



NEW ZEALAND
FOREIGN AFFAIRS & TRADE
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Korea's energy outlook and opportunities

MARKET INTELLIGENCE REPORT

Summary

- The Republic of Korea (Korea) is strategically mapping an ambitious path towards decarbonisation. But given its high reliance on energy due its tech and manufacturing sectors, and lack of access to renewable energy sources, Korea will bank on forms of ‘carbon free energy’ (such as nuclear and hydrogen) to fuel its future economy. As a like-minded partner in the region, there is potential for deeper energy cooperation between New Zealand and Korea, as we look to a decarbonised future with secure energy supply chains.

Report

Korea's energy roadmap

At the end of May, Korea's Ministry of Trade, Energy and Industry (MOTIE) released its [11th Basic Energy Plan](#) (BEP). Every year MOTIE releases an updated BEP projecting Korea's power supply and demand for the next 15 years, including its predicted power mix for 2030 and 2038. Under the 11th BEP, an overall increase in power demand is expected for 2030 and nuclear power predictably remains the largest source of energy, with a further two-three nuclear reactor units expected to be stood up. The amount of renewable energy increases as a net value, but percentage wise remains the same (due to the overall increase in demand for power).

MOTIE has also added a new breakdown of 'carbon' and 'carbon free' energy sources in this year's BEP. This was likely included to complement its [Carbon Free Alliance](#) announced by President Yoon last September. The BEP also shows that Korea's energy make-up will be 70% carbon free by 2038. Korea also plans to replace twelve coal power plants with carbon free power sources, but this will be partially offset by its plan to replace older coal plants with Liquefied Natural Gas (LNG) plants.

Korea is currently the world's 8th largest energy consumer and imports almost 95 percent of its energy and natural resource consumption. Korea is a manufacturing hub for semi-conductors, batteries, chips and EVs, which drives up energy consumption. Energy consumption is expected to rise further, with the likes of data centres and large chip-production bases expanding to meet demand for AI. With a declining population and increasing reliance on tech, Korea's rising energy consumption will be a major hurdle to its ambitions to decarbonise.

Korea's Hydrogen Plan

To support its energy needs and Net Zero target, Korea is accelerating plans to import and utilise clean hydrogen. In May, MOTIE stood up the [world's first clean hydrogen power bidding market](#). The clean hydrogen bidding market will be opened once a year, where electricity produced using clean hydrogen (from the global market) is bought by Korean electricity authorities. The first tender opened on 24 May, with a 6,500 Watt-hour/year volume for a fifteen-year contract. The successful bidder will be selected on 22 November and will begin clean hydrogen power generation by 2028.

Successful companies will be selected using an evaluation criteria of unit price, clean hydrogen grade, stability of securing fuel, and potential contribution to the economy. MOTIE defines clean hydrogen as being when the greenhouse gas emissions generated

to produce 1kg of hydrogen, is less than the equivalent of 4kg of carbon dioxide. This is then subdivided further into levels one to four, with a score of four representing the lowest greenhouse gas emissions.

In June, the first Korea-Japan Dialogue on Hydrogen Cooperation was held. This is a follow up to the leader-level agreement made during the May Korea-Japan summit talks. At the dialogue, Japan and Korea agreed to form working groups on carbon intensity and certification, standards and criteria, and safety. Korea also has formalised hydrogen dialogues with Germany, and hydrogen is a regular feature in the energy dialogues with Australia, Singapore, the US, and the UAE.

Opportunities for New Zealand

There is opportunity for deeper collaboration between New Zealand and Korea in the energy and climate space. Korea has unmet energy needs to fuel its future economy and a strong desire to find solutions to meet its Nationally Determined Contributions (NDC) under the Paris Agreement, while New Zealand's ability to produce, supply, and/or potentially export renewable energy, has the potential to fill some of Korea's needs.

In the last six months alone, Korea has hosted three NZTE-led renewable and clean energy trade delegations and NZTE Seoul hosted a Renewable Energy Seminar for Korean Investors. The Korean Embassy in Wellington hosted a 'Smart Collaboration Forum' in October 2023 where energy cooperation was a key feature. It plans to host a follow up event this year.

Conclusion

We expect to see Korea demonstrating more global leadership and proactivity on climate action. To Korea, New Zealand is not just an untapped potential supplier of renewable energy and clean energy technology, we are also a like-minded Indo-Pacific partner that is reliable and trustworthy. Given Korea's geolocation and the volatility of its energy supply chains (which come through the Middle East, China, and Central Asia), New Zealand could be seen as a reliable alternative partner in the renewable energy sector.

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