South Korea is in a period of political transition, with president-elect Yoon Suk-yeol due to take office in May following his marginal victory in the country’s March election.

Prior to taking office, Yoon has indicated that he is thinking about how the Government can stay on track to meet an NDC target that he would seem to regard as quite stretching for the economy and for business. The key question will be how the administration can combine an ambitious renewables deployment programme (which Yoon has indicated might need scaling back) with drawing still on “traditional” sources of energy. These sources appear likely to include nuclear, with Yoon pledging to reverse the outgoing administration’s nuclear phase-out. In addition, more than 18 GW of new gas plant capacity is planned in the country; although, on this point, Yoon will need to reconcile that plan with his declaration to lower the country’s reliance on fossil fuels from 60% of the energy mix to about 40%.

Against this background, Carbon Tracker’s latest report Stop Fuelling Uncertainty concludes that the new South Korean government ought to make rapid renewables deployment a key element of its energy policy, as this continues to represent the most cost-effective path to net zero emissions for the country as a whole.

**Headline Takeaways**

**New renewables are projected to compete favourably on cost with new gas plant capacity:**

- New solar capacity is already cheaper to build and operate than new gas, while solar with battery storage is also projected to beat new gas by 2025.

- New onshore wind farms in South Korea are also projected to be cheaper investments than new gas by 2025. The country’s low starting point for wind power should not deter the incoming government from backing the technology given the quick rate at which costs are projected to fall.

- Even offshore wind farm projects are also expected to become cost competitive with new gas in South Korea by 2025. The country’s maritime expertise and port facilities mean that investment costs for this technology could fall sharply if the incoming government supports deployment.

- To support rapid renewables deployment (and even accelerate the programme), the new administration ought to be thinking about what it can do both to incentivise a step-change in investment and to remove the barriers to fast deployment. On fiscal incentives, the Contracts for Difference mechanism has been successful in a range of countries in growing investment in renewables energy sources; barriers to deployment can slow permitting procedures, and port infrastructure must be capable of facilitating an expanding offshore wind industry.
More than $10 billion is at risk of loss if South Korea’s full planned pipeline of new gas plants is built.

- Even under business-as-usual conditions, almost all (95%) of South Korea’s planned new build gas plants are projected to be unable to recover their initial investment.
- An excess supply of capacity is expected to result in low capacity factors, with plant cash flows consequently likely to be insufficiently high enough to pay back debt, taxes and interest payments.
- The amount of value at risk of destruction rises to more than $11 billion if new gas units are forced to close before the end of their planned lifetimes as part of a power sector gas phaseout programme to deliver the country’s NZE2050 target.
- Given that majority state-owned utility KEPCO has 12 GW of planned new build gas attributable to it, it is ultimately taxpayers that would bear most of the risk of early plant closures under a NZE2050 pathway, assuming the government would step-in with compensation for losses suffered by the company. Blocking these projects before they are built would alleviate this risk.

Regardless of the economics, now is not the time for nations to be increasing their dependence on gas.

- The Russia-Ukraine conflict has demonstrated how gas supplies can be weaponised by regimes, and that fossil fuel supply is subject to sovereign risk and volatile markets.
- Planning a future power system centred around renewables with battery storage will in contrast reduce exposure to commodity price and sovereign risk, with resulting positive impacts on consumer energy bills.
- Delivering net zero emissions through accelerating the deployment of renewables therefore not only represents the best option for nations’ climate ambitions but should – as the UN Secretary-General pointed out recently - also be the path to energy security. This should increase the sense of urgency from policymakers in delivering the transition and convince them to conclude that the provision of financial support to new gas plant projects is not the answer.

Reliance on nuclear at the expense of renewables puts net zero target at risk.

- Given the recent history of nuclear power plant construction times slipping well beyond the timeframes outlined, and project costs over-running by large margins, it could be risky to make nuclear new build a central plank of South Korea’s power sector decarbonisation policies. The recent history of nuclear new build in South Korea shows that the country’s two newest nuclear reactors at the Shin Kori plant took eight and ten years to develop respectively, compared with an original estimated build time of five years for each. Other countries building large-scale nuclear plants have suffered similar time and cost over-runs.
- The risk that new build nuclear plant costs could again turn out above budget presents the risk of developers abandoning projects mid-development, which could result in polluting fossil fuel-fired power stations being given extended lifelines over periods which would in turn put South Korea’s 2050 NZE2050 target beyond reach.
- By contrast, new solar or wind farms can be developed rapidly and at much lower cost, allowing for a quicker transition away from fossil fuel supply and the risk of over-reliance on gas as an energy source.
- Renewables with storage as an alternative to nuclear also offers the South Korean government greater grid flexibility tools, with batteries able to respond quickly to power demand spikes, compared with the much longer start-up times associated with nuclear which is designed for baseload generation.

Building new gas would be at odds with the objectives of the Global Methane Pledge.

- South Korea is a signatory to this international agreement, which was launched in November 2021 at COP 26, and aims to reduce global methane emissions by at least 30% from 2020 levels by 2030.
- Pressing ahead with the development of new unabated gas-fired power generating capacity would appear to be at odds with the objectives of this pledge, given the increase in associated methane emissions from the upstream gas sector that would come from boosted demand for LNG imports.