



Atucha I LTO: strategy & lessons learned

NIC 2026 - Webinar 'LTO, up to and beyond 60 years'

February 18, 2026



Introduction

About me

Eng. Rodrigo Miri, I'm a civil engineer graduated from the Buenos Aires University. Started as structural engineer and since 2012 I have worked in the nuclear industry at the Atucha site.

During this time, I've covered several positions within the engineering deputy management of the site working in various tasks: condition assessment of SSCs, equipment reliability, SPV mitigation, obsolescence management, equipment qualification, PSR, etc.

At the moment I'm in charge of the component assessment area for Atucha unit 1 and 2, and chairman of the WG3 of the IGALL.



Introduction

Content

- Atucha NPP: location and design
- LTO challenges
- Atucha 1 LTO: operational cycles and project milestones
- Relevant projects/tasks
- Lessons learned



Atucha site location





Atucha site



Atucha 1 NPP (362MWe)

Atucha 2 NPP (745MWe)



Atucha design information



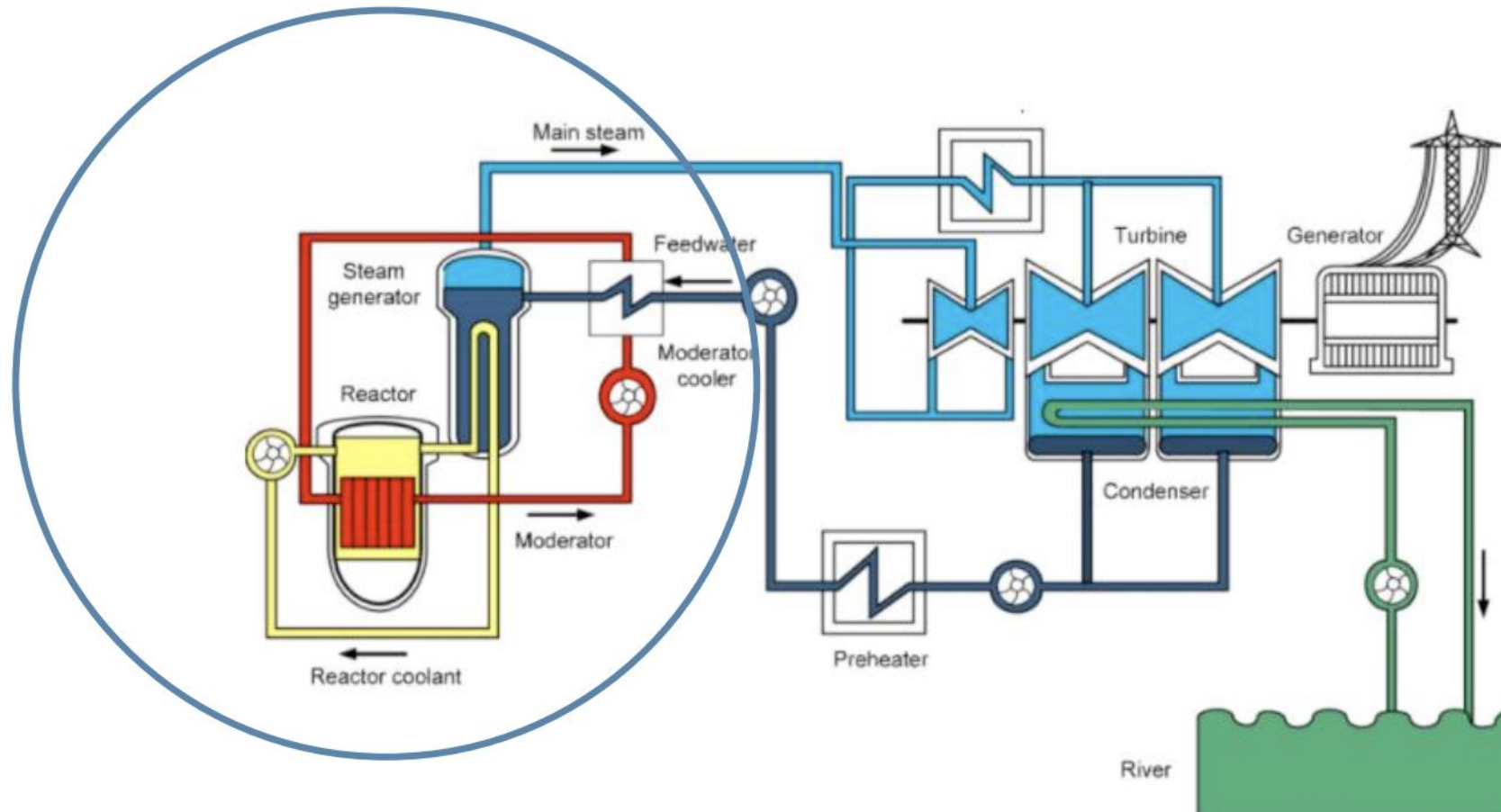
	Atucha 1	Atucha 2
Designer	KWU	KWU
Type	PHWR (Pressure vessel)	PHWR (Pressure vessel)
Location	Lima, Buenos Aires	Lima, Buenos Aires
Commercial operation	1974	2016
Thermal power	1179MWt	2175MWt
Gross electrical power	362MWe	745MWe
Coolant & Moderator	D₂O	D ₂ O
Fuel	Slightly enriched uranium (0,85%)	Natural uranium
Fuel channels	250	451
Fuel elements	250	451
Uranium weight (FE)	198kg	198kg
Uranium weight (Core)	≈50t	≈90t





