# Industrial Finance Options for Nuclear Data Center Projects

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The AI arms race requires monumental data centers with power demands equivalent to large-scale industrial concerns. Adapting to this reality, organizations involved in the procurement and operation of these data centers are employing electricity procurement methods resembling those used by traditional industrial power users. Industrial electricity consumers have historically sought to insulate themselves against volatile electricity prices by procuring electricity at a fixed price through long-term Power Purchase Agreements (PPAs). Several hyperscalers have recently announced similar long-term PPAs with nuclear power plant operators. There are limited remaining opportunities, however, for assuming control of existing nuclear capacity. These organizations and their peers may eventually turn to new plant construction.

Historically, nuclear construction in the U.S. has faced significant cost and schedule overruns; while the promise of SMR construction is to reduce those risks, investors are not yet ready to assume that to be the case. This uncertainty, coupled with the large scale of potential cost overruns, has made traditional project finance of nuclear projects infeasible and, to a large extent, traditional corporate finance of nuclear projects a daunting proposition for even the most well-capitalized market participants. Two recent nuclear financing models from Europe supported by traditional industrial participants are equally applicable to the data center context and bear consideration as a tool in addressing some of the project-related risks for nuclear development.

## Mankala

The Mankala model, so called after the hydroelectric cooperative and the related Finnish legal case legitimizing the arrangement, is a form of cooperative project finance popular in Finland in which shareholders form a limited liability company and contribute capital to finance the development and operation of a power plant. Rather than distributing profit to its shareholders, the Mankala company distributes a proportionate share of the electricity generated, at cost, which shareholders are free to use for their own purposes or sell further (in fact, the Mankalas may be “nested,” with a Mankala as a shareholder of a larger Mankala, and so on). Shareholders pay a monthly proportionate share of the fixed and variable costs of the plant’s operation. The Mankala model provides most nuclear power production in Finland, recently bolstered by the 2023 completion of the Olkiluoto-3 reactor, the largest nuclear power plant unit in Europe, supplying 1,600MW at peak. Finnish Mankala cooperative TVO financed Olkiluoto-3 via a hybrid debt and equity model, which involved significant debt and the issuance of a new class of shares (Class B shares entitle holders to electricity from reactor #3, while Class A shares entitle holders to the older reactors #1 and #2 at the Olkiluoto site).

## Exeltium

In the early 2000s, Electricité de France (EDF), the French national nuclear company, needed to finance construction of a sizable new reactor at Flamanville. In seeking investors, the French

government facilitated the creation of a consortium of roughly two dozen large industrial power users in the country—Exeltium. Exeltium did not invest in EDF or the project, but it financed construction of the plant via a discounted future PPA over the next 24 years. Exeltium then entered into a series of individual take-or-pay offtake contracts with its constituent members—when Exeltium receives power, its members must purchase that power at a set price or pay a penalty. Regulators imposed certain changes to the agreement to ensure the market remained competitive, allowing participants to opt out of the purchase arrangement at set intervals, providing an offramp should French power prices drop drastically.

**Summary**

These forms have allowed industrial firms to participate in the nuclear energy realm. The firms, in turn, have been enticed to participate because they see the plant not as a source of revenue, but as providing a stabilized industrial input. By adopting this viewpoint and combining them with more traditional finance alternatives, hyperscalers may be able to limit their risks while entering the nuclear market.

To date, true project finance has not been employed on a nuclear project because lenders will not lend to a project of such uncertain scale. The Mankala and Exeltium models achieve a form of cost management by distributing the project risk across numerous, well-capitalized industrial entities. With sufficient control over uncertain capital costs from their equity investors, these entities have been successful in raising non-debt nuclear capital. Though not a true project finance structure in and of itself, the techniques—coupled with increasing experience in the use of modular nuclear-power construction techniques—may be useful in evolving structures for nuclear projects compatible with more traditional project lending.