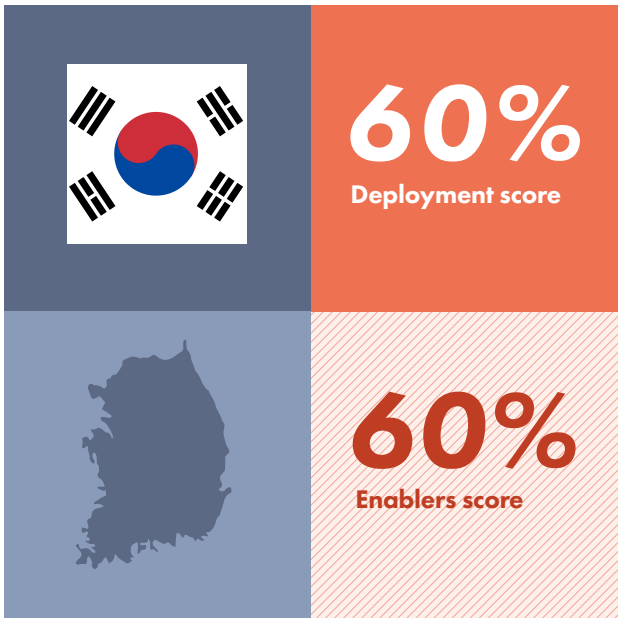
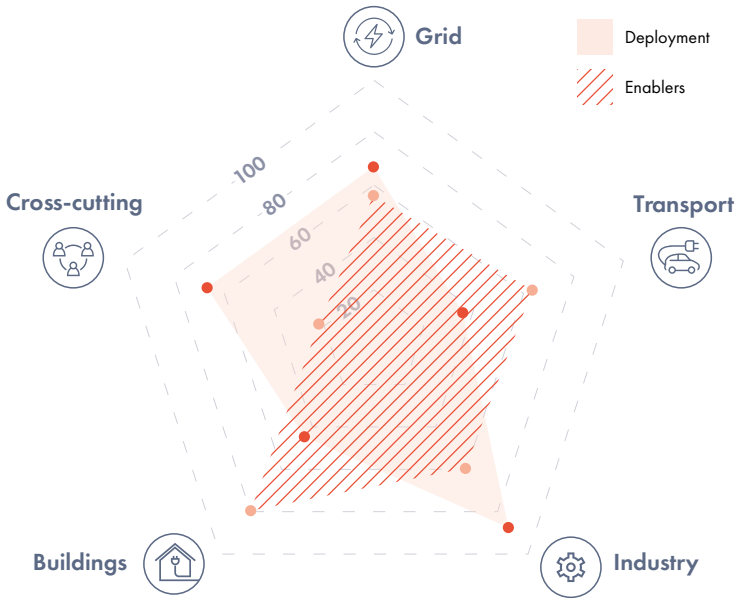
***ANNEX: COUNTRY PROFILES***

# 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.

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# *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**<br>**20/30** DEPLOYMENT<br>**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**<br>**7/20** DEPLOYMENT<br>**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**<br>**18/20** DEPLOYMENT<br>**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**<br>**9/20** DEPLOYMENT<br>**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**<br>**7/10** DEPLOYMENT<br>**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*

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# *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. |