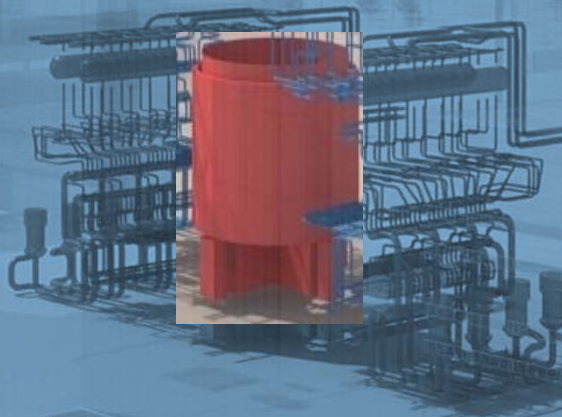


# Overview of INPP dismantling activities



SE Ignalina NPP

## Workshop “Experience of Reactors dismantling”



Decommissioning of Ignalina NPP is co-financed by the European Union

Workshop  
“Experience of Reactors dismantling”  
October – November 2018, Visaginas

# Content



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# Strategy for development and implementation of D&D projects



**Strategy:** Dismantling of equipment and systems is implemented “Unit by Unit”



**Progress:** Dismantling within plant started in 2010 (Unit 1) and 2014 (Unit 2). By the end of September 2018 dismantled 49.1 thousands tons of 157,7 of equipment and structures.



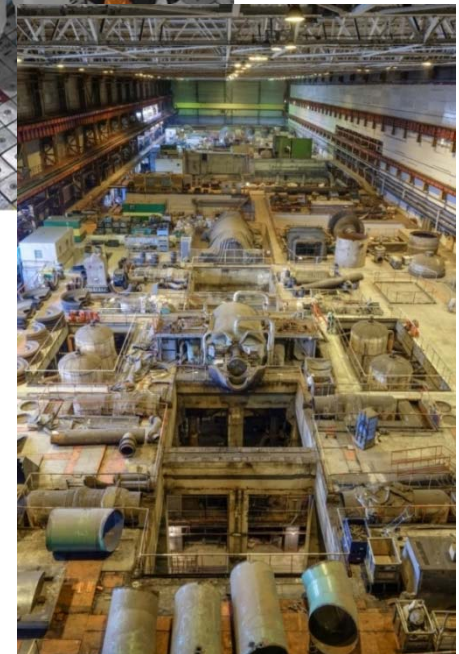
**Licensing:** Permissions for D&D works are granted by authorities on the basis of licensing documents for each INPP Unit (EIAR, TD, SAR, GDS (if required))



**Dismantling:** Dismantling and waste decontamination works are performed by the plant's workforce. Involvement of external companies is considered



