



A Boat with a Vengeance: Could France Sell Nuclear-Powered Submarines to South Korea?

By Mason Richey | 15 November 2021

Key Issues

- Post-AUKUS, France is dealing with a setback in its Indo-Pacific strategy.
- The humiliating cancellation of the Australia-France submarine deal has left France's Naval Group with a multi-billion-dollar hole in its order-books and Paris scrambling to restore its reputation and bolster relations with its other partners in the region.
- There is a possible way to make progress on several of these issues simultaneously: France could deepen its security ties with South Korea by offering to help it develop nuclear-powered attack submarines, which Seoul wants but has not gotten from the US. The risks are considerable, but the idea could get traction.

French leaders are still upset by the recently, ruthlessly cancelled submarine deal with Australia, which was a casualty of the formation of a strategic security alliance among Australia, the UK, and the US (AUKUS). Canberra's decision to abrogate the \$66bn contract with Paris for twelve diesel-electric attack submarines – switching to nuclear-powered submarines using US and UK technology transfers – has humiliated France and damaged its Indo-Pacific strategy. France's bilateral relations with Australia and the US have suffered also. The shockwave is reverberating through NATO and the EU.

The fury in the Élysée has only somewhat subsided after several discussions between presidents Biden and Macron. The latter has returned the French ambassador to Washington following his recall in protest of the decision, but French anger is still palpable. Eventually,

however, France's apoplexy will transform into cold-eyed plans to realise two objectives: 1) repairing its reputation after the AUKUS humiliation, and 2) partially filling the \$66bn, Australia-sized hole in its Indo-Pacific strategy. There is potentially a path to exactly this: France could try to sell nuclear-powered attack submarines to South Korea, which wants them but has failed to get them from its military ally, the US.

That path is (geo)politically/geostrategically risky, and thus unlikely, but influential French strategists and former senior diplomats [have supported](#) the idea. Apparently the idea has enough traction to worry Washington: Michael Green, senior vice president at the influential think tank CSIS, wrote a November 2nd op-ed in the *Korea JoongAng Daily* criticising a potential France-South Korea nuclear submarine deal.

So, you've been geostrategically cuckolded: what to do?

France is – and considers itself – a *'grande nation'*, but it is no longer a major world power. Rather, France's nuclear weapons and permanent seat on the United Nations Security Council allow it to haunt the penumbra of major world powers. Thus, France's position is still one of meaningful geopolitical influence. A state with such influence and self-regard cannot allow the submarine deal double-cross to go unrequited; the international relations literature on state reputation indicates as much. Although Australia was the ultimate author of France's underwater betrayal, it is too insignificant to target with action that could restore France's reputation. Rather, such action would need to come vis-à-vis the US, which helped occlude the AUKUS submarine deal. Aiming at a major power is riskier but, if successful, would send a message that restores France's reputation. Offering a nuclear submarine deal to South Korea – a US ally and important purchaser from the American military-industrial complex – would assertively intrude on a US prerogative.

As for repairing damage done to France's Indo-Pacific strategy, one element is financial and another concerns constructing deeper relations with Indo-Pacific partners to make up for the unavoidable drop in France-Australia cooperation (which will nonetheless remain important).

First, to start with the financial aspect, France's Naval Group – the entity tasked with supplying the conventional submarines to Australia – is now missing billions from its order books, which it needs to recover to ensure that the maritime construction part of France's military-industrial complex remains solid. Meeting that goal requires finding new customers. South Korea could work: it has a large and growing military budget, a desire to acquire nuclear-powered submarines, and the requisite national security bandwidth, military/naval expertise, submarine engineering, and technological capacity (including a civil nuclear-power industry) to make procuring and operating nuclear-powered submarines realistic. South Korean acquisition of French nuclear-powered attack submarines would not cover all losses from

the Australia deal, but it would right the ship for Naval Group.

Second, per France's need to shore up its Indo-Pacific strategy by diversifying and/or intensifying relations with regional partners other than Australia, France wants to increase its security relations with states of comparable strategic importance and political values. Some have argued that the AUKUS submarine deal could spur France to lash out in Gaullian pique and cosy up to China; however, this is mistaken, as Paris and Beijing share few political values, and France views China as a systemic rival (and economic competitor and potential partner in climate change). Augmenting relations with France's existing like-minded partners in the Indo-Pacific (e.g., India, Singapore, Japan, and/or South Korea) is a sounder approach to advancing France's direct interests and maintaining a rules-based order from which France also benefits. An enhanced relationship with South Korea (with which France already has a ministerial-level strategic dialogue and significant arms sales experience) could fulfil some of the partnership deliverables that have receded with a downgraded France-Australia relationship.