Atucha - PHWR unique design

Moderator circuit

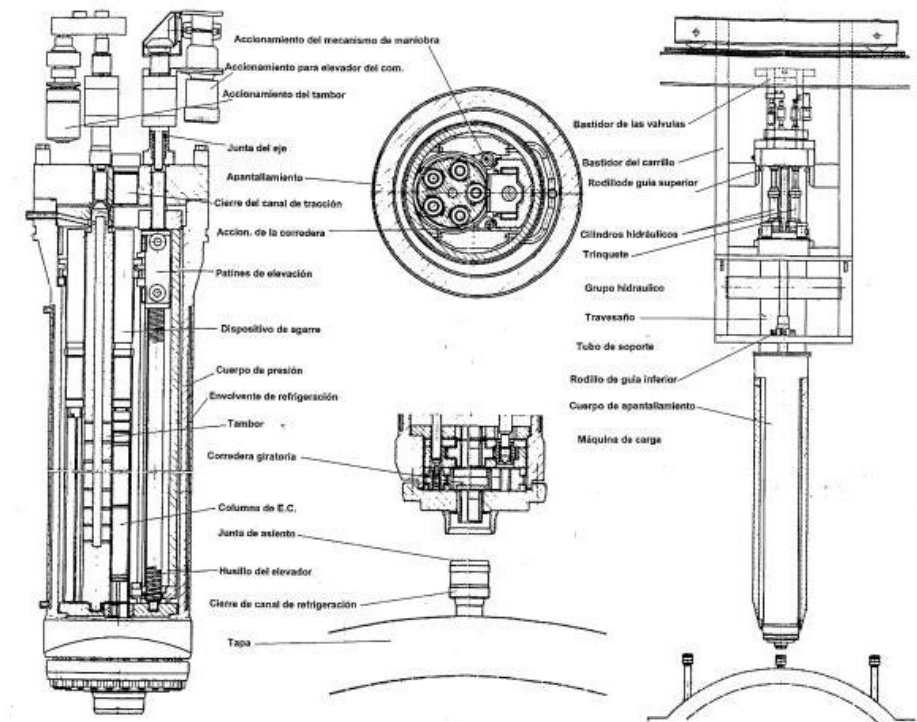
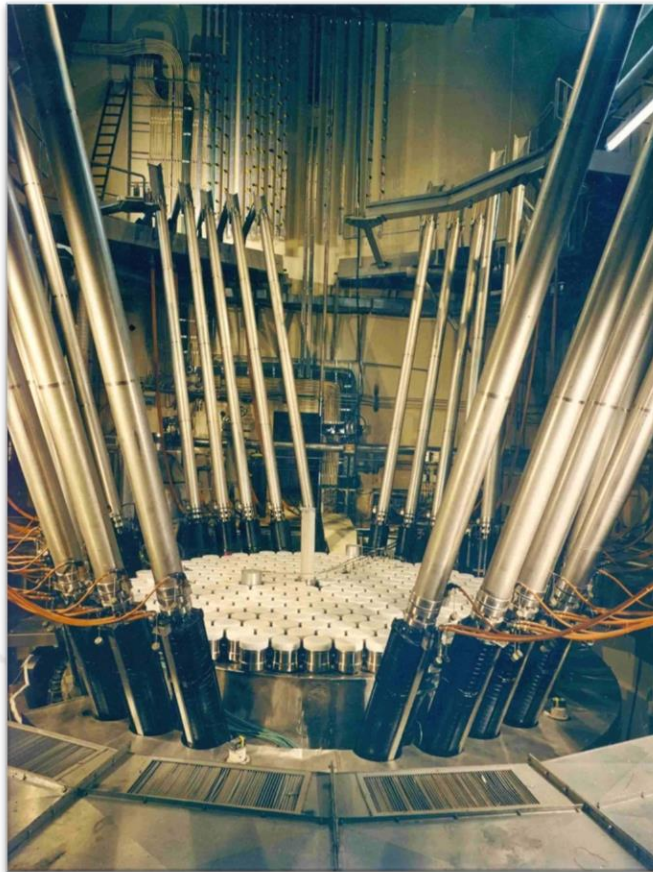


