Moving from Construction to Operations: Continued Business Opportunities with the European Spallation Source

PRESENTED BY KEVIN JONES, TECHNICAL DIRECTOR

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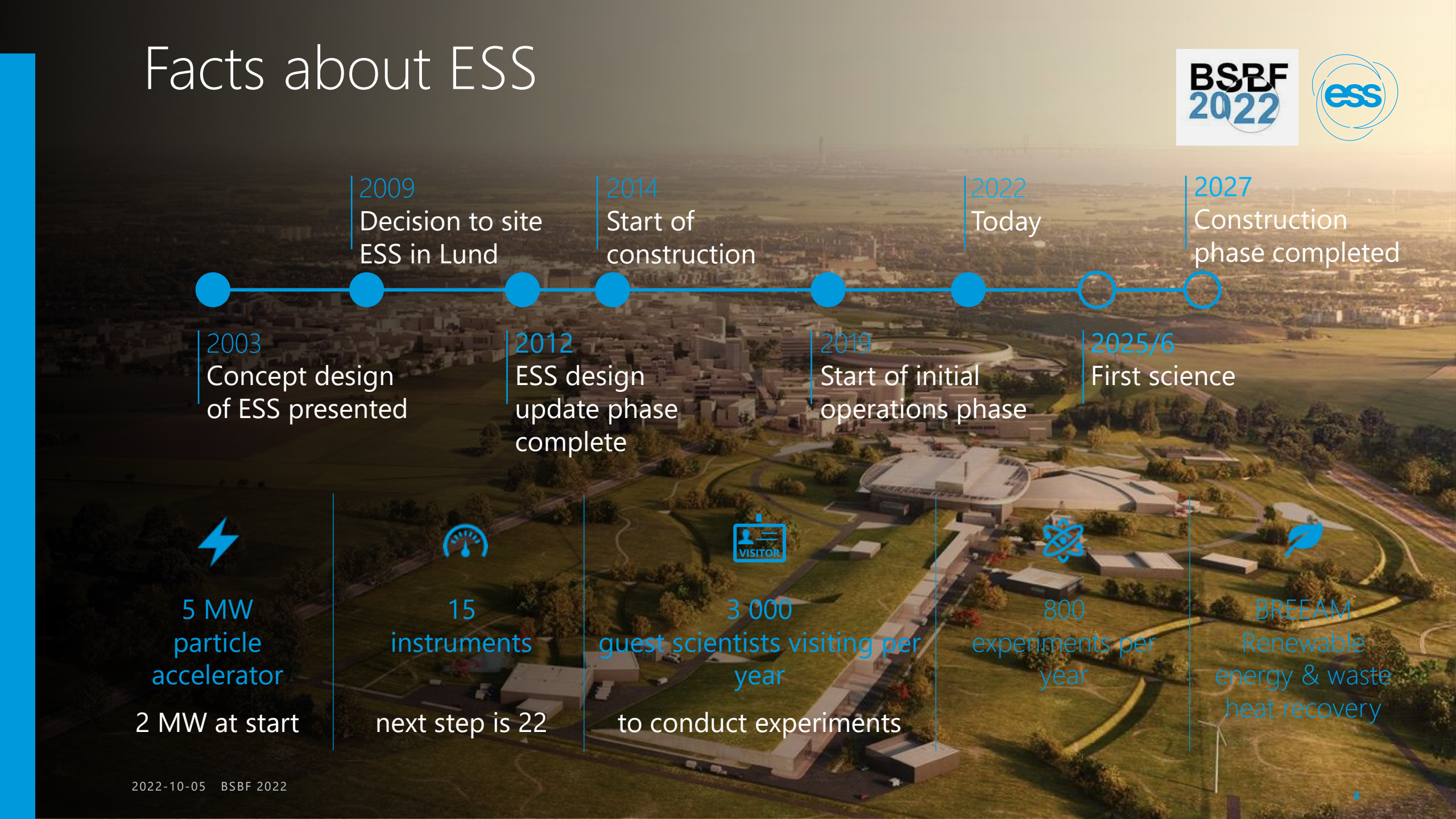
European Spallation Source ERIC

The ESS will enable scientific breakthroughs in materials research related to energy, health, the environment, industry, manufacturing and the natural world to address some of the most important societal challenges of our time