Such a France-South Korea nuclear submarine tie-up would send a message that France – a resident Indo-Pacific power with 1.5 million French residents, 8,000 troops, and a large EEZ in the region – is still executing its role as an influential security actor in the Indo-Pacific. Beyond that, Seoul and Paris could establish further maritime cooperation measures (maritime intelligence sharing, port usage, replenishment agreements, etc.) that would allow France greater capacity to operate in the Indo-Pacific.

What's in it for Seoul?

South Korea has repeatedly shown interest in acquiring nuclear-powered attack submarines since the 1990s. Numerous obstacles have impeded this path, including cost, domestic politics, considerations vis-à-vis North Korea, and opposition from the US. However, the current Moon Jae-in administration favours trying to acquire nuclear-powered submarines. Moon's presidential campaign included them as part of its 2017 election platform. Moon even broached the topic with President Trump.

The South Korean military also supports nuclear propulsion for submarines. In March 2018 the South Korean Navy argued that it should build a class of nuclear-propelled submarines (with an indigenously designed reactor) similar to the French Suffren/Barracuda class. The originally proposed [2021-2025 defence budget](#) included funding for three 4,000-ton displacement nuclear-powered attack submarines, the final three submarines in a series of nine (the first six are conventionally powered) to be completed by the early 2030s. The 2022 defence budget reduces the request to \$400 million for R&D

Beyond that eventuality, generally South Korea has a relative weakness in anti-submarine warfare, which it would like to ameliorate. More specifically (albeit unacknowledged), South Korea wants to improve its submarines as a part of an overall improvement of military capabilities vis-à-vis China.

Finally, South Korea has failed to convince Washington to transfer the necessary technology (most importantly, nuclear fuel) for Seoul to acquire its own nuclear-powered submarines. Not only could France provide an alternative source of



Paris could offer to work with Seoul to develop nuclear-powered attack submarines - multiple Indo-Pacific geo-strategic interests would be at stake.



on “next-generation” submarines, but the desire for nuclear-powered submarines (and for a nuclear-powered “multi-purpose unmanned submersible”) remains.

Seoul’s rationale for nuclear-powered submarines is that they would be critical for dissuading Pyongyang from attack (especially nuclear attack) in a crisis. North Korea’s increasingly capable nuclear arsenal has sparked fears that it is not only for deterrence but also might be employed pre-emptively in a crisis. Pyongyang has already stated an intention to produce its own nuclear-powered submarines (presumably ballistic-missile submarines, a survivable leg of its nuclear weapons arsenal), so the argument is that Seoul might need stealthy nuclear-powered attack submarines to hunt/destroy those of its neighbour. South Korea already has a nagging fear that US-extended nuclear deterrence might not hold up in a crisis when US lives are at stake – especially as North Korea has a functioning ICBM capability for attacking the US – and so a South Korean fleet of nuclear-powered attack submarines might give it more confidence that its own conventional deterrence capabilities would be sufficient if the US were to go wobbly.

technology transfer (although issues involving the US-South Korea alliance would be obstacles), but also working with Paris to acquire nuclear-powered submarines would make it faster for Seoul to deploy nuclear-powered submarines than if it developed the boats itself.

The core of the deal

In some respects, a deal for a France-South Korea nuclear-powered attack submarine could be straightforward. It would likely be a production partnership in which Paris and Seoul would share work on hull design/production, control surfaces, internal machinery and electronics, control systems, life support and accommodation, and possibly (see below) sensing and armaments. South Korea already has significant capacity and expertise in submarine engineering, so it would want a meaningful part of the work packages, both for further developing its naval construction/engineering capacities and for jobs that would go along with such a large defence project. Moreover, South Korea’s expertise in submarine technology and civil nuclear engineering would allow it to handle significant parts of maintenance/refurbishment over

the life cycle of the submarines. These factors, plus the smaller number (three) of contracted submarines, would mean a France-South Korea submarine deal would have a smaller value than France's agreement with Australia for twelve conventional submarines.

