Eni’s activities in fusion

Magnetic Fusion Initiatives

September 2023

Eni in brief

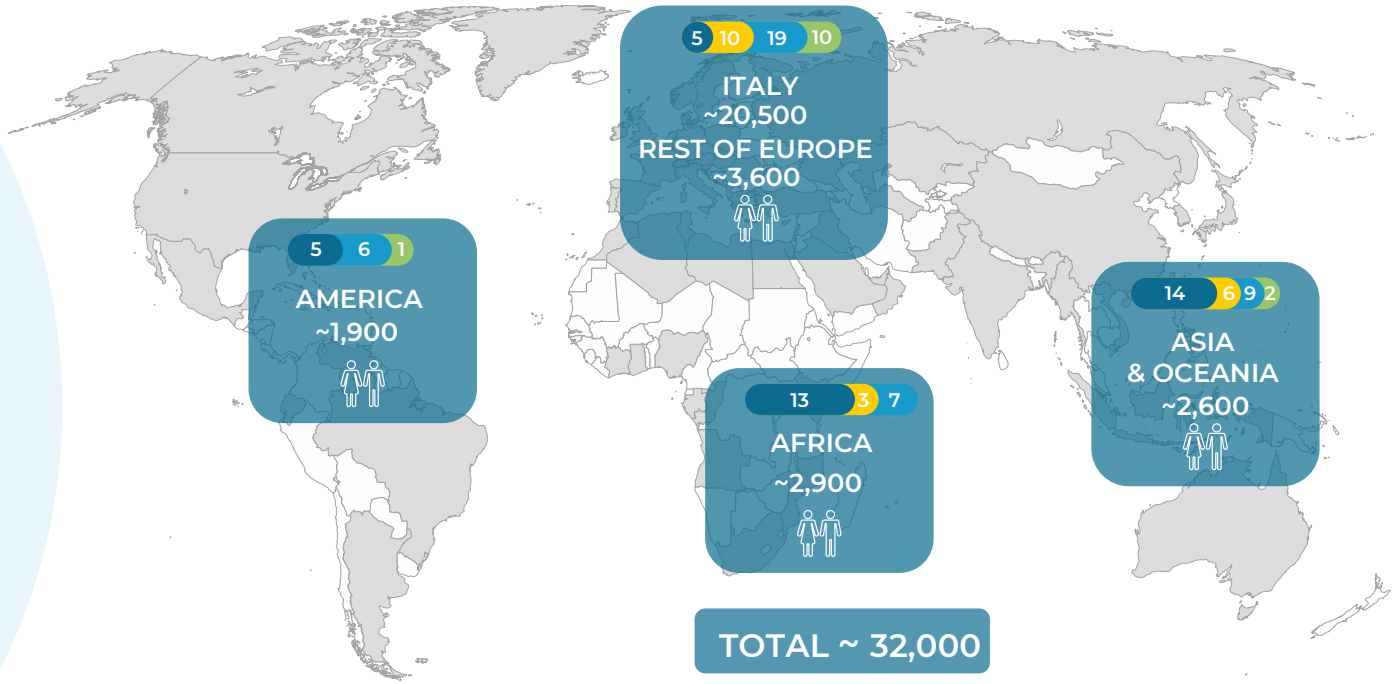
Eni's Mission & Global Presence

We are an energy company.

We concretely support a just energy transition, with the objective of preserving our planet and promoting an efficient and sustainable access to energy for all.

Our work is based on passion and innovation, on our unique strength and skills, on the equal dignity of each person, recognising diversity as a key value for human development, on the responsibility, integrity and transparency of our actions.

