear timetable for phasing out fossil fuel subsidies and strengthen long-term financial incentives that improve the business case for electrification across sectors.
4. Ensure electricity markets reward clean, flexible supply and demand	Implement the proposed automatic time-of-use tariff, expand participation by distributed resources and aggregators and increase adoption of dynamic tariffs. Strengthen long-term mechanisms for corporate clean electricity procurement.

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ANNEX: COUNTRY PROFILES

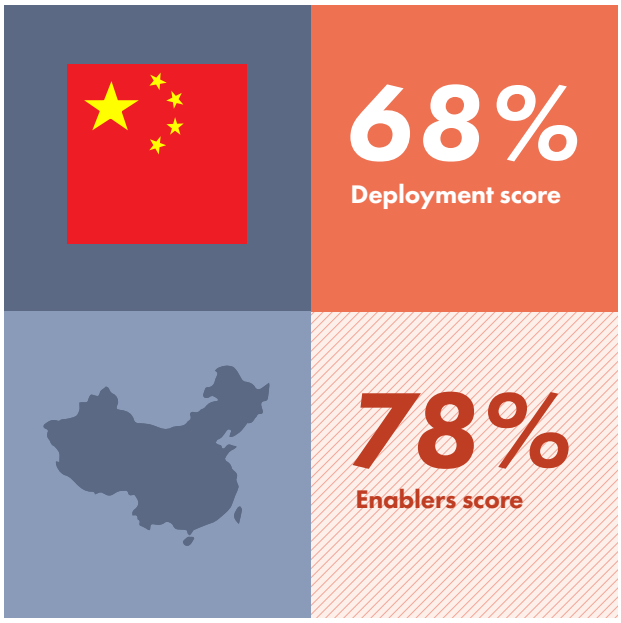
BRAZIL

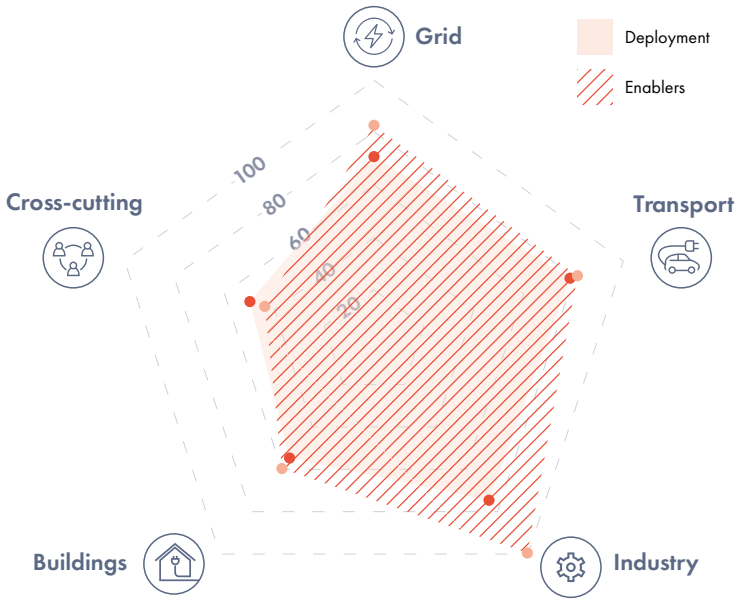
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
5. Deliver modern electricity systems including grids and enabling infrastructure	Increase grid investment to reduce losses and bottlenecks and accommodate rising electricity demand. Sustain investment in digitalization and storage, while maximizing existing network capacity through flexibility and other grid-enhancing solutions. Expand charging infrastructure to support the electrification of road transport, including freight.
6. Streamline permitting and grid connection processes	Effectively implement the National Policy for Access to the Transmission System, established by Decree No. 12.772/2025, with transparent prioritization and connection processes. Publish clear connection timelines and information on available capacity for upcoming storage projects. Accelerate permitting to the clean-capacity queue and implement projects.
7. Mobilize finance and de-risk investment	Build on the BNDES Climate Fund for Green Industry to de-risk investment in transport, buildings, storage, and industrial electrification, expand access to finance for small and medium-sized enterprises and fleets and use blended finance to crowd in private capital.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Build on the new building-efficiency standard with progressively stronger electrification-ready requirements and targeted measures to support electric heating and cooking. Adopt a binding national zero-emission vehicle standard to complement MOVER incentives and accelerate vehicle electrification across additional segments.
9. Integrate electrification into industrial strategies and trade policy	Build on MOVER Program and BNDES Climate Fund for Green Industry initiatives to strengthen the integration of electrification into Brazil's industrial strategy, using the clean electricity advantage to support industrial competitiveness and the development of domestic EV, battery, and other clean-technology capabilities.
10. Build the skilled workforce needed to electrify the economy	Scale the Future Professionals Program and Ministry of Mines and Energy training for electricians, EV technicians, industrial-electrification specialists, digital-grid technologies and battery systems so workforce capacity keeps pace with investment and deployment.

ANNEX: COUNTRY PROFILES

CHINA





China leads across many metrics in the Index. It posts the highest deployment score (68%) of any country assessed, and its enablers score is also close to the top (78%). These results rest on real strengths. China leads on cleantech manufacturing and electric vehicle (EV) sales, and electrification overall is increasing 5-10 times faster than in the U.S. and Europe. Renewables and storage are both growing rapidly, backed by robust planning and newer innovations, including grid-enhancing technologies and bidirectional charging. National targets and standards give nearly every end-use sector a strong foundation to build upon, from industrial systems to building codes.

What remains are harder, more specific challenges. In buildings, increasing heat pump adoption and managing growing cooling demand will be critical. In industry, the next frontier is accelerating electrification beyond motors to equipment for process heat, starting with low- and medium-temperature applications where technology is already commercially available. At the same time, greater demand-side flexibility, stronger appliance standards, more electrified industrial parks, and sharper financial incentives can help unlock progress across sectors.

Several steps can help meet these challenges. On heat pumps, China can implement the electric heating action plan; on cooling, China can deploy high-efficiency cooling approaches. Across sectors, China could enhance demand-side flexibility (including in industry) through the improvement of the electricity market mechanism and continue to build a workforce that can implement this rapid progress.

ANNEX: COUNTRY PROFILES

CHINA

In the table below, 'Deployment' indicators include, e.g. 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' cover government plans, incentives, and regulations. See Methodology Annex for details.

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
GRID & POWER MARKET **21/30** DEPLOYMENT **25/30** ENABLERS	Top deployment score; second-best on grid losses and good balance of storage, affordability, and renewables investment. Strong in planning and grid tech buildout.	Share of clean generation in line with global average but should be increased. Continue scaling demand-response and flexibility measures to smaller loads, as well as criteria for curtailment in planning.
TRANSPORT **16/20** DEPLOYMENT **16/20** ENABLERS	A leader across modes, with 2025 sales shares of EVs and plug-in hybrids at 53% of cars, 50% of scooters, 26% of trucks, and 62% of buses. Top investor in charging infrastructure buildout (by 2x) and solid pilots on vehicle-to-grid integration.	Continue scaling bidirectional charging through policies such as the National Development and Reform Commission Energy [2023] No. 1721, as well as adoption of EV trucks and strong targets beyond 2030.
INDUSTRY **15/20** DEPLOYMENT **20/20** ENABLERS	Strong policy for energy efficiency across industrial technologies, as well as early innovation for electrification (such as in zero-carbon industrial parks).	Further clean electricity deployment can improve the electricity-to-gas price ratio, alongside innovation to improve the economics of electrification in industry.
BUILDINGS **11/20** DEPLOYMENT **12/20** ENABLERS	Strong action plan and standards for electric heating and building efficiency. Near-universal smart meter adoption, and solid current electrification rates.	Heat pump adoption has room to grow, as well as electric cooking deployment and policy. Appliance standards are also not yet at Collaborative Labeling and Appliance Standards Program benchmarks.
CROSS-CUTTING **5/10** DEPLOYMENT **4/10** ENABLERS	Low construction costs and solid workforce initiatives, including the Industrial Special Fund (for retraining) and numerous financial incentives.	Fossil fuel subsidy phaseout is limited to the G20's commitment on "inefficient" subsidies, and carbon markets (though robust) have relatively low prices.
TOTAL SCORES	**68/100** DEPLOYMENT **78/100** ENABLERS	

Scores may not sum perfectly due to rounding. Data quality concerns: ***medium****. China had good data coverage, but some metrics were challenging to find, including on workforce and grid buildout.*

ANNEX: COUNTRY PROFILES

CHINA

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 tone for sustained, market-based change.

We link these findings to recommendations based on the WMBC's 10 Policy Principles to Seize the Electric Advantage. China's index shows the greatest room for improvement in buildings (particularly on scaling clean heat and managing summer cooling), efficiency standards, and industrial electrification. Principle 8 can guide with efficiency standards to manage demand growth, while Principle 3 can help make clean solutions economical in these areas by realigning financial incentives and Principle 5 can help with innovation on cooling and industry by delivering modern electricity systems and enabling infrastructure.

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	Deliver on the ambition of the 15th Five-Year Plan by translating current targets into actionable sectoral roadmaps, interim milestones, and implementation mechanisms.
3. Realign financial incentives and taxation to support electrification	Continue expanding green finance through the Green Bond Endorsed Projects Catalogue, policy bank lending, and transition finance initiatives, while strengthening the role of the national ETS and reducing the remaining financial support for fossil fuel consumption.
4. Ensure electricity markets reward clean, flexible supply and demand	Build on ongoing power market reforms that expand spot electricity markets, provincial integration, time-of-use pricing, demand response programs, and markets for energy storage and virtual power plants (VPPs).
5. Deliver modern electricity systems including grids and enabling infrastructure	Continue the 15th Five-Year Plan for Constructing the New Power System and State Grid development programs by expanding ultra-high-voltage transmission, smart microgrids, energy storage, VPPs, heat pumps across sectors, and EV charging infrastructure.

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ANNEX: COUNTRY PROFILES

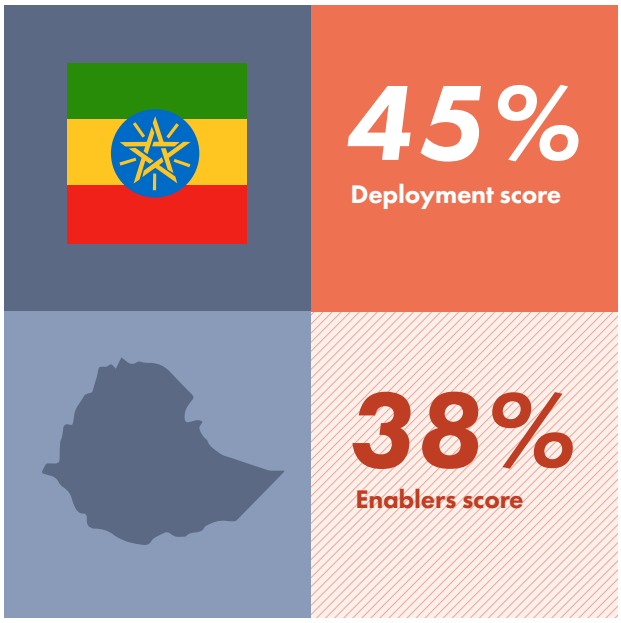
CHINA

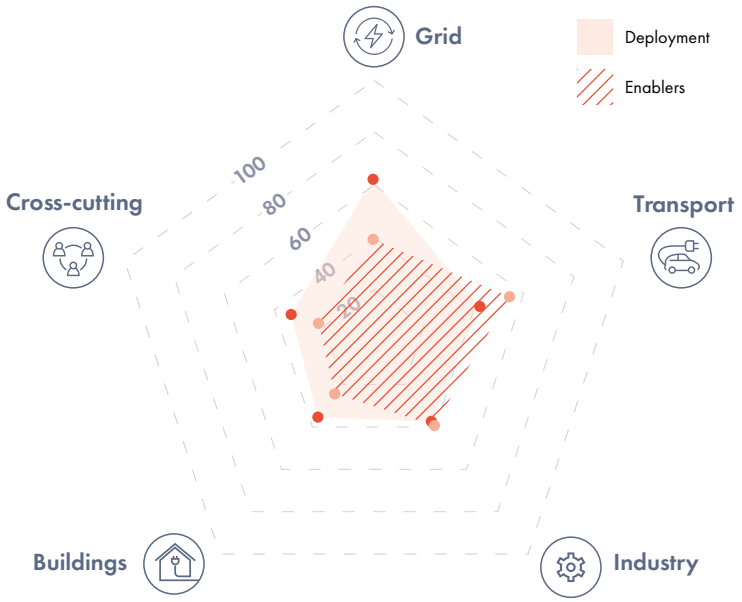
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Implement robust planning for system investment, while expanding opportunities for flexible connection and increasing distribution system capacity.
7. Mobilize finance and de-risk investment	Continue leveraging China's robust green finance ecosystem, including green bonds, policy banks, the People's Bank of China's carbon emission reduction facility, and industrial investment funds.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Expand strong standards for vehicles and buildings by enhancing equipment standards in industry and home appliances, as well as implementing the electric heating action plan.
9. Integrate electrification into industrial strategies and trade policy	Scale industrial electrification by developing sector-specific pathways, improving access to competitively priced clean power, and supporting innovation to lower electrification costs.
10. Build the skilled workforce needed to electrify the economy	Expand technical training and university-industry partnerships for electrification priorities, such as grid construction, digitalization, EV infrastructure, heat pump installation, and flexibility management, building on robust initiatives and programs.

ANNEX: COUNTRY PROFILES

ETHIOPIA





Ethiopia is the only country in this research where deployment (45%) outpaces policy enablers (38%). This is in part because Ethiopia is starting from a different place than other countries in the Index: nearly half of the country still lacks basic access to electricity — a prerequisite before policy on electrification of end-uses in industry and buildings can be more successful. At the same time, massive new hydro developments (alongside emerging wind and solar) have recently doubled the country's power capacity, while keeping it low-cost and 100% clean. Ethiopia is now putting that clean electricity to work in transport: an import ban on internal combustion engine (ICE) vehicles, a phasedown of fuel subsidies, and plethora of financial incentives drove the share of electric vehicles (EVs) to 60% of new cars in 2024.

The core task is to connect Ethiopia's abundant clean power supply to the people and businesses that need it. The National Electrification Plan 3.0 already lays out many of the right actions, but implementation needs to accelerate, especially across grid buildout and rural off-grid solutions for communities that the grid will not reach soon. Liberalizing the electricity market would help by making it easier for independent power producers to bring in additional investment and capacity. Workforce capacity is a parallel constraint for building out the grid and EV charging stations, and partnerships such as Mission 300's National Energy Compact — a joint initiative between African governments and international development partners to accelerate energy access — are already helping to address this.

Ethiopia's early progress on transport electrification also needs to extend to industry and buildings, where efficiency standards (such as those from peer countries) could help manage the scale of grid buildout required. With COP32 (2027) in Addis Ababa, Ethiopia has a rare opportunity to show progress while the world is watching.

ANNEX: COUNTRY PROFILES

ETHIOPIA

In the table below, 'Deployment' indicators include, e.g. 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' cover government plans, incentives, and regulations. See Methodology Annex for details.

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
GRID & POWER MARKET **19/30** DEPLOYMENT **12/30** ENABLERS	Massive hydropower expansion has enabled nearly 100% clean electricity at low end-user costs. Wind and solar projects have begun to grow, providing potential for clean electrification.	Basic electricity access remains low (55% in 2023) despite ample supply, and grid buildout remains nascent despite the National Electrification Program goals.
TRANSPORT **9/20** DEPLOYMENT **11/20** ENABLERS	Ethiopia's ICE vehicle import ban and numerous financial incentives have helped EV sales skyrocket, jumping to 60% of new cars in 2024.	EV charging is expanding via the national E-Mobility Strategy, including at least one station every 50 kilometers (30 miles) on both sides of major roads, but implementation is early.
INDUSTRY **8/20** DEPLOYMENT **8/20** ENABLERS	Low-cost electricity will help industrial electrification once the grid is more reliable. Some policies exist for industrial plants and motors. .	Electrification is still at an early stage; most energy comes from oil and coal despite their import costs. Standards for motors do not yet align with Collaborative Labeling and Appliance Standards Program (CLASP) benchmarks.
BUILDINGS **7/20** DEPLOYMENT **5/20** ENABLERS	Low-cost electricity bodes well for building electrification once access is improved. Building codes are expanding, though voluntary.	Only 2% of residential energy comes from electricity, as biomass is still the prominent energy source for cooking. Beyond the access gaps, few households have electric cooking, and most household appliances lack standards.
CROSS-CUTTING **3/10** DEPLOYMENT **2/10** ENABLERS	Fossil fuel subsidies are being phased out, particularly for petroleum products used in transport. Construction costs are low, indicating potential for building up new clean electricity supply and demand.	There is a major shortage of skilled workers, hindering progress on grid and EV charging buildout. A carbon markets proclamation has not yet advanced into policy.
TOTAL SCORES	**45/100** DEPLOYMENT **38/100** ENABLERS	

Scores may not sum perfectly due to rounding. Data quality concerns: ***high.*** *Ethiopia had many data gaps, including investment metrics, EV sales share beyond cars, and spark gap metrics due to differing local contexts.*

ANNEX: COUNTRY PROFILES

ETHIOPIA

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 tone for sustained, market-based change.

We link these findings to recommendations based on the WMBC's 10 Policy Principles to Seize the Electric Advantage. Ethiopia's index shows the greatest room for improvement in buildings, industry, and cross-cutting metrics. These go back to two challenges: providing reliable electricity supply and enhancing efficiency to make the first challenge easier. Principles 5, 7, and 10 can help with the first challenge by providing crucial enablers in grid modernization, financial flows, and workforce capacity. In tandem, Principle 8 can help build stronger efficiency standards in buildings and industry to reduce use of biomass and imported fossil fuels, strengthening security while enabling a switch to Ethiopia's affordable electricity.

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	Build beyond current national targets and timelines for electricity access, towards electrifying a greater share of the energy used by industry and buildings (and integrating this into strategies such as the National Electrification Program).
3. Realign financial incentives and taxation to support electrification	Continue to phase out fossil fuel subsidies (syncing the remaining public transit subsidies with electric buses and similar); diversify financial support programs to advance electricity and charging access, not just EV adoption.
4. Ensure electricity markets reward clean, flexible supply and demand	Accelerate market liberalization efforts to promote independent power producers, facilitating integration with the East African Power Pool integration and lower-cost power purchase agreements for wind and solar projects.
5. Deliver modern electricity systems including grids and enabling infrastructure	Implement the National Electrification Program 3.0 and others by addressing financing and deployment gaps, towards the goal of achieving nationwide electricity access by 2035.

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ANNEX: COUNTRY PROFILES

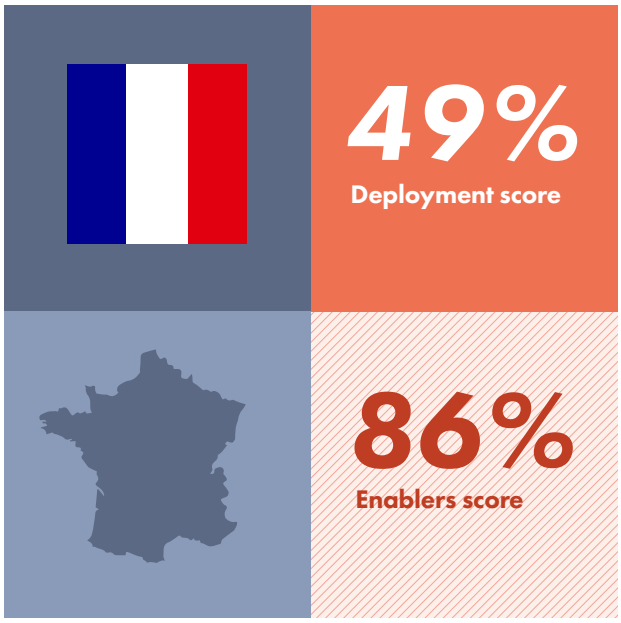
ETHIOPIA

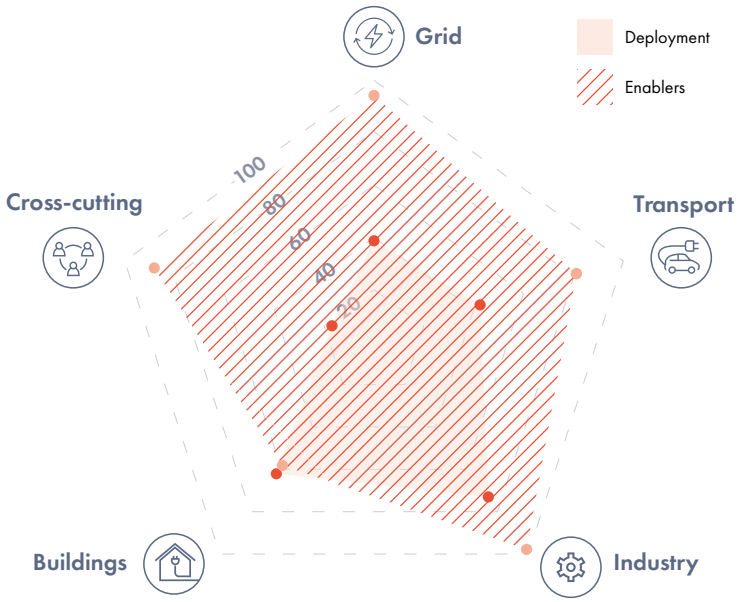
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Increase training and staffing for reviewers, use pre-approved geographic areas, and digitize procurement or permitting systems.
7. Mobilize finance and de-risk investment	Implement steps in the Mission 300 National Energy Compact and other plans, such as blended finance and de-risking facilities.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Advance minimum energy performance standards for other end uses beyond industrial motors and stoves, based on the work of the African Energy Commission and CLASP in similar geographies.
9. Integrate electrification into industrial strategies and trade policy	Build on the ICE import ban to bolster self-sufficiency in other areas — including EV production (as in the E-mobility Strategy) and greater use of domestic low-cost electricity in industry and buildings.
10. Build the skilled workforce needed to electrify the economy	Scale pilot programs and partnerships to train a skilled workforce in priority areas, such as grid expansion and EV system needs (from manufacturing to charging station deployment).

