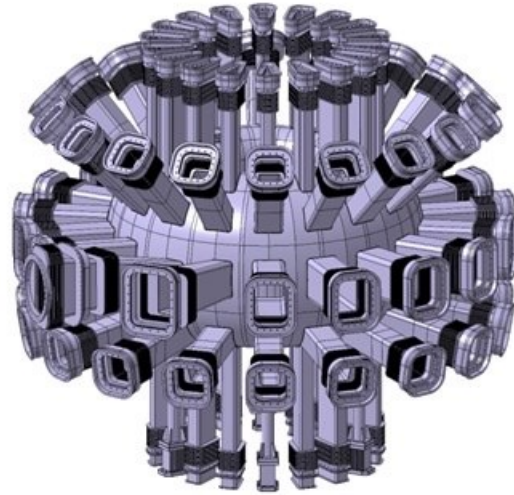


# Information Day on VACUM VESSEL PROCUREMENT



## DTT project: status and tender plans

**Aldo Pizzuto**

DTT Chief Engineer

Web event: 09/12/21 14.30 CET (via zoom)

The material and information contained in this presentation are provided for information only



# Outline



- DTT Scarl shareholders
  - DTT Organization
  - Status of the project
  - Contracts and Tenders
  - Concluding remarks
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## DTT S.c.a r.l. shareholders



The construction of DTT has been entrusted to a Consortium established on purpose

After its establishment (10 Oct 2019) by **ENEA** and **CREATE**, the following shareholders joined DTT:

- **ENI**, by February 2020
- **Consortium RFX, INFN, PoliTo, Uni Bicocca, Uni Tor Vergata, Uni Tuscia**, by March 2021

Furthermore, **CNR** is going to finalise its membership.

The main shareholders are ENEA (71%) and ENI (25%)

The investment cost is borne solely by ENEA.

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# Organization



The main DTT organization consists of:

- **Board of Directors**, President plus two members
- Four areas covering the following roles:
  - **Chief Engineer**: project design verification and validation
  - **Physics and Research Plan**: plasma scenarios and experimental program
  - **Project manager**: Execution of the construction integration, procurement and commissioning of the project, including HSEQ functions
  - **CEO**: Administration and Finance
- Four Technical divisions (tree deal with work packages –WP- and the system integration), all belonging to PM
  - **WP-Hall**, in charge of the realization of the Tokamak and all the systems and component belonging to the experimental Hall, including Dia and RH;
  - **WP-Heating and Current Drive**, in charge of the realization of the three additional heating systems (NNBI, ECH, ICH)
  - **WP-BoP**, in charge of the design and construction of the Auxiliary Systems, Buildings, Electric Power Distribution
  - **System Integration**, in charge of the project integration, project requirements and operation

Each division is articulated in a number of Technical Units

**The team consists of about 40 person belonging to DTT and 150 at disposal from shareholders**

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## Status of the project

Even though the project activities are suffering the constraints due to the pandemic, the progress of the project can be considered fairly satisfactory, with the understanding that improvements are necessary to keep the schedule

The design of the main systems and components are progressed and the remaining activities to complete the design addressed with the involvement of the shareholders, few examples:

- TF and PF Magnet system design complete, CS in progress
- Vacuum Vessel almost complete
- Plasma facing components, cryostat and thermal shield design are progressing,
- Power Supplies systems (including SNU's and FDU's) done
- Lay out of the Hall and the BoP very advanced, including EDS
- CODAS architecture defined
- Feasibility design of the Building completed
- Water cooling plant defined at P&ID level

The main design basis and components are undergoing to an external verification to confirm their validity. These processes implied a slight delay in the



## Status of the project

The main scientific basis and component design either have been or are undergoing to an external verification to confirm their validity.