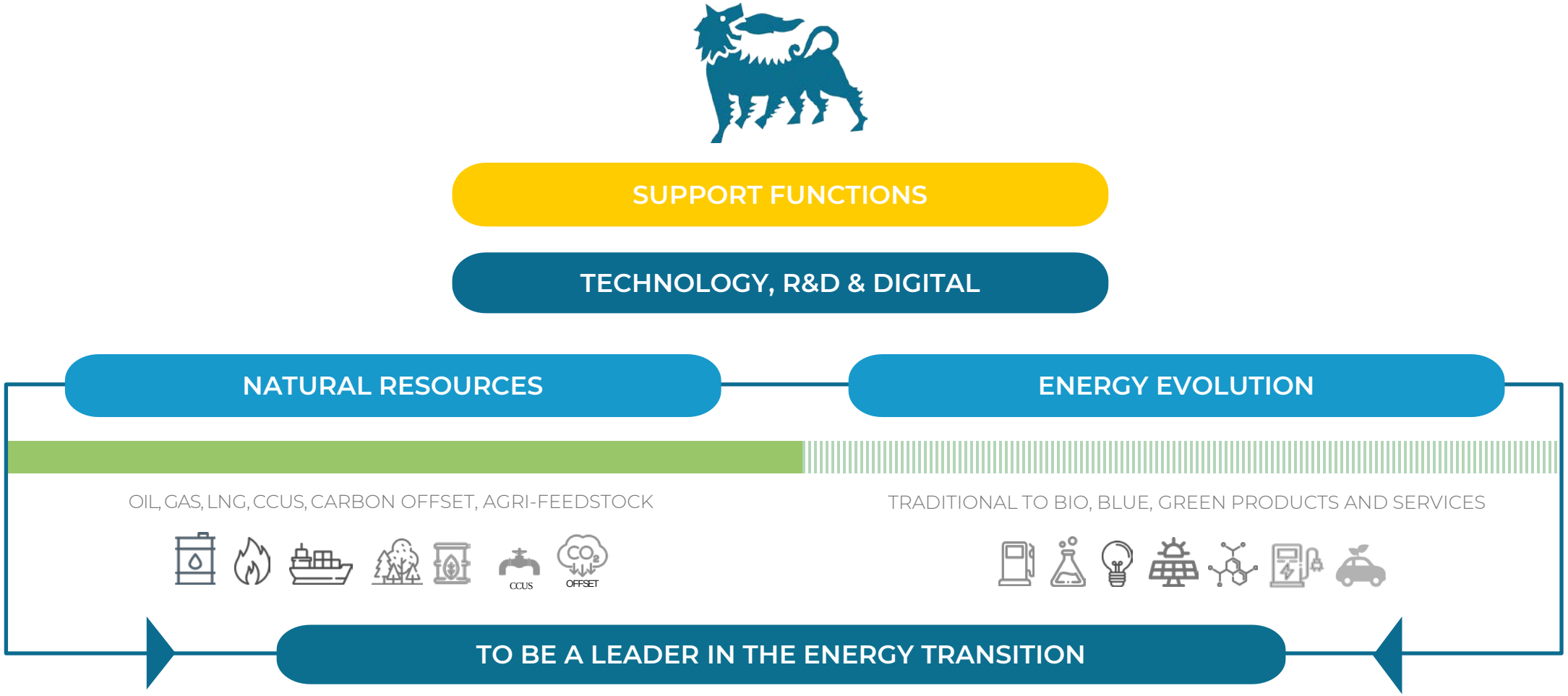
We believe in the value of long term partnerships with the countries and communities where we operate bringing long-lasting prosperity for all.



BUSINESSES AROUND THE WORLD

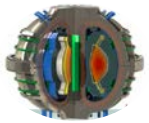
13	PLENITUDE & POWER
37	EXPLORATION & PRODUCTION
19	GLOBAL GAS & LNG PORTFOLIO
41	REFINING & MARKETING AND CHEMICAL (VERSALIS)

Eni’s organizational structure



Three pillars for fusion energy development in Eni

1 CFS / MIT



Commonwealth Fusion Systems

From SPARC to ARC:

Roadmap to industrial application

MIT

Eni & MIT activated LIFT projects: R&D to accelerate and de-risk ARC roadmap

OBJECTIVE:
REALIZATION OF ARC to deliver CONTINUOUS ELECTRICITY PRODUCTION (Q>>1)

2 DTT

Eni joined ENEA in DTT (Divertor Tokamak Test Facility) Scarl, contributing to the project with Eni project engineering approach in a Fusion plant development.

OBJECTIVE:
CONSTRUCTION & OPERATION OF DTT, a facility for studying the POWER EXHAUST MANAGEMENT.

3 Collaborations with Research Centres & Universities

Collaborations with several fusion specific research centres

Joint Research Centre Eni-CNR - Goals:

- Basic Research
- Advanced Modelling
- Development of skills at local level through the activation of research grants and PhDs

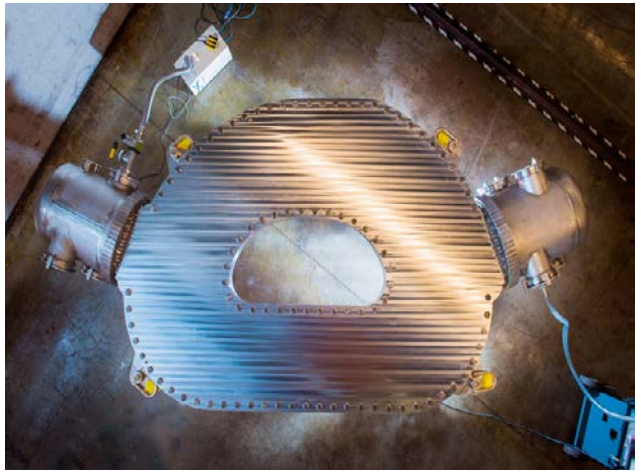
OBJECTIVE:
FUSION ENERGY KNOW-HOW DEVELOPMENT

