# Nuclear Energy, a Costly Trap

## Why the World Bank and the Asian Development Bank Should Not Finance Nuclear Energy

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The President of the World Bank, Ajay Banga, lifted the ban on nuclear finance in June 2025.[1] Now, the door is open for governments to ask for the Bank's support to finance nuclear energy. It seems the pressure by 22 countries[2] who pledged to triple global nuclear capacity by 2050 has succeeded. The Asian Development Bank (ADB) is also embarking on this costly path, and other multilateral development banks (MDBs) could follow. But this nuclear surge is a mistake.

Much of these recent developments go back to the hype around Small Modular Reactors (SMR). Supposedly, they are fast, cheap and clean. However, these claims don't hold up to scrutiny. In addition, nuclear energy poses a high safety risk and can be used for military purposes. Dependence on Russian uranium is also a serious concern.[3] Furthermore, no country has yet found a safe solution for radioactive waste, let alone secured definitive funding for it.

There are at least five reasons why the World Bank, ADB and other MDBs should not finance nuclear energy.

### 1. Nuclear Plants Are Expensive and Take More than a Decade to Build

Today, nuclear power is the most expensive form of energy. Solar and wind almost always win the cost competition[4]. In just under 15 years, the price of solar PV has fallen by 83% ($61 per MWh), and the price of wind power by 63% ($50 per MWh). "Conversely, nuclear power costs rose from US$123 to US$182 per MWh, a 49 percent increase, making it the most expensive utility-scale power source."[5]

On average, project lead times for solar PV and onshore wind are 1–3 years (and even less for small-scale solar), whereas coal- and gas-fired power plants can take up to 5 years or more and nuclear power plants, 10–15 years.[6]

So far, SMRs have not lived up to their promise. There is only one in operation in Russia and another one in China. Nine different countries have publicized plans to build SMRs, with no single project meeting its timeline.[7] SMRs are plagued by ballooning costs (Argentina; USA) and massive planning and construction delays (Argentina, Canada, France, India, South Korea, United Kingdom, USA). Almost all projects' development will stretch into the 2030s. Some will still be in the planning stage then. There is a high probability that many projects will suffer the same fate as the much-praised NuScale SMR in Utah, USA. Due to the long construction period and skyrocketing costs, the price for power rose to over $89 per MWh, "raising concerns about customers´ willingness to pay."[8] In November 2023, the NuScale project, planned as a pioneer project for SMRs, was terminated.

[1] https://www.reuters.com/sustainability/climate-energy/world-bank-end-ban-nuclear-energy-projects-still-debating-upstream-gas-2025-06-11/
[2] https://www.powermag.com/22-countries-including-u-s-pledge-to-triple-nuclear-power-capacity/
[3] https://www.worldnuclearreport.org/IMG/pdf/wnisr2025-v1.pdf, pp. 325-337
[4] https://www.un.org/sites/un2.un.org/files/un-energy-transition-report_2025.pdf, p.1
[5] https://www.worldnuclearreport.org/IMG/pdf/wnisr2024-v4.pdf, p. 371
[6] https://www.un.org/sites/un2.un.org/files/un-energy-transition-report_2025.pdf, p.4
[7] https://www.worldnuclearreport.org/IMG/pdf/wnisr2025-v1.pdf, p. 339
[8] https://www.reuters.com/business/energy/nuscale-power-uamps-agree-terminate-nuclear-project-2023-11-08/

## 2. Nuclear Delays the Transition to Renewables

Investing in nuclear energy, particularly in SMRs, diverts money and time away from renewable technologies, thereby delaying the urgently needed energy transition. [9] The years spent on licensing, approval and construction of nuclear power plants would be more effectively used to accelerate the deployment of low-cost renewables that are available today and can be built three times faster.[10] The international community agrees that achieving emission reduction targets requires a rapid phase-out of fossil fuels[11] – only renewables can deliver the necessary scale and speed.[12] Nuclear energy, on the contrary, remains too slow to effectively contribute to the energy transition.

## 3. Nuclear Is a Huge Safety Risk

Nuclear energy poses significant safety risks**,** as accidents like Chernobyl and Fukushima have shown. This specific form of energy does not forgive mistakes. Furthermore, nuclear energy is a security issue. Nuclear technology can be used to develop nuclear weapons, increasing the potential for proliferation. In addition to the five "official" nuclear weapons possessing states – the USA, Russia, China, France, and the United Kingdom – there are four "de facto" nuclear weapons possessing states: India, Pakistan, Israel, and North Korea. The spread of SMRs could increase the risk of nuclear weapons further.

## 4. Nuclear Energy Is Not $CO_2$-Neutral

Nuclear energy is often touted as a "clean" energy source, but this claim overlooks the full lifecycle emissions of nuclear power. While emissions are low during the electricity generation phase, significant greenhouse gases are emitted during uranium mining, fuel production, plant construction, decommissioning, and nuclear waste management. If the entire life cycle of nuclear energy is taken into account, the verdict is different. Studies show that nuclear energy can emit up between 139-190g $CO_2$ per kWh.[13] Furthermore, the risks of radiation leaks or accidents during operations add another layer of environmental harm.

## 5. Radioactive Waste: An Everlasting Danger

The disposal of nuclear waste remains an unsolved problem. Radioactive materials such as plutonium and uranium remain hazardous for tens of thousands of years**.** Current storage solutions are temporary and inadequate, with no permanent waste repository currently in operation. Only Finland is constructing a facility 430 meters underground where nuclear waste can be stored for the next 100,000 years. The costs so far amount to €900 million, and another €4 billion will be needed to complete the project.[14]
Future generations will continue to bear the burden of storing and securing nuclear waste, which imposes massive financial and environmental costs. Imagine being held financially responsible for managing and safeguarding the waste left by our Stone Age ancestors.[15]

[9] https://www.neimagazine.com/news/ieefa-report-critiques-feasibility-of-small-modular-reactors/?cf-vieww
[10] https://www.worldnuclearreport.org/IMG/pdf/wnisr2024-v4.pdf, p. 58, pp. 366-384
[11] https://unfccc.int/news/cop28-agreement-signals-beginning-of-the-end-of-the-fossil-fuel-era.
[12] https://www.worldnuclearreport.org/IMG/pdf/wnisr2024-v4.pdf, p. 384
[13] https://www.stormsmith.nl/Resources/m40wastemanagement20190912F.pdf, p. 59
[14] https://www.helsinkitimes.fi/finland/finland-news/domestic/26686-finland-leads-race-to-build-world-s-first-permanent-%20nuclear-waste-repository.html
[15] https://doi.org/10.1016/j.jclepro.2014.03.055.