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FusionCAT Community Final Event

FusionCAT as a driving project of the fusion community at national level

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November 17, 2022

Outline

- What is FusionCAT?
- How is it unique?
- What made it possible?
- Its role and impact at the national level
 - Vision
 - Fields of specialization
 - Key technologies
 - Main assets
- What opportunities is it opening?



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What is FusionCAT?

FusionCAT is a collaborative R&D Project,
2019-2022

Funded by Generalitat de Catalunya



Co-financed by European Union through
European Regional Development Fund



Coordinated by BSC



7 institutions in FusionCAT



How is FusionCAT unique?

FusionCAT brings together research institutions at local level in order to

- Establish an active **fusion community** in Catalonia that involves leading research institutions, universities and industrial partners.
- Establish **technology transfer** from the partner institutions **to industry**
- Further **develop industrial competences** in Catalonia for the realization of fusion energy
- **Transfer relevant know-how**



FusionCAT kick-off meeting, January 2020

What made FusionCAT possible?

Vandellós / Tarragona candidature as **ITER** site

Establishment of **F4E** in Barcelona in **2008**

- Research institutions in Catalonia interested in contributing to fusion R&D
- Discussions and meetings at various levels, under IREC coordination

2018: RIS3CAT Emerging Sector Programme of Catalan government, fusion as one of the 9 emerging sectors

7 partner institutions put forward a proposal for the project FusionCAT

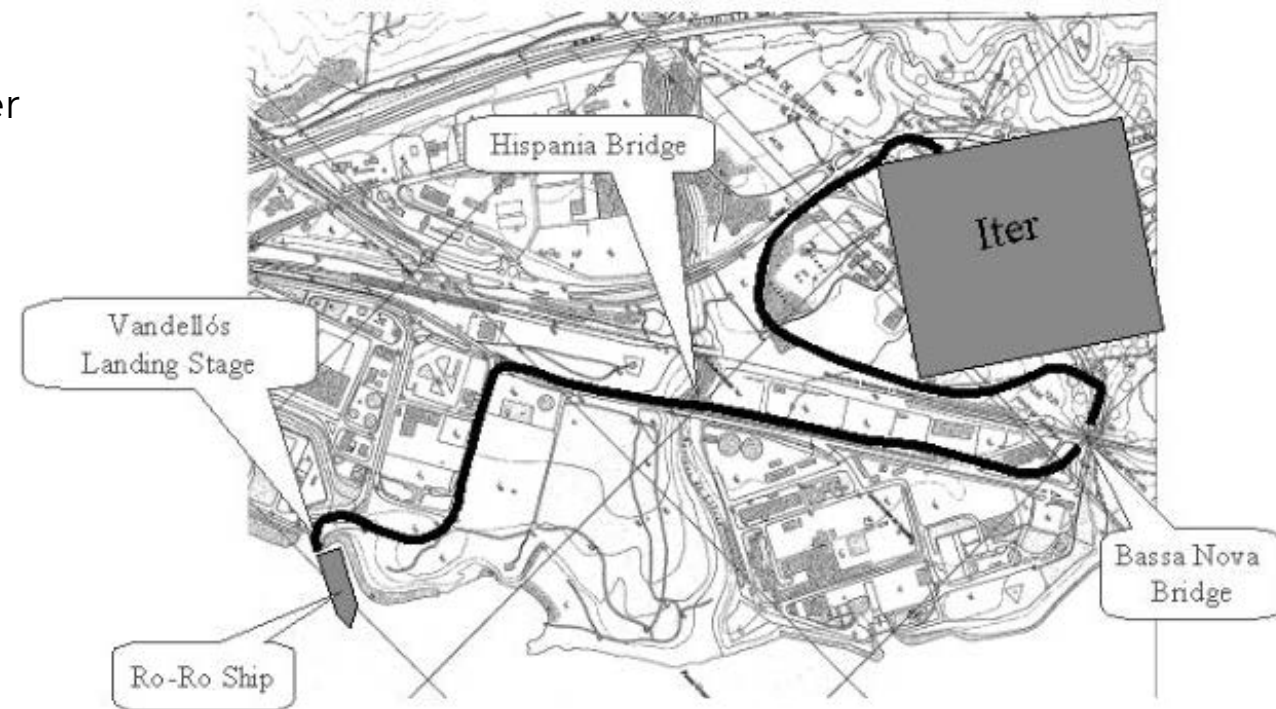
- BSC took the responsibility of leading the proposal (IREC leading RIS3CAT Energy Comunitat)

FusionCAT funding decision Dec. **2019**



RIS3CAT

Time



Alejaldre et al, SOFE2003

Diagram of the transportation route at the Vandellòs ITER site. Total length is around 2 km.