Meeting the challenges of the future

Facts about ESS



2003
Concept design of ESS presented

2009
Decision to site ESS in Lund

2012
ESS design update phase complete

2014
Start of construction

2019
Start of initial operations phase

2022
Today

2025/6
First science

2027
Construction phase completed

5 MW particle accelerator

2 MW at start

15 instruments

next step is 22

3 000 guest scientists visiting per year

to conduct experiments

800 experiments per year

BREEAM Renewable energy & waste heat recovery

A coalition of 13 European countries with almost 100 in-kind partners

Host countries

Sweden, Denmark

Construction
47.5%

Operations
15%

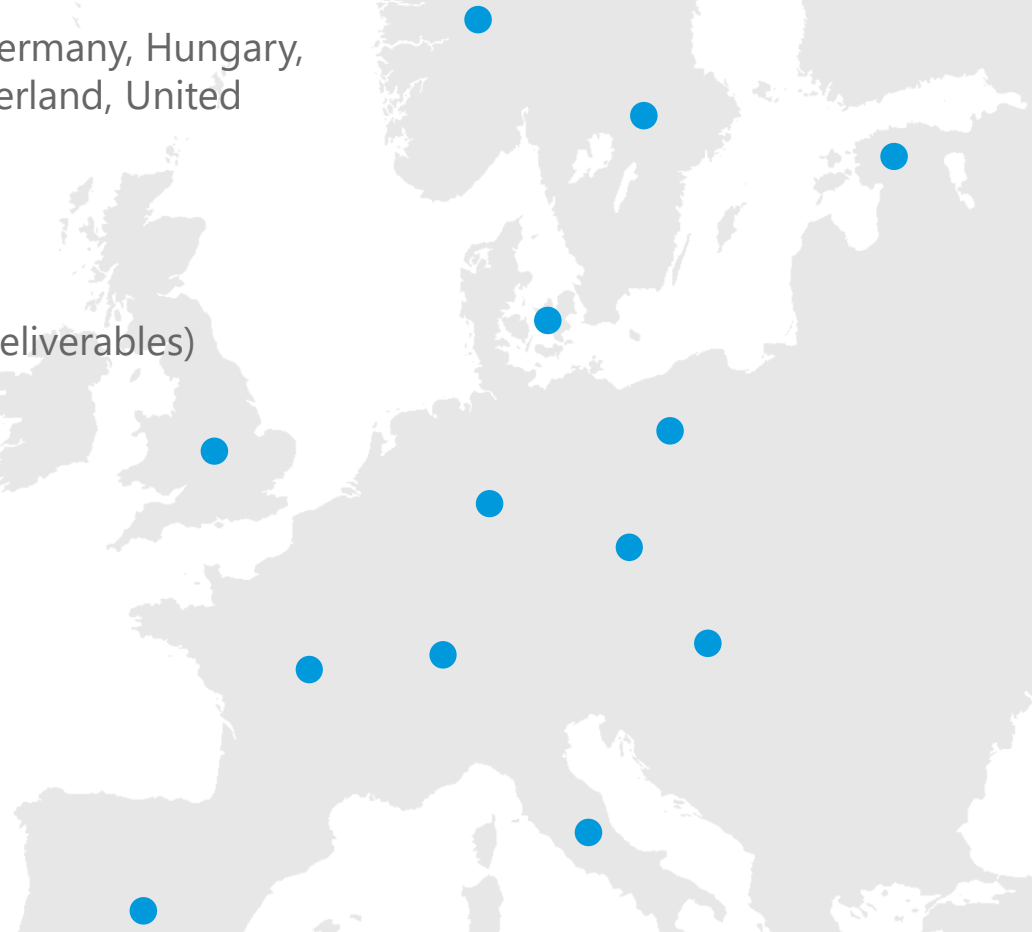
Base budget for construction
€1.84 B_{2013}
Estimated annual operating budget €140 M_{2013}