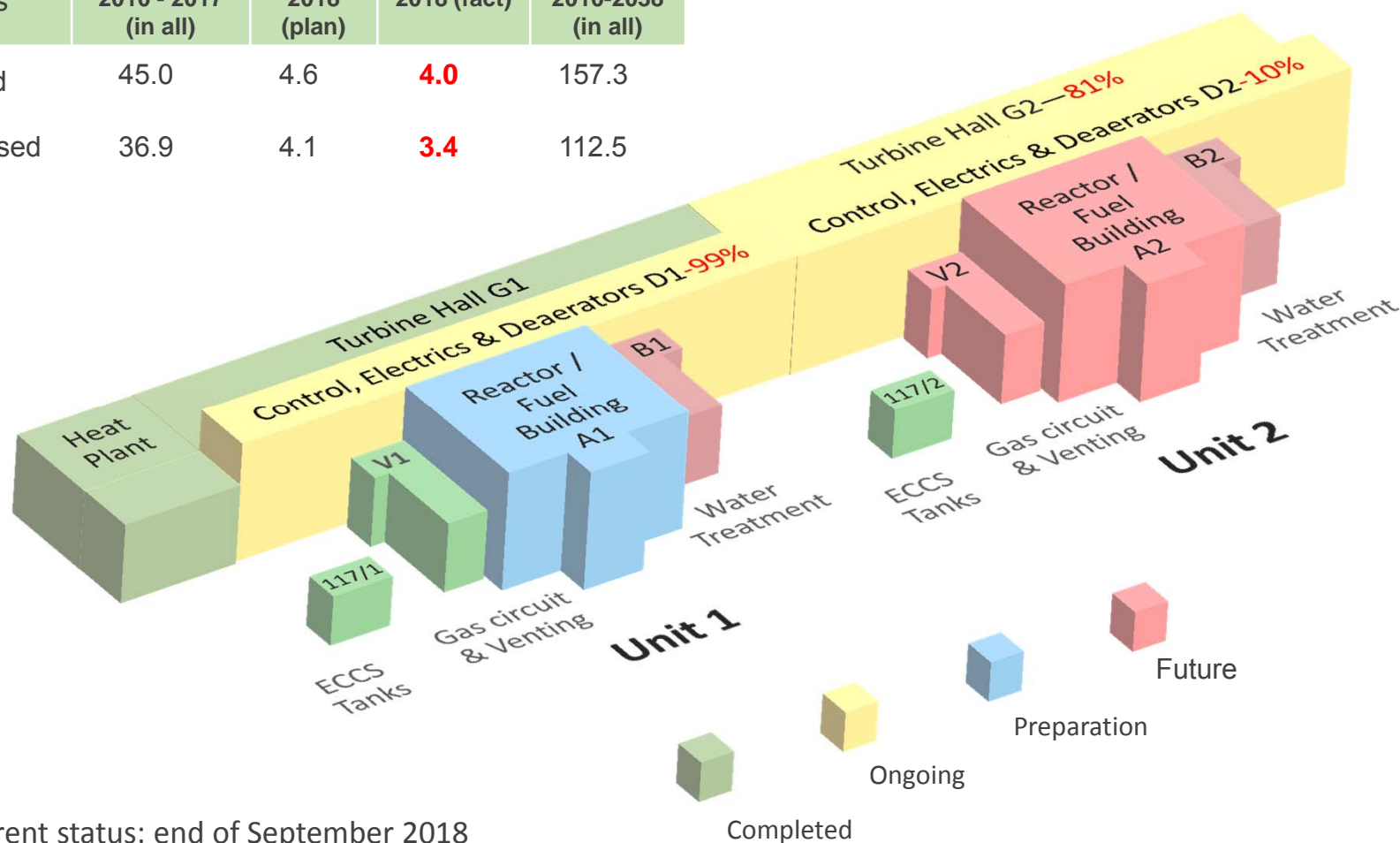
**Schedule:** Completion by the end 2038 (including buildings demolition and site restoration).



## 2 Current progress for INPP dismantling



| X1000 tons    | 2010 - 2017<br>(in all) | 2018<br>(plan) | 2018 (fact) | 2010-2038<br>(in all) |
|---------------|-------------------------|----------------|-------------|-----------------------|
| Dismantled    | 45.0                    | 4.6            | 4.0         | 157.3                 |
| Free-released | 36.9                    | 4.1            | 3.4         | 112.5                 |





# Current progress for INPP dismantling

## D&D in Turbine Hall (building G1)



### Project progress:

- **Project start** – November 2007
- **Project finish** – June 2019
- **Total dismantled** till 30 September, 2018 – 18.484 tones



