

Turkey is going nuclear

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August 2018

Abstract

Turkey concluded a contract with the Russian company ROSATOM on a large reactor complex and a similar agreement was concluded with a Japanese-French consortium.

Turkey's push to advance its own policies of energy security has been a long time strategic goal, especially since the country is highly dependent on foreign energy imports. Nuclear energy has always embodied modernization and development, and Turkey's eagerness to join the ranks of the world's most powerful nations.

Given Erdogan's dream of reviving "Ottomans time" and his vision of Turkey as a regional power in the Middle East, Turkey has to join the regional nuclear race. Otherwise Turkey will remain second class—a position that Erdogan cannot and will not accept.

Turkey plans to build three nuclear power plants to reduce its dependence on importing energy. The project is part of President Recep Tayyip Erdogan's '2023 Vision' marking 100 years since the foundation of modern Turkey and make Turkey one of the world's top ten economies.¹

In 2007, the Turkish government began its first push in the 21st century to construct a nuclear power plant, in passing “The Law on Construction and Operation of Nuclear Power Plants and Energy Sale.”

This kick started the negotiations that awarded Russia's state-owned nuclear energy corporation, Rosatom, a contract to build Turkey's first nuclear power plant in Akkuyu.

The Akkuyu nuclear power plant (PNN)

The nuclear power station, located in Akkuyu in southern Mersin province on the shores of the Mediterranean. The nuclear power station will boast four reactors, each with a capacity of 1,200 megawatts, and will be built by the Russian state nuclear energy agency Rosatom. The Akkuyu nuclear plant will meet 10 percent of Turkey's energy needs.

President Recep Tayyip Erdogan and his Russian counterpart Vladimir Putin launched the construction of the Akkuyu plant at a ceremony in Ankara in early April 2018.²

Erdogan noted that "Currently, 31 countries produce a significant amount of electricity from 450 nuclear power plants. Also, in 16 countries, 55 nuclear power plants are under construction. And today we can say that the Akkuyu power station, the foundation of which we are laying today, is the 56th".³

"In 2023, we will put into operation the first unit and Turkey will thereby join those countries that use nuclear energy ... On the anniversary of our republic, we will crown this work with success."⁴

Putin said: "We have an ambitious task - to launch the first power unit in 2023, timed to coincide with the 100th anniversary of the founding of the Republic of Turkey. Together with my dear friend Recep Tayyip Erdogan, we have agreed that we will do everything in order to fulfill this task."⁵

The launch of the power plant came two weeks after Turkey suffered its most serious nationwide power cut in 16 years which exposed the shortcomings of its energy system.⁶

Rosatom Director General Alexey Likhachov said on July 1, 2018, that "Rosatom is building in Turkey a cutting edge, tried and tested (Generation III+) nuclear power plant featuring four power units based on the Russian VVER-1200 design which meets the world's highest safety standards".⁷

He added that "The model we are building at Akkuyu is already being built in a series. Unit 6 of Novovoronezh NPP and unit 1 of Leningrad NPP II, based on the same design, are already up and running, with the former in a commercial operation and the latter launched in February 2018. The safe and efficient operation of these units underscores the reliability of our technologies."⁸

Environmentalists have raised alarm about safety issues but the Turkish authorities have swatted away concerns that the Akkuyu facility lies in a seismic zone, saying it can resist quakes registering up to nine on the Richter scale.⁹

Mile stones of the project

- The Akkuyu project is based on an inter-governmental agreement signed between Russia and Turkey in May 2010.
- In October 2011, JSC Akkuyu Nuclear received a site license.
- In November 2013 its site report received approval.¹⁰
- Turkish Energy Minister Taner Yildiz and the head of Rosatom, Sergei Kiriyyenko, on April 14, 2015, laid the foundation stone for the construction of the power station.

- Rosatom has nominated in June 2017, Mr. Yuriy Galanchuk, the General Manager of Akkuyu Nuclear Joint Stock Company. Mr. Galanchuk, has 30 years of experience in the sector and has been and Russia.¹¹

Russia is using a build-own-operate model for the project, whereby it provides the financing, operation and management of the plant.¹² The first unit is scheduled to start operations in 2023, with the other three units following by 2025.¹³

The Sinop nuclear power plant (NPP)

The second nuclear plant is due to be built by a French-Japanese consortium in the Black Sea city of Sinop. The negotiations for the Sinop power plant's contract concluded in May 2013 when a Japanese-French consortium won the bidding process. On October 29, 2013, the Turkish government signed an agreement with a consortium led by Mitsubishi Heavy Industries Ltd. to build four nuclear power reactors in the Black Sea city of Sinop at an estimated cost of more than US\$22 billion.

This power plant will consist of four separate units, each with the capacity to produce 1,120 megawatts. The Turkish government plans to have the first unit operational by 2023.

As stipulated by the agreement, the Turkey Electricity Generation Company (EÜAŞ) will hold a 49 percent stake in the plant, while a Japanese and French company will have 30 and 21 percent stakes, respectively.

