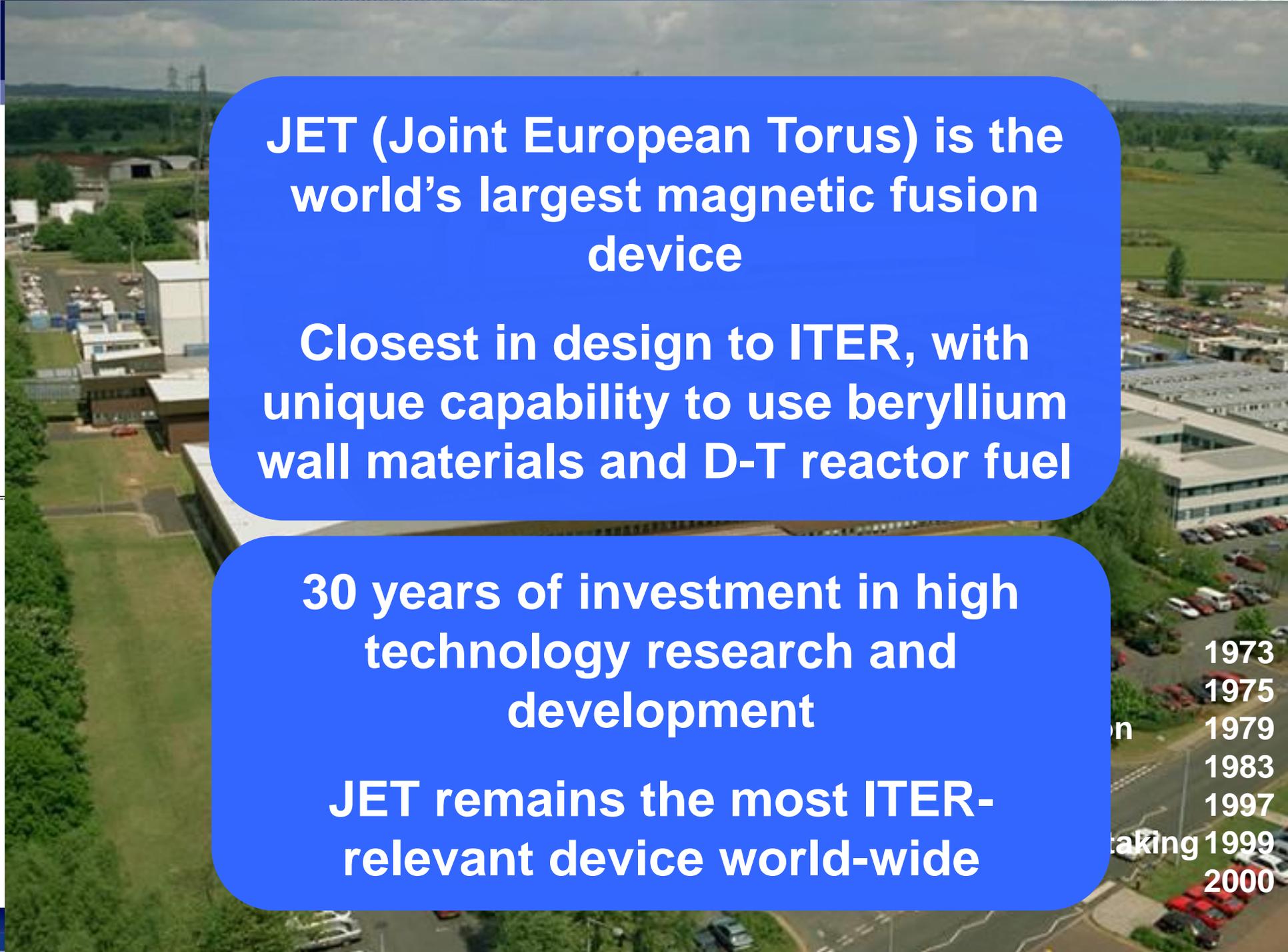


# JET: the European Fusion Device



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**JET (Joint European Torus) is the world's largest magnetic fusion device**

**Closest in design to ITER, with unique capability to use beryllium wall materials and D-T reactor fuel**

**30 years of investment in high technology research and development**

**JET remains the most ITER-relevant device world-wide**

1973

1975

1979

1983

1997

taking 1999

2000

## European Fusion Programme conducted under EURATOM Treaty

### European Commission

- Euratom is represented by European Commission which is also responsible for overall management of fusion programme, including funding