ANNEX: COUNTRY PROFILES

FRANCE





France posts the highest Enablers score of the countries assessed (86%) built on four key pillars. The first is real target clarity: France's national energy plan (PPE3), lays out a clear trajectory for electrification's share of final energy use, rising from 27% today to 34% and then 39% in 2035. The second is de-risked private clean energy investment through the Garantie Électricité Renouvelable (GER), a fund that protects renewable energy producers from default if an industrial buyer can't pay. The third is binding building standards; rental bans tied to a property's energy performance certificate, France's building energy code and Éco Énergie Tertiaire regulation, which mandates significant energy consumption reductions in large commercial and public buildings. Finally, grid-connection permitting is also a strength.

However, the deployment score (49%), while one of the highest of European countries in the Index, shows low scores for grid losses, grid constraints for new supply and demand, low investments in grid infrastructure, high residential electricity and construction costs, and low shares of electrical trade workers. France also scores low on storage capacity, though that matters less than it would elsewhere — its nuclear fleet and lower reliance on variable renewables puts less strain on the grid and reduces the need for storage and flexibility mechanisms compared to other EU peers.

Where the enablers-to-deployment gap shows up is in continuity: incentives exist but haven't stayed reliably in place long enough for industry and households to plan around them. *MaPrimeRénov'*, France's main home energy-efficiency grant, had its funding suspended at the very start of 2026. The Bonus écologique electric vehicle (EV) purchase incentive is now restricted to lower-income households, and the *Prime à la Conversion* scrappage subsidy was abolished in December 2024 and not renewed — leaving a further gap in demand-side support. One fix would be to put MaPrimeRénov' funding on a multi-year footing rather than renewing it through annual budget-law allocations, so households and installers can plan beyond a single fiscal year.

A second action could be closing France's vehicle-to-grid (V2G) software-activation gap. The hardware already works across most EV models on the road — what is missing is the software activation, which only a fraction of vehicles has switched on. This is a case where convening automakers and energy suppliers could unlock progress faster than writing new regulations.

An action could be to strengthen France's electrification workforce so that skills supply keeps pace with deployment. Two challenges stand out. In Hauts-de-France, where France's battery industry is concentrated, training and retraining initiatives are under way, but a comprehensive pathway to help incumbent automotive workers move into the emerging battery value chain is not yet clearly established. More broadly, the electricity-networks sector anticipates substantial recruitment needs—43,000 people between 2025 and 2030—putting pressure on training and recruitment capacity. Strengthening targeted transition pathways and expanding relevant training would help turn France's strong Enablers position into capacity on the ground.

ANNEX: COUNTRY PROFILES

FRANCE

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 **11/30** DEPLOYMENT **28/30** ENABLERS	Strong and sophisticated grid-tariff design. A multi-mechanism demand-flexibility system (NEBCO, mFRR, capacity mechanism, carbon-free flexibility tenders); Effacement Diffus (Voltalis) peak energy management system is commercially profitable without subsidy. The French Energy Regulatory Commission's (*Commission de régulation de l'énergie*, or CRE) storage connection-queue reform (January 2026) is a grid-permitting strength.	France has substantial existing pumped-storage capacity, but its plans to expand storage are more limited than Italy's and Spain's dedicated support programmes. PPE3 envisages 1.7 GW of additional pumped-storage capacity between 2030 and 2035, while a new hydroelectricity law is intended to enable investment; these measures address a longer-term need rather than adding capacity immediately. The obligation for the largest electricity suppliers to offer dynamic tariffs remains under a transitional regime, now extended to June 2027.
TRANSPORT **9/20** DEPLOYMENT **16/20** ENABLERS	Relatively high national public charging-point count (152,000, +33,000 from 2024) and a 400,000-by-2030 target, plus a solid national road strategy for highway charging. New buildings with car parks have been required since 2012 to pre-wire EV charging capacity. Strong social leasing programs for EVs.	The *Bonus écologique's* income eligibility (≤EUR 16,300/share) is narrow, and *Prime à la Conversion* was abolished in December 2024 with no replacement. Vehicle standards rely on EU/fiscal tools rather than going above these with a distinct French standard.
INDUSTRY **15/20** DEPLOYMENT **20/20** ENABLERS	Strong programs to accelerate industrial energy efficiency and electrification. The Hauts-de-France *Vallée de la Batterie* and its support schemes (Decarb Ind, Decarb Flash, white certificates) is a concentrated regional industrial-electrification cluster (ACC/AESC/Verkor gigafactories, 17,000+ jobs by 2030), backed by France 2030's EUR 4.5 billion envelope.	Make direct electrification the default for viable industrial heat by ring-fencing support for electric process technologies and removing the funding gap for medium-sized projects, as recommended by the Regulatory Assistance Project. Pair targeted, conditional electricity-cost relief with long-term clean-power contracts and faster grid connections, rewarding flexible new electric demand and measurable fossil fuel displacement.
BUILDINGS **13/20** DEPLOYMENT **12/20** ENABLERS	The strongest building-standards regime identified in this research: Energy Performance Certificate-based rental bans (G banned since January 2025, F from 2028, E from 2034), RE2020 for new-build, and staged reduction obligations on existing commercial stock (*Éco Énergie Tertiaire*).	*MaPrimeRénov'* energy efficiency improvement funding program had a funding suspension at the very start of 2026, undermining the funding-continuity signal the standards regime otherwise sends.
CROSS-CUTTING **2/10** DEPLOYMENT **9/10** ENABLERS	The clearest explicit electrification-of-final-energy target identified in this research (PPE3: 27% to 34% to 39%). Member of the Coalition on Phasing Out Fossil Fuel Incentives Including Subsidies (COFFIS) member with a comprehensive fossil fuel phaseout roadmap. Bpifrance's Garantie Électricité Renouvelable is the only public PPA offtake guarantee found among the countries studied, and the workforce pipeline is the most explicitly electrification branded. France is the only EU country in this Index already meeting the Electrification Action Plan's 2030 electricity-to-gas price-ratio benchmarks for both households (≤2.5x) and industry (≤2x).	Power purchase agreement (PPA) contract terms (GO transfer, retirement, marketing-claim rights) aren't yet fully standardized, and training-place capacity needs to keep pace with "unprecedented" demand growth for electricians. The transition path for incumbent thermal-engine-plant workers remains uncertain, and the cluster single-region concentration creates a regional-dependency risk.
TOTAL SCORES	**49/100** DEPLOYMENT **86/100** ENABLERS	

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

ANNEX: COUNTRY PROFILES

FRANCE

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 tone for sustained, market-based change.

In the table below we have reviewed the above findings against WMBC's 10 Policy Principles to Seize the Electric Advantage.

Some key gaps identified related to incentive-funding continuity could benefit from following Principle 3 to stabilize MaPrimeRénov' funding with a multi-year commitment, comparable to Germany's energy efficiency program, BEG. This could help improve France's energy security and competitiveness by giving households and installers a credible, sustained demand signal.

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	Turn PPE3's electrification ambition into integrated, measurable sector pathways. France has set a national trajectory for electricity's share of final energy consumption and established sector-specific measures, including for road transport. It should strengthen these into coordinated, time-bound pathways for industry, buildings and transport, linked to the infrastructure and policies needed for delivery and tracked through regular progress reporting. This would give businesses clearer signals on the pace of electrification and help identify where implementation is falling short.
3. Realign financial incentives and taxation to support electrification	Stabilize *MaPrimeRénov'* funding predictability with a multi-year commitment (comparable to Germany's BEG, running till 2029) rather than annual budget-law-dependent allocations. Cut electricity tax for households, reduce VAT on electricity to European minimum of 5%.
4. Ensure electricity markets reward clean, flexible supply and demand	Use the remaining transition period to strengthen the dynamic-tariff design itself, expanding aggregator and consumer participation beyond current levels, and confirm publicly that the obligation will become permanent on schedule at the 30 June 2027 deadline, giving installers, aggregators and consumers the same funding-continuity certainty recommended elsewhere in this section, rather than treating the deadline itself as a variable. Convene manufacturers and grid operators to close the V2G software-activation gap.
5. Deliver modern electricity systems including grids and enabling infrastructure	Track progress toward ADVENIR's target of financing 250,000 charging points by the end of 2027, report the number financed and operational, and publish the delivery pace needed to meet it. Work with automakers, charge-point operators, energy suppliers and grid operators to expand interoperable V2G services across compatible vehicles and chargers, building on France's existing commercial offer and new industry partnerships.

Table continued on next page

ANNEX: COUNTRY PROFILES

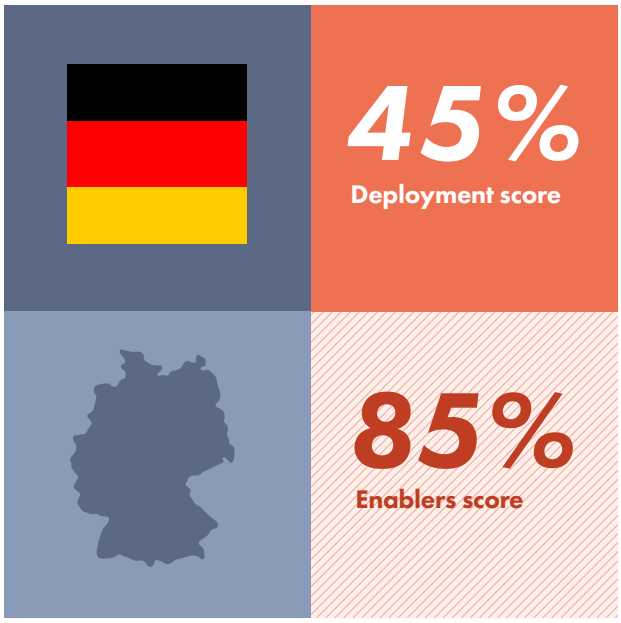
FRANCE

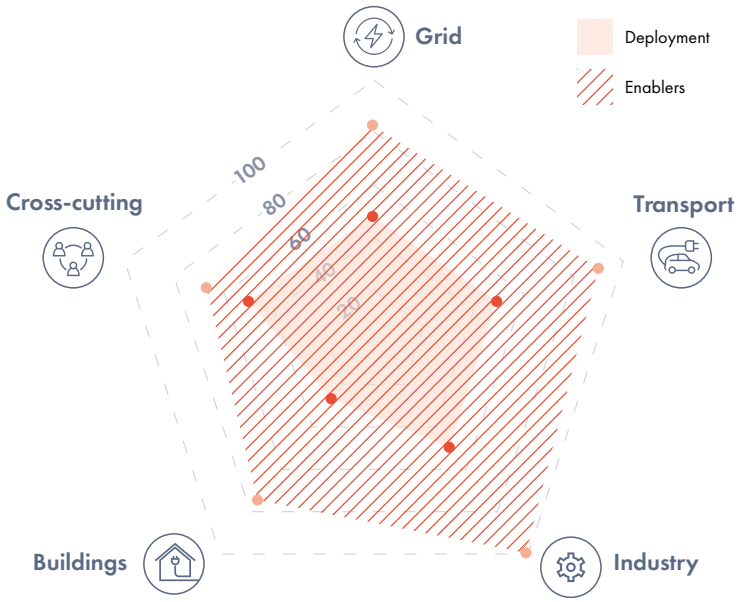
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Before extending the CRE connection-queue reform to EV charging infrastructure, confirm this is the right scope as EV charging (aside from large highway fast-charging hubs) operates at limited scale to sit within the same grid-connection-queue logic as storage and industrial projects. Consider narrowing the extension to highway/fleet-scale charging only. Speed up permitting and grid connection for new storage.
7. Mobilize finance and de-risk investment	Extend the Bpifrance GER long-term green electricity guarantee model beyond corporate PPAs to battery storage and industrial-electrification investment, which currently relies primarily on grants. Publish standardized contract clauses for PPAs. Extend the band for Bonus Ecologic and revive Prime A la Conversion perhaps funded by Malus Ecologic.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Develop a clear target, date and plan to phase out gas heating (instead of "majority" phaseout by 2050). Document and promote France's building-standards regime (DPE bans + RE2020 + EET) as an EU model — few other countries run parallel mandatory standards across new-build, existing-residential, and existing-commercial stock simultaneously.
9. Integrate electrification into industrial strategies and trade policy	Address the incumbent-worker transition gap for the Vallée de la Batterie directly and publicly — closing it credibly is essential to the strategy's social and political durability.
10. Build the skilled workforce needed to electrify the economy	Publish an explicit electrician-workforce capacity forecast that puts projected demand (building renovation rates, EV-charging rollout pace, solar/home-automation deployment plans) against actual CAP Électricien/Bac Pro MELEC/BTS/CS graduate output. Target expansion specifically at the CS specialization certificates most exposed to growth drivers — electric vehicle charging installation and home automation.

ANNEX: COUNTRY PROFILES

GERMANY





Germany has the second-highest enablers score among European countries in the Index (85%), built on strong finance instruments, a flexible-market design framework, and an industrial-electrification strategy anchored by the EUR 5 billion Klimaschutzverträge Carbon Contracts for Difference (CCfD)-scheme subsidizing heavy industry to move away from fossil fuels. However, its deployment score trails far behind at just 45%. Further increase in speed of deployment is required across grid decongestion, renewable investments, smart meter roll-out, and on closing the cost gap between electricity and natural gas.

The single biggest bottleneck is the grid itself. A connection-permitting backlog now runs into the hundreds of gigawatts of stalled capacity, and unlike France, Germany offers no public guarantee backing long-term power purchase contracts, leaving investors more exposed to price risks. A grid-connection reform is now working its way through the Bundestag; publishing a firm delivery date for it and treating the backlog as the country's top infrastructure priority would likely do more for deployment than another round of subsidies or financial incentives. Pairing that with a phaseout date for the EUR 8.5 billion/year Dieselprivileg diesel tax benefit and cutting electricity tax and VAT to the EU minimum would help tackle electricity affordability vis-à-vis fossil fuel prices. Another priority action is resolving a contradiction Germany has built into its own incentives. The government subsidizes up to 70% of the cost of a heat pump, but a separate law then rolled back the requirement that new heating systems run on at least 65% renewable energy, so the incentive to go electric now exists without the obligation to. Industry shows the same pattern: the 2026 Energy Efficiency Act (EnEfG) and Energy Services Act (EDL-G) reform loosens mandatory energy-management rules for mid-sized industrial firms even as Germany becomes the only EU country in this research moving backward on fossil fuel subsidies, adding EUR 11 billion in 2026. Pairing German-style incentives with binding standards, comparable to France's rental ban on the least efficient homes, and tightening Klimaschutzverträge CCfD eligibility so it rewards direct electrification specifically, could help close this gap.

ANNEX: COUNTRY PROFILES

GERMANY

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 **14/30** DEPLOYMENT **25/30** ENABLERS	Among the leaders in grid investment, storage deployment (new StromVKG auction for dispatchable capacity and long duration energy storage), and solar cost of capital, with one of the world's lowest grid outage rates. Strong on power market reforms (full TSO unbundling) and distributed generation (balcony solar, Mieterstrom, KfW financing). Leads on demand flexibility (§41a EnWG's universal dynamic-tariff mandate).	Nearly the highest household electricity costs in the European Union, with large grid queues delaying lower-cost renewable supply. No power purchase agreement (PPA) offtake guarantees comparable to France's progressive model. A renewables-law (EEG) reform approved by Cabinet in July 2026 would end guaranteed long-term support for many new small solar installations. A fragmented landscape of distribution grid operators and a substantial challenge financing the buildout of distribution grids for municipally owned transmission grid operators. Big opportunity for demand-side flexibility for aggregator markets with the right support.
TRANSPORT **10/20** DEPLOYMENT **18/20** ENABLERS	Highest electric vehicle (EV) sales among European countries besides the U.K. (30% cars, 26% buses); a European leader in charging investment. Leads on EV incentives (e.g. new scheme, up to EUR 6,000, plus Dienst-wagenprivileg) and vehicle-to-grid (V2G)-enabling regulation. Has implemented the EU Eurovignette directive. Targeting 1 million charging points by 2030.	Still early (<10%) in EV two-wheeler and truck sales share. Incentive continuity is a challenge — the national EV subsidy had a two-year gap from 2024-2025 before the 2026 relaunch. The current government has dropped its predecessor's political target of 15 million EVs by 2030.
INDUSTRY **10/20** DEPLOYMENT **20/20** ENABLERS	Germany supports industrial electrification through several instruments: its *Klimaschutzverträge* CCfD scheme offered up to EUR 5 billion in 15-year contracts for low-carbon production, with electrification among the eligible pathways; BIK has supported industrial decarbonisation, while EEW includes efficiency funding and a dedicated electrification grant for small firms.	High electricity-to-gas price ratio challenges industrial electrification competitiveness. The EnEfG/EDL-G amendment 2026 reform raises the mandatory energy-management threshold, loosening obligations on mid-sized firms. Heavy industry, steel, chemicals, remain fossil fuel dependent.
BUILDINGS **5/20** DEPLOYMENT **15/20** ENABLERS	Highest electric cooking rate surveyed (>90%), avoiding major health harms. Strong on efficiency programs (e.g. *Bundesförderung für effiziente Gebäude*, or BEG).	Low smart-meter adoption (but with a positive trend to 5% in 2026) and still insufficient heat pump uptake despite increasing dynamic yield a low buildings electrification rate. Generous BEG grants (up to 70% of costs) now sit alongside the Building Modernisation Act (GModG, passed July 2026). The Act removes the 65% renewable heating requirement, drops the planned 2045 phaseout of fossil heating, and allows new gas and oil systems if they meet a rising biofuel quota ("Bio-Treppe", 10% in 2029 to 60% by 2040). This is a policy contradiction that favors biofuel blending over direct electrification.

Table continued on next page

ANNEX: COUNTRY PROFILES

GERMANY

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
CROSS-CUTTING **5/10** DEPLOYMENT **7/10** ENABLERS	Near-highest electrification workforce metrics. Leads on carbon pricing (most developed pre-ETS2 national price) and workforce reskilling (most multi-layered system).	High construction costs slow deployment of electrified solutions. Germany is also moving backward on fossil fuel subsidies — EUR 11 billion added in 2026, with the EUR 8.5 billion/year Dieselprivileg still in place, complemented with two "Trankrabatte" lowering tax on diesel and gasoline in 2026.

TOTAL SCORES	
	45/100 DEPLOYMENT **85/100** ENABLERS

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

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 tone for sustained, market-based change.

The table below reviews the above findings against WMBC's 10 Policy Principles to Seize the Electric Advantage. On the gaps identified related to grid connection and permitting, Principles 5 and 6 point to the clearest next steps: treat the connection backlog as the single highest-priority infrastructure action and support the Grid Package's passage ahead of its 2027 Transmission System Operator (TSO) deadlines. Doing so would help convert Germany's well-funded infrastructure programs into delivered capacity — with direct benefits for energy security and competitiveness.

On financial incentives and industrial standards, Principles 3 and 8 set a firm phaseout date for Dieselprivileg and rebalance electricity taxation, with direct-electrification eligibility criteria for industrial funding and a rental ban on inefficient homes.

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	Publish an explicit electrification share-of-final-energy target following France's 10-year master plan model (PPE3) and reconcile the goal for six million heat pumps with the Building Modernisation Act, which has now removed both the 65% renewable heating mandate and the 2045 fossil heating phaseout date.
3. Realign financial incentives and taxation to support electrification	Set phaseout dates for the *Dieselprivileg* and *Dienstwagenprivileg*. Revisit the agricultural diesel subsidy phaseout with a longer transition period and targeted compensation. For households, reduce the electricity tax and VAT, bringing VAT down to the EU minimum rate of 5%. For industry, review the remaining cost barriers to electrification, taking existing tax reliefs and exemptions into account. Make any future electricity-cost support targeted and conditional on progress in energy efficiency and electrification.