### Equipment size reduction and decontamination workshops





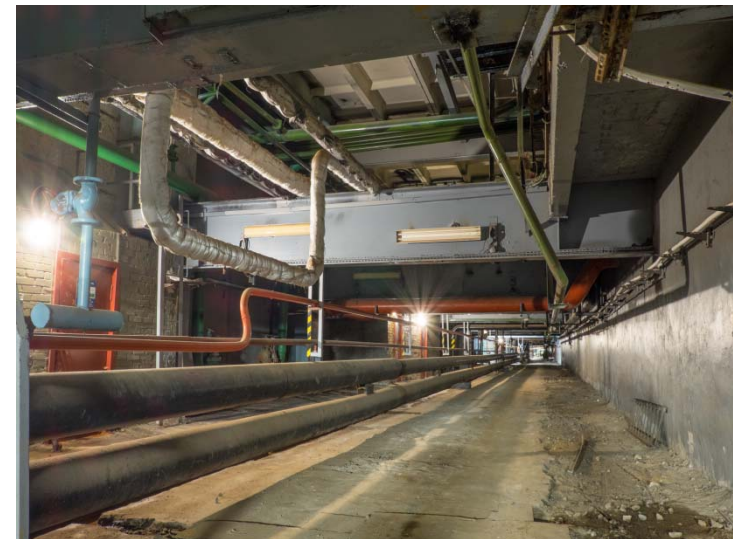
# Current progress for INPP dismantling

## D&D in Control, Electrics & Deaerators building (D1)



### Project progress:

- **Project start** – February 2010
- **Project finish** – February 2019
- **Total dismantled** till 30 September, 2018 – 4.346 tones





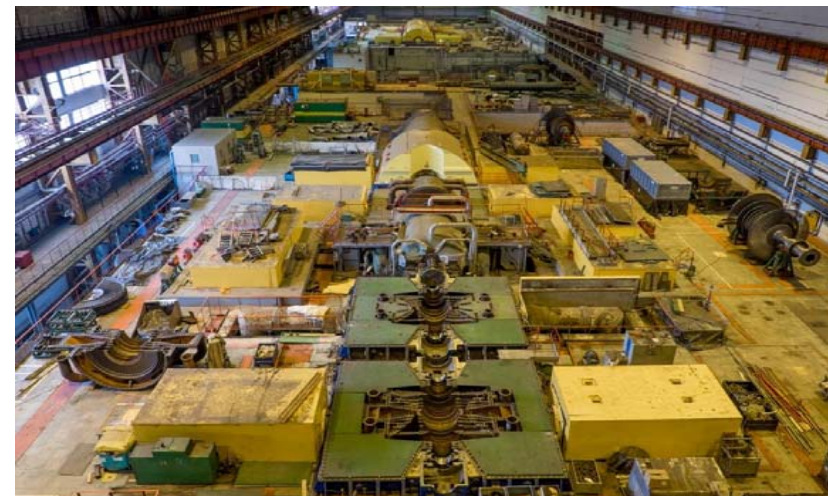
# Current progress for INPP dismantling

## D&D in Turbine Hall (building G2)



### Project progress:

- **Project start** – July 2011
- **Project finish** – June 2021
- **Total to be dismantled** – 18.925 tones
- **Total dismantled** till 30 September 2018 – 15.305 tones





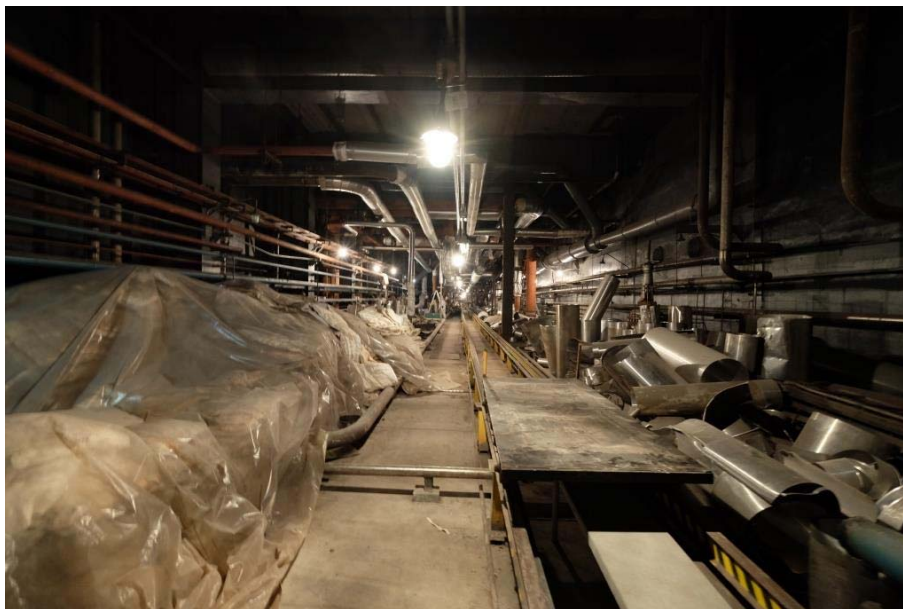
# Current progress for INPP dismantling

## D&D in Control, Electrics & Deaerators building (D2)



### Project progress:

- **Project start** – July 2011
- **Project finish** – December 2023
- **Total to be dismantled** – 3.845 tones
- **Total dismantled** up to 30 September 2018 – 134 tones