Non host member countries

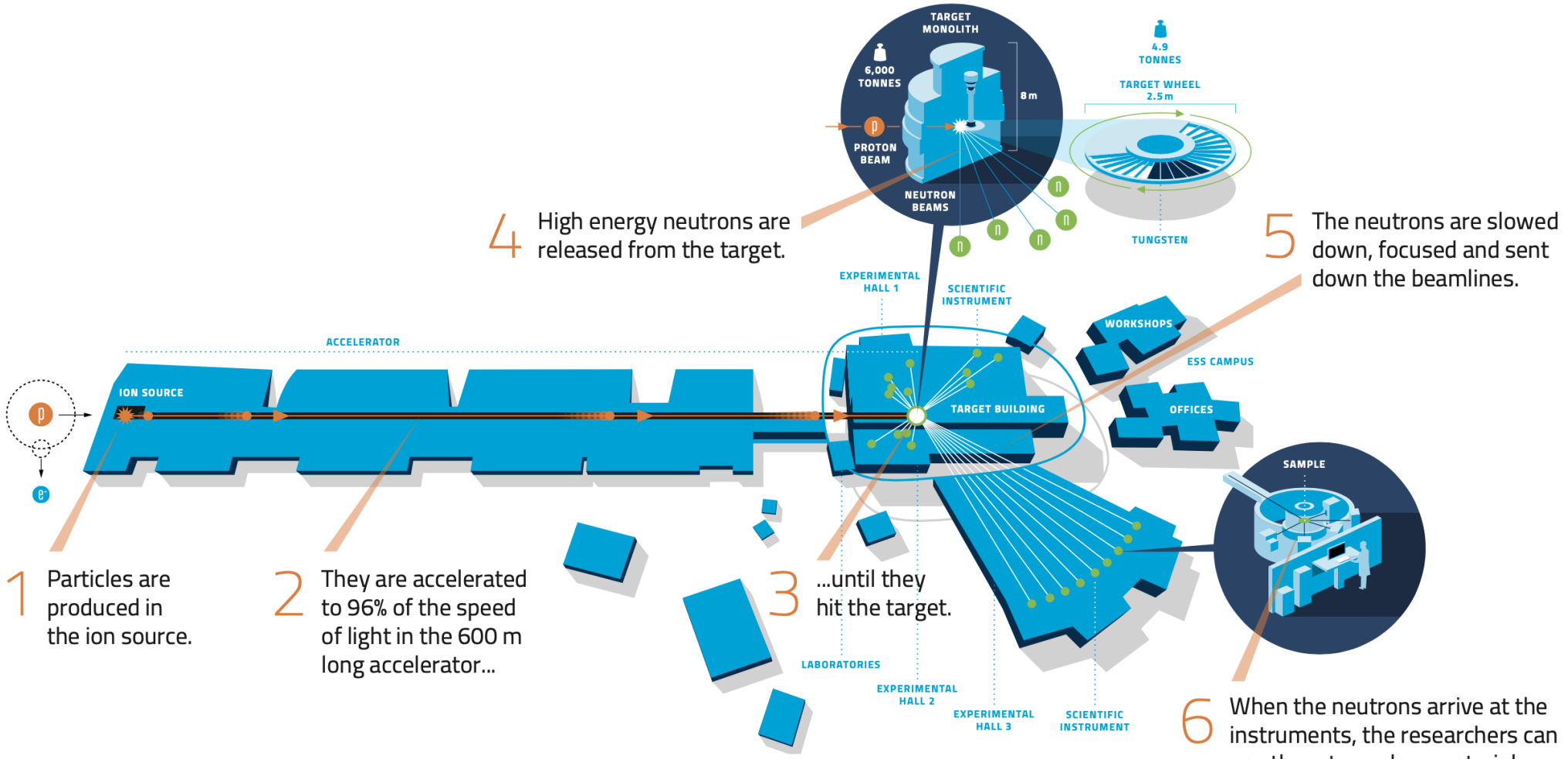
Czech Republic, Estonia, France, Germany, Hungary, Italy, Norway, Poland, Spain, Switzerland, United Kingdom

Construction
52.5%
(of which 70% is in-kind deliverables)