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Atucha - PHWR unique design



Online refueling





LTO challenges

Considered factors

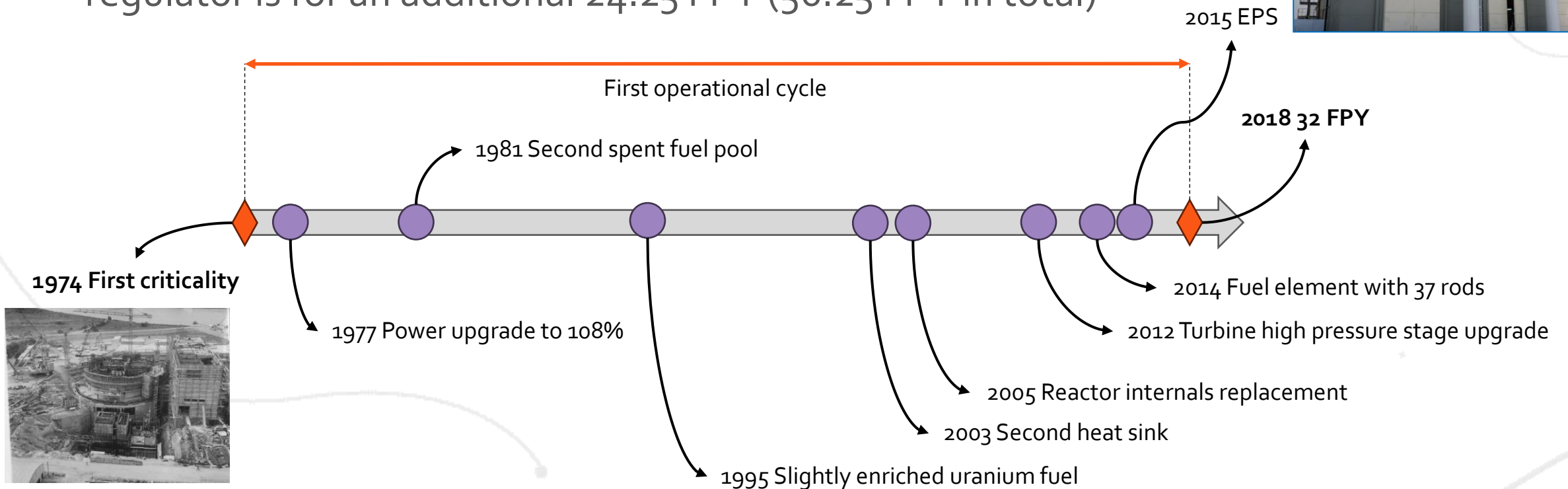
- Life-limited components
- Condition assessments of the plant and technical analysis
- PSR outcomes
- Atucha 1 unique design
- Upgrade of the plant to the latest regulations
- Required reliability improvements
- Several OEMs were no longer in business
- Missing design documentation
- Project funding



Atucha 1 LTO

First operational cycle

The original operational time was 32 FPY and the LTO request to the regulator is for an additional 24.25 FPY (56.25 FPY in total)





Atucha 1 LTO

Second operational cycle

LTO operation was divided in two phases:

- A: where CLB were maintained,
- B: upgrade the design to comply with current regulations whenever possible

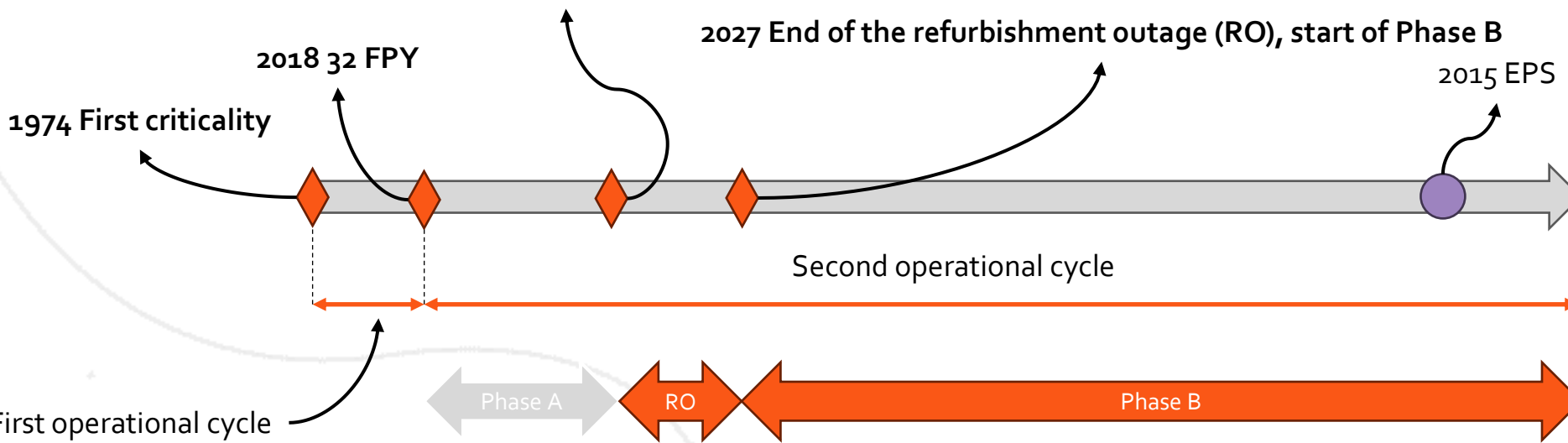
2024 End of Phase A, start of the refurbishment outage (RO)

