

Westinghouse's deal to melt the economy and climate in Poland

Perspectives and risks of AP1000 reactors build-
out in CEE countries
specifically BG, CZ, PL and UA
with the US context

Workshop organized within Joint Project / NRPC

18 June, 2024

Praha, Czech Republic

Outline

- promises
- contract for construction
- financing of the contract / build
- mode of tender
- other candidate suppliers

Site of NPP One (NPP1)

- name: Lubiatowo-Kopalino
- location changed by PEJ in 2016 still during siting procedure; almost certainly due to nature protection / destruction considerations (formally unilaterally, but likely following PL environmental groups pushing)
- geographical location:
 - nominally: Choczewo gmina (North of PL, Baltic Sea side, Pomerania, ca. 50 km West of Gdańsk)
 - factually: Słajszewo and neighbouring small tourist villages, meaning nature and landscape potentially to be destroyed, huge thermal impact, plus many more threats, risks and impacts of various kinds (nuclear and non-nuclear related)

Milestones (decisions, permits, approvals)

- A. siting decision
 - [-] issued
 - [-] by PL gov't
 - [-] in September 2023 (outgoing ministry & gov't)
 - [-] final, reportedly irrevocable
 - [-] preceded by: preferred siting decision, other
- B. environmental decision
 - [-] issued by GDOŚ (State's enviro authority)
 - [-] following a (lengthy) EIA procedure, incl. TB
 - [+/-] formally not final yet; appealed by ENGOs and local inhabitants (ca. 10 in total)
- C. decision-in-principle
 - [-] issued by MKiŚ (ministry for energy) (of outgoing gov't)
 - [-] decision being separate legal issue within entire procedural set-up
 - [+/-] final, but in review / post-review
- D. General opinion on safety of reactor technology
 - [-] issued by regulator (PAA)

Time, timing, timelines, schedules, dates...

- Year of commissioning of 1st unit:
- [#] 2033 (in PPEJ, official from Autumn '20 to Spring '24)
- [#] 2035 (as of mid-June 2024; discussed publicly since about mid-May 2024)
- Years of start-up of remaining 2 (two) units:
- in PPEJ:
 - [unit_one] 2035
 - [unit_two] 2037
- in current discussion:
 - [unit_one] 2037
 - [unit_two] 2039 or 2040

- @ delayed by 2 (two) years since 2020 (when current revised PPEJ aproved by PL gov't);
- @ delay occured still during phase of planning and preparation (IAEA phase two);
 - - preparations to[?] devise the PPEJ;
 - - perhaps 'at least';
- @ delayed by 10 (ten) years since 2014 (when initial PPEJ aproved by gov't);
- @ delayed by 15 (fifteen) years since 2009 (when aproval of initial declaration / decree by gov't re launching of PPEJ);
- @ EIA and siting permits issued;
- @ pending construction permit (plus other permits and licences);
- @ two years interval, with proportional shifts; but talking also about one year
- @

- First concrete for unit_one:
- in PPEJ:
- 2026
- in discussion (as of mid-June 2024):
- 2028

Promises from WEC (& nuclear power complex / sector / stakeholders)

- WEC speaks:
- @ On schedule, confirming 2033 (commissioning of unit 1)
- Quote: "Ambitious, yet feasible.", "The very implementation of investment project [construction et al.] to be test-bed"; PL CEO in October 2020
- @ Local content (PL industry, firms): 1st unit at 50 percent
- Quote: "For next units, factor [that share] bound to increase."
- @ Assures lessons from Vogtle-3&4 builds have been drawn. Uptaken also in (internal) feasibility study (for NPP One).
- Quote: "Next units [feat. AP1000s to be possibly still deployed anywhere in the world] will have been constructed in shorter times [than at Vogtle]."
- @ Talks with PL firms started in 2021 (reportedly „500+“)
- @ Dozens information requests for offers sent to PL firms
- @ 20+ memoranda (MoUs), 34 letters of intent inked
- @ Dozens letters of business confidentiality signed ("prior to technical dialogues")
- @ "supplier day" event; organized in October 2021
- @ PL firms deemed fit for works mainly at the turbine island and for the balance of plant

- @ Technical and quality audits of PL firms in progress

@ Praises high performance from construction and servicing of coal-fired power plants (which can entail technical potential for expertise and knowledge transfer to nuclear power projects)

@ "Around the world, (at least) 10 (ten) AP1000 reactors in total will have been operating by the time the first AP1000 unit in PL has been commissioned."

@ 10.000 of direct jobs during construction (at site)

@ 20.000 to 30.000 new jobs along supply chain and jobs induced (as multiplier effect; linked to the investment indirectly)

- @ "Cooperation with other nuclear power sector's players is certainly possible but we [WEC] are not considering enlarging the list of partnering companies within our offer." However, "We may outsource part of works to some of the other big players". WEC is "not considering cooperation [within PL projects] with EDF or KHNP" as their both "[reactor] technologies are different [to AP1000]".