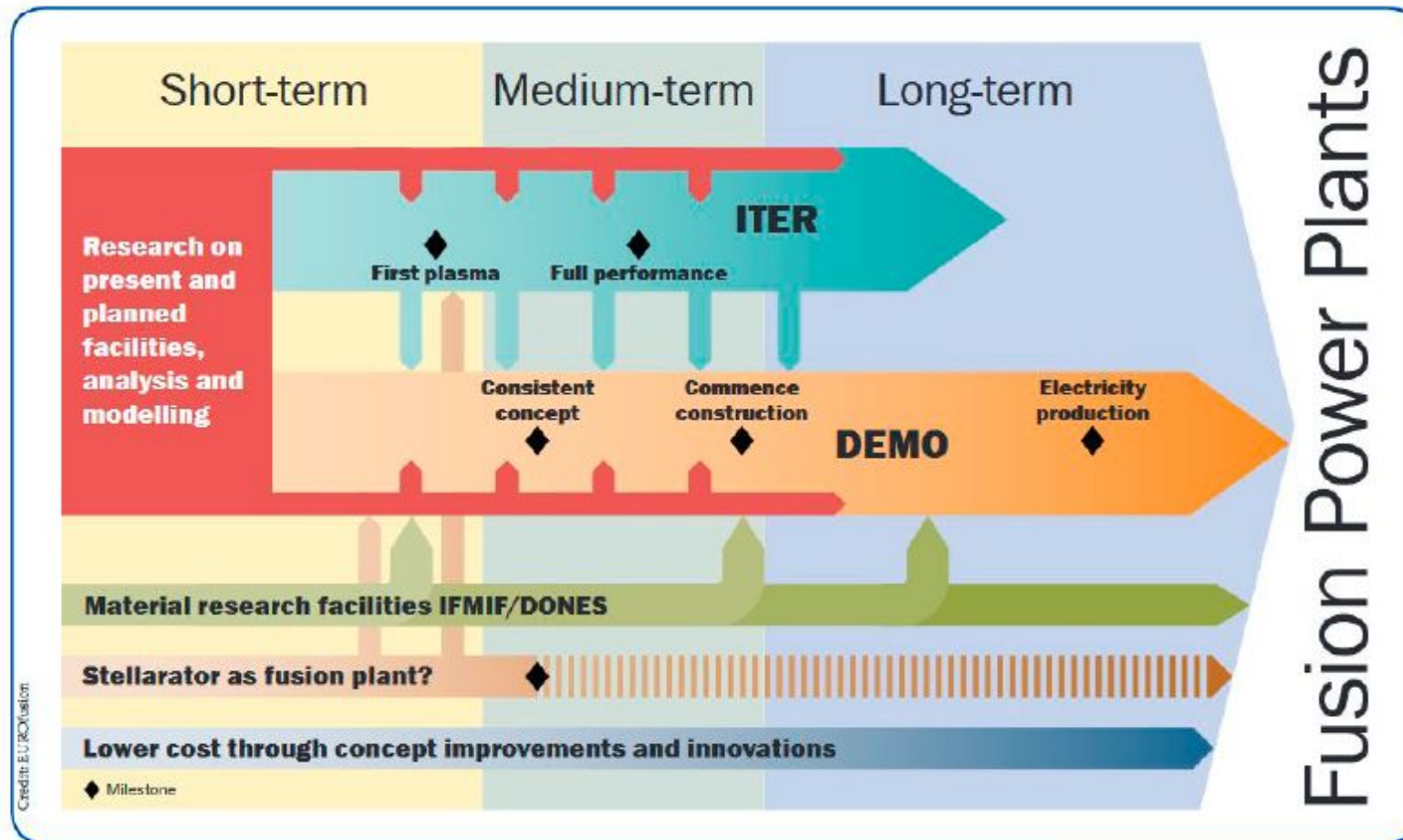


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FusionCAT shares the overall vision with the European Fusion Roadmap



Source: EUROfusion

FusionCAT fields of specialization

Focus where the partners have well-established and internationally acknowledged expertise:

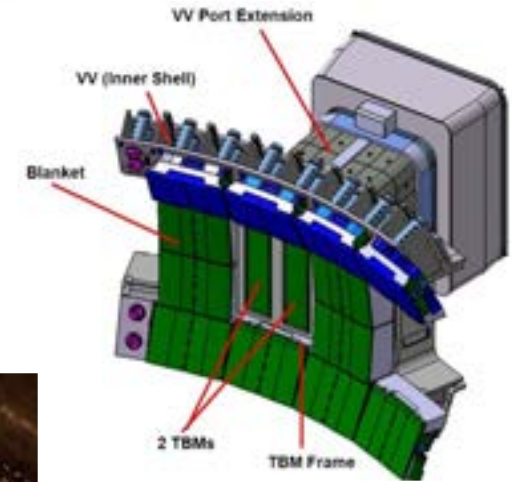
- Numerical modelling, analysis and design of fusion reactor components and processes
- Fusion reactor software development (including high performance computing) and validation
- Diagnostic methods and instrumentation in the field of tritium technologies

FusionCAT key technologies

- Tritium technologies
- High temperature superconducting magnets
- Fusion reactor materials

FusionCAT main assets

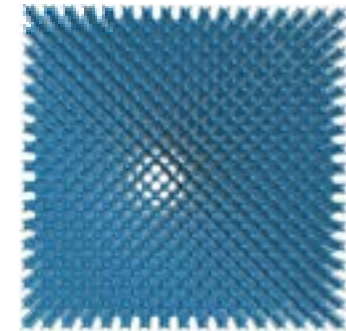
- Skills and know-how
- New diagnostic and material fabrication techniques
- New and unique fusion modelling software
- New tools for integrated modelling
- Software licenses available as source code or remote access service licenses



Source:ITER



Source: Commonwealth Fusion Systems



More details in the roundtables and posters

What opportunities is FusionCAT opening?

Potentially interested parties:

- Companies
- Agencies
- Researchers
- Students

Potential exploitation channels:

- Provision of support and training related to numerical modelling
- Software extension/customization
- Research projects
- Collaboration with companies and academia.

Aiming to:

- Help interested parties become more technically competitive in future calls and bids in fusion (by EU fusion research programme, DEMO Design Activities, ITER, etc).
- Create plans for future joint activities between institutions and interested industrial partners.

Today's meeting is very important for us in this respect.





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Thank you for coming
We wish everyone a productive meeting!



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