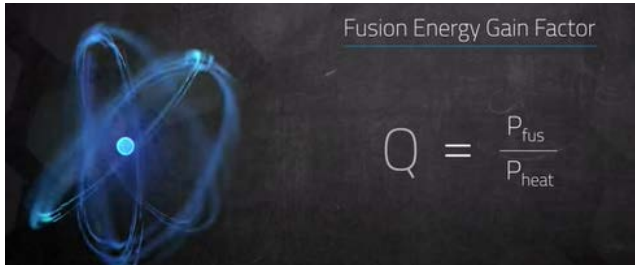
1 Eni/CFS Roadmap

Eni endorsed MIT approach: innovative technologies - known physics

2018	Eni investment in CFS → **3 phase fast-track approach** to the **first commercial compact high field tokamak** ✓
2021	**Phase 1**: 20T HTS magnetic field reached ✓
2025	**Phase 2**: SPARC First experimental tokamak for technology demonstration Q > 1
Early 30s	**Phase 3**: ARC first demonstration fusion power plant

Eni was among the first movers in the Energy Industry





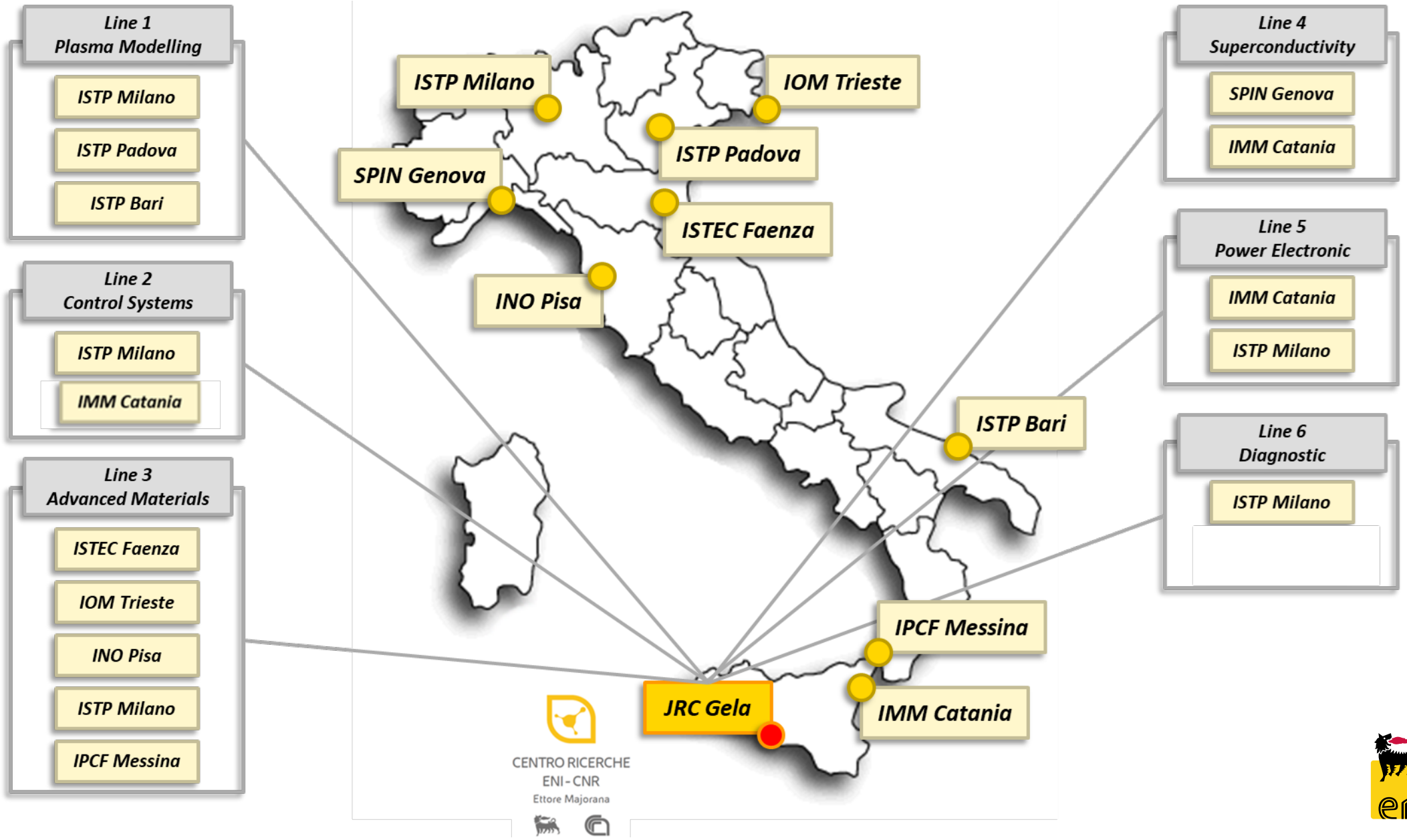
HTS magnet

20 Tesla!

Credits: CFS/MIT-PSFC (2021)