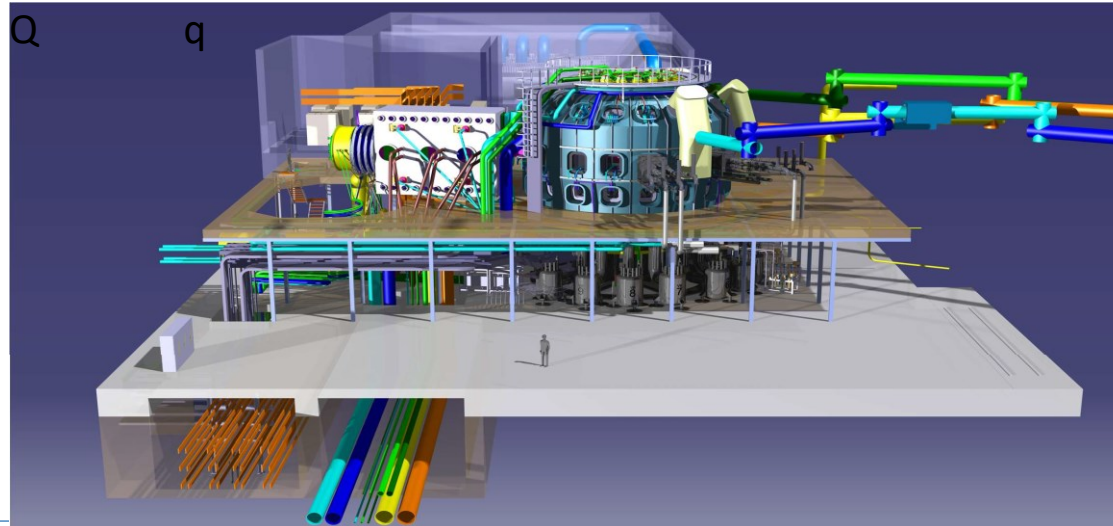
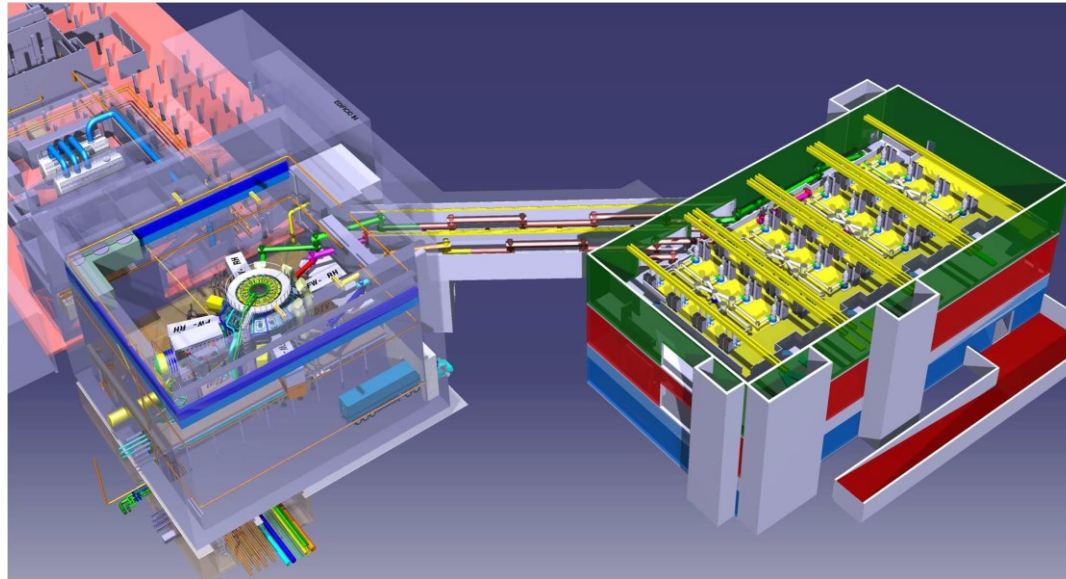
In particular:

- Power supply distribution
- Plasma scenarios
- Magnet system
- Vacuum Vessel

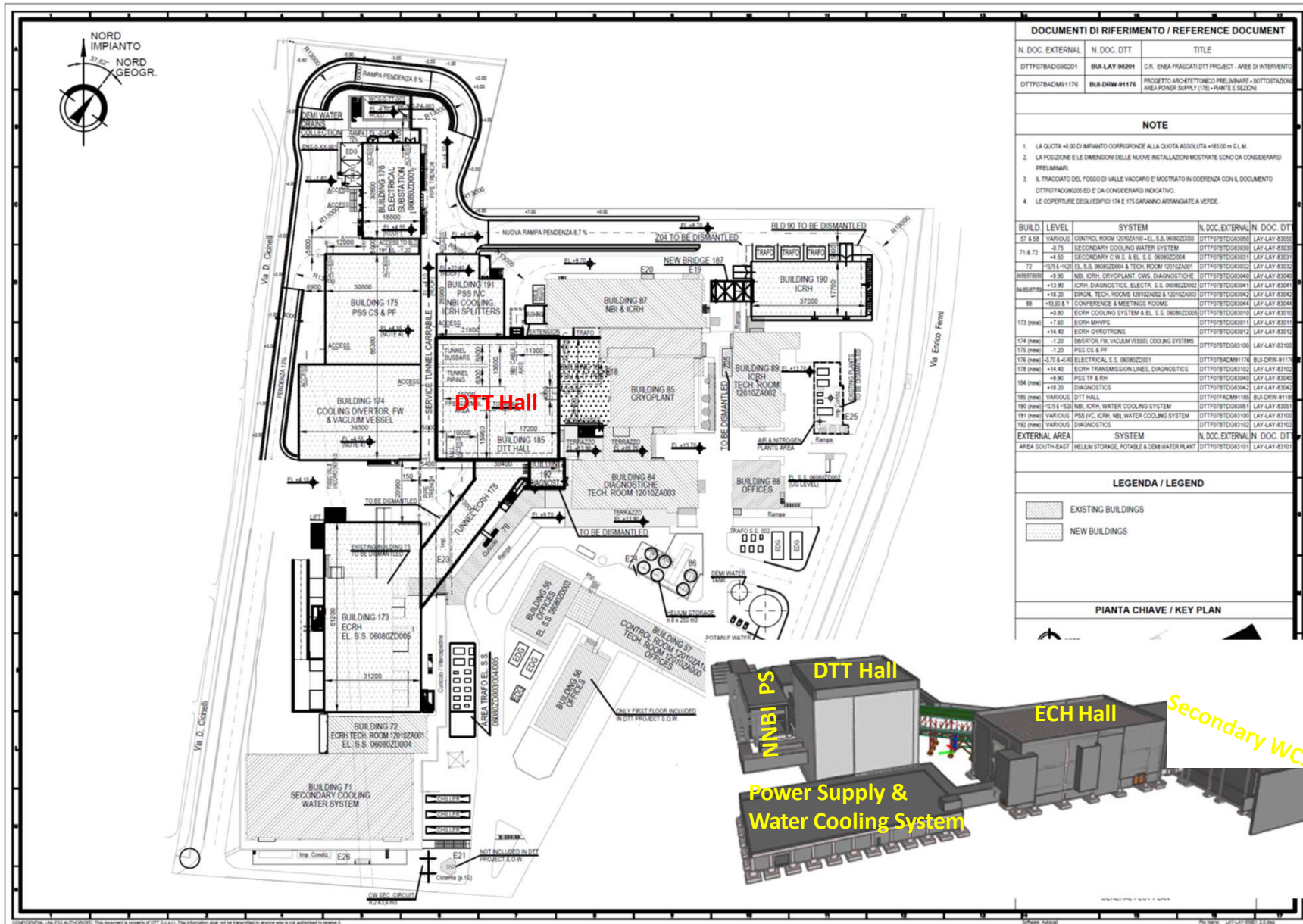
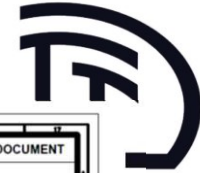
These assessment, considered very important also in view of risk reduction, caused a slight delay in the procurement procedures.

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# Status of the project: Tokamak and ECH Halls



# Status of the project: Buildings





# Contracts and Tenders



Contracts awarded:

- Strands and copper wires, four lots:
  - Nb<sub>3</sub>Sn for TF Coils
  - Nb<sub>3</sub>Sn for CS and PF1/ PF6 coils
  - NbTi for 4 PF Coils
  - Copper, Cr and Ni plated for Nb<sub>3</sub>Sn and NbTi cables respectively
- Eighteen Toroidal Field Coils Modules
- Casings for the Toroidal modules
- Superconductor Cables for all the magnets
- TFC power supply

Tender ongoing, expected to be awarded this year):

- Sixteen 170 GHz Gyrotron ( Call launched jointly with F4E)
- Framework contract for engineering services
- Fast Discharge Units for TFC

**Total commitment: about € 170 million**

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## Contracts and Tenders cont'd



Major Tenders to be launched

- by I semester 2022:
    - Power supply for Central Solenoid and Poloidal field coils
    - Poloidal Field Coils
    - Vacuum vessel
    - Buildings First Lot (DTT Hall and ECH Buildings)
  - by II semester 2022:
    - Cryostat
    - Thermal Shield
    - Water cooling system
    - ECH Power Supply
    - ECH RFLoad
    - Central Solenoid
-

## Concluding remarks



DTT is quite on track, pandemic constraints notwithstanding

In 2021 important project milestones have been accomplished: completion of the design of the long term items; awarding process of important contracts (Gyrotron, PS); preparation of tender for buildings, vacuum vessel, poloidal coils and other crucial system and components

The financial commitment amounts to about 1/3 of the total budget so far and will exceed substantially 50% by middle 2022

We rely on an effective and productive interaction with the industry in order to reduce the risks of the project both from technical and planning standpoints

For updates please refer to our website

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<https://www.dtt-project.it/>