Table continued on next page

ANNEX: COUNTRY PROFILES

GERMANY

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

POLICY PRINCIPLE	RECOMMENDATIONS
4. Ensure electricity markets reward clean, flexible supply and demand	Develop a public PPA offtake guarantee along the lines of France's Bpifrance model. Seek to bring down electricity prices via extended industrial price relief and grid-fee redesign; greater weight to the energy price than to the capacity charge; make access to PPAs easier for smaller companies; support companies with infrastructure costs. Move beyond variable grid tariffs toward localized wholesale pricing to enable efficient flexibility dispatch. Accelerate commercial vehicle-to-grid (V2G) rollout. Lock in the Stromspeicher-Strategie's 20-year grid-fee exemption on a fixed, public timeline. Pair the end of rooftop solar feed-in tariffs with a self-consumption or virtual power plant-aggregation replacement. Ease PPA access for small and medium-sized enterprises via pooled PPAs, closing the gap left by no public offtake guarantee. Monitor the phased rollout of dynamic grid charges under the AgNes determination: storage facilities from 1 January 2033 at the earliest, generation facilities from 1 January 2035 at the earliest, with no dynamic charges yet planned for end consumers — a multi-year gap during which flexibility incentives remain confined to existing tariff mechanisms (§14a/§41a EnWG) rather than grid-charge design itself.
5. Deliver modern electricity systems including grids and enabling infrastructure	Address the distribution-grid financing gap facing municipally owned grid operators, alongside the transmission-level backlog covered under Principle 6. Scale the StromVKG auction model for dispatchable capacity and storage, and pair it with a dedicated framework to unlock demand-side flexibility aggregator markets. Match grid investment to the pace of EV roll-out and the one million charging point target so buildout doesn't outrun local distribution capacity, as is already happening with heat pumps and storage. Reinstate a quantified and more committed EV deployment target. Design future StromVKG rounds to be technology-neutral, so storage and demand-side flexibility can compete on equal terms with new gas capacity and avoid locking in fossil assets.
6. Streamline permitting and grid connection processes	Resolve the grid-connection queue backlog (hundreds of GW) before it undermines the well-designed dynamic tariff and V2G framework. Fix the grid connection backlog as a storage siting issue, not just a generation one. Monitor and support the Bundestag passage timeline, given enactment is targeted before end-2026 with TSO deadlines from 1 January 2027 and adapt Poland's cable-pooling or France's storage-specific connection-queue reforms. Reconsider the draft grid package's provision allowing new projects in "capacity-constrained" areas to connect only if they give up curtailment compensation for up to 10 years. That shifts grid-delivery risk onto investors and could chill renewables and storage investment in exactly the regions where it is most needed.
7. Mobilize finance and de-risk investment	As *Klimaschutzverträge* auctions begin, make direct electrification an explicit eligibility criterion, consider reserving a defined share of contract capacity specifically for direct electrification pathways (heat pumps, electrode boilers, electric arc furnaces) rather than leaving the scheme fully open to hydrogen and carbon capture and storage alternatives, mirroring the electrification-specific targeting recommended for Poland's equivalent instrument. Publish auction results transparently and quickly, and extend an equivalent long-term contract instrument to the building sector. Support Germany's nearly 900 energy utilities invest EUR 647 billion in electricity and heating grids by developing hybrid capital : subordinated and state-backed loans to strengthen utilities' creditworthiness. Flag the AgNes grandfathering deadline for storage and generation investors; to retain the 20-year grid-fee exemption, a final investment decision must be made before the determination is formally announced (expected 1 January 2027) and the facility commissioned by 4 August 2029 — a hard near-term window that should be communicated clearly to project developers planning German storage or renewable investment.

Table continued on next page

ANNEX: COUNTRY PROFILES

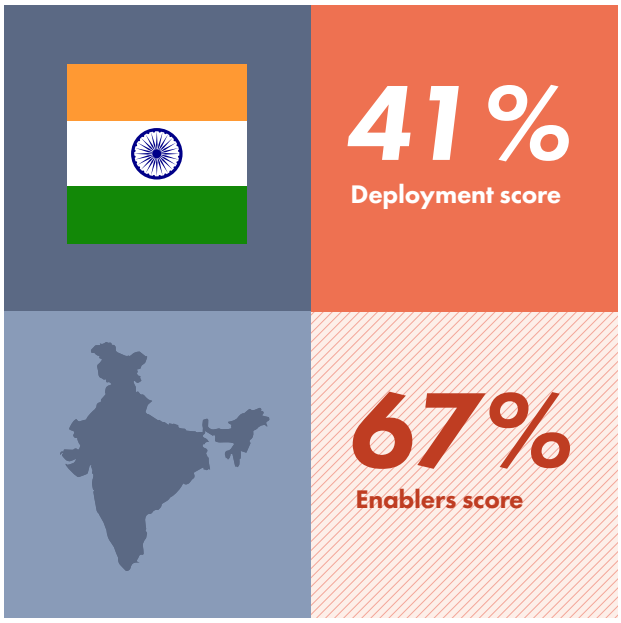
GERMANY

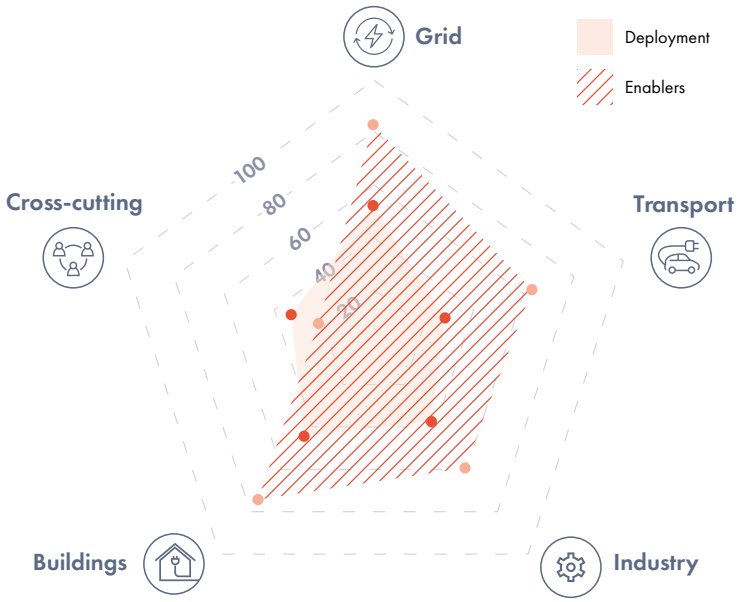
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Within the GModG reforms, improve access to the funding scheme, for example by enabling third-party pre-financing, ensure sufficient funding over the medium term, and develop longer-term instruments to address liquidity constraints. Consider a France-style rental ban on low efficiency homes. Consider introducing a public-procurement zero-emissions-vehicle quota for government fleet purchasing, following Poland's existing mechanism.
9. Integrate electrification into industrial strategies and trade policy	Resolve the tension flagged under Principle 8: Germany's strong industrial-electrification funding sits alongside its advocacy for diluting the EU's 2035 vehicle CO_2 target. Consolidate *Klimaschutzverträge*, BIK, and KEI into a single, explicitly named industrial-electrification strategy with one coordinating point of contact. The current landscape risks the same lack of a coherent, electrification-specific strategy already flagged for Poland and Italy, despite Germany having more funding instruments than either.
10. Build the skilled workforce needed to electrify the economy	Given the number of overlapping programs (*Zukunftsfonds*, STARK, *Fachkräftestrategie*, National Continuing Education Strategy, dena's Netzwerke, MIE), establish a single coordinating body so companies and workers can navigate the landscape.

ANNEX: COUNTRY PROFILES

INDIA





India's enablers score (67%) reflects strong policy design, anchored by one clearly delivered outcome — meeting its 2030 non-fossil power-capacity target of 50% more than five years early, in June 2025. Analysis by Ember shows that India is fast-tracking electrification, bypassing the fossil fuel detour taken by the West and China. It also has a broad set of industrial policies supporting decarbonization and electrification, including green open-access rules, energy-efficiency schemes such as Perform, Achieve and Trade (PAT), and production-linked incentives for clean manufacturing.

This progress is running alongside continued coal expansion. Coal still supplies around 70% of electricity generation, with 23 GW of coal capacity under construction and a further 107 GW in pre-construction. Without faster grid and storage buildout, new electric demand risks being met by coal, reducing the emissions and energy-security benefits of electrification.

However, as with most other countries in our analysis, India's deployment score (41%) indicates potential development areas to ensure that the progress maintains its momentum. Regarding electricity grids and power markets, development areas include grid losses and reliability, curtailment, storage capacity, and the share of clean electricity generation (although clean sources have met additional power demand since 2024). On the electricity demand side, India has the second-lowest industrial electrification rate across G20. Other development areas include road transport electrification outside of two- to three-wheelers, investments in electric vehicle (EV) charging, and the number of trained electrical trade workers per capita.

Closing some of these gaps means prioritizing grid infrastructure. Transmission infrastructure and storage are required to help with issues related to renewable electricity curtailment. The national rollout of smart meters, key tools for demand flexibility, has grown from 5% in 2023 to 21% in 2026 yet has still room to expand further. Accelerating smart-meter rollout alongside improving the reliability of the grid would help India convert its early lead on generation capacity into equivalent progress on grid flexibility and reliability — the prerequisite for scaling EVs and industrial electrification.

Introducing a dedicated national program to scale industrial electrification, such as a cross-sectoral incentive or de-risking mechanism for low-to-medium temperature process heat, would help support technologies like industrial heat pumps, electrode boilers, and thermal batteries for process heat. Currently, direct electrification support exists only for steel through the Green Steel Mission and Production Linked Incentives (PLIs), plus a narrow hydrogen pilot.

For road transport, enabling the electrification of trucking through investments in charging infrastructure and standards enabling smart charging could help with improving the total cost of ownership of electric vans and trucks versus diesel alternatives. Acting across these areas, in addition to closing the electrical trade and renewable-energy workforce gap, could help India convert its delivered strengths in targets and industrial strategy into faster deployment across transport and buildings. As with other countries (e.g. Brazil, China, the U.S.), the below Enabler scores are based on national policies to compare with national deployment, although we acknowledge that India is a very diverse country with different levels of deployment and policy across different states.

ANNEX: COUNTRY PROFILES

INDIA

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 **16/30** DEPLOYMENT **25/30** ENABLERS	Affordable electricity and growing grid investment. India met its 2030 non-fossil power-capacity target (50%) more than five years early, in June 2025.	Persistent reliability issues, with renewables and storage still a small fraction of the grid (30% clean electricity generation including nuclear). The smart meter rollout has increased from 5% in 2023 to 21% in 2026, yet national targets have been pushed from 2026 to 2028. Renewables supply only around 29% of generation despite reaching 50% of installed capacity, and 23 GW of new coal capacity is under construction.
TRANSPORT **6/20** DEPLOYMENT **13/20** ENABLERS	Growing EV share in two- and three-wheelers, based on strong economics and incentives, especially at state levels and growing infrastructure. India Electric Mobility Index provides a more granular view on state-by-state differences. National programs also support public-transport electrification: PM E-DRIVE has allocated a target of 14,000 e-buses, while the separate PM-eBus Sewa programme supports electric city-bus services	India has strengthened its fleet-average fuel-economy standards, including through CAFE-III, which gives EVs a compliance advantage but does not require manufacturers to meet a minimum EV sales share. The Prime Minister's Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) supports selected vehicle segments and charging infrastructure through March 2028, but support varies by segment and could be followed up by plans beyond current end date. India could build on emerging e-truck corridor plans by integrating truck charging and grid upgrades into national and state freight plans, with clear delivery arrangements for high-power charging at priority corridors, depots, and logistics hubs.
INDUSTRY **8/20** DEPLOYMENT **12/20** ENABLERS	Pilot projects on industrial electrification are advancing quickly in diverse areas and temperature ranges, including in the textiles, food and dairy, chemicals, and cement sectors. India has a broad set of industrial policies supporting decarbonization and electrification, including green open-access rules, energy-efficiency schemes such as PAT, and production-linked incentives for clean manufacturing.	Baseline electrification is low (19% of total final consumption), showing room to grow as India's economy develops. No dedicated national program exists to scale direct industrial electrification or raise electricity share of industrial final energy consumption. India's Carbon Credit Trading Scheme could provide near-term opportunities for heat electrification backed by renewable electricity.
BUILDINGS **9/20** DEPLOYMENT **15/20** ENABLERS	Much-improved access and affordable electricity for building electrification. SP 7:2026 – National Building Construction Standards (NBCS 2026) has added guidelines for 13 technical areas, including EV charging infrastructure.	Baseline electrification is low (26% of total final consumption), as is the adoption of smart meters and electric cooking. Building-code implementation remains a gap: Energy Conservation Building Code 2024 covers commercial and office buildings, while Eco-Niwas Samhita 2024 covers residential buildings. The updated codes have yet to be adopted by states, and implementation of earlier commercial-building requirements varies.
CROSS-CUTTING **3/10** DEPLOYMENT **2/10** ENABLERS	Low construction costs highlight the opportunity to build right the first time.	Low fraction of skilled workforce as share of population. Liquid petroleum gas (LPG) subsidies remain large (approx. INR 72,000 crore in FY25). The Skill Council for Green Jobs (SCGJ), India's renewable-energy workforce institution, covers only ~15% of the estimated sector workforce (~1.3 million, according to the International Renewable Energy Agency and the International Labour Organization).
TOTAL SCORES	**41/100** DEPLOYMENT **67/100** ENABLERS	

*Scores may not sum perfectly due to rounding. Data quality concerns: **low.** India had solid coverage across data metrics, with the only challenges on EV truck sales and grid buildout constraints.*

ANNEX: COUNTRY PROFILES

INDIA

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 tone for sustained, market-based change. India isn't behind on ambition or on the number of programs it runs, but a handful of specific, fixable things such as metering completion, a de-risking finance instrument, a whole-building retrofit program, and incentive-funding continuity, would significantly increase its electrification readiness.

In the below table we have reviewed the above findings against WMBC's 10 Policy Principles to Seize the Electric Advantage.

Some of the gaps identified related to flexible electricity markets could benefit from following Principle 4 to clarify and enable the regulatory framework for V2G/V2X, including rules governing participation, compensation and grid interaction. This could help improve India's energy security and competitiveness by converting its early progress on generation targets into equivalent progress on demand-side flexibility. Addressing gaps in workforce capacity and EV incentive continuity can be helped by Principles 3 and 10, which pair a funded PM E-DRIVE successor with a dedicated push to close the 1.2-million-worker renewable-energy gap.

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	Consider an electrification-of-final-energy target alongside the existing capacity-mix targets and finalize the Draft National Electricity Policy 2026 with a published delivery timeline. Strengthen the Carbon Credit Trading Scheme, which currently sets emissions-intensity rather than absolute targets, by moving toward absolute caps for energy-intensive industries and using it to reward heat electrification backed by renewable power.
3. Realign financial incentives and taxation to support electrification	Plan funding continuity well ahead of PM E-DRIVE's March 2028 expiry. Target clean-cooking support to households and regions where supply is reliable, preserving LPG as a complementary option while accelerating access to efficient electric cooking.
4. Ensure electricity markets reward clean, flexible supply and demand	Consider ramping up investments in transmission infrastructure and storage to reduce clean electricity curtailment. Explore accelerating smart meter rollout to ensure that electricity markets reward flexibility by publishing a revised, credible completion timeline with interim milestones. Strengthen dynamic tariff framework and managed/smart charging and battery-swapping interoperability standards to guide the country towards vehicle-to-grid rollout.
5. Deliver modern electricity systems including grids and enabling infrastructure	Publish a public reconciliation of how the 900 GW-by-2035-36 transmission roadmap, PM E-DRIVE's charging buildout, and viability gap funding (VGF)/PLI storage schemes are being sequenced together, and prioritize grid capacity in zones where PM E-DRIVE's charging stations and VGF-funded storage projects are being sited. Treat efficient cooling as a grid-planning priority, not just a buildings issue: India Cooling Action Plan projects space-cooling demand to grow roughly eightfold by 2037-2038 compared to 2017-2018, with room air conditioners alone reaching an estimated 180 GW of peak demand by 2035 — nearly 30% of the projected national peak. Consider developing a national program for the efficient electrification of water heating (e.g. heat pumps as opposed to geysers) in buildings where solar thermal water heaters are not suitable (e.g. multifamily, commercial, and public buildings). Scale Energy Efficiency Services Limited's induction-cooking initiative from a promotional/demonstration program into a funded national rollout with a quantified target and timeline.

Table continued on next page

ANNEX: COUNTRY PROFILES

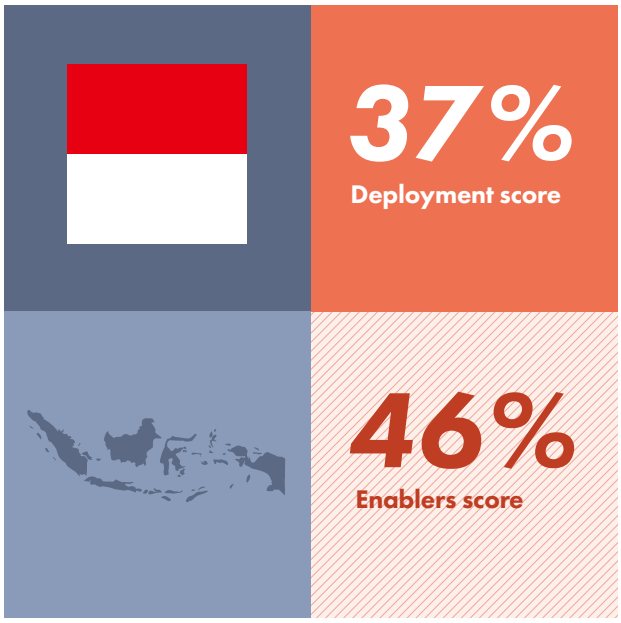
INDIA

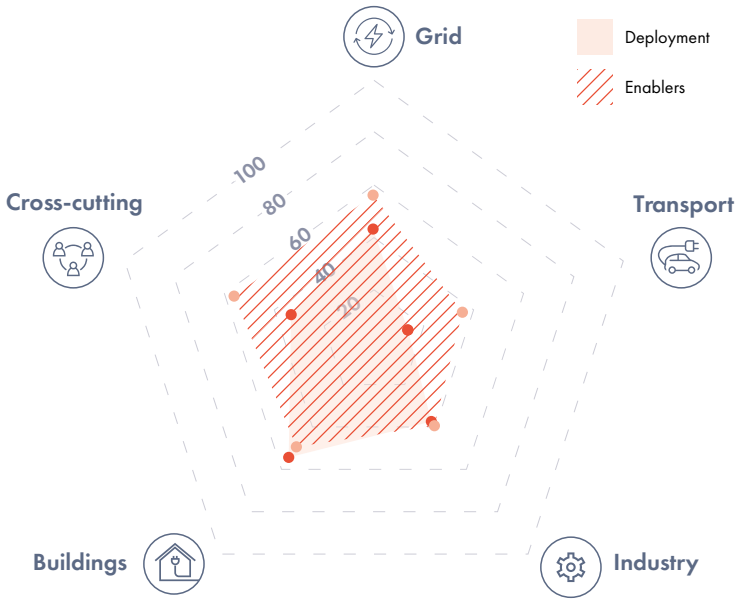
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Finalize the Central Electricity Authority's draft Grid Connectivity Regulations 2026 on a published timeline and communicate the outcome clearly to international investors. Ensure implementation by tying central funding to state-level compliance, making sure distribution companies honor open access timelines and eliminate arbitrary technical barriers.
7. Mobilize finance and de-risk investment	Design a long-duration, contract-based de-risking instrument specifically for storage and industrial electrification, following RES Auction System models. Consider a targeted power purchase agreement offtake guarantee.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Consider introducing binding zero-emission or low-emission vehicle sales-share mandates across different vehicle classes, phased in gradually.
9. Integrate electrification into industrial strategies and trade policy	Expand the Green Steel taxonomy-and-incentive model to other energy-intensive sectors (cement, aluminum, chemicals) where India has significant manufacturing capacity that could be switch to clean electrified solutions.
10. Build the skilled workforce needed to electrify the economy	Treat the 1.2 million-worker renewable-energy gap as the priority workforce metric to close — SCGJ's institutional design is sound, but funded delivery capacity needs to roughly double to approach the stated need. Undertake an assessment of green jobs including manufacturing, efficient appliance/ technologies, grid strengthening skill programs through SCGJ and consider sub-national initiatives/partnerships on green skilling. Expand employer-side apprenticeship placement capacity alongside the National Apprenticeship Promotion Scheme's stipend support.

ANNEX: COUNTRY PROFILES

INDONESIA





Indonesia scores 37% deployment and 46% on enablers, demonstrating that policies have strengthened faster than physical deployment. Several enablers underpin its score. Electricity Supply Business Plan 2025-2034 (*Rencana Usaha Penyediaan Tenaga Listrik,* or RUPTL) lays out plans for major grid and storage expansion. Clean-power procurement mechanisms are already established and national frameworks for electric vehicle (EV) charging, end-use electrification, and workforce development are all improving. Yet clean generation makes up only 18% of the power mix, grid and renewable investment remain low, and progress on electrifying road transport outside passenger cars is uneven.

Two gaps stand out. The first is translating plans for their clean energy ambition into reality: the target for a more flexible, reliable power system and increased renewables capacity exist on paper but haven't yet resulted in actual investment, grid connections, or flexibility on the ground. The second is turning sector-level targets, specifically buildings and industry, into deployment through durable incentives, standards, and implementation programs.

Closing the first gap could start by executing the RUPTL itself: putting its IDR 2,967 trillion (~USD 168 billion) investment pipeline into action, with improved grid management and planning and increasing attractiveness of renewable energy sources through e.g. feed-in-tariffs, and by reforming the fuel procurement regulation so that it reflects the actual coal prices in the market and implementing the existing carbon tax regulations. Actions that could support crowding in capital include new frameworks for storage and investments in smart grid refurbishment and grid-tied Battery Energy Storage Systems facilities, Renewable Energy Certificates (RECs), and an improved power purchase agreements (PPAs) system especially for renewable energy Independent Power Producers to ensure fairer distribution of risks and returns for project developers with some government-backed offtake guarantees.

To close the second gap, Indonesia could build on renewed EV momentum from the August 2026 MoLiNas (Motor Listrik Nasional or National Electric Motor Vehicles) initiative, including domestic manufacturing and proposed lower-cost financing through state-owned banks, by translating announced support into durable demand and sustained deployment, while further strengthening cross-government coordination and clarifying implementation roles. Funding industrial and building electrification remains another priority. Stronger vehicles, appliances, and motor standards, together with stronger carbon tax and price signals and more targeted fossil fuel subsidies, would improve the underlying economics of switching to clean electricity across the board.

