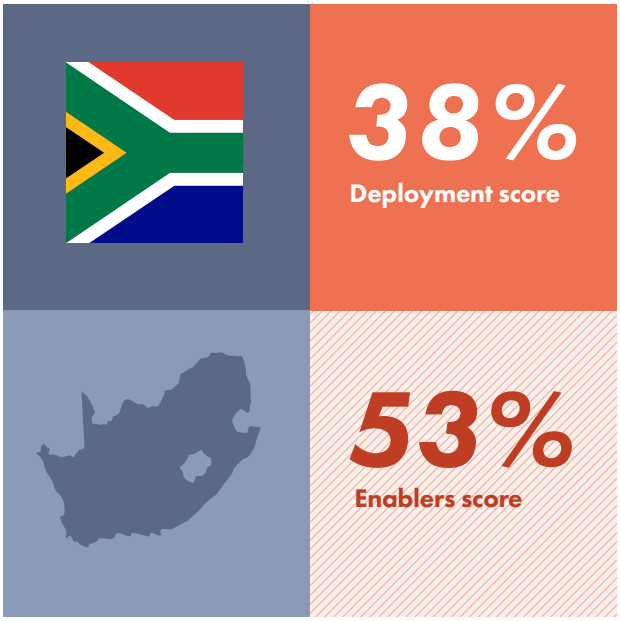
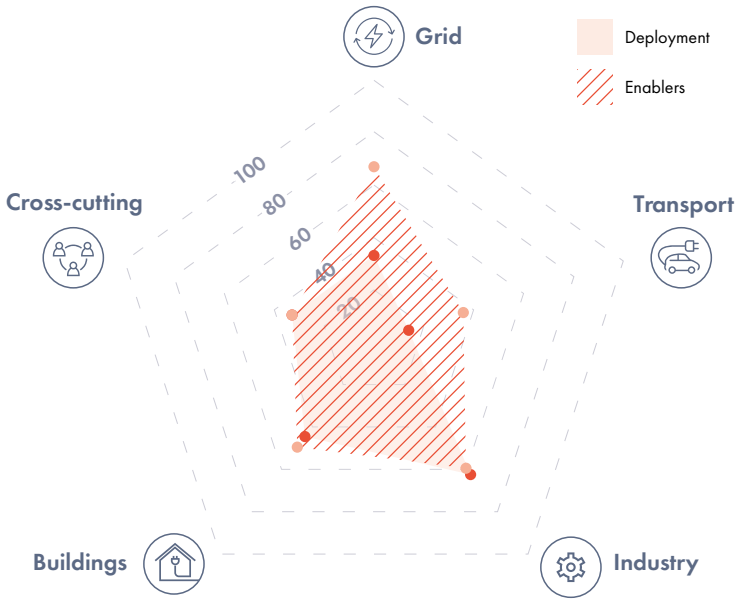
ANNEX: COUNTRY PROFILES

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.

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

NORMALIZED SCORE	AREAS OF STRENGTH	AREAS FOR IMPROVEMENT
GRID & POWER MARKET **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.

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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.*

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

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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.