

Media briefing – BNP Paribas and dangers of financing nuclear power

Nuclear energy is not only the most controversial and dangerous form of energy generation, it is also one of the most expensive. To raise the many billions of euros needed to build even a single nuclear reactor, utility companies rely heavily on banks and other financial market players.

BNP Paribas, the world's leading banker of nuclear projects, is currently planning to provide financing for the construction of an out of date nuclear power station – Angra 3 – in Brazil. As part of a French banking consortium, the total amount that is reported to be being offered is €1.1billion¹.

If the deal goes ahead, Brazil will be burdened with an out of date reactor that already sees ballooning costs and will fail to deliver the safe, affordable, clean energy Brazil needs in a climate changing world.

The nuclear industry has spent the past decade trying to convince the public and decision makers that, despite its downsides, it will help tackle the climate crisis. But what it offers in reality is an industry that delivers too little, too late, is too expensive and too dangerous.

BNP Paribas – the world's nuclear bank

Out of 124 commercial banks analyzed in extensive research commissioned with Profundo, the top five that actively finance the development of the nuclear industry are French (<http://www.nuclearbanks.org>). BNP ranks number one in the world, with €13.5 billion provided to nuclear industry over the last nine years.

Despite BNP's nuclear role, Antoine Sire, the Group's Corporate Communications Director stated, when commenting on BNP's involvement in one of the most controversial nuclear reactors, Belene in Bulgaria, "*The funding of nuclear power plants should not lie within the scope of private banking... We are not qualified to assess the safety issues associated with such projects*"², it is making these sorts of decisions.

BNP is crucial to the success of a loan to finance Angra 3's construction, but if it goes ahead, it is a blatant misuse of its customers' money, as the following will show.

Angra 3 – it wouldn't be permitted today in France or Germany

In 2007, the Brazilian Government announced it intended to finish the construction of the nuclear reactor Angra 3 and in December 2008, the state-owned utility Eletronuclear signed an agreement with the French company AREVA to complete the power plant.

¹ Figure confirmed to us in meetings with banks in July and October 2010.

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http://www.novethic.fr/novethic/planete/ong/campagnes/belene_projet_qui_oppose_amis_terre_bnp/116098.jsp

Located near the beautiful coastal town of Angra dos Reis, 150 km from Rio de Janeiro, work on Angra 3 originally began in 1984, but was suspended when banks pulled out following the Chernobyl nuclear disaster. Most of the equipment it will use – 70% of which pre-dates Chernobyl and has been left at site for the last 25 years – it is now obsolete.

Angra 3 falls far behind current generation of reactor technologies, which themselves suffer safety problems, construction delays and skyrocketing costs (see costs below). Any large-scale upgrades and adaptations required to integrate new safety requirements may lead not only to higher construction costs, but also increase the risk of unplanned outages during its operation.

For example, in the Czech Republic the Temelin nuclear power plant, which used outdated Russian technologies but was upgraded in the 1990s using US-based Westinghouse technologies, struggles to achieve reliable operation and suffers from numerous outages due to the modifications. The first reactor at Angra has the same problem. Angra-1 has been fully running for only 44 % of time since it was commissioned in 1982. Angra1 and -2 took 13 and 25 years respectively to be completed. Their total expenses have reached US\$10 billion for a combined capacity of 2,000Mwe – several times the originally projected cost.³

But it is not just the technology and standard issues around nuclear power that makes this project unsafe. Angra 3 does not include any control or system to prevent the spread of radioactive material in the event of a nuclear accident. In its planning, there was no risk-analysis carried out, in clear violation of international standards⁴. And, it is accessible only via one road, which is often closed due to frequent landslides. Furthermore, Brazilian public prosecutor also twice demanded the work be discontinued for safety reasons, but no action was taken⁵.

Illegal and unconstitutional approval

The construction of Angra 3 was originally approved in 1975 by presidential decree number 75870/75, which the government is using as a pretext for resuming construction. However, this decree was repealed in 1991 by a further presidential decree.

More importantly, the decision to build the third reactor at Angra and subsequent governmental approvals, conflict with Brazil's constitution. Adopted in 1988, the federal constitution requires that, in addition to an authorising act of the executive, any action to construct nuclear facilities in Brazil must be approved by Congress. It has neither been discussed nor voted on in Congress, because the government is arguing that the reactor was already approved in 1975 before the constitution was adopted. But this ignores the fact that the 1975 decree was nullified in 1991.

³ <http://www.globalsecurity.org/wmd/world/brazil/nuke.htm>; <http://www.globalsecurity.org/wmd/world/brazil/nuke.htm>

⁴ International Atomic Energy Agency Safety Requirements stipulate that the probabilistic safety assessment is performed and evaluated prior to construction. This has not been done for Angra 3 as is pointed out in both the official license from Brazil's nuclear regulator CNEN (Comissão Nacional de Energia Nuclear) as well as from ISTEK German report Gutachterliche Stellungnahme zur Erfüllung von Umwelt und Sicherheitsstandards als Voraussetzung einer Export-Kredit-Versicherung, Institut für Sicherheitstechnologie, Köln 2009

⁵ Brazilian's Public Attorney's Office, Federal Attorney in municipality of Angra dos Reis, Recommendation, 24 July 2010

Conflicts of interest

In Brazil, CNEN (Comissão Nacional de Energia Nuclear), the country's regulator, also serves as nuclear fuel supplier, operator, contractor and licensor. It granted the building licence to Angra 3's operator, Nuclep, the group that manufactures the equipment for the nuclear industry, is also part of the CNEN, and through one of its branches, Industrias Nucleares do Brasil (INB), it sells nuclear fuel to power current Angra's reactors.