- @ „Substantial part of firms in the planned supply chain involves multinational corporations. At the same time, we plan to get the local industry onboard. Thus, I think it’s a relatively balanced process.“
- @ Main challenges linked to nuclear power new build projects in newcomer countries:
 - i) Size / scale of investment project
 - # NPPs are biggest infrastructural undertakings "which can be imagined"
 - # designing of NPPs is most complicated among conventional energy generation plants
 - # constructing 3 units of NPP is a major work outlay
 - # documentation (10 mln pieces) re designing construction control quality
 - ii) Quality
 - # managing of risks of supply chain, equipment and production quality, very construction crucial
 - # provision of control quality, safety analyses
 - # enhancing of sourcing of staff, incl. management (both key)
 - -> respective procedures are being devised
 - iv) Building of capacity
 - # impact of local environment & community - managing local vs. global
 - # sharing of experience necessary
 - # int'l experts necessary

Documents produced by WEC, US administration, other entities

- [#] Concept Execution Report (CER)
- = prepared by US gov't (took 18 months), presented to PL gov't in October 2022

- [#] Front-End Engineering and Design (FEED) report
- = prepared by WEC, in tandem with Bechtel
- = presented to PEJ in September 2022 (took 18 months)
- = covers: financial plan (CapEx-related), works schedule, technical description of NPP, implementation plan, siting plan, licensing plan
- = cost USD10m
- = 3000+ pages long
- = concerns 6 (six) reactors in total (for 2 NPPs, 3 in each)
- = PL gov't decides "how many it wants to have in the first stage of PPEJ"

- [#] concept of financing
- "A proposal regarding financing of the investment project"
- "One of parts of proposal on financing discusses opportunity of provision of funds from US export crediting agencies."

- WEC "understands the CER report is final step within selection procedure of reactor technology supplying [for NPP One]", however, regarding whether that means "selection of the [EPC] partner [company]", as well, WEC is referring to the PL gov't.

Vogtle 3 & 4 units in PL context

- @ elements originating from outside the US?
- = steam generators (delivery by Doosan)
- = turbines (Toshiba)

- @ Expectations for PL:
- => elements can be delivered by PL or FR companies
- => "thousands" can be produced in PL and / or delivered by PL companies, e.g. electronics, pumps, materials, engineering services, construction services

Finan\$ing for NPP One (context of WEC)

"WEC & Bechtel involved in [various] talks on financing, add EXIM Bank (which is backed by US gov't). Some other financial institutions, too."

Q: "Is WEC considering becoming the minority shareholder with a 49-percent stake as PPEJ forsees [i.e. the generic 49/51 scheme]?"

A: "This question concerns details of the offer and I don't want to comment on this. The only thing I can say is that we're open for a variety of options of our involvement".

Office of WEC

- = location: Kraków (Cracow)
- = role: „regional hub“
- = staff of 165 posts (as of 2022)
- = supports a number of investment projects
- = foreseen as strategic supply center and equipment production facility
- = focussed on expansion in CEE countries (add UA)

Reasons:

- = geographically close to CZ where "WEC another offer is submitted, as well [i.e. for Dukovany]" (DD laughing)
- = potential for talented staff
- = convenient transport connections to other cities in PL

Challenges

- @ "small increases" (2022) in "costs of some of construction materials and services" [ref.];
- [-] can impact final price (to be fixed in the possible future contract);
- [- / +] no exception among other types of power plants (gas-fired or off-shore wind)
- [+] WEC "keeps high attention to monitoring of availability of machines and their prices on the market so as to place orders and have them delivered in time and on time".
- @ additional requirements in quality and safety (additional licences and costs, longer time for implementation), following the Fukushima disaster

WEC boast

- @ in CN, four units featuring AP1000 already operating "with best operational parameters among reactors of GenIII+";
- @ Plus "CN decided" to construct 4 (four) more AP1000 units;
- @ reactors [output] "most elastic in its class";
- @ technology "good supplement" for RES;
- @ wields "proven solutions for storing energy";
- @ designed for 60 yrs of operation (in EU, some units to operate 80 yrs; perspective 100 yrs);

WEC & AP1000 favoured by PL gov't

- :privileges, preference and bias upfront

Nods and consents from EC

- @ Tendering:
- [+] NPP One "should get a green light" from EC
- [+] PL case is similar to, notably, HU or FR
- [+] Under the EU law, such procedures are allowed

PEJ sp zoo

- Philippe Bordarier appointed Chief Nuclear Officer (CNO) in Summer 2023
- => future operator of NPP1
- + 25 yrs experience in nuclear sector
- + 15 yrs work UK, FR, FI (at NPP projects)
- - CNO in UK (4 NPPs oper.)
- - COO in FI (OL3)
- - project dev director in FR
- + plans to build reactor simulator(s)
- + crucial: design maturity (unclear: reactor or NPP)

contract set-up (for construction)

- No contract signed to date
- No date of planned (or foreseen) signing contract ever officially communicated
- No need to have it ever officially communicated or even mentioned
- A matter which: has never been raised, has been sided (rather discarded) / lost / obscured by other issues

- financing of contract

mode of tender for new build

- other candidate suppliers