ANNEX: COUNTRY PROFILES

INDONESIA

In the table below, 'Deployment' indicators include, e.g. 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' cover government plans, incentives, and regulations. See Methodology Annex for details.

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
GRID & POWER MARKET **13/30** DEPLOYMENT **17/30** ENABLERS	Affordable electricity and RUPTL 2025-2034 grid expansion and 10.3 GW storage plan provide a strong base, reinforced by RECs, standardized PPAs, offtake guarantees, and a smart grid/dynamic line rating roadmap.	Clean generation is 18% of the total mix and investment in it remains low. The government-owned power utility PT Perusahaan Listrik Negara (PLN) remains vertically integrated; grid planning and management, and demand flexibility (beyond industrial time-of-use) are weak.
TRANSPORT **3/20** DEPLOYMENT **7/20** ENABLERS	Passenger EV sales reached 12.9% in 2025. Indonesia's official public EV charging station network (Stasiun Pengisian Kendaraan Listrik Umum, or SPKLU) rollout rules, home charging incentives, and off-peak tariffs strengthen charging readiness.	Uptake for other vehicle classes outside cars is very low. There are signals of renewed momentum for electric two-wheelers through domestic manufacturing and proposed lower-cost financing, but implementation and sustained demand remain to be demonstrated. There is no CO2/ zero-emission vehicle (ZEV) mandate, heavy-duty charging program, or vehicle-to-grid pilot, while EV governance is becoming more coordinated, but implementation roles remain diffused.
INDUSTRY **8/20** DEPLOYMENT **8/20** ENABLERS	Electricity supplies 31% of industrial final energy. Efficiency and decarbonization are supported by energy management regulations, the Ministry of Energy and Mineral Resources (EDSM) Sustainable Energy Transition in Indonesia, and by the Green Industry Service Company (GISCO) model.	Electricity prices are roughly 2-3x gas prices; no major Energy Intensive Industry pilots were identified. Direct electrification/energy efficiency incentives are limited, and motor-system energy performance standards lag best standards according to Collaborative Labeling and Appliance Standards Program (CLASP) benchmark.
BUILDINGS **11/20** DEPLOYMENT **10/20** ENABLERS	Electricity supplies 58% of building final energy and access exceeds 99%. Green-building standards and U.K. PACT-backed energy efficiency programs provide a strong base.	Electric cooking remains low and induction stoves are at deployment pilot stage. Thermal electrification and demand-response programs are lacking; smart meters and appliance energy performance standards lag.
CROSS-CUTTING **3/10** DEPLOYMENT **4/10** ENABLERS	EDSM policy 40/2025 sets an end-use electrification pathway. Carbon market in place, subsidy reform and expanding workforce/youth programs strengthen the cross-cutting policy base.	Indonesia's carbon tax is still pending implementation, fossil subsidies phaseout lacks a timeline, sectoral targets are not final-energy shares, and electrical-trade worker availability is limited.
TOTAL SCORES	**37/100** DEPLOYMENT **46/100** ENABLERS	

Scores may not sum perfectly due to rounding. Data quality concerns: ***medium.*** *Main gaps are non-passenger EVs, grid constraints and electrical trade-worker data.*

ANNEX: COUNTRY PROFILES

INDONESIA

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 tone for sustained, market-based change.

We have reviewed the above findings against WMBC's 10 Policy Principles to Seize the Electric Advantage. Principles 4 to 6 focused on delivering modern grids and electricity systems can turn RUPTL and Indonesia Electricity Network Transformation (I-ENET) into faster, more transparent, and flexible grid delivery. Principles 3 and 8 on realigning financial incentives and establishing technology mandates can make EV and building-electrification support more durable through stable incentives and stronger standards; and Principles 7, 9 and 10 can mobilize finance, accelerate industrial demonstration projects and workforce capacity. Together, these actions focus Indonesia's next phase on closing the implementation gap and turning existing electrification ambitions into sustained deployment.

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	Leverage the National Electricity Policy and RUPTL as a delivery backbone; assign responsible agencies, budgets, and public milestones; add sectoral final energy electrification targets; and build on emerging MoLiNas coordination by clarifying implementation roles and responsibilities across relevant ministries and institutions.
3. Realign financial incentives and taxation to support electrification	Publish a concrete fossil-fuel subsidy phasedown timetable, reform the fuel procurement regulation to reflect actual coal prices in the market, accelerate the implementation of the legislated carbon tax to strengthen the carbon price signal, and establish predictable EV incentives with multi-year subsidies focused on electric two-wheelers and commercial modes.
4. Ensure electricity markets reward clean, flexible supply and demand	Build on industrial time-of-use tariffs and I-ENET to create operational demand-response and aggregator pathways, while improving transparency in PLN-centered clean-power procurement and distributed energy resources/storage participation. Establish new operational and compensation frameworks for fossil fuel baseload generators to be more responsive to demand and improve grid flexibility.
5. Deliver modern electricity systems including grids and enabling infrastructure	Deliver RUPTL 2025-2034 grid and storage investments and the national SPKLU rollout against transparent milestones; scale smart-grid/grid-enhancing technologies deployment and extend charging support to heavy-duty freight.

Table continued on next page

ANNEX: COUNTRY PROFILES

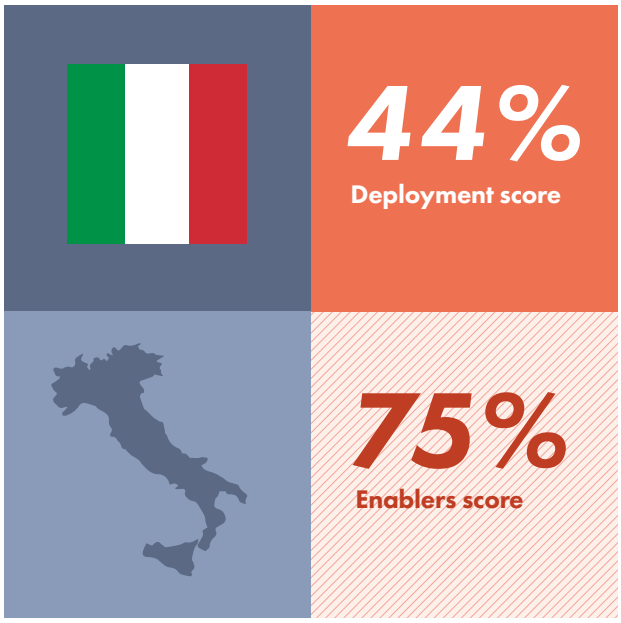
INDONESIA

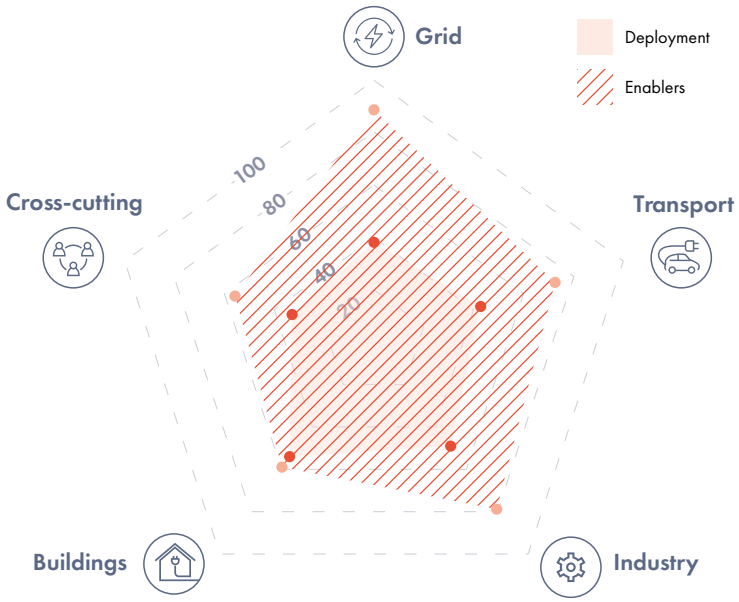
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Move beyond digital licensing to time-bound, transparent connection procedures with published capacity/queue data, defined flexible connection and curtailment terms, and clear PLN and local government responsibilities.
7. Mobilize finance and de-risk investment	Use renewable PPA guarantees, U.K. PACT/GISCO and blended finance partnerships to create dedicated financing windows for industrial process electrification, building retrofits, electric cooking, and grid modernization.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Adopt binding vehicle CO_2 or zero-emission vehicle standards, strengthen industrial motor, systems, and appliance minimum energy performance standard toward CLASP benchmarks, and green-building requirements consistently and enforce Government Regulation No. 33/2023 legal framework issued to optimize national energy use and improve efficiency.
9. Integrate electrification into industrial strategies and trade policy	Turn the Ministry of Industry's decarbonization pathways into a funded industrial electrification roadmap with near-term demonstrations for electric boilers, heat pumps, furnaces, and other hard-to-abate processes.
10. Build the skilled workforce needed to electrify the economy	Scale the Green Workforce Roadmap, Renewable Energy Skills Development, and Innovation Regions for a Just Energy Transition. Integrate grid, renewables, EV charging, and electrification skills into vocational schools, higher education, apprenticeships, and recognized credentials.

ANNEX: COUNTRY PROFILES

ITALY





Italy has built strong enabling conditions for electrification with an enablers score of 75% and strengths particularly in grid policy. Italy's state energy services agency, GSE, acts as a guarantor-of-last-resort in the country's new organized power purchase agreement (PPA) market. Italy also has the highest storage capacity relative to grid generation (7% of the energy generated in a year) of any country in this research, coupled with universal smart-meter deployment, significant grid digitalization and recently introduced mechanisms to further support storage.

However, its deployment score (44%) is not as strong as that of France or Germany. New supply and demand face grid constraints; electricity costs are high compared to natural gas; and electrification of transport and cooking lags.

These deployment metrics are held back by two compounding problems: policy fragmentation, a lack of policy continuity, and price signals that actively work against electrification. Electricity costs 2.6 times more than gas for industry and 2-3 times more for building heating — discouraging exactly the switch that the enabling framework is meant to support. Italy also has slow permitting processes that slow down clean generation and mitigating fossil fuel import dependency, which is among the highest in the European Union.

The key priority is fixing the price signal itself: rebalancing the levies and taxes that currently favor imported natural gas over clean electricity and confirming the renewal of Ecobonus — Italy's electric vehicle (EV) purchase incentive scheme — or a multiannual successor scheme, so that the incentive doesn't keep falling off a cliff-edge each time it comes up for renewal.

Another priority action is improving permitting. Even with a strong underlying grid and storage position — Italy has the highest storage-capacity-to-generation ratio of any country in this research, and the GSE's guarantor-of-last-resort role gives clean-power investors a public backstop — authorizing new clean power generation remains a significant bottleneck. Improving how that permitting process is governed would unblock the clean generation this infrastructure is already built to support, helping close the gap between Italy's strong enabling position and its comparatively slow deployment, and easing the high electricity costs that gap has helped produce.

Binding standards could help unlock progress where incentives alone have not been sufficient. For example, a per-building minimum-efficiency mechanism, rather than relying solely on the collective national average, paired with a phased rental ban for the least efficient existing homes, could improve its low renovation rate (0.85%/year against a 2% target) and electric cooking adoption, which is the lowest in Western Europe. Overall, Italy emerges as a country with a strong infrastructure and regulatory foundation for electrification, but one that needs to accelerate implementation, improve electricity-to-gas price signals and reduce permitting delays in order to translate enabling conditions into faster deployment.

ANNEX: COUNTRY PROFILES

ITALY

In the table below, 'Deployment' indicators include, e.g. 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' cover government plans, incentives, and regulations. See Methodology Annex for details.

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
GRID & POWER MARKET **11/30** DEPLOYMENT **27/30** ENABLERS	Highest storage capacity relative to total grid generation (7%). Universal smart-meter deployment and advanced network digitalization provide a strong foundation for flexibility and electrification. Strong de-risking innovation via GSE's guarantor-of-last-resort role in the newly organized PPA market (MPPA).	Among the highest electricity costs in this assessment compared to natural gas. Affordability could improve through lower taxes alongside more renewables investment to clean the grid. The deployment of renewables is mainly slowed down by permitting delays.
TRANSPORT **9/20** DEPLOYMENT **15/20** ENABLERS	Early progress on EV car (13%) and bus (25%) sales share, with good economics. A new EV charging infrastructure subsidy, 'Bonus Colonine' provides 1,500 – 8,000 EUR for new installations.	Low EV adoption for modes beyond cars and buses (2% two-wheelers, 4% light commercial vehicles); Italy lags peers on new EV sales across all segments except buses. Its Ecobonus EV incentive runs on a cliff-edge with no confirmed renewal.
INDUSTRY **10/20** DEPLOYMENT **16/20** ENABLERS	Relatively high share of electrification in industry (39%), driven partly as a byproduct of deindustrialization and by scrap-based electric arc furnace steelmaking, with some initial electrification pilots for energy-intensive industries.	The electricity-to-gas price ratio for industry (2.6x, versus 1.6x in France and 1.8x in Spain) is challenging and inhibits deployment of industrial electrification projects. Neither the Industrial Transition Support Fund nor the Transition 5.0 Plan establishes a dedicated electrification track, target, budget, or technology preference.
BUILDINGS **11/20** DEPLOYMENT **12/20** ENABLERS	The first country in this assessment to reach 100% adoption of smart meters, a prerequisite for demand flexibility measures in buildings.	The lowest adoption of electric cooking in Western Europe, hindering health and the transition away from residential gas. Electricity price for heating is 2-3x that of natural gas. Distinguishing energy efficiency interventions from other renovation works and reintroducing a higher deduction rate could help improve energy efficiency.
CROSS-CUTTING **3/10** DEPLOYMENT **6/10** ENABLERS	Better construction costs than most of Europe, making it easier to build. Strong cross-cutting policy score thanks to national and sectoral electrification targets and EU ETS/ETS2 membership.	Relatively low workforce population with degrees in engineering, manufacturing, and construction, and low electrical workers per capita. Italy's opposition (with Poland) to EU ETS2's design, and its backsliding on ETS1, creates friction with its own domestic electrification progress.
TOTAL SCORES	**44/100** DEPLOYMENT **75/100** ENABLERS	

Scores may not sum perfectly due to rounding. Data quality concerns: ***low.*** *Italy had solid data coverage, with the only challenges on EV trucks and grid congestion measures.*

ANNEX: COUNTRY PROFILES

ITALY

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 tone for sustained, market-based change. Italy's greatest barriers to boosting clean and affordable electrification are the disproportionate tax burden on electricity versus natural gas for both households and industry, bottlenecks in clean electricity generation permitting, and inconsistent incentives for EV deployment.

We have reviewed the above findings against WMBC's 10 Policy Principles to Seize the Electric Advantage. Some key gaps identified relate to taxation and incentive continuity which could benefit from following Principle 3 to realign incentives currently favoring gas and confirm a durable Ecobonus successor scheme. This could help improve Italy's energy security and competitiveness by removing the price signals currently working against electrification. Addressing gaps in permitting and building standards can be helped by Principles 6 and 8, which pair clearer authorization pathways for storage and clean generation with a per-building minimum-efficiency standard and phased rental ban for Italy's least efficient homes.

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	Adopt an explicit, quantified electrification-of-final-energy target in the next Integrated National Plan for Energy and Climate update, modeled on France's PPE3 approach, integrated across sectoral plans (grids, transport, buildings, industry) with a published delivery roadmap.
3. Realign financial incentives and taxation to support electrification	Balance levies and taxes that currently favor imported natural gas, bringing the industrial electricity-to-gas ratio (2.6x) within the EU Electrification Action Plan's 2x benchmark for 2030 and applying the Commission's principle that electricity should not be taxed more heavily than gas. Extend VAT relief from buildings to EVs and accelerate the SAD (harmful subsidy) reduction trajectory. Cut electricity tax for households, reduce VAT on electricity to European minimum of 5%.
4. Ensure electricity markets reward clean, flexible supply and demand	Prioritize closing the vehicle-to-grid regulatory gap to convert pilot leadership into commercial and deployment and continue scaling the MPPA/GSE guarantor model.
5. Deliver modern electricity systems including grids and enabling infrastructure	Restore or replace the National Recovery and Resilience Plan's charging-infrastructure funding and maintain Terna's transmission investment trajectory to ensure *Meccanismo di Approvvigionamento di Capacità di Stoccaggio Elettrico (MACSE)* storage buildout is matched by grid capacity in the same zones. Launch a heavy-duty vehicle charging infrastructure.

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ANNEX: COUNTRY PROFILES

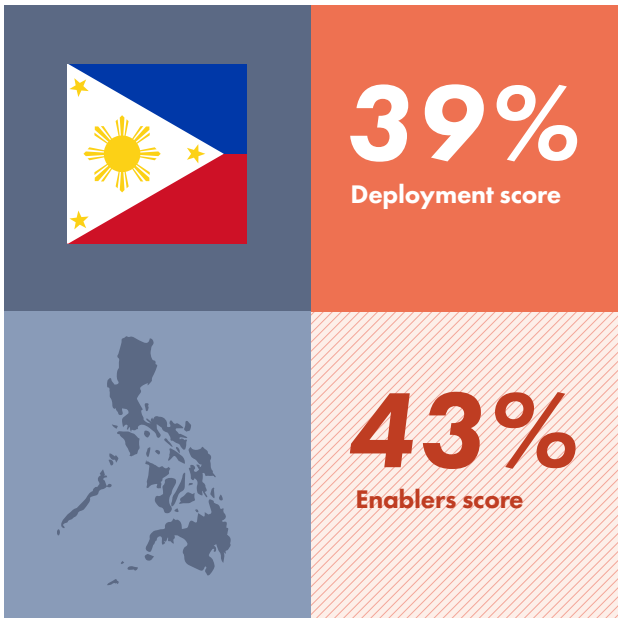
ITALY

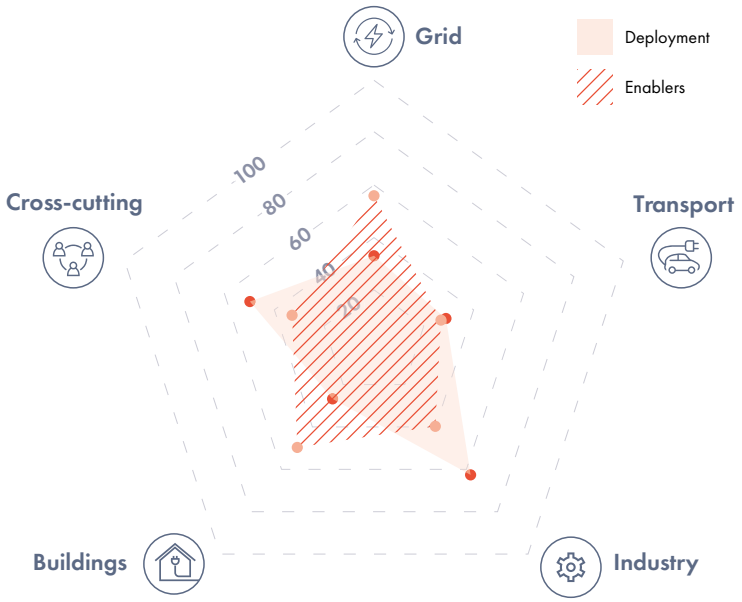
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Improve permitting governance to overcome the bottleneck in authorizations, which remains a significant barrier. Confirm and publicize whether Legislative Decree 199/2021's differentiated-authorization-by-plant-type approach already covers, or could be extended to, storage (MACSE) and EV-charging-infrastructure projects specifically. Consider adapting Poland's Grid Act cable-pooling model to Italy's north-south transmission corridor, allowing multiple generation and storage projects to share constrained connection points in the most congested southern zones.
7. Mobilize finance and de-risk investment	Extend the GSE guarantor model beyond PPAs to storage (MACSE) and industrial electrification projects. When extending the GSE guarantor model to industrial electrification projects, define electrification-specific eligibility criteria so the instrument doesn't default to funding the cheaper, lower-risk decarbonization pathways (efficiency, fuel-switching) over direct electrification.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Consider adopting a per-building energy efficiency minimum-standard mechanism rather than relying solely on the collective national average target. Consider a phased rental-ban mechanism for the least efficient existing homes, paired with the per-building minimum-standard mechanism already recommended, to address Italy's low renovation rate (0.85%/year against a 2% target).
9. Integrate electrification into industrial strategies and trade policy	Develop an explicit Italian industrial strategy for electrification manufacturing, potentially anchored in existing automotive-sector regions. Consider a heat-temperature-differentiated sectoral strategy to electrify what can be electrified today and reserve biomass/hydrogen for sectors that need them rather than transport, where biomass supply is limited.
10. Build the skilled workforce needed to electrify the economy	Extend *Programma GOL* following its August 2026 end date with a dedicated electrification-specific reskilling track.

ANNEX: COUNTRY PROFILES

THE PHILIPPINES





The Philippines has taken large although uneven steps toward an electrified economy, driving the country to score 39% on deployment and 43% on enablers. These scores reflect the need for better implementation of existing policies in buildings, transport, and grids sectors, paired with more thorough policymaking in industrial electrification and electric vehicle (EV) charging. The country has strong electric mobility ambition and has passed comprehensive energy market reforms. A national green building code and energy efficiency requirements provide a robust foundation for building electrification. These enablers provide an important foundation but are not yet matched by deployment in the buildings, transport, and grid categories.

Although the Philippines has taken significant steps toward liberalizing its generation market, a recent market analysis by the Philippine Competition Commission highlights remaining barriers for consumer uptake of clean electricity offerings from smaller players. The biggest gains in electricity reform can be made improving constraints on market entry, transmission development, and interconnecting new generation capacity. This could strengthen competition and lower system costs by speeding up how quickly clean energy sources can connect to the grid and support electrification across the sectors more broadly.