This contravenes the International Atomic Energy Agency's Convention on Nuclear Safety, ratified by Brazil, which states each Member State must ensure the "effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy".

It also goes against the EU's 2008 directive on nuclear safety, which requires national regulators to be fully independent from the industry, not only in their operations and finance, but it cannot promote nuclear power publicly (EU Directive 2009/71).

And, it fails to reflect the regulatory independence required by the International Convention on Nuclear Safety that was adopted 10 years ago by the National Congress in Brazil (Decreto legislativo 4 de 22/01/1997 e decreto 2648 de 01/07/1998).

Costs

Nuclear projects are far from cheap and Angra 3's costs, like other nuclear construction projects, are sky-rocketing. In the case of the new generation reactors, the European Pressurised Reactor, their construction in France and Finland are two and four years behind schedule respectively, with cost over-runs close to 3 billion euros each.

For Angra 3, initial estimates put the cost of completing the reactor at €4 billion. But in July 2010, just two months after construction briefly resumed, Electronuclear announced a €400 million budget overrun⁶, and they have barely begun.

Several independent expert studies show that Brazil has vast potential to generate much cheaper electricity from domestic renewable energy sources, such as wind, hydro and biomass byproducts (sugarcane bagasse). The Energy Policy Journal, for example, shows that Angra 3 production would be 50 % more expensive than electricity generated by sustainable biomass from sugarcane bagasse⁷. Brazil's institute Excelencia Energetica in 2010 showed that wind turbines can deliver electricity at less than half (155 - 175 Rs/MWh) of the expected generating costs of Angra 3 (220 Rs/MWh).

Why banks shouldn't fund nuclear energy

Most major commercial banks say they have a commitment to sustainability and corporate social responsibility, yet the entire nuclear cycle blatantly contradicts this. Radioactive contamination routinely occurs throughout the fuel chain, from uranium

⁶ [http://www.energiahoje.com/globalenergy/2010/07/01/413330/angra-3-to-cost-us\\$-550-m-more.html](http://www.energiahoje.com/globalenergy/2010/07/01/413330/angra-3-to-cost-us$-550-m-more.html)

⁷ Joaquim F. de Carvalho et Ildo L. Sauer: Does Brazil need new nuclear power plants?, Energy Policy 37 (2009) 1580–1584,

mining to processing, reactor operation to the management of nuclear waste.

A severe accident of a typical pressurised water nuclear reactor, due to technical or human failure, could affect many millions of people, causing tens of thousands of victims and forcing the evacuation of areas as large as Belgium. Plus every reactor generates hazardous nuclear waste – spent fuel -- that remains lethal for millennia. There is still no permanent or safe solution for storing nuclear waste.

The nuclear industry has spent the past decade trying to convince the public and decision-makers that, despite its downsides, nuclear power is needed to tackle the climate crisis. The industry promised to have learned from past disasters, and that it would offer a clean, safe, cheap and reliable source of energy. None of these claims is true.

The 2008 International Energy Agency (IEA) energy scenario clearly shows that, even if the world were to build 1,300 new reactors and quadruple nuclear power generation by 2050, greenhouse gas emissions would be reduced by less than 4%. Given the long planning and construction schedules required, this would come far too late to meet the imperative to significantly decline greenhouse gas emissions by 2020 and thus prevent climate chaos.

Plus, implementing the IEA scenario would require US\$10 trillion for reactor construction, massively increase the amount of nuclear waste we and future generations will have to deal with, and create enormous proliferation hazards (a single reactor typically produces several hundred kilograms of plutonium every year – an amount sufficient for dozens of nuclear weapons).

Investments in nuclear power actually undermine climate protection by diverting urgently needed resources away from clean and safe renewable power investments.

The reality is that nuclear reactors often create energy insecurity. Out of 130 US commercial reactors, one third had outages lasting more than a year – the total number of long-term shutdowns exceeded 50, with seven cases involving units that were out of operation for two years or longer. And in 2007, the world's largest nuclear power plant, Kashiwazaki in Japan, was kicked out of service for more than two years due to an earthquake. Only two of its seven reactors have since been restarted.

Relying on nuclear power leads to a dependency on uranium supplies from only a handful of countries. Seven countries provide 90% of world production: Australia, Canada, Namibia, Niger, Kazakhstan, Russia and Uzbekistan. Fuel production services are provided by only six countries globally.

The nuclear industry, however, is not bothered by these facts; it is struggling to survive, but at an unjustifiable cost.

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