However, the crux of the deal would concern elements – nuclear-propulsion reactor design/production and fuelling – for which France would be indispensable, thus providing it leverage to ensure that the project as a whole would be economically worthwhile. First, although South Korea's Korea Atomic Energy Research Institute (KAERI) could develop a nuclear-propulsion reactor for submarines, it would be more cost-effective and prompter for France to provide that component of a South Korean nuclear submarine (reactor acquisition could be structured as a partial technology transfer such that South Korea could participate in design/production). Second, given its sensitive nonproliferation implications, reactor fuel would be a thorny issue. There are two options: either (a) South Korea could fabricate its own submarine nuclear-reactor fuel with French assistance, or (b) it could outsource this to France.

(a) France's nuclear-powered attack submarines run on low-enriched uranium (LEU; compared to US HEU reactors), which it would be technically trivial for South Korea to produce. This would probably be South Korea's right under international law, as the Nonproliferation Treaty (NPT) – to which South Korea is a signatory in good standing – does not prohibit enrichment for military propulsion. However, South Korea is also a signatory to a 123 Agreement with the US, which disallows South Korean uranium enrichment or plutonium reprocessing in exchange for South Korean access to sensitive US nuclear power-plant components (necessary for South Korea's civil nuclear industry). US-South Korea civil nuclear cooperation undergirded by the 123 Agreement is also important for South Korea to export nuclear plants (which it has recently done in the United Arab Emirates). Until now, the US has been unwilling to relax the non-enrichment and non-reprocessing clauses of South Korea's 123 Agreement, although it has done so for other allies/partners, such as Japan and India.

This rigidity on the 123 Agreement vis-à-vis South Korea, as well as US refusal to enter a nuclear-

submarine technology-transfer agreement like that with Australia, has meant a de facto Washington veto on Seoul's acquisition of nuclear-powered attack submarines.

(b) Thus, enter France, which could provide the LEU fuel for a South Korean nuclear-powered submarine reactor, instead of South Korea fabricating fuel itself. South Korea would operate the submarine reactor but would not be in breach of the 123 Agreement, as it would not engage in enrichment. This approach has drawbacks, such as the question of how to handle mating the hulls to the nuclear power plants: if constructed in South Korea, should the hulls be transported from South Korea to France for power-plant installation, or should the power plants be transported from France to South Korea for installation? Another issue is how to handle refuelling, which is required every decade for France's LEU submarines. But these are solvable problems. Indeed France has already examined them, as Naval Group put the nuclear-propulsion option on the table for Australia in 2016.

The optimal solution would be for the US – seeing a *fait accompli* – to relent on the 123 Agreement and allow South Korea to fabricate LEU for this limited purpose. However, if that eventuality were to founder, France's ability to provide reactor fuel could make the submarine deal feasible without South Korea violating its nuclear cooperation obligations with the US.

Propulsion power politics: complex bargaining games

So, what stands in the way? One thing is clear: nonproliferation is a consideration but hardly a major obstacle, as the US has [already underlined](#) with its decision to transfer nuclear submarine propulsion to Australia. Seoul, like Canberra, has the right to operate nuclear-powered submarines according to international law (Australia is a signatory to the NPT), and nothing in the NPT or IAEA Safeguards Mechanism Glossary makes it a violation for signatories to enrich uranium for "peaceful purposes" (including for naval propulsion, as IAEA Safeguards Mechanism Glossary section 2.14 explicitly states). Thus, Seoul would seemingly have the right to make LEU fuel (either with US

permission or after abrogating the 123 Agreement) for nuclear-powered submarines, if it chose that path rather than relying on France for fuel.

For its part, France has no principled objection to sharing naval nuclear propulsion – Naval Group offered it to Australia, and an Élysée source [confirmed](#) to Agence France-Presse the willingness to make nuclear-powered submarines available to Australia. Nor does France display general reticence about arms sales – despite Paris’s howling about AUKUS, France is notorious for shady, self-interested arms deals (e.g., *l’affaire* Karachi and assistance to Israel’s nuclear weapons program).

Rather, obstacles to a France-South Korea nuclear submarine agreement are mostly (geo)political/geostrategic.

France’s principal concern is strategic risk aversion. Despite the AUKUS rollout, Washington and Paris remain allies, and Paris would be wary of Washington’s anger if France asserted itself brazenly in the US-South Korea military alliance (although there is precedent, as EADS bid to sell South Korea Eurofighters in the 2010s). As worrisome would be Beijing’s reaction. China would consider South Korea’s acquisition of nuclear-powered submarines adverse to its regional strategic interests and would react accordingly. When at strategic cross-purposes with Beijing, Canberra and Seoul have already felt the pain of Chinese diplomatic and trade retaliation – France might face similar pressure. Within a context of great power cooperation, and regardless of whether with ally or rival, Paris would need to examine whether the expected utility of offering Seoul nuclear-powered submarines would be a strategic benefit or cost.

