

The first of two EPR reactors at China's Taishan nuclear power plant enters into commercial operation

On Friday 14th of December 2018, CGN and EDF announced, at a joint press conference in Beijing, that unit 1 of Taishan nuclear power plant had become the world's first EPR to enter into commercial operation. This last milestone was reached on Thursday 13th of December 2018 after the final statutory functional test of continuous operation at full power for 168 hours. The successful outcome of this test marks the achievement of all prerequisite conditions for the reactor's safe operation.

Comprising two 1750-MW EPR reactors, Taishan nuclear power plant is the biggest cooperation project to have taken place between China and France in the energy sector. Taishan's two reactors are capable of supplying the Chinese power grid with up to 24 TWh of CO₂-free electricity a year, tantamount to the annual electricity consumption of 5 million Chinese users, whilst at the same time preventing the emission of 21 million tons of CO₂ a year.

The Taishan project is being led by TNPJVC, a joint venture founded by CGN (51%), EDF (30%) and a regional Chinese utility called Yuedian (19%). The EDF Group and its Framatome subsidiary supplied the third-generation EPR technology, which meets the highest international safety standards. EDF also contributed operating experience from the construction of its Flamanville-3 EPR. The use of this operating experience was a crucial factor in successfully completing the initial phases of the Taishan 1 construction project. CGN, which oversaw the construction phase of the project, capitalised on more than 30 years of experience in the construction of nuclear power plants.

Taishan 1 has benefited from 35 years of strategic cooperation between EDF and CGN, which started with the construction of China's very first commercial nuclear power plant at Daya Bay. Both companies also took advantage of the complementary relationship between the French and Chinese nuclear industries, thereby increasing their knowledge base and offering new business opportunities.

Taishan 1 is providing EPR reactors around the world with its experience in project management and technological expertise. The first reactors to benefit from this experience are the two Hinkley Point C units currently being built in the UK. The two companies are also partners in the Sizewell C EPR project, as well as in the Bradwell B project which is based on Hualong technology.

He Yu, Chairman of China General Nuclear Power Group: *"Taishan 1's entry into operation marks the accomplishment of the task set by the Chinese and French heads of state. As the world's first EPR project, Taishan offers valuable lessons and solutions for the construction of similar reactors worldwide and it will play a demonstrative and supportive role in the joint construction of the Hinkley Point C project in the UK by CGN and EDF."*

Jean-Bernard Lévy, EDF Chairman and Chief Executive Officer: *"The commissioning of Taishan 1, the world's first EPR to enter into commercial operation, is a key achievement for the entire French nuclear industry as it demonstrates its capacity to develop this third-generation nuclear technology in line with the highest safety and quality standards. EPR is a major asset in addressing the challenge facing many countries: reconciling the growth of electricity demand with the need to reduce carbon dioxide emissions. The Taishan project also illustrates our approach to developing EPRs worldwide, in cooperation with valued partners such as CGN."*

Construction of the Taishan-1 EPR: latest key milestones

10 April 2018: Authorisation granted to fuel the reactor
6 June 2018: First chain reaction
29 June 2018: First grid connection
13 December 2018: Start of commercial operation at Taishan 1

Taishan nuclear power plant in figures:

Two 1750-MW EPR reactors, the most powerful in the world
The plant is able to generate **24TWh** of electricity a year, tantamount to the power consumed by **5 million Chinese users**
The plant will prevent the emission of around 21 million tons of CO₂ a year
More than 200 French engineers were involved throughout the project's duration
More than 15 000 workers were mobilised during the busiest periods of the construction phase
Nearly **800 people** will be required to operate both reactors
Nearly **40 French companies** were involved in the construction of the reactor
The site covers a surface area of **400 hectares**

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About EDF : A key player in energy transition, the EDF Group is an integrated electricity company, active in all areas of the business: generation, transmission, distribution, energy supply and trading, energy services. A global leader in low-carbon energies, the Group has developed a diversified generation mix based on nuclear power, hydropower, new renewable energies and thermal energy. The Group is involved in supplying energy and services to approximately 35.1 million customers, of which 26.5 million in France. The Group generated consolidated sales of €70 billion in 2017. EDF is listed on the Paris Stock Exchange.

About Framatome : Framatome is a major international player in the nuclear energy market recognized for its innovative solutions and value-added technologies for designing, building, maintaining, and advancing the global nuclear fleet. The company designs, manufactures, and installs components, fuel and instrumentation and control systems for nuclear power plants and offers a full range of reactor services. With 14,000 employees worldwide, every day Framatome's expertise helps its customers improve the safety and performance of their nuclear plants and achieve their economic and societal goals. As the majority shareholder, EDF owns 75.5% of Framatome's shares.

About China General Nuclear Power Group : China General Nuclear Power Group (CGN) is a large-scale clean energy group focused on the clean energy sector and environmental protection industry. It is the largest nuclear power company in China, the third-largest in the world and the world's largest nuclear construction contractor. As of the end of September 2018, CGN oversees 46.69GW of installed clean power, including 21 operating nuclear units with installed capacity of 22.55GW, all of which maintain a long-term track record of safe and stable operation, and seven under-construction nuclear units with installed capacity of 9,180MW. The company has established a "4+X" industry map comprising nuclear power, nuclear fuels, new energies, finance and new key state-nurtured industries. As at the end of August this year, the Group has total assets of 661.5 billion yuan and a workforce of 41,000. Its total assets, turnover and profits have achieved continuous double-digit growth for the last several years.

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