Operations
85%

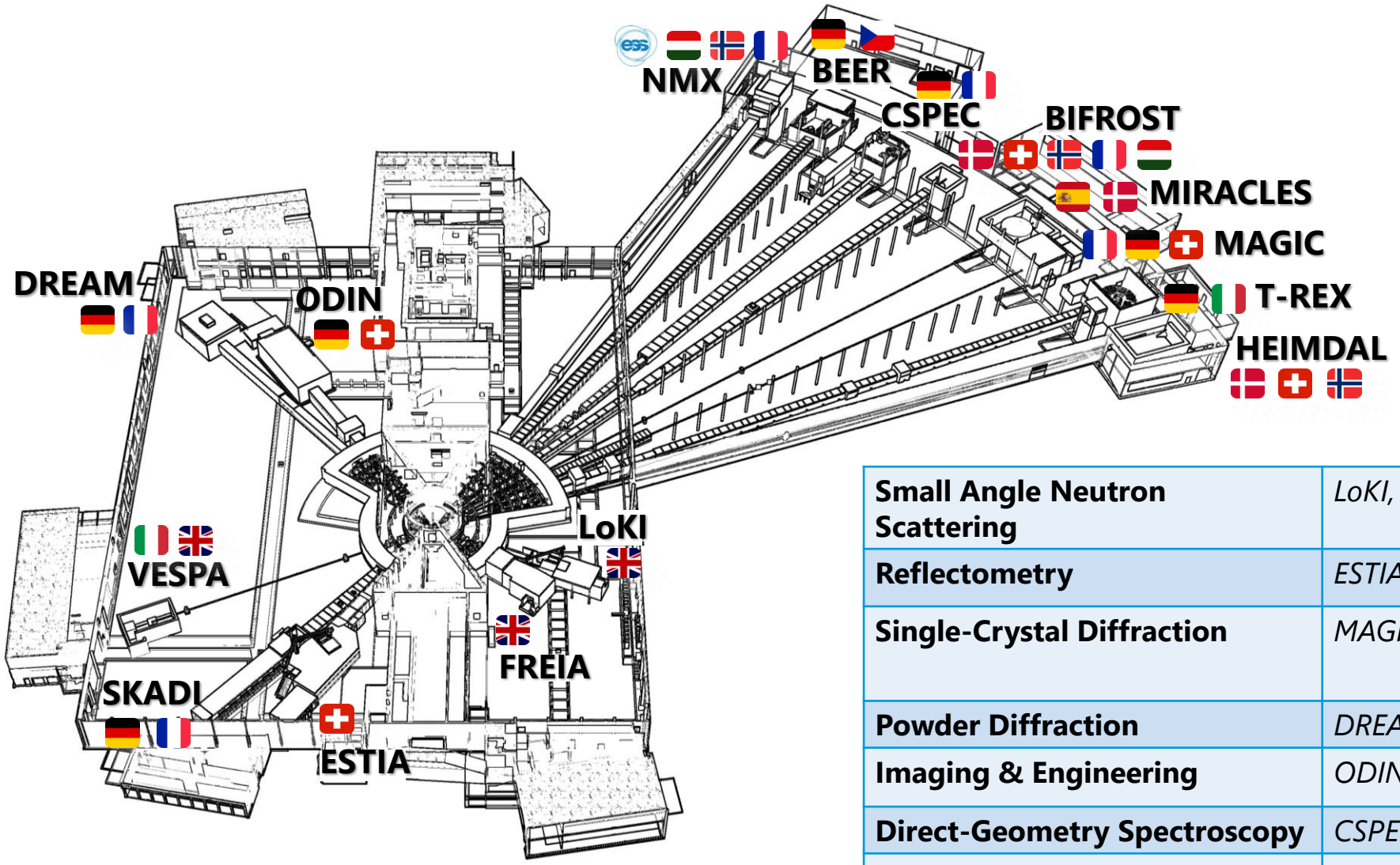


The ESS Technology



The ESS Instrument Suite

15 instruments under construction



Each instrument designed to be world-leading at 2MW

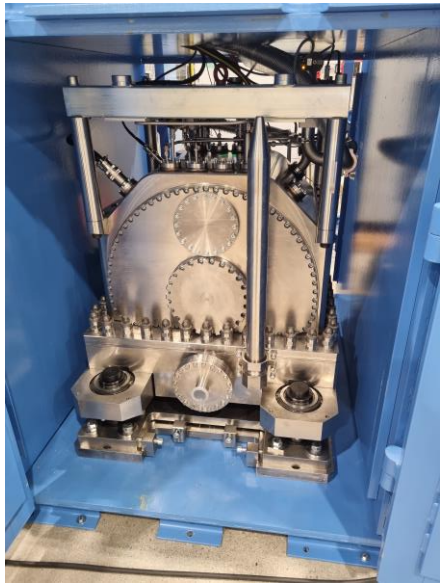
Small Angle Neutron Scattering	*LoKI, SKADI*
Reflectometry	*ESTIA, FREIA*
Single-Crystal Diffraction	*MAGIC, NMX*
Powder Diffraction	*DREAM, HEIMDAL*
Imaging & Engineering	*ODIN, BEER*
Direct-Geometry Spectroscopy	*CSPEC, T-REX*
Indirect-Geometry Spectroscopy	*BIFROST, MIRACLES, VESPA*

ESS construction status

- Civil construction is complete
- Delivery, installation, testing and commissioning of technical systems is well underway
- Accelerator and target systems, supported by integrated instrumentation and controls, will be ready for beam on target in early 2025
- Approximately 5-8 of the first 15 instruments will be ready for first neutrons at the same time, supported by the Data Management and Software Centre in Copenhagen
- Project completion is currently planned for Q4 of 2027

Prospects for the future

- The ESS has a well-established system for industrial partnership and interaction both directly and through in-kind institutions
- There are Industrial Liaison Officers established in each of the member states that facilitate interactions between in-kind institutions and the ESS
- These interactions are managed through the ESS Supply, Procurement and Logistics Division
- There will remain substantial opportunities to complete the capability for 5 MW, as well as develop the final tranche of 7 neutron scattering instruments



EUROPEAN SPALLATION SOURCE