Transport shows a similar pattern. Although EV ambition is clearly stated — 50% of cars on the road by 2040 — uptake is lagging overall. To increase demand, government procurement of EVs can be paired with financing solutions designed for customers without access to traditional banks, focused specifically on electrifying jeepneys, trikes, and other public utility vehicles (PUVs). Separately, recent government statements indicate that exclusively importing EVs may not be desirable in the long term. De-risking domestic EV manufacturing investment and accelerating transport electrification, especially by leveraging critical mineral reserves to develop battery manufacturing capacity, could support budding domestic manufacturers. Across the board, a shortage of skilled electrical workers capable of installing EV charging infrastructure, for example, is a bottleneck that cuts across every sector. The Green Jobs Act is designed to provide strong incentives for training green economy workers, but the actual supply of electrical trade workers remains low and constrains the realization of other electrification goals.

Across sectors, closing the gap between what's already been legislated and what's being deployed would yield the greatest results. Targeted, smart financing that reflects the financial realities of diverse customers paired with regulatory alignment on cross-sectoral enablers such as grid development should be the focus.

ANNEX: COUNTRY PROFILES

THE PHILIPPINES

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 10/30 DEPLOYMENT 17/30 ENABLERS	Energy market liberalization policies are comprehensive with a wholesale electricity market, energy storage, and clean power procurement systems under the Electric Power Industry Reform Act.	Transmission deployment delays create a significant bottleneck to connecting new generation projects.
TRANSPORT 6/20 DEPLOYMENT 5/20 ENABLERS	Clear goals in Electric Vehicle Industry Development Act and Comprehensive Roadmap for the Electric Vehicle Industry demonstrate strong EV ambition. Foundational supply-side financial incentives (tax offsets and duty exemptions) and non-fiscal incentives (priority registration) for EVs support some demand creation.	Charging implementation lags significantly behind stated targets and remains concentrated in urban areas, limiting commercial EV uptake. Current adoption is strongest among passenger cars but lagging or nonexistent among public transport and freight fleets, although official uptake counts underestimate unregistered light EV adoption.
INDUSTRY 13/20 DEPLOYMENT 8/20 ENABLERS	Some fiscal tools incentivize industrial energy efficiency investments. Industrial appliances must meet minimum energy performance standards.	Existing industrial energy efficiency and electrification policies are not sufficiently integrated with industrial development strategies to create sustained, bankable demand for clean electrification projects. Minimum energy performance standards fall below Collaborative Labeling and Appliance Standards Program benchmarks.
BUILDINGS 5/20 DEPLOYMENT 10/20 ENABLERS	Established minimum requirements for the energy efficient design of new buildings and requirement to retrofit existing buildings.	A lack of regulatory training for local officials results in uneven enforcement of building codes and limits the impact of national building codes.
CROSS-CUTTING 5/10 DEPLOYMENT 3/10 ENABLERS	The Philippines Green Jobs Act builds on existing fiscal incentives to promote the training and certification of workers needed for a transition to a green economy.	Too few electrical trade workers present a bottleneck to grid, EV charging, and industrial electrification buildout and create a gap in after-sales servicing for EVs. No targets for increasing end-use electrification.
TOTAL SCORES	39/100 DEPLOYMENT 43/100 ENABLERS	

*Scores may not sum perfectly due to rounding. Data quality concerns: **low.** The only data challenges were around stats for EV trucks and electrical trade workers.*

ANNEX: COUNTRY PROFILES

THE PHILIPPINES

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 tone for sustained, market-based change.

We reviewed the above findings against WMBC's 10 Policy Principles to Seize the Electric Advantage. Gaps in grid readiness and clean power deployment, including transmission development delays and demand side management, could be addressed through the recommendations under Principles 4 through 6. These improvements would increase grid reliability and decrease energy costs by ensuring grid connection processes are standardized, transparent, and well funded, thereby improving the Philippines' energy security and industrial competitiveness. Addressing gaps in end-use electrification (from EVs to industry) can be improved by Principles 3, 7, and 8, which address affordability issues by developing flexible financing mechanisms that align with existing programs, standards, and mandates.

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	Codify interim milestones and phased implementation steps for sectoral electrification and EV adoption using priority city and corridor pilots before scaling nationally. Strengthen monitoring of actual EV deployment, including light EVs (such as two-wheelers), through point of origin reporting and appropriate registration requirements to set smarter targets and reallocate resources appropriately.
3. Realign financial incentives and taxation to support electrification	Prioritize targeted, outcome-based fiscal incentives using existing government programs, such as the Board of Investors and the Corporate Recovery and Tax Incentives for Enterprises Act, to reward measurable electrification, energy efficiency, and clean energy use above minimum requirements. Increase EV demand by designing financing support around the cash-flow realities of drivers and operators, including providing concessional financing, point-of-sale fiscal incentives, guarantees, and repayment structures based on actual end-user cash flows.
4. Ensure electricity markets reward clean, flexible supply and demand	Improve power market growth and planning to better respond to changing system needs by optimizing the deployment, utilization and compensation of energy storage, aligning generation procurement and contracts with emerging flexibility, reliability and affordability needs, and incorporating anticipated demand from electrification and large loads into power system planning.
5. Deliver modern electricity systems including grids and enabling infrastructure	Set phased National Smart Grid milestones to support advanced metering infrastructure rollout and improve demand-side management. Improve transparency of transmission and distribution planning, increase investment in transmission and distribution assets, and establish large load cost accountability by requiring developers of data centers and advanced manufacturers, not consumers, to pay for grid improvements.

Table continued on next page

ANNEX: COUNTRY PROFILES

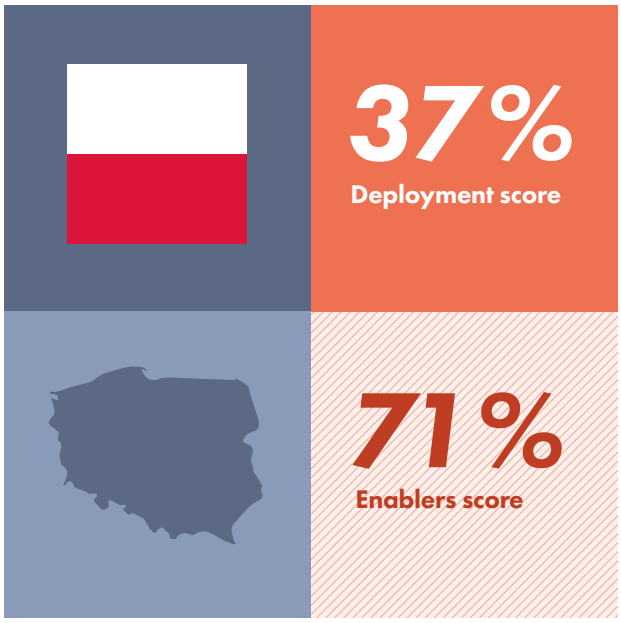
THE PHILIPPINES

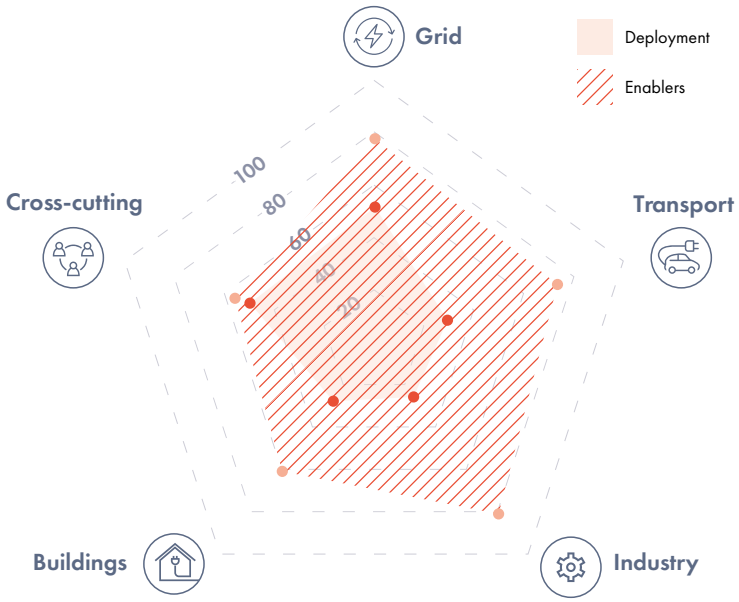
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Standardize interconnection timelines, processes, and cost responsibilities for battery energy storage systems, large loads, and charging infrastructure installation.
7. Mobilize finance and de-risk investment	Expand concessional finance, de-risk first-of-a-kind projects, and support transmission and flexibility infrastructure development. Diversify transportation fiscal incentives to incentivize credit and loan guarantees as well as lease-to-own programs that de-risk financing for non-banked customers. Leverage available concessional funding, such as the Climate Investment Funds ACT program, to de-risk industrial decarbonization efforts.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Develop a phased sale-share requirement with vehicle manufacturers and importers to create a long-term signal for EV adoption. Finalize stable EV manufacturing standards, especially for e-PUVs and two- and three-wheelers. Strengthen implementation and enforcement of the Energy Efficiency and Conservation Act, including compliance with mandatory energy audits. Consider requiring ISO 50001-compliant energy management systems for Designated Establishments.
9. Integrate electrification into industrial strategies and trade policy	Eliminate import tariffs on EV parts and battery components used in local manufacturing and consider gradually reintroducing reduced import tariffs on finished EVs over the next 10 years to balance near-term EV affordability with the development of a competitive local manufacturing industry. Integrate existing investment mechanisms into a dedicated clean electrification program to decarbonize process heat and generate clean electricity demand through grants and investment incentives. Coordinate industrial and special economic zone planning with renewable energy, storage, and transmission planning to co-locate clean electricity generation and anticipate large industrial loads, reducing industrial energy costs.
10. Build the skilled workforce needed to electrify the economy	Build on the Philippines Green Jobs Act to develop dedicated training programs to increase EV after-sales servicing, battery energy storage system installation, and general power system skillsets. Establish clear licensing standards and certification for advanced electrical skillsets. Fund targeted reskilling programs for coal-transition and utility workforces via the Climate Investment Fund's National Just Transition Approach Development program.

ANNEX: COUNTRY PROFILES

POLAND





Poland has a solid Enablers score (71%), built on the Renewable Energy Sources (RES) Auction System (which guarantees renewable energy producers a fixed price for 15 years), the Grid Act's cable-pooling reform (letting new renewables share a single connection point, unlocking an estimated 150 GW of new capacity), and large-scale finance mobilization through Poland's national environmental fund (NFOŚiGW) which is allocating PLN 37 billion (~ USD 10 billion) 2026 allocation. However, its deployment score (37%) is the lowest of the five European countries assessed. Grids are congested and unreliable, investment in grid infrastructure is low, electricity costs are high for households and businesses, and electrification of transport, industry, cooking, and heating all lag, alongside a shortage of qualified electrical trade workers.

Several structural gaps explain the difference between policy and delivery. Grid connection permitting is slow; there's no explicit national target for electrifying final energy use; over 80% of households remain on regulated tariffs rather than market-based ones; several electric vehicle (EV) incentives are set to taper in 2026 just as Poland seeks to scale EV adoption; and its coal phaseout date of 2049 is the furthest of the European countries in scope.

Closing these gaps could start with treating the reskilling capacity gap — there are an estimated 78,500 direct and 21,000 indirect coal mining jobs at stake in Upper Silesia, however just 2,200 people have participated in reskilling programs in Eastern Greater Poland until now. Addressing this alongside binding interim milestones on the coal phaseout — tied to the EU's Social Climate Fund — would give both workers and investors a clearer, more credible view on the transition timeline.

Another action to close the gap is improving policy coherence. NFOŚiGW funding today is a set of separate programs rather than one named industrial-electrification strategy; there is no manufacturing cluster comparable to France's Vallée de la Batterie, and most support is aimed at efficiency and clean generation broadly rather than direct electrification.

Binding standards, for example updating the Energy Policy of Poland (PEP2040) with an explicit electrification target and introducing a rental-ban mechanism for the least-efficient existing homes, currently absent, could convert incentives that exist today into standards that last, rather than support that people and landlords can simply opt out of. Separately, the case for urgency on the grid side is just as concrete: 223 GWh of solar generation was curtailed in April 2025 simply because the grid couldn't absorb it, a sign that generation buildout is currently outpacing grid and storage flexibility, and that closing this gap should be treated as its own priority alongside the demand-side work above.

Acting on both fronts — building the workforce to do the work and turning scattered incentives into one coherent electrification strategy — could help Poland convert its strong policy foundations into the faster deployment its competitiveness depends on.

ANNEX: COUNTRY PROFILES

POLAND

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 **16/30** DEPLOYMENT **23/30** ENABLERS	The RES Auction System guarantees winning renewable generators fixed 15-year revenue via a contract-for-difference structure — although in practice auctions received almost no bids, because investors are opting into power purchase agreements (PPAs) instead. The Grid Act's April 2026 cable-pooling reform unlocks an estimated 150 GW of new connection potential.	223 GWh of solar generation was recently curtailed — evidence that grid capacity and flexibility are not yet keeping pace with renewables growth. Four state-controlled groups dominate generation and supply. Permitting delays are long and the spatial planning system faces severe strain due to a municipal-level overhaul, chronic staff shortages, and delayed integration of EU renewable energy mandates.
TRANSPORT **6/20** DEPLOYMENT **15/20** ENABLERS	A comprehensive EV package (NaszEauto/Mój Elektryk up to PLN 40,000, a dedicated N2/N3 heavy-truck program with a new PLN 2 billion (USD 500 million) round, full tax deductibility through 2026) pairs with strong charging infrastructure.	2026 reductions in incentives — through a lower ownership-tax discount and reduced business tax deductibility — coincide with Poland's efforts to scale EV adoption; Poland also has the highest VAT rate of the five European countries (23%), with no EV-specific relief.
INDUSTRY **5/20** DEPLOYMENT **16/20** ENABLERS	NFOŚiGW's PLN 37 billion (about USD 10 billion) 2026 allocation spans 48 priority programs and more than 30 funding calls. Separately, FEnIKS has allocated PLN 184 million (about USD 47 million) to improve energy efficiency in medium and large enterprises, including through upgrades to production processes.	Individual funding components exist but aren't packaged into a coherent named strategy, and no manufacturing cluster comparable to France's Vallée de la Batterie was identified. Support is primarily directed towards efficiency, renewable generation and broader clean-industry investments rather than direct industrial electrification per se.
BUILDINGS **5/20** DEPLOYMENT **12/20** ENABLERS	Czyste Powietrze is a large-scale program linking home renovation and heating replacement with air-quality improvements, and provides significant support for heat pumps. Moje Ciepło supports heat pumps in new-build homes; its current application round is scheduled to run until 26 February 2027 or until funds are exhausted. Poland has also been assessed to have about 1,200 MW of demand-side response potential—around 5% of peak demand. A household storage programme is scheduled to open on 20 October 2026, with PLN 1 billion (about USD 257 million) for electricity and heat storage.	Delivery and scale remain challenges. The proposed 2026 technical building regulations were not adopted; WT2021 remains in force for 18 months from 20 September 2026. Around 2.5 million coal-based heating systems remain to be replaced, making heat-pump deployment and installer capacity important priorities. Czyste Powietrze requires an energy audit, and support for electric heating other than heat pumps ends from 2027; the programme's design and delivery need continued monitoring to protect efficiency, quality and trust. Dynamic-price uptake remains low: 4,836 households had such contracts at the end of 2025.
CROSS-CUTTING **5/10** DEPLOYMENT **6/10** ENABLERS	Poland is the largest single Social Climate Fund recipient (EUR 11.4 billion).	The coal phaseout law (December 2025) runs only to 2049 — the slowest timeline among European countries. Workforce development is the most acute gap. Poland, with Italy, leads 10 EU member states pushing to reconsider ETS2's design on cost-protection grounds.
TOTAL SCORES	**37/100** DEPLOYMENT **71/100** ENABLERS	

*Scores may not sum perfectly due to rounding. Data quality concerns: **low.** Poland had solid coverage across the data metrics, with challenges only in EV truck data and industrial electrification projects.*

ANNEX: COUNTRY PROFILES

POLAND

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 tone for sustained, market-based change.

In the table below we have reviewed the above findings against WMBC's 10 Policy Principles to Seize the Electric Advantage. Some key gaps identified related to workforce capacity and coal-transition planning could benefit from following Principles 1 and 10 to add binding interim milestones to the 2049 coal phaseout and treat the reskilling shortfall as Poland's single highest-priority intervention. This could help improve Poland's energy security and competitiveness by giving businesses a credible transition timeline. Addressing gaps in targets and industrial strategy can be helped by Principles 2 and 9, which pair an explicit electrification-of-final-energy target with a single, named industrial-electrification strategy linking NFOŚiGW's funding to Poland's EV and charging incentive programs.

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	Update the PEP2040 with an explicit electrification share-of-final-energy target, following France's PPE3 model, rather than continuing to rely solely on renewables-share proxies.
3. Realign financial incentives and taxation to support electrification	Reconsider the timing of the ownership-tax discount phaseout; removing this incentive in 2026, the same year Poland is trying to scale EV adoption, sends a contradictory signal. Consider EV VAT relief. Reconsider the business tax-deductibility phaseout. Continue the coal-subsidy reduction trajectory, publish a multi-year forward path comparable to Italy's SAD Catalogue targets. Set out a path to bring the industrial electricity-to-gas price ratio (currently above 3x) toward the EU Electrification Action Plan's 2x benchmark for 2030, including by rebalancing energy taxation, so electricity is not taxed more heavily than gas.
4. Ensure electricity markets reward clean, flexible supply and demand	Streamline the virtual PPA approval process. Publish a clear public comparison of the RES Auction System and the corporate-PPA market side by side. Scaling demand side response participation beyond current levels and accelerating smart meter rollout to unlock dynamic pricing at scale are both prerequisites for absorbing the curtailed generation flagged under Principle 5.
5. Deliver modern electricity systems including grids and enabling infrastructure	Treat the solar curtailment figure (223 GWh) as an early-warning indicator; generation buildout is currently outpacing grid/storage flexibility capacity, and closing this gap should be prioritized. Maintain momentum on the Grid Act's cable-pooling reform by publishing measured outcomes. Add an explicit long-duration storage element to the Grid Act reforms currently only covering batteries. Ensure the heavy-duty truck charging program and NFOŚiGW's broader charging buildout are sequenced with the grid-connection infrastructure funding.

Table continued on next page

ANNEX: COUNTRY PROFILES

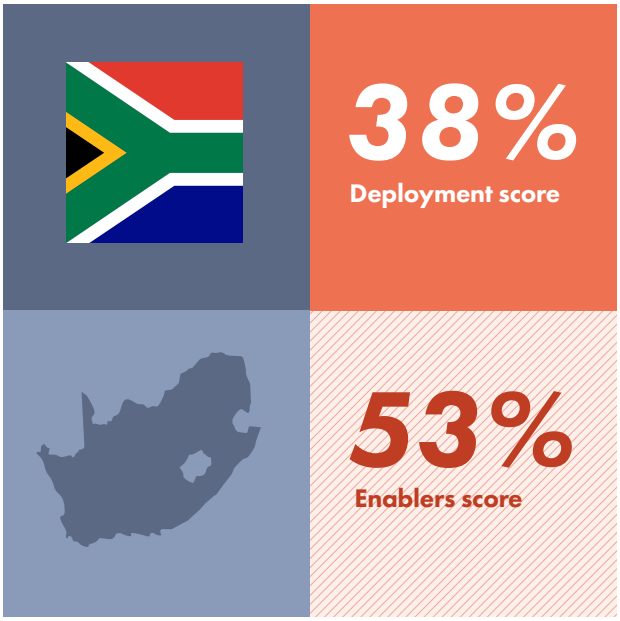
POLAND

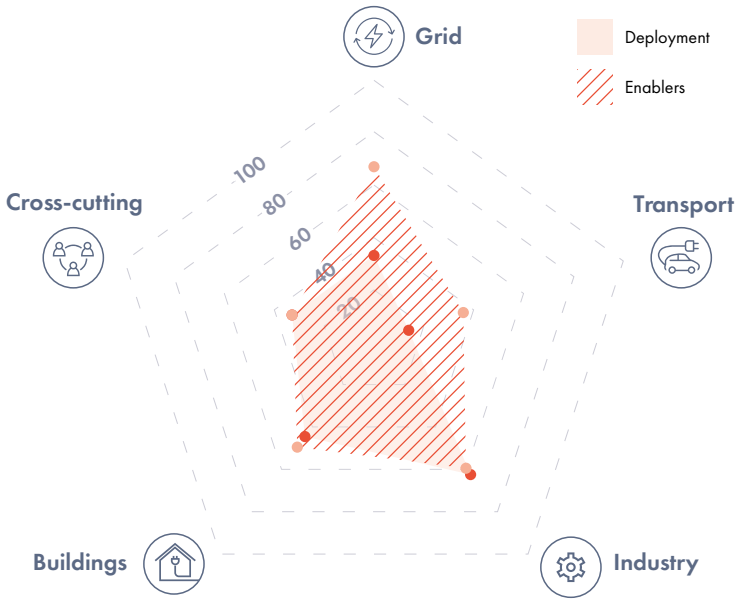
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Fast-track the electronic grid-connection application system referenced in PSE's (Poland's national electricity operator) 2026 roadmap to compound the cable-pooling reform's benefit. Make a systematic investment in a comprehensive environmental permitting system to speed up permitting for electrification in line with proposals from Instytut Reform.
7. Mobilize finance and de-risk investment	Design any new long-term contracts or other de-risking support to prioritize industrial heat electrification, starting with low- and medium-temperature applications where near-term opportunities are strongest. One possible solution is the use of unilateral contracts for difference for heat production from electricity. Complement this with support for assessing and demonstrating electrification options for high-temperature heat.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Raise the ambition at which Poland implements the EU Clean Vehicles Directive for clean mobility in public procurement tenders. Increase the targets for the share of clean light-duty (22% compared to 38.5% for e.g. Germany) and heavy-duty (9% compared to 15% in e.g. Germany) in public procurement tenders and ensure that as high a share as possible of those are zero-emission vehicles. Introduce a phased rental-ban mechanism for the lowest-efficiency existing residential buildings, following France's DPE-ban model or the U.K.'s Minimum Energy Efficiency Standards — currently absent despite being flagged as a gap in Poland's own building-standards assessment.
9. Integrate electrification into industrial strategies and trade policy	Develop an explicit, named industrial-electrification strategy — individual funding components exist but are not currently packaged as a single coherent strategy. Link the clean-technology manufacturing program (EUR 1.2 billion) more explicitly to Poland's EV and truck-charging incentive programs (Principles 3 and 5), creating a demand-pull/supply-build feedback loop.
10. Build the skilled workforce needed to electrify the economy	Scale coal-related reskilling using region-specific forecasts of workers affected and training capacity. Align training with projected demand for grid, building and industrial electrification skills needs.