Roadmap to ARC: Eni & Divertor Tokamak Test Facility

ENI-CNR JRA and JRC “Ettore Majorana” on Magnetic Fusion

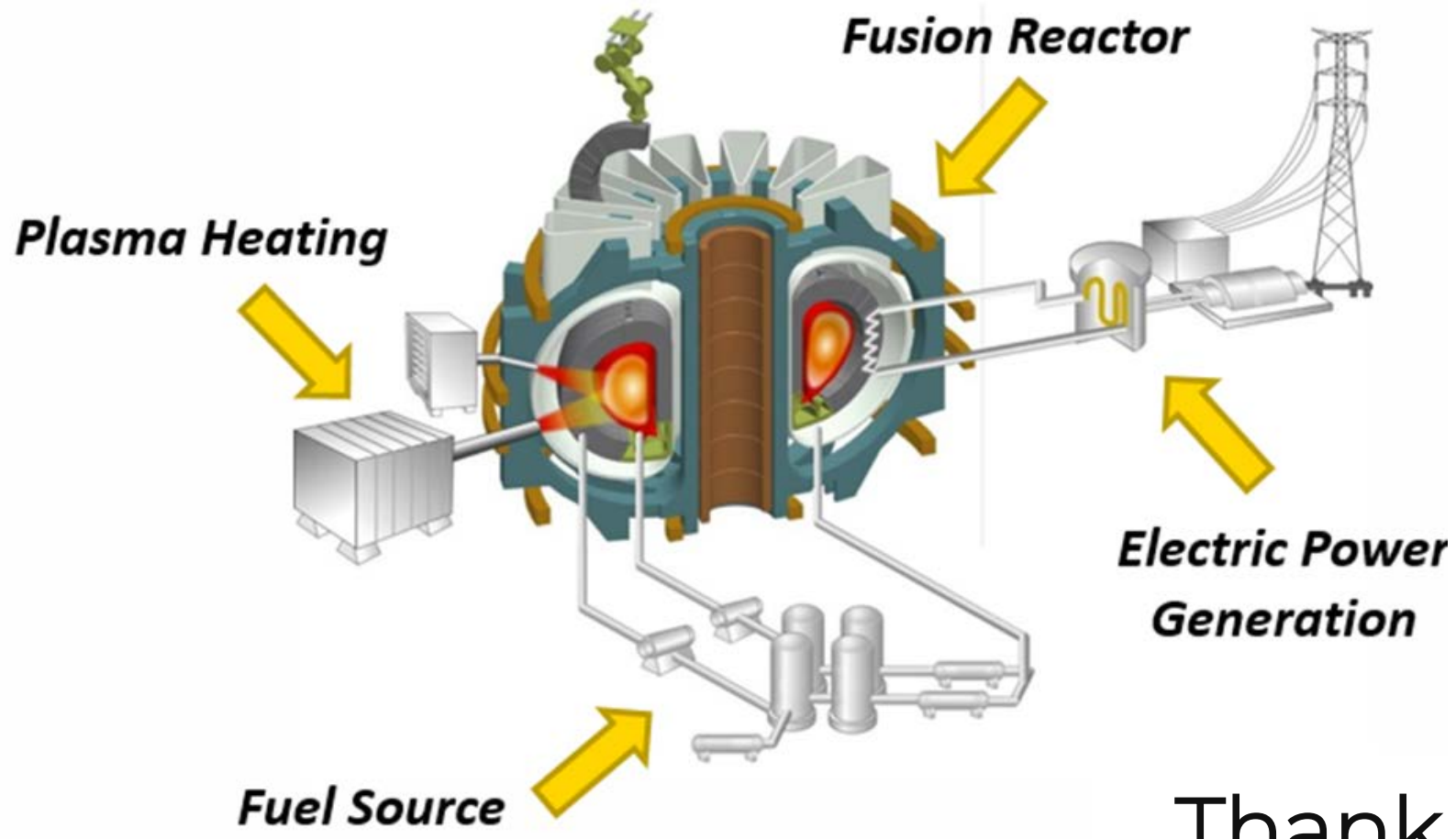


Summary and conclusions

- A number of new initiatives, from the public but also the private sector, are accelerating the development of fusion energy
- Ambitions are to demonstrate commercial viability in the early years 2030
- Technology and science records have been in the press in the last 18 months

- Challenges: technology, supply chain, regulatory system, PEOPLE

Connecting fusion to the grid



Thank you!

Thank You