South Korea’s calculation in this regard would be more acute and more complex. It would be acute because China is South Korea’s neighbour and largest trade partner, and because the US – which would likely be unhappy about a Paris-Seoul

nuclear submarine tie-up (US-South Korea military interoperability plays a role) – is not just an ally but also South Korea’s security guarantor. It would be complex because Seoul would also have to divine how the deal impacted diplomacy with Pyongyang. In particular, the 1992 Joint Declaration commits South and North to a “denuclearised” Korean peninsula, including prohibitions on uranium enrichment and plutonium reprocessing facilities. That said, South Korea primarily wants nuclear-powered submarines to deter North Korea’s nuclear weapons, which no one believes Pyongyang will surrender, thus casting doubt on the validity of the 1992 Joint Declaration.

Aside from these difficulties, there is the aforementioned issue of maintaining US-South Korea alliance military interoperability, and the question of whether South Korea really needs nuclear-powered submarines to deter North Korea, given the types of sea basins in which they would likely be operating. The interoperability issue is solvable; the latter point is irrelevant, as Seoul has decided it needs nuclear-powered submarines (whether that judgment is sound is another question).

The US would likely try to thwart a France-South Korea nuclear submarine tie-up – perhaps to keep its Korean ally on a short leash, or due to worries about regional arms racing. If Washington pushed back hard, it could scuttle a deal. But Washington might blink – Seoul does have some leverage, and if South Korea appeared determined, Washington could acquiesce to a *fait accompli*. There is even a chance that this could be win-win-win. France would recover prestige and solidify its Indo-Pacific strategy. South Korea would get nuclear submarines. The US could get a more capable ally and part of the work package – for instance, armaments and sensing. Indeed, Lockheed had the armaments and sensing work packages for the France-Australia submarine deal. And China, now facing another increasingly capable US ally, would be the loser. This is something Washington, Seoul, and Paris could all welcome.



ABOUT THE AUTHOR

Mason Richey

Mason Richey is associate professor of international politics at Hankuk University of Foreign Studies (Seoul, South Korea), senior contributor at the Asia Society (Korea), and co-author of the tri-annual US-Korea relations analysis chapter in Pacific Forum's triannual e-journal, *Comparative Connections*. His research articles have appeared (inter alia) in *Pacific Review*, *Global Governance*, and *Foreign Policy Analysis*. Most recently he is co-editor of the volume *The Future of the Korean Peninsula: 2032 and Beyond* (Routledge, 2021).

mrichey@hufs.ac.kr

The **Centre for Security, Diplomacy and Strategy (CSDS)** seeks to contribute to a better understanding of the key contemporary security and diplomatic challenges of the 21st century – and their impact on Europe – while reaching out to the policy community that will ultimately need to handle such challenges. Our expertise in security studies will seek to establish comprehensive theoretical and policy coverage of strategic competition and its impact on Europe, whilst paying particular attention to the Transatlantic relationship and the wider Indo-Pacific region. Diplomacy as a field of study will be treated broadly and comparatively to encompass traditional statecraft and foreign policy analysis, as well as public, economic and cultural diplomacy.

The **CSDS Policy Brief** offers a peer-reviewed, interdisciplinary platform for critical analysis, information and interaction. In providing concise and to the point information, it serves as a reference point for policy makers in discussing geo-political, geo-economic and security issues of relevance for Europe. [Subscribe here](#). The CSDS Policy Brief is a discussion forum; authors express their own views. If you consider contributing, contact the editor Prof. Michael Reiterer: michael.reiterer@vub.be.

Follow us at:

Twitter [@CSDS_Brussels](#)

LinkedIn [CSDS Brussels](#)

Youtube [CSDS](#)

<http://csds.brussels-school.be>



The Brussels School of Governance is an alliance between the Institute for European Studies (Vrije Universiteit Brussel) and Vesalius College.

Visitor's address:

Pleinlaan 5, 1050 Brussels, Belgium

Mailing address:

Pleinlaan 2, 1050 Brussels, Belgium

info_bsog@vub.be

www.brussels-school.be