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# Navigating Australia's Energy Transition: Addressing Geopolitical Challenges and Social Impacts

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## Introduction

The Clean Energy Australia Report 2025 indicates that in 2024, Australia achieved its highest level of clean energy investment to date, with commitments exceeding AU $12.7 billion directed toward renewable energy generation and storage. This substantial investment is considered a crucial turning point in the country's transition to a low-carbon future. The report highlights the significant role of rooftop solar in Australia's energy transition, with over four million installations contributing 3.2 gigawatts (GW) of new capacity. This accounts for more than 12% of the total electricity generation, while overall renewable sources supplied approximately 40% of the nation's electricity, underscoring the importance of renewables in the energy landscape. While this paints a positive picture, it is only one side of the story. Australia's energy transition in the renewable sector is challenged by a number of key issues, such as project approval delays, skilled labour and material shortages, slow transmission rollout, regulatory uncertainty, and heightened geopolitical risks from shifting United States (US) climate policy and global trade tensions, all of which threaten supply chain stability and long-term investment confidence.

The outlined scenario also applies to energy management. The Global Risks Report 2024 notes that geopolitical tensions threaten global energy stability by weaponising resources, exposing reliance on unstable mineral suppliers, disrupting clean energy initiatives, and increasing cyber threats to infrastructure. These challenges could significantly affect Australia's energy transition. The purpose of this article, therefore, is to explore the various challenges and opportunities within Australia's energy transition, with a focus on geopolitical dynamics and social implications. It aims to highlight the complexities of transitioning towards renewable energy amid the challenges, while advocating for the development of an inclusive and flexible planning strategy to achieve a sustainable and secure energy future for Australia.

## The Complex Landscape of Domestic and International Political and Economic Challenges

The future of Australian energy management is riddled with challenges at both the international and domestic levels. For example, the global shift from fossil fuels to renewables is a continuing challenge, which is now exacerbated by international geopolitical uncertainty led by the US, the Russia-Ukraine

war, and turmoil in the Middle East. The US's current political dispensation's resistance against energy transition is in the limelight. While no imminent effect on the fast push for renewables is expected, climate sceptics can disrupt the applecart through a ripple effect. Trump's tariffs are leading to an economic onslaught, resulting in retaliatory measures by some while bilateral agreements with others, leading to trade wars, and protectionist initiatives by China blocking rare earths and critical minerals exports. Another important scenario to consider is that Australia's fuel security is intricately tied to international geopolitics, largely because of its dependence on imported refined fuels from volatile regions such as North-East Asia and the Middle East. Disruptions arising from conflicts in the Middle East or recent trade tensions could severely deplete Australia's limited fuel reserves, potentially affecting essential services such as transportation and healthcare.

The domestic geopolitical scenario is also not very encouraging. In Australia, the coalition's federal election debacle was partially fuelled by nuclear energy over renewables. However, Australia faces significant regulatory and political challenges in pursuing nuclear power, including the need to repeal federal and state bans and establish a dedicated regulator. Despite growing political debate, the lack of legislative clarity, skilled workforce, and public support makes nuclear energy an uncertain and long-term part of Australia's energy transition. Australia is endowed with sizeable 'rare earths'; however, the technology to exploit these is a long and very costly journey that Australia needs to embark on now, collaborating with China to secure renewables, energy innovation, and electric vehicles. Australia is a net exporter of Liquefied Natural Gas (LNG), yet many Australian companies have signed up for lucrative export deals with foreign majors at attractive prices and are avoiding paying income tax while Aussies struggle with high gas and electricity prices. Western Australia had the foresight to reserve some gas for domestic use before exporting it, though.

Australia's transition from coal to renewable energy and energy management for the future is facing considerable uncertainty, influenced by fluctuations in domestic and global policies, geopolitical changes, and economic variability. To maintain progress toward a reliable, affordable, and net-zero energy future, it is important to have flexible planning, the prioritisation of essential projects, and inclusive collaboration among government, industry, and community stakeholders.

**Social and Environmental Impacts**

The political and economic challenges segue well into the social aspects of the energy transition. Renewables are a big change agent, bringing in better health outcomes, accompanied by equity in energy availability, while also reducing prices. Globally, renewables being more localised in generation could result in lifting more than one hundred ninety million people from abject poverty when supported with better policies. On the other hand, fossil fuels, including gas, have been notorious for creating pollution and degrading the groundwater, and in the process damaging indigenous sacred sites while also violating their ecological wisdom. These socio-environmental concerns further bolster the case for renewable energy through clean technologies by addressing social sensitivities with a minimal

carbon footprint towards net zero. However, renewables companies are going too far by mining on sacred sites for critical minerals while also engaging in modern slavery through human rights abuses and greenwashing. This is leading to litigation from affected parties and escalation of issues in Australia to the Australian Competition and Consumer Commission (ACCC), as seen in a case of greenwashing by an Australian gas company claiming that gas is renewable in their advertisements.

**Critique of the Renewable Sector and Future Considerations**

A question that has been on many minds in Australia is what happens to the solar and wind generation infrastructure after the end of its useful life. The good news is that more than ninety per cent of the infrastructure is recyclable, although this will require a lot of the infrastructure in remote locations to be easily accessible.

To maintain the reliability of Australia's power grid beyond 2026–27, it is crucial to invest in new generation capacity, long-duration storage solutions, and transmission upgrades, particularly as aging coal plants are retired and new security challenges emerge. Furthermore, there is an urgent need to tackle the projected shortage of over 17,000 skilled electricians and technicians in Australia by 2030. This requires comprehensive reforms in education, enhanced alignment between training and industry needs, and initiatives to promote diversity in the clean energy workforce.

To overcome policy uncertainty and reinvigorate investor confidence, a more unified approach to leadership is necessary. This includes developing inclusive and flexible planning strategies to avoid fragmentation in the clean energy transition and to ensure progress towards a decarbonised energy future.

**Conclusion**

Australia's energy management initiatives are making significant strides towards a more sustainable future. The pathway is fraught with challenges, primarily driven by geopolitical factors and the actions of international actors. Addressing these complexities requires a dual focus on both domestic policies and global dynamics to create a more integrated and resilient energy strategy. To fully harness the potential of renewable energy, Australia must navigate these geopolitical landscapes while fostering collaboration at home and abroad. By balancing these international and domestic considerations, Australia can effectively advance its energy transition, ensuring not only environmental sustainability but also energy security and economic stability for future generations.

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Rupesh completed his PhD in Marketing (Customer Relationship) after completing a Master of Business Administration (MBA) and a Bachelor of Electrical Engineering from the University of Delhi. He has substantial corporate experience in the business-to-business area, primarily in the lighting industry, prior to teaching MBA students across Universities and Institutes in India and Australia in the areas of marketing, strategy, and entrepreneurship, besides final project supervision. His research interests are in sustainability.

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Sumesh is an Associate Professor with over 20 years of experience across Australia, Asia, and India. He specialises in marketing ethics, sustainable consumption, and innovation in higher education. Currently, he serves as the Retention and Progression Manager at AIB. Previously, he was the Discipline Leader for Marketing and Entrepreneurship at AIB. His career includes significant positions at Monash University and Murdoch University, as well as at institutions in India and Malaysia.

Sumesh has authored numerous journal articles and book chapters, with his research published in prestigious journals such as the Journal of Business Research, Journal of Macromarketing, Business Strategy and the Environment, Ergonomics, and the Journal of Destination Marketing and Management, among others. He has received over 1,400 citations and has successfully secured competitive grants.

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