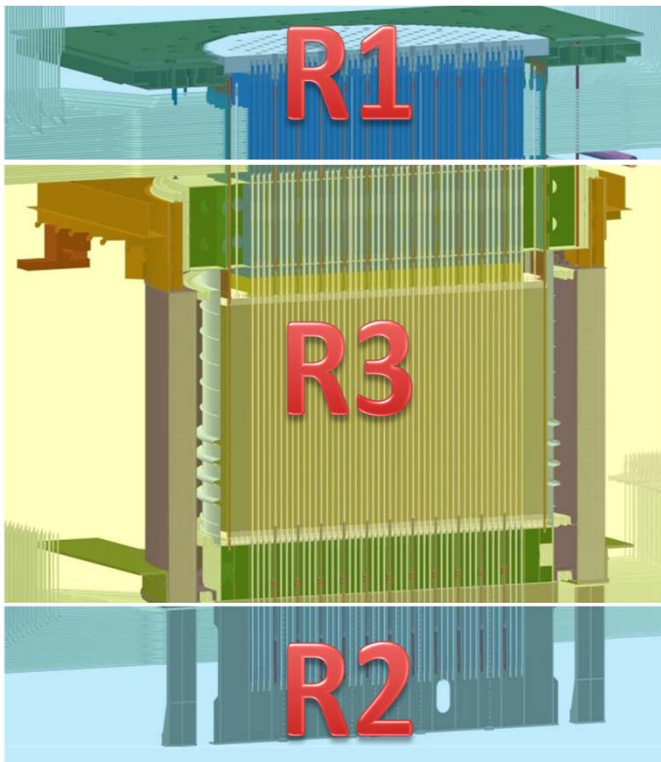






## R3 reactor core dismantling preconditions for each Unit:

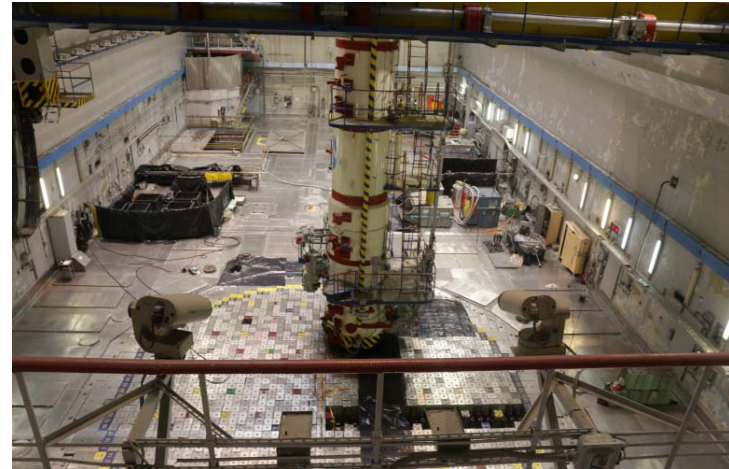
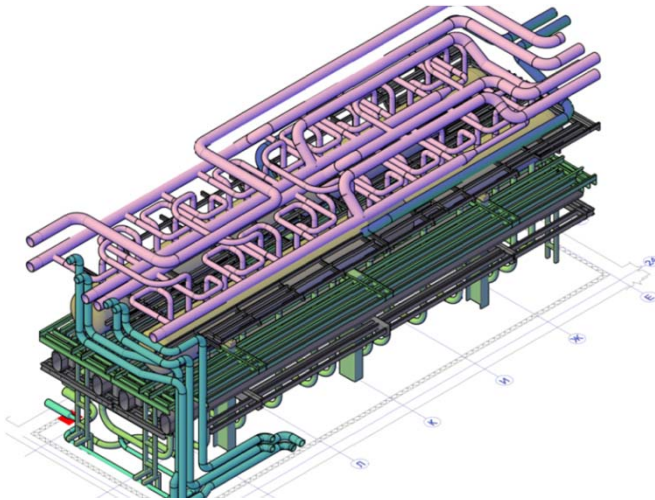
- R3 reactor core dismantling is the key project for INPP decommissioning critical pass
- 10 028 t of Unit A equipment (drum-separators, pumps, pipelines...) to be dismantled and treated before R3 D&D
- 2 053 t of reactor R1 and R2 zones (upper and bottom parts of reactor) to be dismantled and treated before R3 D&D