2027 End of the refurbishment outage (RO), start of Phase B

2018 32 FPY

2015 EPS

1974 First criticality

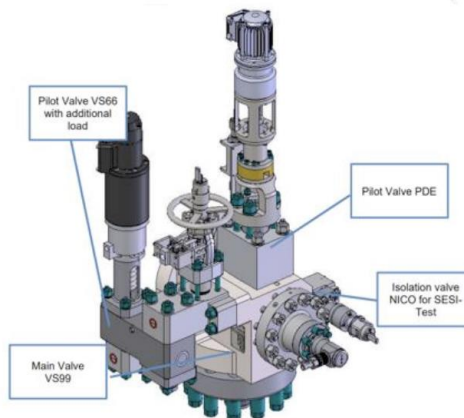
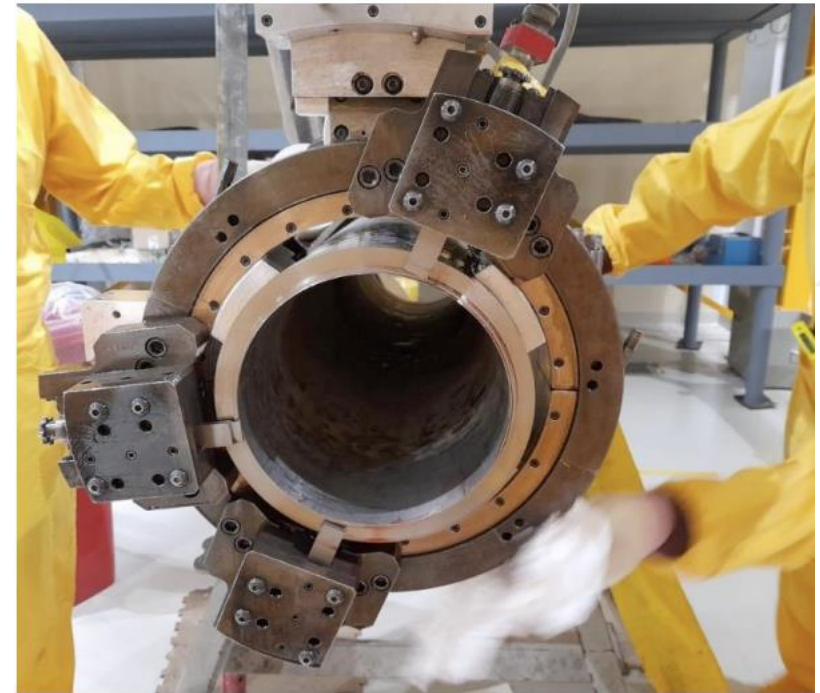




Relevant projects/tasks

Complete and ongoing projects and tasks

- Decontamination of the moderator system
- Feed & Bleed of the primary system
- Upgrade of the reactor protection system
- Modernization of the main control room
- Implementation of a secondary control room
- Full scope simulator
- Replacement of electrical components due to obsolescence





Relevant projects/tasks

Complete and ongoing projects and tasks

- Physical separation of electric trains
- Modernization of control and protection system of the steam turbine
- Replacement of modular I&C electronics due to obsolescence
- New suction pumps filters of the emergency cooling injection system
- Fast boron injection shutdown system modifications
- Replacement of the 3 Low Pressure Stages of the Main Turbine
- Repairs of the water filtration system and the crosschamber
- Replacement of the internals of the MCP





Lessons learned

Key points (so far)

- Secure project funding in advance
- Human resources and knowledge management
- “Smooth” supply chain
- Regulator and TSO involvement (CNEA, NRG, etc.)
- Organizational arrangements
- Interaction with other NPPs
- Peer reviews (IAEA, WANO, etc.)



Questions?