ANNEX: COUNTRY PROFILES

SOUTH AFRICA





South Africa scores 38% on deployment and 53% on enablers. For the latter, the policy landscape is asymmetric: progress in some areas with notable gaps in others. While the country has passed significant demand-side management and grid deregulation policies, low investment in the grid and permitting constraints on building new grid infrastructure have held back electrification progress on the ground.

Workforce is a specific and significant bottleneck: skilled workforce rates are much lower than most other countries in this assessment, constraining both domestic grid development and electrification more broadly. Transport is also lagging. Underdeveloped policies combined with significant import tariffs keep electric vehicles (EVs) at under 3% of all vehicle sales. Coal remains an entrenched energy source, providing over 80% of South Africa's primary energy in 2024, and the transition toward renewable energy presents both a strength and a constraint. Although South Africa has growing practical experience with repurposing coal assets and supporting affected communities, lessons from the Komati decommissioning illustrate the need for proactive investment and local economic diversification well before plant closure.

Loadshedding and instability of the electricity grid have both encouraged renewable energy development and hindered electrification. Investment in solar PV, battery storage, and efficient electric technologies have accelerated, but continued concerns around electricity reliability and affordability maintain a significant barrier for broader electrification end-uses that depend on a stable grid supply.

On the other hand, industrial energy efficiency has emerged as a strong asset, with significant efficiency gains through the adoption of an international energy efficiency standard under the Industrial Energy Efficiency Programme, the provision of concessional loans through the Green Energy Efficiency Fund, and additional tax incentives. This may help some of the challenges that increasing electricity demand puts on the grid and clean power supply.

South Africa's next step is to address its biggest gaps while investing in the cross-cutting readiness needed to drive national deployment. The first priority is the grid itself: continuing to unbundle the vertically integrated and state-owned power utility Eskom and meeting the transmission targets outlined in the Transmission Development Plan (TDP). Second is to build on South Africa's existing fiscal incentives and emissions levies by bringing EV import duties into parity, or below, with those on internal combustion engine (ICE) vehicles and expanding access to EV charging infrastructure. The third priority is extending what's already working: industrial electrification can build on its existing momentum by leveraging financial support from the Climate Investment Funds' Industrial Decarbonization program (in addition to the pending Investment Plan) to accelerate domestic electrification in hard-to-abate sectors.

ANNEX: COUNTRY PROFILES

SOUTH AFRICA

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 **10/30** DEPLOYMENT **20/30** ENABLERS	Policies are in place to deregulate the electricity market with unbundling and competition reform, tax incentives for off-grid renewable energy implementation, and a clean power procurement mechanism. Recent reforms to embedded generation and wheeling are also allowing customers to accelerate clean electricity adoption ahead of grid-wide decarbonization. South Africa also possesses a comprehensive Just Energy Transition framework that combines a coal phase-down and renewable repurposing plans with renewable energy, storage, transmission, and private-sector investment.	Electricity generation remains highly coal-dependent, limiting the near-term emissions benefits of electrification. The challenge is increasingly one of execution; replacing retiring coal capacity with clean generation, storage, flexibility and transmission quickly enough to maintain the recent improvements in reliability and affordability. Despite significant reductions in load shedding, outages can still reach dozens of hours per month in some areas, hindering reliability. Basic electricity access remains a gap, although it has grown to ~90% in 2024. Historical grid buildouts have lagged behind current targets due to low transmission investment.
TRANSPORT **3/20** DEPLOYMENT **7/20** ENABLERS	The first African country to pilot vehicle-to-grid charging with support for other pilots through the government's uYilo eMobility Programme. EV manufacturers receive fiscal incentives to encourage capital investments in domestic manufacturing.	Low EV adoption (below 3%) across modes, despite rising oil import costs, exacerbated by high import costs (25% tariff, even higher than for ICE vehicles). Programs to accelerate broader EV charging infrastructure remain disjointed and underdeveloped in EV policies.
INDUSTRY **13/20** DEPLOYMENT **12/20** ENABLERS	Solid baseline of electrification and emerging enabling plans (like the Just Energy Transition Investment Plan and recent Industrial Development Strategy) in addition to emerging solutions for hard-to-abate sectors (such as SmeltDirect), are creating momentum for industrial decarbonization. Robust training and fiscal incentives for industrial energy efficiency program implementation are closely aligned with sectoral targets for specific energy consumption reduction. Private renewable energy, wheeling and power purchase agreements increasingly allow industrial consumers to decarbonize ahead of the national grid.	Coal-intensive grid electricity, low grid reliability, rising electricity costs, and slow transmission buildout limit the competitiveness and emissions benefits of industrial electrification.

Table continued on next page

ANNEX: COUNTRY PROFILES

SOUTH AFRICA

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
BUILDINGS **9/20** DEPLOYMENT **10/20** ENABLERS	Emerging solar and storage deployment, alongside low electricity costs for businesses. Mandatory energy efficiency programs (Energy Performance Certificates) for large public and commercial buildings, and demand management (Integrated Demand Management Programme) exist.	Energy efficiency guidelines fall short of the Collaborative Labeling and Appliance Standards Program (CLASP) standards. Only limited incentives in place for building heating and cooking electrification. Electrification policy has historically focused on expanding electricity access, reflecting South Africa's post-apartheid development priorities and as access has improved, policy attention is beginning to shift toward electrification and replacing fossil fuels.
CROSS-CUTTING **3/10** DEPLOYMENT **3/10** ENABLERS	Low spark gaps and construction costs, which highlight the opportunity to build right the first time. Workforce reskilling programs such as the Just Energy Transition Skilling for Employment Programme and PowerUp exist to bridge the gap between industry needs and educational institutions.	Carbon pricing has been low at an effective rate of about USD 3/tCO_2, depending on allowances; significant end-use fossil fuel subsidies found. Limited skilled workforce; a coherent national workforce reskilling strategy is needed to enable progress across sectors.
TOTAL SCORES	**38/100** DEPLOYMENT **53/100** ENABLERS	

Scores may not sum perfectly due to rounding. Data quality concerns: ***medium.*** *Data gaps include workforce data, spark gap, and total cost of ownership analyses.*

ANNEX: COUNTRY PROFILES

SOUTH AFRICA

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 tone for sustained, market-based change.

We have reviewed findings above against WMBC's 10 Policy Principles to Seize the Electric Advantage. Gaps in grid readiness, including transmission development and clean energy generation, could be addressed through the recommendations under Principles 4 through 7. These improvements would increase private-sector investment in grid development by ensuring that grid connection processes are standardized, transparent, and de-risked, thereby improving South Africa's grid reliability and energy market viability.

Gaps in end-use electrification (from EVs to industry) can be improved by Principles 3, 7, and 9, which address affordability issues through pricing reform. Recommendations from Principles 1, 2, and 10 will provide the foundational signals and workforce improvements needed to support economy-wide electrification.

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	Expand existing access-focused electrification targets to end-use electrification goals for residential buildings to include transportation and industry. Align existing electrification and renewable energy policies such as the Climate Change Act, Integrated Resource Plan (IRP), TDP, Integrated Energy Plan, and the South African Renewable Energy Masterplan to reduce policy uncertainty and signal future investment priorities.
3. Realign financial incentives and taxation to support electrification	Introduce point-of-sale purchase incentives for clean technologies such as EVs, battery storage systems, and off-grid solar. Consider using carbon tax revenues for this purpose. Adopt an official definition for "inefficient" subsidies and introduce a mid-term fossil fuel subsidy phaseout into the next draft of the Integrated Resource Plan, consistent with commitments under the Pittsburgh Commitments.
4. Ensure electricity markets reward clean, flexible supply and demand	Ensure the evolving market rules for South African Wholesale Electricity Market establish pathways for aggregated storage and distributed energy resources to participate and be compensated in energy and ancillary-service markets. Expand time-varying and cost-reflective tariffs. Standardize a national power purchase agreement (PPA) template to enable and scale direct corporate procurement of renewable energy through long-term PPAs.
5. Deliver modern electricity systems including grids and enabling infrastructure	Modernize distribution networks to accommodate rapid growth in small-scale embedded generation, storage, and flexible demand. Prioritize digital visibility, smart metering, and distribution-system planning so new electrified loads can be connected and managed efficiently. Prioritize grid development in renewable corridors to meet new loads with clean electricity generation.

Table continued on next page

ANNEX: COUNTRY PROFILES

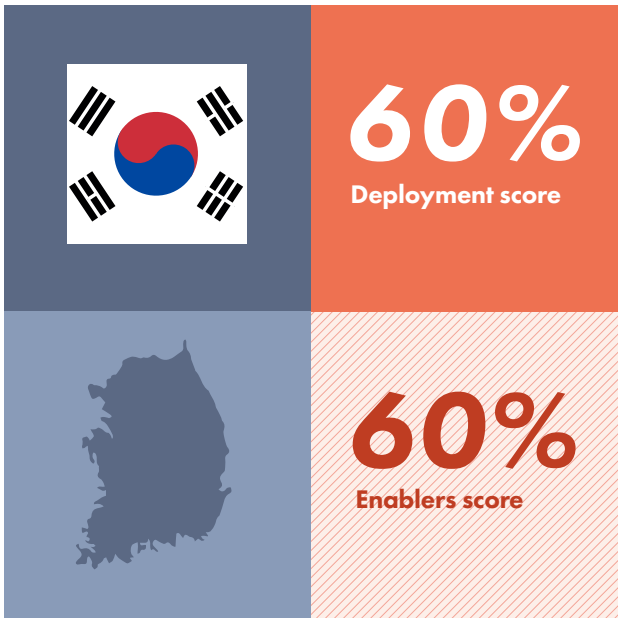
SOUTH AFRICA

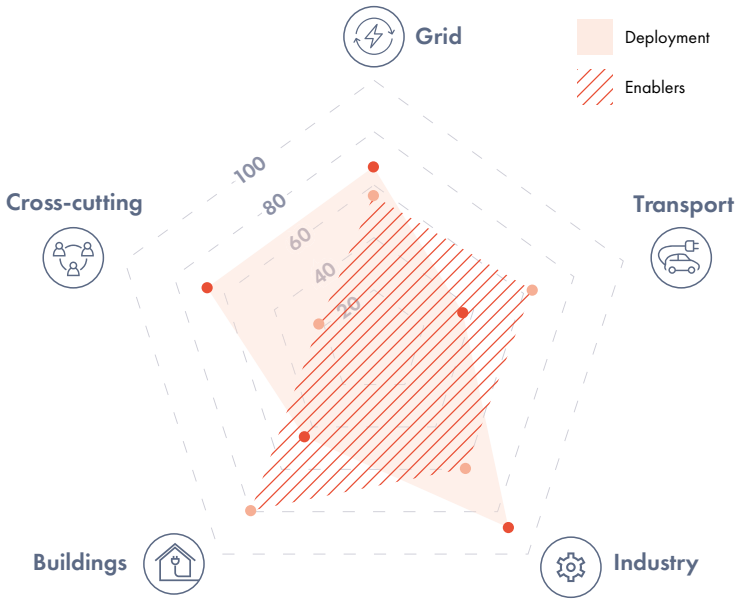
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Increase policy continuity by institutionalizing long-term policy frameworks such as the IRP and TDP. Establish maximum permitting timelines to improve interconnection planning and accelerate grid connections for new renewable generation and industrial loads.
7. Mobilize finance and de-risk investment	Leverage the Credit Guarantee Vehicle and ring-fencing to de-risk private investment in Independent Transmission Projects and accelerate grid buildout to meet annual goals. Align relevant stakeholders to meet Climate Investment Funds' Sectoral Transformation Investment Plan submission deadline to secure concessional financing for industrial decarbonization.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Advance minimum energy performance standards for other end uses beyond industrial motors, lights, and household refrigeration. Consider introducing a sales mandate for EVs across different vehicle classes.
9. Integrate electrification into industrial strategies and trade policy	Balance long-term domestic EV manufacturing development with near-term EV affordability by reducing EV import tariffs below ICE import taxation levels to improve cost parity of EV imports and stimulate the growth of a domestic EV market.
10. Build the skilled workforce needed to electrify the economy	Scale pilot programs and partnerships to train a skilled workforce in priority areas, such as grid expansion and EV system needs, with special attention paid to labor populations most significantly impacted by the coal transition.

ANNEX: COUNTRY PROFILES

SOUTH KOREA





South Korea has the assessment's second-highest deployment score (60%) thanks to solid electrification rates and a reliable grid. The enablers score is the same (60%), but both show room for improvement. There are two main reasons: policies that detract from clean electricity supply (such as fossil fuel support and transparency challenges with the state-owned utility), and insufficient demand-side policies.

Closing the first gap could start with realigning financial incentives, such as reducing fossil fuel subsidies and strengthening the Emissions Trading Scheme (ETS), while establishing a well-resourced, independent regulator that can open the grid to transparent planning and market-based clean energy investments. This includes examining electricity prices, which have been kept constant (and relatively affordable) for multiple years — this has helped electrification, but has caused rising utility debt. As a result, the National Assembly Research Service's 2026 audit brief has asked when and how tariffs will be normalized.

To close the second gap, South Korea could strengthen demand-side efficiency measures, from residential demand flexibility to equipment standards across industry and data centers. A related point is heat-pump adoption: gas boilers are the most common individual heating system in South Korean homes, and policy could do more to enable heat pumps in apartment buildings. . Acting across these areas could improve energy security and cut costs by helping to reduce demand for volatile fossil fuel imports, ultimately improving competitiveness.

ANNEX: COUNTRY PROFILES

SOUTH KOREA

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' cover government plans, incentives, and regulations. See Methodology Annex for details.

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
GRID & POWER MARKET **20/30** DEPLOYMENT **17/30** ENABLERS	Second-highest deployment score; top in reliability (annual outages <10 minutes). Growing storage auctions and statutory smart grid plans with advanced technologies.	Renewables and grid investment are among the lowest in our assessment. Minimal market reforms for the state-owned Korea Electric Power Corporation, and demand flexibility is mostly limited to industrial programs.
TRANSPORT **7/20** DEPLOYMENT **13/20** ENABLERS	Solid subsidies and early electric vehicle (EV) growth across modes, such as light commercial vehicles. Multi-level smart charging funds and rules for new apartments.	EV sales shares of ~10% and charging investments show room for growth to cut oil imports. Bidirectional charging has begun pilots but is nascent.
INDUSTRY **18/20** DEPLOYMENT **12/20** ENABLERS	Top industrial electrification rate (47%) due to easier-to-electrify semiconductor industry. Robust efficiency standards, audits, finance, and startup support.	High temperature heat pump efforts are growing but nascent, as are electric arc furnaces and overall deployment of the Green Industry Growth Plan.
BUILDINGS **9/20** DEPLOYMENT **16/20** ENABLERS	Solid baseline electrification rate (55%) due to commercial buildings, and a leader for enablers due to efficiency standards. Retrofit support via the Green Remodeling Programme.	Electric cooking and heat pump adoption are far behind peer countries. Residential electrification rates are lower. Recently upgraded building codes and subsidies need more time to scale impact.
CROSS-CUTTING **7/10** DEPLOYMENT **2/10** ENABLERS	The highest share of workforce population with relevant advanced degrees. The Korea Green Transformation (K-GX) strategy (2026-2035) and the 2026 Special Act for coal-plant workers provide retraining and just-transition support. Now in the Powering Past Coal Alliance.	Carbon pricing remains low (well below USD 50/tCO2) despite a sharp increase in 2026; fossil fuel subsidies remain in shifting 28 coal plants to gas. An electrification target has been announced but is still at an early stage.
TOTAL SCORES	**60/100** DEPLOYMENT **60/100** ENABLERS	

Scores may not sum perfectly due to rounding. Data quality concerns: ***low.*** *The only hard-to-find data were on EV trucks, heat pumps, and electrical trade workers.*

ANNEX: COUNTRY PROFILES

SOUTH KOREA

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 tone for sustained, market-based change.

We have reviewed the above findings against WMBC's 10 Policy Principles to Seize the Electric Advantage. Gaps identified related to grids and clean power, including transparent mechanisms to boost investment in renewables and demand flexibility, could benefit from following Principles 4 through 6 to deliver modern electricity systems by ensuring that flexibility is rewarded and that grid connection processes are streamlined. This could help improve South Korea's energy security and competitiveness. Addressing gaps in end-use electrification (from EVs to buildings) can be helped by Principles 3 and 8, which pair incentives and standards to enhance affordability and scale adoption.

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	Adopt national and sectoral electrification targets (e.g. 30% by 2030 as proposed by the Minister of Climate, Energy and Environment).
3. Realign financial incentives and taxation to support electrification	Phase down the >USD 1 billion in direct fossil fuel subsidies, and link allowances of the still low-priced ETS to national climate targets.
4. Ensure electricity markets reward clean, flexible supply and demand	Establish a well-resourced independent regulator to enhance market-based transparency on renewable energy investment and normalized electricity prices, as well as demand flexibility beyond current (mostly industrial) programs.
5. Deliver modern electricity systems including grids and enabling infrastructure	Scale up the centralized contract market for energy storage and implement smart grid statutes with grid-enhancing technologies, while scaling bidirectional charging pilots and virtual power plant adoption.

Table continued on next page

ANNEX: COUNTRY PROFILES

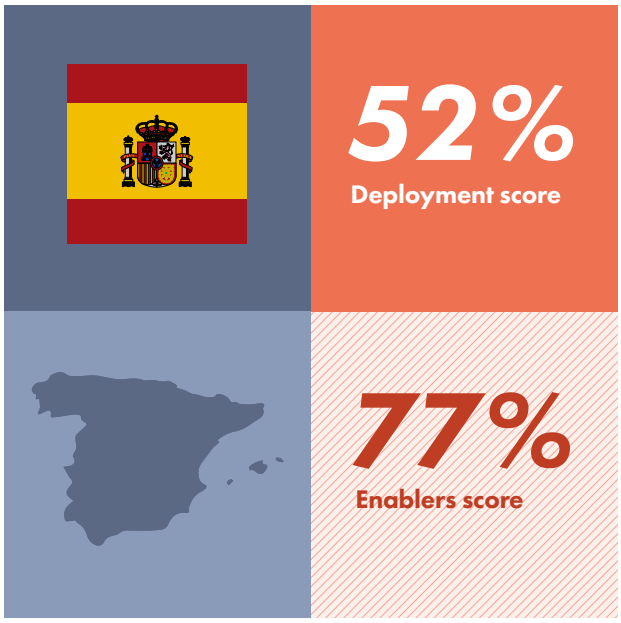
SOUTH KOREA

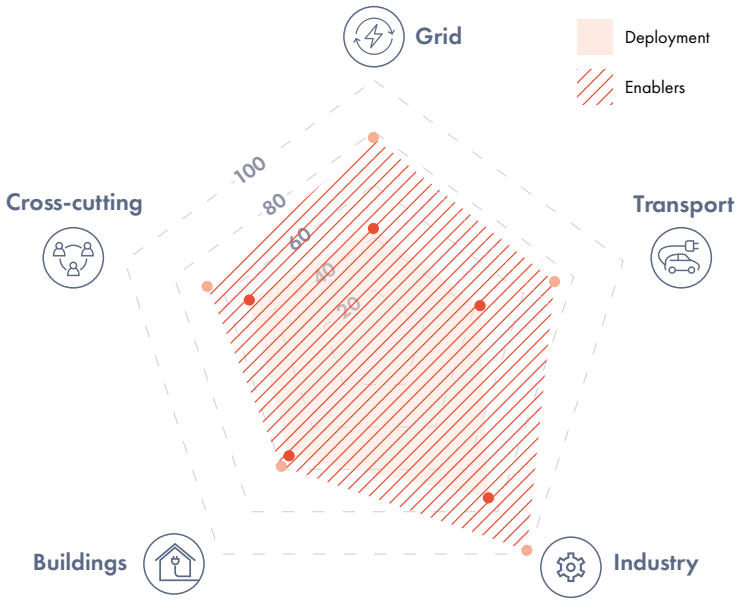
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Continue to enhance stakeholder engagement, spatial planning, and transparent connection processes that incentivize flexibility.
7. Mobilize finance and de-risk investment	Implement the Green Industry Growth Plan, Green Remodeling Programme, and EV finance to enhance end-use electrification, including the potential to reduce consumer charging costs.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Change apartment heat pump rules to increase adoption, enhance vehicle standards for EV uptake, and implement the new retrofit mandate for older public buildings while scaling up support for private buildings.
9. Integrate electrification into industrial strategies and trade policy	Continue supporting efforts on industrial heat pumps and electric furnaces; consider energy security benefits of electrification.
10. Build the skilled workforce needed to electrify the economy	Build on the K-GX strategy's just-transition pillar and the 2026 Special Act for coal-plant workers to deliver coal worker retraining.