### Project progress:

- **Main D&D TD and SAR** Issue 02 is near completion. ENG and RU versions of documents submitted for TSO experts review in **October 2018**
- **Pre-treatment Workshop (project APW.01 )** – preparation is ongoing
- **Unit 1 Refuelling Machine D&D** - preparation of TD and SAR was completed and submitted for VATESI review in **October 2018**
- **Start of Refuelling Machine D&D – May 2019**
- **Main D&D activities – February 2020**





# Reactor core dismantling challenges

## R1 and R2 zones (2101 project)



### Project progress:

- **D&D TD and SAR** – was submitted to VATESI by the end of **March 2018**
- **GDS** was approved by RPC, VATESI, and MoE in **September 2018**
- **Start of D&D – October 2019**



**Cold tests of Graphite Crushing Device**





### **UP01/R3 Project objective (first and second stages):**

- to develop the dismantling technologies for structures and equipment from INPP Unit 1 reactor shaft (in the R3 area);
- to develop the technologies for radioactive waste management generated as a result of both units graphite stacks dismantling;
- to dismantle the reactor structures and equipment from INPP Unit 1 reactor shaft applying the developed technologies.

### **Scope of the first stage of UP01/R3 Project design preparation:**

- Task 1: Development and submittal of contract implementation methodology;
- Task 2: Optioneering and optimal solution.
- Task 3: Conceptual design and Gap Analysis development;
- Task 4: Environmental Impact Assessment Report (EIAR) development;
- Task 5: Support to INPP during coordinating Tasks 2, 3, 4 outputs with the regulatory bodies and financial stakeholders; during EIAR national approval and under Espoo convention.

### **Results to be achieved at the first stage of UP01/R3 Project design preparation:**

- Optioneering Report and Conceptual Design with detailed description of preferred technologies for structures and equipment dismantling and radioactive waste management of both INPP reactor shafts prepared and approved
- Environment Impact Assessment Report (EIAR) for R3 areas of both INPP units prepared and agreed by authorities



# Reactor core dismantling challenges

## R3 zone (2103 project)



### Scope of the second stage of UP01/R3 Project design preparation:

- Reactor D&D Technological Design development
- Reactor D&D SAR development
- RWS SAR development
- Design for Construction Works inside of Reactor Building
- Basic Design for RWS Facility development
- Specifications for Reactor D&D tools procurement
- Training and Knowledge Transfer

### Planned schedule of UP01/R3 Project design preparation (to be updated):

|  | 2019 |    |    |    | 2020 |    |    |    | 2021 |    |    |    | 2022 |    |    |    | 2023 |    |    |    |
|--|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|
|  | Q1   | Q2 | Q3 | Q4 | Q1   | Q2 | Q3 | Q4 | Q1   | Q2 | Q3 | Q4 | Q1   | Q2 | Q3 | Q4 | Q1   | Q2 | Q3 | Q4 |
| PIF/TS preparation and Tender on <b>R3D.01</b> work package announcement ( <b>2019Q2</b> )                       |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |
| <b>R3D.01</b> Tender performance, Proposals Evaluation and Contract signing ( <b>2019Q4</b> )                    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |
| D&D R3 U1,2 RWS Optioneering, Conceptual Design and EIAR development and approval ( <b>2022Q3</b> )              |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |
| PIF/TS preparation and Tender <b>R3D.02</b> work package announcement ( <b>2021Q3 – 2022Q4</b> )                 |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |
| <b>R3D.02</b> Tender performance, Proposals Evaluation and Contract signing ( <b>2022Q4 – 2023Q3</b> )           |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |
| <b>R3D.02</b> documents development based on preferred option and approval (date of completion – <b>2027Q3</b> ) |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |



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Decommissioning of Ignalina NPP is  
co-financed by the European Union