### Joint Undertaking for ITER and the Development of Fusion Energy, so-called “Fusion for Energy” (F4E) (located in Barcelona, Spain)

- Euratom Domestic Agency for ITER and Implementing Agency for “Broader Approach” projects

### Euratom Fusion Associations

- 26 “Contracts of Association” (CoA) between Euratom and laboratories of EU Member States (plus Switzerland) → R&D performed in these laboratories

### EFDA (European Fusion Development Agreement)

(located in Garching, Germany and Culham, UK)

- Multi-lateral framework **partnership agreement** among all **Associates** and Euratom, to co-ordinate physics and emerging technology research activities, **exploit collectively JET Facilities** and promote training and career development of researchers

Euratom - Belgian State  
(Brussels)

Euratom - HAS

**26 Associates have  
Contracts of Association with EC,  
consolidated under the umbrella of the  
European Fusion Development Agreement  
One level of EFDA membership: Associates  
EFDA Associates use JET Facilities collectively**

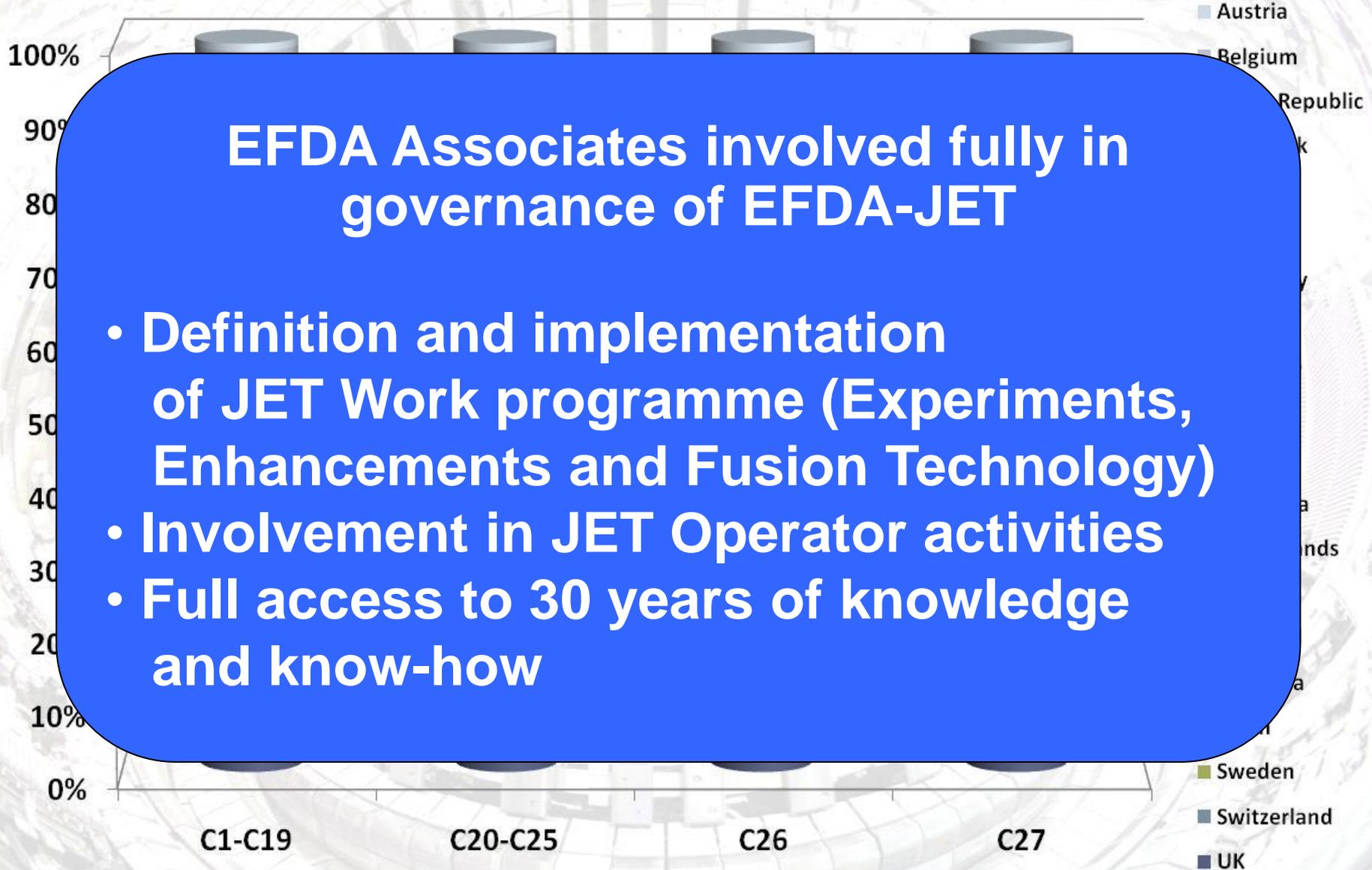
EUROPEAN FUSION DEVELOPMENT AGREEMENT  
(Frascati) - (Milan) - (Padua)