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.

ANNEX: COUNTRY PROFILES

SPAIN

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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ANNEX: COUNTRY PROFILES

SPAIN

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.*

ANNEX: COUNTRY PROFILES

SPAIN

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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ANNEX: COUNTRY PROFILES

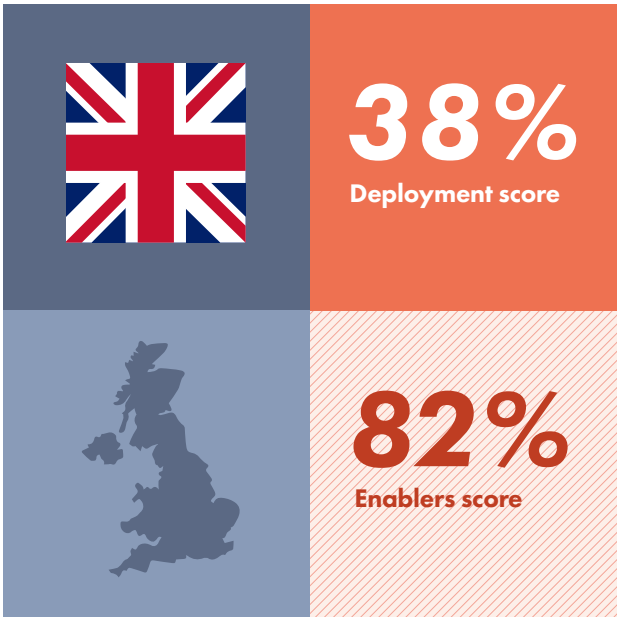
SPAIN

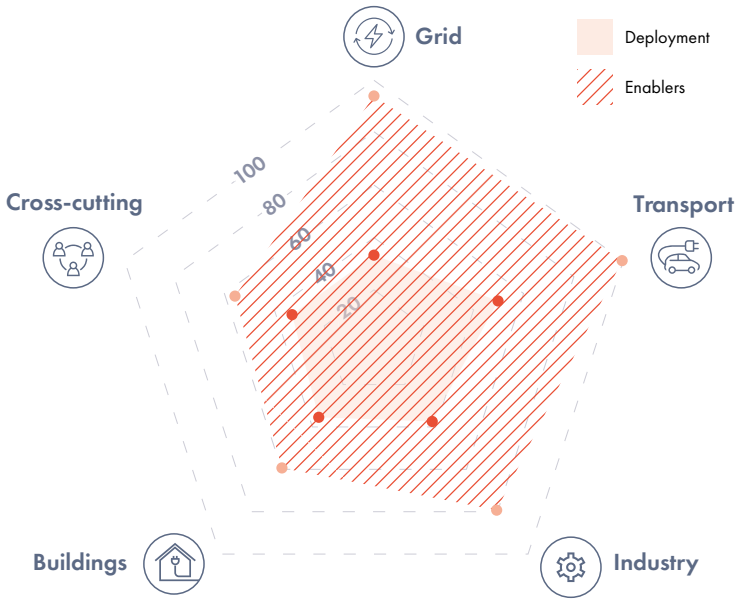
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

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.

ANNEX: COUNTRY PROFILES

UNITED KINGDOM





The U.K. has put in place a strong suite of policies, which underpin its robust enablers score of 82% (third highest in this assessment). The U.K. runs the most mature demand-response mechanism of European countries assessed — the Demand Flexibility Service, a National Energy System Operator program that pays households and businesses to shift electricity use away from peak times, with over 2 million participants. It also has a live commercial vehicle-to-grid (V2G) product on the market already — a partnership between Octopus and BYD that enables electric vehicle (EV) owners to sell power from their EV batteries back to the grid, saving households an estimated GBP 620 a year. Its Zero Emission Vehicle (ZEV) Mandate sets a binding manufacturer-level requirement for a defined share of new car and van registrations to be zero-emission. This is a more direct mechanism for securing ZEV sales than the EU's fleet-average CO_2 standards, which allow manufacturers to comply through a wider mix of vehicle technologies and flexibilities; although an ongoing government review could weaken future sales targets.

However, its deployment score (38%) is one of the lowest among countries in the Index. Electricity costs are high compared to natural gas, new supply and demand face grid constraints, grid losses are relatively high, and levels of investment in grid infrastructure and renewables are low relative to GDP.

The spark gap is at the heart of the problem: electricity costs roughly four-five times as much as natural gas, driven mainly by levies loaded onto electricity bills rather than gas bills. Long grid connection queues compound the barrier, as does one of Europe's oldest and least energy-efficient housing stocks, plus a lack of demand for heat pumps that is as much about skepticism of the technology as it is about upfront cost or the ability to get one installed.

Closing these gaps could start with finishing the job of moving policy-related levies off electricity bills. The Autumn Budget 2025 moved three-quarters of Renewables Obligation (RO) costs onto general taxation from April 2026 and ended the Energy Company Obligation levy, cutting a typical dual-fuel bill by around GBP 134 a year. But the RO transfer is time-limited to 2029, and the remaining levies still sit mainly on electricity. Making the shift permanent and extending it would directly narrow the spark gap that undercuts the economic case for electrification.

Another priority action is finance for electrification of industry. The U.K.'s Industrial Energy Transformation Fund has been discontinued, leaving industry with no long-term de-risking revenue instrument comparable to Germany's Klimaschutzverträge (long-term agreements that compensate heavy industry for the operational cost gap between conventional high-emission production and clean manufacturing) or France's capacity-mechanism reform. Putting in place a successor that provides longer-duration, contract-based revenue certainty would fill this gap.

ANNEX: COUNTRY PROFILES

UNITED KINGDOM

A third priority is standards continuity: maintaining a robust trajectory and headline targets for the ZEV Mandate, strengthening building standards to accelerate deployment of heat pumps, and publishing a single U.K.-wide target for the share of final energy that should be electrified, together with a clear plan to achieve the electrification target that complements the government's existing Clean Power 2030 plan, would help provide certainty for businesses. Progress here has so far been undermined less by a lack of policy ideas than by policy and funding that keeps starting and stopping.

Acting across these areas — closing the spark gap, restoring long-term finance for industrial electrification and locking in binding standards rather than letting them erode — would give households and businesses greater confidence to invest, helping close the U.K.'s deployment gap and maximizing the U.K.'s competitiveness.

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 **10/30** DEPLOYMENT **28/30** ENABLERS	Clearest strength: Demand Flexibility Service (>2 million participants) expanded in April 2026 to bidirectional flexibility and zonal procurement — the most mature demand-response mechanism in this research. Octopus/BYD's V2G bundle is a live commercial product, saving households GBP 620/year. Long Duration Energy Storage Cap and Floor's first window selected 7.65 GW/136.9 GWh. The U.K.'s 1989 liberalization (full ownership unbundling by 1991, full retail opening by 1999) is the oldest and most complete in this research, with a 64% clean generation share and among the lowest outage totals (~0.5-1 hr/year).	Electricity is priced at 4-4.7x the unit cost of gas — the single biggest blockage to deployment (the spark gap), driven mainly by levies loaded onto electricity rather than gas. The UK Climate Change Committee indicates that changing policy costs could lower this to between 2-3x. Businesses and civil society organizations have called for moving levies from electricity bills to government spending. Grid connection can take up to 10 years, and there's no public PPA offtake guarantee comparable to France's Bpifrance mechanism.
TRANSPORT **10/20** DEPLOYMENT **20/20** ENABLERS	The ZEV Mandate is a binding sales-mix standard (33% cars/24% vans in 2026, rising to 100% by 2035, GBP 15,000-18,000 penalties) — stronger than the European Union's offset-based fleet standard or Spain's zone-access model. The broadest EV purchase support of the European countries in this research, and 121,171 public chargers by June 2026. 35% EV sales share for cars (30% for buses).	A review is underway to potentially weaken the ZEV Mandate. The GBP 1 billion charging announcement remains unreconciled against existing LEVI/Rapid Charging Fund totals, and truck charging still lags. The Electric Car Grant (up to GBP 3,750) received an additional GBP 1.3 billion and has been extended to 2029-30.

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ANNEX: COUNTRY PROFILES

UNITED KINGDOM

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
INDUSTRY **8/20** DEPLOYMENT **16/20** ENABLERS	Strategies for scaling domestic manufacturing of EVs, batteries and heat pumps (Advanced Manufacturing Sector Plan, Clean Energy Industries Sector Plan, GBP 4 billion DRIVE35 Automotive Transformation Fund).	The Industrial Energy Transformation Fund's (IETF) capital co-funding role for industrial electrification retrofits has no direct successor — British Industrial Competitiveness Scheme (BICS) and the Supercharger address the adjacent (and arguably more pressing) problem of high electricity prices, but neither funds the capex of converting a process to electricity, and existing decarbonization funding (carbon capture, utilization and storage clusters, sector deals) is not electrification earmarked. Limited scale of domestic EV and battery manufacturing capacity compared to other European countries (compared to France's Vallée de la Batterie, Germany's Zukunftsfonds), leaving the U.K. better positioned to import many electrification technologies than to make them domestically.
BUILDINGS **7/20** DEPLOYMENT **12/20** ENABLERS	Smart meter adoption above two-thirds provides a good base to implement business models that reward flexible electricity use.	The Great British Insulation Scheme ended on 31 March 2026, and ECO4 delivery has been extended to 31 December 2026 to complete existing targets. The Warm Homes Plan is now underway, but the end of these supplier obligations makes continuity and coverage of successor support important to monitor. The heat pump target is flagged at risk by the National Audit Office, and heat pump adoption remains low.
CROSS-CUTTING **3/10** DEPLOYMENT **6/10** ENABLERS	A strong carbon pricing mechanism, and a workforce with a strong share of relevant advanced degrees. Coalition on Phasing Out Fossil Fuel Incentives Including Subsidies membership is an asset.	Clean Power 2030 sets a target for the cleanliness of supply but not electrification of demand, so the U.K. lacks a headline figure comparable to France's PPE3, and its 18-21% share of electricity in final energy lags Norway, Japan, and Sweden.
TOTAL SCORES	**38/100** DEPLOYMENT **82/100** ENABLERS	

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

ANNEX: COUNTRY PROFILES

UNITED KINGDOM

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 tone for sustained, market-based change. The spark gap, high electricity prices, and policy inconsistency are key reasons for the U.K.'s deployment gap — households and businesses aren't investing because policy commitments aren't credible for long enough.

In the table below we have reviewed the above findings against WMBC's 10 Policy Principles to Seize the Electric Advantage. Some key gaps identified related to electricity pricing and incentive continuity could benefit from following Principle 3 to rebalance levies between electricity and gas bills and replace the discontinued IETF with a longer-duration successor fund. As outlined in UK Corporate Leaders Group Powering Prosperity report, this could help improve the U.K.'s energy security and competitiveness by giving businesses the price and funding certainty current policy lacks. Addressing workforce capacity through Principle 10 should be a priority: the UK government estimates that the heat-pump installation workforce needs to grow from around 4,000 to 12,000 full-time-equivalent installers by 2030—a threefold increase.

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	Publish a headline U.K.-wide target for "% of electricity in final energy consumption" with sectoral delivery milestones paired with a plan for implementation and enabling infrastructure alongside Clean Power 2030, as France's PPE3 already does. Accelerate delivery of the Warm Homes Plan and publish clear eligibility rules, start dates and funding arrangements for its low-income support schemes, including how support will continue as ECO4 closes at the end of 2026 and the grant schemes are integrated from 2027/28. Monitor whether eligible households can access upgrades throughout the transition, and provide targeted bridging support if a demonstrable gap emerges.
3. Realign financial incentives and taxation to support electrification	Build on the Autumn Budget 2025 transfer of 75% of Renewables Obligation costs to general taxation (April 2026-2029) by making it permanent beyond 2029 and extending it to the remaining policy costs on electricity bills. Reduce VAT on electricity relative to gas in a phased approach to closing the spark gap. Introduce targeted upfront financial support for households and businesses adopting electrified technologies — particularly heat pumps and EVs, where high purchase costs compound the spark gap's effect on running costs. Replace IETF with a successor industrial efficiency/electrification fund, aligning with Klimaschutzverträge (Germany), 2030/DECARB IND (France), and NFOŚiGW (Poland). Introduce a widely available 0% interest loan for whole-home upgrades (insulation plus heat pump) to close the upfront cost gap, which is a key barrier to adoption alongside high electricity costs. The Boiler Upgrade Scheme's GBP 7,500 grant is a genuine strength and should stay, but it does not cover full capital costs or insulation work, and that gap has widened now that the Energy Company Obligation and the Great British Insulation Scheme have both been scrapped, and it risks getting slashed to reallocate funds to defense spending. A 0% loan on top of the existing grant, without replacing it, would enable households to spread the remaining cost without a market-rate loan.

Table continued on next page

ANNEX: COUNTRY PROFILES

UNITED KINGDOM

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

POLICY PRINCIPLE	RECOMMENDATIONS
4. Ensure electricity markets reward clean, flexible supply and demand	Evaluate the completed V2X demonstrations to identify the principal barriers to commercial rollout, including certification, vehicle compatibility and market access; address the evidenced barriers through a successor programme or relevant regulatory processes.
5. Deliver modern electricity systems including grids and enabling infrastructure	Publish a clear reconciliation of the GBP 1 billion business/roads charging announcement against the existing LEVI and Rapid Charging Fund totals. Build on the HGV infrastructure demonstrator and Depot Charging Scheme with a funded plan for public, corridor and shared charging for heavy-duty vehicles, coordinated with depot provision and grid connections. Extend the National Energy System Operator's 'first ready and needed, first connected' queue reform (which is currently reordering the 739 GW backlog of generation and storage connections to align with Clean Power 2030's strategic priorities) to large demand connections such as EV charging depots, industrial process heat, and other large commercial users of heat pumps and electric boilers.
6. Streamline permitting and grid connection processes	Audit and publish current grid-connection queue performance for storage and EV charging infrastructure, matching what Poland and France have already published. Set statutory decision timelines for storage and charging-infrastructure connection applications, matching the Clean Power 2030 deadline. Extend Permitted Development Rights for substations and revise Nationally Significant Infrastructure Project thresholds. Consider adapting Poland's cable-pooling mode.
7. Mobilize finance and de-risk investment	The Government's own Corporate PPA Call for Evidence (2026) confirms creditworthiness requirements exclude small and medium-sized enterprises and energy-intensive industrial buyers from bankable long-term PPAs, and is evaluating Bpifrance/Norway/Italy/Spain-style guarantee models — none of which duplicate Contract for Difference (CfD) (generator-side), or BICS/Supercharger/NCCS (bill relief). Expedite this toward implementation, scoped explicitly to cover investment in electrification (e.g. process heat, electric furnaces) rather than renewable generation offtake generally, administered via the U.K. Infrastructure Bank or the same body running CfD. Replace the discontinued IETF with a longer-duration, contract-based instrument, modeled on Germany's Klimaschutzverträge (CCfDs), which pay the cost gap between low-carbon and conventional production over ~15 years, giving industrial investors the multi-year revenue certainty a one-off capital grant cannot. Extend the Long Duration Energy Storage Cap and Floor model beyond long-duration storage to other capital-intensive electrification infrastructure (e.g. heavy-duty charging hubs, industrial electrification retrofits).
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Maintain the ZEV Mandate's headline targets and credit-borrowing cap discipline as it tightens toward 2030. Implement the Future Homes Standard without delay so new homes are built with low-carbon heating as standard (around 71% of new homes are still fitted with fossil boilers) and set a clear future date for ending new gas-boiler installations in existing homes to replace the scrapped 2035 phaseout. Consider introducing a public procurement zero-emission-vehicle quota for government fleet purchasing, following Poland's existing mechanism.

Table continued on next page

ANNEX: COUNTRY PROFILES

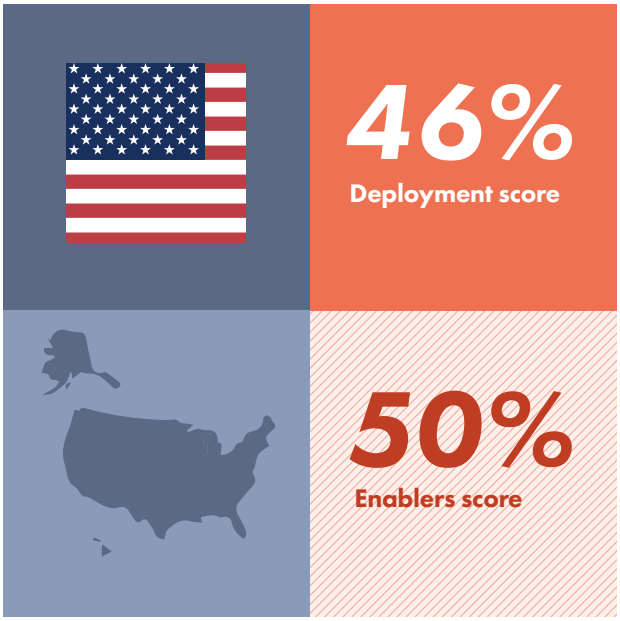
UNITED KINGDOM

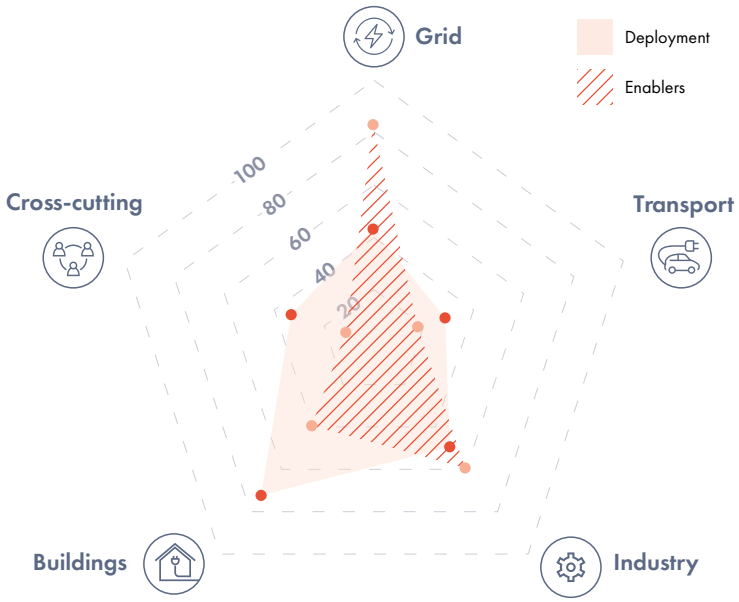
STATUS ■ **STRONG SIGNS OF IMPLEMENTATION** ■ **MIXED IMPLEMENTATION** ■ **NOTABLE GAPS**

POLICY PRINCIPLE	RECOMMENDATIONS
9. Integrate electrification into industrial strategies and trade policy	Work with industry to implement the Advanced Manufacturing Sector Plan and Clean Energy Industries Sector Plan as part of the Modern Industrial Strategy, focusing on parts of the EV/battery value chain where the U.K. has strategic or comparative advantage. Use public procurement, standards, and embodied-carbon requirements to create predictable lead markets for low-carbon industrial products such as green steel. Publicize and, where evidence supports it, strengthen the U.K. Carbon Border Adjustment Mechanism as a tool for supporting electrification of emissions-intensive industries such as steel and aluminum, alongside measures to improve their underlying competitiveness such as lowering electricity prices. Use the Fair Work Charter model (requiring offshore wind developers to fund local skills as a condition of Contracts for Difference participation) as a template for other clean-technology procurement.
10. Build the skilled workforce needed to electrify the economy	Undertake a high-priority workforce intervention to tackle the heat pump installer gap. Pair this with a public information and consumer trust campaign to build public trust in heat pump technology, combined with independent performance data and installer accreditation visibility. Extend the DfE Sustainability and Climate Change Strategy's whole-curriculum ambition with measurable targets giving the strategy the same concrete, trackable structure as the T Levels/apprenticeship system it sits alongside.

ANNEX: COUNTRY PROFILES

UNITED STATES OF AMERICA





The United States has put in place a strong set of market and grid policies that enable competition, flexibility, and investment, contributing to an Enablers score of 50%, slightly above its 46% Deployment score. Grid policy is its clearest strength. Federal Energy Regulatory Commission (FERC) Orders 1920, 2023, 881, and 2222 establish important foundations for long-term transmission planning, interconnection reform, more dynamic use of existing grid capacity, and participation of distributed energy resources in wholesale markets. The U.S. also benefits from strong innovation capacity, relatively favorable economics for solar, storage, and passenger electric vehicles (EVs), and significant state-level leadership on electrification.

However, deployment remains uneven across sectors. Electricity already supplies 56% of buildings' final energy and 26% of industrial final energy, but only 0.3% of road transport energy; passenger EVs reached about 10% of sales in 2025. At the same time, more than 2 TW of generation and storage are waiting in interconnection queues, compared with roughly 1.5 TW of existing generating capacity. These constraints are becoming more consequential as electricity demand grows: the International Energy Agency (IEA) projects more than 420 TWh of additional U.S. electricity demand through 2030, around half of it from data centers.