Turkey's president, Recep Tayyip Erdoğan, said, 10 percent or more of Turkey's energy needs would be met by the second nuclear power plant, which will be located in Sinop.¹⁴

The İğneada nuclear power plant (NPP)

Turkey's president, Recep Tayyip Erdoğan, said on June 18, 2018, that the country will build a third nuclear power plant.¹⁵ The third plant will be built near the town of İğneada near the Bulgarian border.

The Turkish government hasn't announced any definitive plans for the capacity of this third power plant, but it likely will be similar to the other two plants.¹⁶

The nuclear power plant in İğneada, whose contract the Turkish government has yet to award, faces a somewhat contentious bidding process. Several companies have expressed interest in the project, including the Japanese firm Westinghouse and the American firm General Electric.

Despite no official announcement being made, it was reported that Turkey is negotiating the third nuclear power plant project with China. During his visit to China in May 2017, President Recep Tayyip Erdoğan was reported to have discussed the third nuclear power plant with his Chinese counterpart President Xi Jinping. According to presidential sources, President Erdoğan and Xi Jinping agreed to accelerate construction of the third nuclear power plant. Energy Minister Albayrak paid a visit to China in May 2018 to discuss the nuclear power plant project with Chinese officials.¹⁷

The Turkish government hasn't announced any definitive plans for the capacity of this third power plant, but it likely will be similar to the other two plants.¹⁸

Summary

Turkey concluded a contract with the Russian company ROSATOM on a large reactor complex and a similar agreement was concluded with a Japanese-French consortium. President Erdogan also announced yet another power plant.

Turkey's push to advance its own policies of energy security has been a long time strategic goal, especially since the country is highly dependent on foreign energy imports. Nuclear energy has always embodied modernization and development, and Turkey's eagerness to join the ranks of the world's most powerful nations.

Russia has ostensibly been using nuclear technology as means to increase bilateral relations and to gain regional influence in spite of western sanctions.

Given Erdogan's dream of reviving "Ottomans time" and his vision of Turkey as a regional power in the Middle East, Turkey has to join the regional nuclear race. Otherwise Turkey will remain second class—a position that Erdogan cannot and will not accept.

The contracts reveals that these projects are not just about improving Turkey's energy supply. Turkey has also consciously opened the door to a military nuclear option.¹⁹

Turkey insisted that the deal would neither include the provision of uranium nor the return of the spent fuel rods. Turkey wants to maintain the option to run the reactors with its own low enriched uranium and to reprocess the spent fuel rods itself. This, in turn, means that Turkey intends to enrich uranium, at least to a low level Ankara wanted to deal with this matter separately at a later stage. Turkey never provided an explanation for this decision.²⁰

Turkey will be outsourcing nuclear fuel and does not appear to have any plans for generating a national reprocessing capability. Turkey will likely ship spent fuel to Russia, in which case the national plans and procedures for secure interim storage and transportation of spent fuel and radioactive waste should be agreed upon by all stakeholders.

Notes

- ¹ Turkey launches construction of first nuclear power plant, Al Arabiya, April 14, 2015.
- ² Turkey to build third nuclear power plant, SightlineU3O8, July 1,2018.
- ³ Russia starts building Turkey's first nuclear power plant, World Nuclear News, April 3, 2018.
- ⁴ Russia starts building Turkey's first nuclear power plant, World Nuclear News, April 3, 2018.
- ⁵ Russia starts building Turkey's first nuclear power plant, World Nuclear News, April 3, 2018.
- ⁶ Turkey to build third nuclear power plant, SightlineU3O8, July 1,2018.
- ⁷ Turkey to build third nuclear power plant, SightlineU3O8, July 1,2018.
- ⁸ Turkey to build third nuclear power plant, SightlineU3O8, July 1,2018.
- ⁹ Turkey launches construction of first nuclear power plant, Al Arabiya, April 14, 2015.
- ¹⁰ Russia starts building Turkey's first nuclear power plant, World Nuclear News, April 3, 2018.
- ¹¹ A New Boss for Akkuyu Nuclear, NBN, June 14, 2017.
- ¹² Russia starts building Turkey's first nuclear power plant, World Nuclear News, April 3, 2018.
- ¹³ Russia starts building Turkey's first nuclear power plant, World Nuclear News, April 3, 2018.
- ¹⁴ Turkey to build third nuclear power plant, SightlineU3O8, July 1,2018.
- ¹⁵ Turkey to build third nuclear power plant, SightlineU3O8, July 1,2018.
- ¹⁶ Daniel Metz, Turkey Invests in Nuclear Energy, diplomaticourier.com, December 28, 2017.
- ¹⁷ Turkey's third nuclear power plant likely to be built in Thrace, anews.com, June 15, 2018.
- ¹⁸ Daniel Metz,Turkey Invests in Nuclear Energy, diplomaticourier.com, December 28, 2017.
- ¹⁹ Hans Rühle, Is Turkey Secretly Working on Nuclear Weapons? The National Interest, September 22, 2015.
- ²⁰ Hans Rühle, Is Turkey Secretly Working on Nuclear Weapons? The National Interest, September 22, 2015.