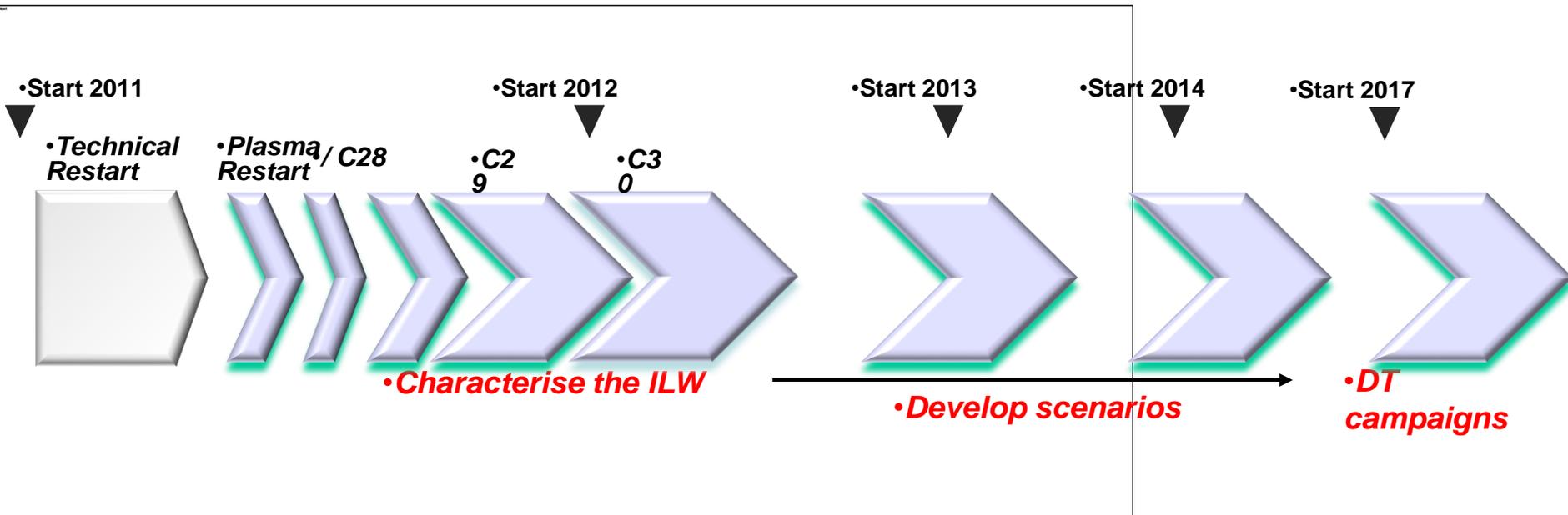
Euratom - OAW

### **Third-Party (non-EU MS) involvement in EFDA-JET:**

- Switzerland (1979), Japan (1988), U.S. DOE (2001), *Ukraine* (2002), Russia (2002), *Kazakhstan* (2004), Republic of Korea (2006), *India* (2009), Brazil (2009)
- Negotiations with China are ongoing



- **Phase 1: 2013-2014** (deuterium operation)  
*“Full characterisation of the ITER-like Wall”*
- **Phase 2: 2015-2016** (deuterium operation)  
*“Expansion of ITER regimes of operation”*
- **Phase 3: 2017**  
*“Deuterium-tritium Campaigns”*



- European fusion programme focuses on ITER
- JET is best machine to prepare for ITER joint exploitation, conducting highly ITER-relevant experiments and training international scientific teams from all ITER Members, thereby facilitating the start-up of ITER
- JET has a 5 year perspective, with programmatic basis to 2017 (exploitation agreed to continue to 2014 (and possibly beyond) but funding basis has yet to be established)

**JET's experience in this area is of direct relevance to ITER which is being constructed at Cadarache, France**