The grid-delivery gap is at the heart of the challenge. The U.S. has many of the market rules and technologies needed to support faster electrification, but transmission buildout, interconnection, permitting, and regional implementation have not kept pace with demand. Rapid growth from data centers and other large loads risks increasing costs and congestion if those customers are treated only as new demand rather than as potential sources of flexibility. California and Texas illustrate different approaches already emerging at the subnational level, including load shifting, large-load queue reform, transmission expansion, and rapid storage deployment.

Closing this gap could start with fully implementing FERC Orders 1920, 2023, 881, and 2222, while accelerating grid-enhancing technologies, flexible connection agreements, and transmission and distribution investment. Large loads such as data centers could also be encouraged to provide flexibility through load shifting, storage, clean generation, and other grid services, so that new economic growth strengthens rather than strains the power system.

A second priority is restoring durable support for end-use electrification. Recent changes in federal consumer incentives, vehicle policy, and international climate engagement have reduced the consistency of the national policy signal. Federal support has shifted rather than shrinking across the board: incentives and mandates for some end-use and renewable technologies have narrowed, while support for nuclear, firm power, domestic energy infrastructure, and large-load supply has increased. In the near term, states, regional transmission operators and independent system operator, utilities, industry, and remaining federal authorities can help maintain electrification momentum through stable EV and building policies, corridor and depot charging, targeted support for industrial electrification, and electricity-rate structures that improve the economics of switching away from fossil fuels.

A third priority is policy continuity and coordination. Strong state standards and incentives can continue to drive deployment, but

ANNEX: COUNTRY PROFILES

THE UNITED STATES

they cannot fully substitute for a durable national direction. Re-establishing long-term federal clean-electricity, manufacturing, and electrification incentives; setting clearer sectoral goals; and linking workforce programs directly to grid, industrial, building, and transportation investment would give businesses greater certainty and create a stronger platform for renewed U.S. leadership. Although this profile focuses primarily on federal policy, state and city governments are sustaining important electrification momentum. California continues to fund charging infrastructure for light-, medium-, and heavy-duty vehicles, while Texas has approved a batch process and curtailable pathways for connecting large loads such as data centers. New York City's Local Law 97 sets emissions limits for most buildings over 25,000 square feet, encouraging efficiency and electrification upgrades. These initiatives advance progress across transport, grids, and buildings and provide models for broader adoption, but their uneven geographic reach means they cannot fully substitute for consistent national policy.

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 **25/30** ENABLERS	Strongest enabler category: mature wholesale markets, demand response, storage support, long-term planning and grid-enhancing technology rules. Solar weighted average cost of capital is 3.2%, storage is 3.1% of annual generation, and clean power is 43%.	More than 2 TW of power capacity is in interconnection queues versus ~1.5 TW of existing capacity and grid investment is ~0.4% of GDP. Permitting and flexible connections should accelerate to support the growing load especially coming from data centers (above 420 TWh of added demand through 2030, according to IEA), while ensuring fair distribution of costs and prioritizing clean power supply additions.
TRANSPORT **6/20** DEPLOYMENT **4/20** ENABLERS	Passenger EVs reached ~10% of 2025 sales and cars have a favorable total cost of ownership. State vehicles and charging programs remain important sources of momentum.	Electricity is only 0.3% of road-transport energy, and other vehicle modes are ~0-2% electric. Federal vehicle credits ended in 2025 and charging support narrowed in 2026; smart/bidirectional charging remains state and utility led.
INDUSTRY **10/20** DEPLOYMENT **12/20** ENABLERS	Hard-to-abate electrification pilots are growing, with technical assistance and strong equipment-efficiency standards. U.S. manufacturing and innovation provide a strong base for electric process heat and grid equipment.	Electricity is 26% of industrial final energy and costs ~3x gas. Large federal industrial-decarbonization grants have been substantially reduced or cancelled, weakening support for commercial-scale deployment. However, targeted implementation grants, industrial technology-validation programs, energy-management assistance, and federal loan financing remain available.
BUILDINGS **15/20** DEPLOYMENT **8/20** ENABLERS	Electricity supplies 56% of building energy; smart meters cover ~70-80%, electric cooking is ~50-60%, and heat-pump deployment is comparatively strong. Leading states provide a substantial policy base.	Residential electricity costs ~3x gas, while major federal home energy incentives ended after 2025 or mid-2026. Codes, rebates and flexibility programs vary widely by state, creating uneven economics.
CROSS-CUTTING **3/10** DEPLOYMENT **1/10** ENABLERS	Deep apprenticeship, skilled-trades, STEM and technical-education systems provide a workforce base, while U.S. innovation, finance, and state institutions can support rapid scaling.	There is no current national electrification target or federal carbon price, no domestic fossil-subsidy phaseout plan, and construction costs are high. Federal clean energy support and international climate engagement have also narrowed.
TOTAL SCORES	**46/100** DEPLOYMENT **50/100** ENABLERS	

Scores may not sum perfectly due to rounding. Data quality concerns: ***low.*** *The U.S. had solid coverage; the main gaps are detailed heavy-duty EV data and consistent state-level comparability for some enabling policies*

ANNEX: COUNTRY PROFILES

THE UNITED STATES

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 tone for sustained, market-based change.

We link these findings to recommendations based on the WMBC's 10 Policy Principles to Seize the Electric Advantage. Near-term priorities are to use existing FERC authorities and state/regional action to cut the cost and time of serving new load; make data centers and other large customers flexible rather than passive sources of peak demand; preserve state EV and building market signals as federal consumer incentives recede; and focus finance on industrial electrification and domestic grid equipment.

California and Texas show different routes for load shifting, transmission, storage and large-load connection reform, while continued state, city and private-sector engagement can preserve a platform for renewed U.S. international leadership.

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	Use state-led sector targets and common metrics for transport, buildings, industry, and grid readiness, supported by regional coordination and federal data, so progress is comparable and investable.
3. Realign financial incentives and taxation to support electrification	Use durable state incentives, rate reform and remaining federal clean electricity/manufacturing credits to close electricity-fossil cost gaps; avoid abrupt incentive cliffs and further expansion of fossil support.
4. Ensure electricity markets reward clean, flexible supply and demand	Complete FERC Order 2222, expand time-varying rates and demand response, and make data centers and other large loads provide flexibility, storage, clean resilient power or non-firm service where it's cost-effective.
5. Deliver modern electricity systems including grids and enabling infrastructure	Implement FERC Orders 1920 and 881, accelerate transmission, distribution and GETs, and adapt proven state/regional practices such as California load-shift reforms and Texas large-load/transmission planning.

ANNEX: COUNTRY PROFILES

THE UNITED STATES

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

POLICY PRINCIPLE	RECOMMENDATIONS
6. Streamline permitting and grid connection processes	Implement FERC Order 2023, publish queue/cost/backlog data, set predictable permitting milestones, and expand flexible/non-firm connections; use transparent large-load batch processes where appropriate.
7. Mobilize finance and de-risk investment	Focus remaining public finance and loan guarantees on transmission, storage, grid equipment and first-of-a-kind industrial electrification, paired with private offtake and transparent project pipelines.
8. Use regulatory standards and mandates to accelerate deployment of electric solutions	Use state authority and remaining federal equipment standards to sustain zero-emission vehicle, building, appliance, and industrial efficiency requirements, harmonizing model standards where possible and pairing them with affordability measures.
9. Integrate electrification into industrial strategies and trade policy	Treat industrial electrification as competitiveness policy by supporting electric process heat, batteries, transformers, power electronics, and charging/grid equipment while improving electricity-gas economics and domestic deployment.
10. Build the skilled workforce needed to electrify the economy	Align apprenticeships, community colleges and state workforce grants with grid, EV charging, building, industrial, and data center needs; expand portable credentials, instructors, and pre-apprenticeships.

ANNEX: LIST OF ABBREVIATIONS

ANEEL	Agência Nacional de Energia Elétrica (Brazil)
BEG	Bundesförderung für effiziente Gebäude (Germany)
BICS	British Industrial Competitiveness Scheme (United Kingdom)
BNDES	Banco Nacional de Desenvolvimento Econômico e Social (Brazil)
CCfD	Carbon Contracts for Difference
CLAS	Collaborative Labeling and Appliance Standards Program
DPE	Diagnostic de Performance Énergétique (France)
EDL-G	Energy Services Act (Germany)
EDSM	Ministry of Energy and Mineral Resources (Indonesia)
EnEfG	Energy Efficiency Act (Germany)
ETS	Emissions Trading Scheme
EV	Electric vehicle
FERC	Federal Energy Regulatory Commission (United States)
GER	Garantie Électricité Renouvelable (France)
GISCO	Green Industry Service Company (Indonesia)
ICE	Internal combustion engine
IEA	International Energy Agency
I-ENET	Indonesia Electricity Network Transformation
IETF	Industrial Energy Transformation Fund (United Kingdom)
IRP	Integrated Resource Plan (South Africa)
KEN	Kebijakan Energi Nasional, or National Energy Policy (Indonesia)
MACSE	Meccanismo di Approvvigionamento di Capacità di Stoccaggio Elettrico (Italy)
MOVER	Green Mobility and Innovation Program (Brazil)
PAT	Perform, Achieve and Trade
PEP2040	Energy Policy of Poland
PLI	Production Linked Incentives
PLN	Perusahaan Listrik Negara (Indonesia)
PM E-DRIVE	Prime Minister's Electric Drive Revolution in Innovative Vehicle Enhancement (India)
PNIEC	National Energy and Climate Plan (Spain)
PPA	Power purchase agreement
PPE3	Programmation Pluriannelle de l'Energie, third edition (France)
PUV	Public utility vehicle
REC	Renewable Energy Certificate
RES	Renewable Energy Sources (Poland)
RES	Renewable Energy Skills Development (Indoensia)
RO	Renewables Obligation
RUPTL	Rencana Usaha Penyediaan Tenaga Listrik (Indonesia)
SCGJ	Skill Council for Green Jobs (India)
SPKLU	Stasiun Pengisian Kendaraan Listrik Umum (Indonesia)
TDP	Transmission Development Plan (South Africa)
TSO	Transmission System Operator
V2G	Vehicle-to-grid
VGF	Viability gap funding
VPP	Virtual power plants
WMBC	We Mean Business Coalition
ZEV	Zero-emission vehicle

ANNEX: METHODOLOGY

The Electrification Competitiveness Index analyzes how competitive countries are at creating the conditions businesses and consumers need to electrify affordably, reliably and at scale. This first edition of the Electrification Competitiveness Index covers 16 countries: Australia, Brazil, China, Ethiopia, France, Germany, India, Indonesia, Italy, the Philippines, Poland, South Africa, South Korea, Spain, the United Kingdom, and the United States. The country selection aims for a global coverage across all continents and representative of the major economic regions, to illustrate and provide recommendations for countries at different stages of electrification and with different strengths and gaps in their electrification journey. There is an ambition to expand coverage in future editions, and to potentially dive deeper into state or regional policies across the largest countries such as Brazil, U.S., and India.

The analysis draws from 52 metrics grouped under five main categories. The categories and metrics were chosen based on the objective of the Index: to map which countries are the most competitive in providing businesses and consumers with the enabling conditions to switch from fossil fuels to electrified solutions. Electricity end uses such as data centers and building cooling were left outside of scope as these are already fully or mostly electrified, but we recognize that these impact directly or indirectly the metrics chosen and thus the overall electrification competitiveness.

Table 1 Description and example metrics for the Deployment and Enablers scores

CATEGORY	DESCRIPTION	EXAMPLE SUBCATEGORY METRICS*
Market conditions and deployment ("**Deployment**")	Assesses the **current reach** of clean electrification across different end-uses, as well as the **market conditions** shaping deployment.	**Grids and power market:** grid reliability, investments in infrastructure per GDP, residential and retail electricity prices, share of clean electricity generation **Road transport:** Share of electricity in transport sector energy consumption, EV sales across vehicle classes, charging infra coverage **Industry:** electricity's share of total final energy consumption in industry, electricity-to-gas price ratio for businesses **Buildings:** electricity's share of total final energy consumption in the residential sector, residential electricity-to-gas price ratio **Cross-cutting:** construction costs, electrical trade workers per capita
Policies and other enabling conditions ("**Enablers**")	Assesses the policies and other enabling conditions that are likely to influence further deployment of electrification **in the future**.	**Grids and power market:** demand flexibility programs, storage capacity support schemes, clean power procurement mechanisms, grid planning and connection allocations, grid digitalization and grid enhancing technologies **Road transport:** EV sales mandates, incentives for EV adoption, programs to accelerate EV charging infrastructure buildout **Industry:** programs to accelerate industrial energy efficiency and electrification **Buildings:** programs to accelerate buildings' energy efficiency and electrification **Cross-cutting:** national electrification targets, carbon pricing, fossil fuel subsidies, workforce reskilling programs

The full list of metrics, scoring rubric, and data limitations are provided in a separate excel file.

ANNEX: METHODOLOGY

Sources used for the research span a wide range of global institutions and sources such as the International Energy Agency (IEA), the United Nations (UN), BloombergNEF, and GlobalPetrolPrices (electricity price average over 2023 – 2026 as checked in June 2026, and natural gas prices in March 2026, including taxes and levies but not provided a breakdown into price components) as well as local country sources for comprehensive coverage of regulations, standards and incentive mechanisms. Research was assisted by large language models such as Anthropic's Claude, Microsoft's Copilot, Google's Gemini and OpenAI's ChatGPT, however all AI-produced analysis was carefully checked and edited by the report authors.

The maximum scores are normalized to assign similar weights to Buildings, Industry, and Road Transport, at 20% each, while Grid and Clean Supply account for 30%, reflecting its role as one of the most critical enablers of electrification, and Cross-cutting Readiness accounts for the remaining 10%.

The scores developed for the countries and the background research have been leveraged to develop policy recommendations across the 10 Policy Principles to Seize the Electric Advantage. In terms of assessing the status of implementation of the 10 principles (indicated by a three-grade colors in the country recommendations), we mapped the principles against the Index metrics and then derived an indicative score for each principle. This was done for all policy principles except for Principle 1 (Reinforce clean electrification as a shared strategic priority across international forums), which was excluded as none of the metrics focused on involvement across international forums. In total, 37 of the 52 indicators map to one of the policy principles.

POLICY PRINCIPLE	RELATED INDEX METRICS (SEE EXCEL ANNEX FOR SCORING RUBRICS)
1 ***Reinforce clean electrification as a shared strategic priority across international forums***	N/A
2 ***Set clear targets and timelines for electrification fully integrated into plans and strategies***	**Enablers:** National electrification targets* **One point granted for a national electrification target, 2 points for national targets backed by sectoral targets for % of electricity's share in total final consumption. No additional points granted for EV sales targets that only consider additional demand but not replacing ICE vehicles (e.g. x million EVs sold target does not grant 2 points unless it specifies a matching decrease in ICE sales)*
3 ***Realign financial incentives and taxation to support electrification***	**Enablers:** Incentives for EV adoption (across modes), Programs to accelerate buildings energy efficiency and electrification, Carbon pricing (and markets), Fossil fuel subsidies **Deployment:** TCO comparison of EV versus ICE, Electricity-to-gas price ratio for residential buildings, Electricity-to-gas price ratio for industry

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ANNEX: METHODOLOGY

POLICY PRINCIPLE	RELATED INDEX METRICS (SEE EXCEL ANNEX FOR SCORING RUBRICS)
4 ***Ensure electricity markets reward clean, flexible supply and demand***	**Enablers:** Demand flexibility programs (current and planned), Liberalized market and power market reforms, Support for off-grid or distributed clean electricity generation **Deployment:** Storage capacity: current installed capacity (GWh) vs. total grid generation (TWh), Share of clean generation
5 ***Deliver modern electricity systems including grids and enabling infrastructure***	**Enablers:** Grid planning and connection allocation (anticipatory investments and connection prioritization framework), Grid digitalization and grid-enhancing technologies (flexibility and digitalization), Programs to accelerate EV charging infrastructure, Smart and bidirectional charging readiness **Deployment:** Grid losses, Grid reliability, Investments in grid infrastructure per GDP, Investment per GDP in EV charging infrastructure, Adoption of smart meters
6 ***Streamline permitting and grid connection processes***	**Enablers:** Grid infrastructure deployment and flexible connections (permitting and flexible connection agreements) **Deployment:** Grid constraints for new supply or demand
7 ***Mobilize finance and de-risk investment***	**Enablers:** Storage capacity support schemes, clean power procurement mechanisms **Deployment:** Weighted average capital costs (for solar), Investment in renewables per GDP
8 ***Use regulatory standards and mandates to accelerate deployment of electric solutions***	**Enablers:** Standards for EV adoption (across modes), Standards for industrial energy efficiency, Standards for efficiency of buildings
9 ***Integrate electrification into industrial strategies and trade policy***	**Enablers:** Programs to accelerate industrial energy efficiency and electrification **Deployment:** Pilot deployment for "hard-to-abate" industrial electrification
10 ***Build the skilled workforce needed to electrify the economy***	**Enablers:** Workforce reskilling programs, education and youth training programs **Deployment:** Electrical trade workers per capita, % of 25+ population with tertiary degrees in engineering, manufacturing, and construction

ANNEX: METHODOLOGY

METHODOLOGICAL CAVEATS AND LIMITATIONS

Several considerations for future analysis were identified during the methodology development and scoring process. Firstly, countries' relative positions reflect not only progress on electrification, but also differences in their development trajectories and economic structures. For example, economies with a large share of industry using high-temperature process heat (that conventionally runs on coal) face greater structural challenges to electrify than economies with a lot of semiconductor or electronics manufacturing (that have always run on electricity). A more nuanced assessment would consider electrification levels across different industrial subsectors; however, publicly available data across all 16 countries is limited. Other metrics were only deemed applicable to some countries, such as heat pumps for hot-climate countries and electricity access for countries that have already had 100% access for many years. When not applicable to a certain country, a score of "N/A" (not applicable) has been given, with score totals adjusted to avoid penalizing countries in these cases. Progress may also be constrained by competing demands on limited public resources or by challenges in implementing policies across complex institutional structures.

Secondly, the Index combines policy data from the time of writing (Q2-Q3 2026, data collection concluded by September 2026) with deployment data that may lag policy by several years. Recent policy changes may therefore not yet be reflected in deployment metrics. This will become feasible to assess in future editions of the Index as we will be able to track changes in deployment in the coming years based on policy changes introduced at the time of writing.

Thirdly, some countries and/or some specific metrics presented data quality and data availability issues. These have been flagged under each summary table in the specific country profile. More generally, metrics around heavy-duty EVs, heat pumps, prices of gas for heating, and workforce metrics had the highest concerns for data quality. Certain metrics (such as heat pump penetration in industry, or heat pump heating capacity to give a fuller picture than units sold) have been excluded from the analysis because there are no reliable and comprehensive global sources across all the 16 countries. Others (such as adoption of smart meters and electric cooking) may be difficult to find in an annually updatable format. Furthermore, we rely on electricity's share of total final energy consumption as a comparable indicator of electrification across countries. We recognize that electricity's share of useful energy would be a better measure of how much energy services (such as heat and mobility) are supplied by electricity, because it accounts for differences in conversion efficiency. However, comparable useful energy data are not available across our country sample. The inclusion of these data in efforts held by global institutions like IEA and World Bank would be useful to our future versions of the Index, and support more broadly other researchers and analysts working on energy modelling. In certain cases, trade-offs had to be made in favor of global comparability against more recent but locally available data (e.g. in the case of energy prices or EV sales, for both of which had more recent statistical sources, but at the cost of weaker global comparability against sources such as the IEA). We have used the comparison of electricity and natural gas available at GlobalPetrolPrices.com to estimate the affordability of electricity against fossil alternatives across industry and buildings. We acknowledge that the alternative to electricity is not always natural gas, but in some cases e.g. LPG, coal, fuel oil or biomass. However, price data for these energy sources proved difficult to obtain. Nonetheless, we believe that natural gas is a good enough indicator when evaluating the options available for businesses where electricity is a viable option to power industrial processes.

Finally, this analysis has been conducted by taking a national or federal-level lens. For big and federal countries, state-level research would be useful to provide the policymakers with the necessary level of depth and nuances, however such analyses are better placed in country-specific indices as opposed to a global one.

About We Mean Business Coalition:
We Mean Business Coalition works with the world's most influential businesses to take action on climate change. The Coalition is a group of seven nonprofit organisations: BSR, CDP, Ceres, Climate Group, CLG Europe, The B Team and WBCSD. Together, we catalyze business and policy action to halve emissions by 2030 and accelerate an inclusive transition to a net-zero economy.

Find out more at wemeanbusinesscoalition.org

Social media:
linkedin.com/company/wemeanbusiness
youtube.com/wemeanbusinesscoalitions

About Electric Advantage:
Electric Advantage is a multi-year program focused on spurring industry action, reforming regulations and driving investment in electrification to accelerate us all toward a cheaper, safer, healthier future. It is a collaborative effort between BSR, Ceres, Climate Group, Corporate Leaders Groups, The B Team and WBCSD.

Find out more about Electric Advantage: wemeanbusinesscoalition.org/electric-advantage

Rocky Mountain Institute (RMI):
Rocky Mountain Institute (RMI) is an independent, nonpartisan nonprofit founded in 1982 that transforms global energy systems through market-driven solutions to secure a prosperous, resilient, clean energy future for all. In collaboration with businesses, policymakers, funders, communities, and other partners, RMI drives investment to scale clean energy solutions, reduce energy waste, and boost access to affordable clean energy in ways that enhance security, strengthen the economy, and improve people's livelihoods. RMI is active in over 50 countries.