



EUROPEAN
SPALLATION
SOURCE



Danmarks Tekniske Universitet

brightne



The European Spallation Source

*Allen Weeks, Head of Communications, External Relations and In-kind
October 2017*

Neutron science



Energy

Environment
and climate

Medicine
and health

Electronics and IT

Manufacturing
and industry

Natural world

Heritage science



Hydrogen-fuelled
society

Sub-zero survival

Disease resistant crops

Tackling chemical waste in the
pharmaceutical industry

Tracking cholesterol

Super
superconductors

Enhanced oil recovery

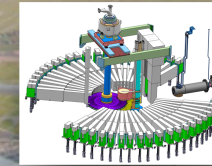
Infection sensors

Stress relief in the air

Flexible plastic
solar cells

ESS High level design

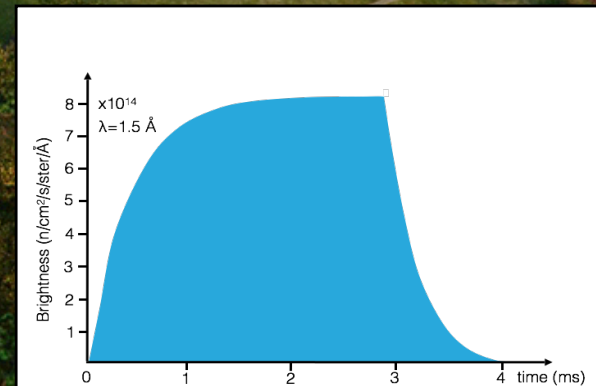
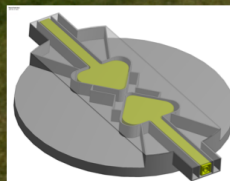
World Leading High
Power
(%MW Accelerator
means more
neutrons



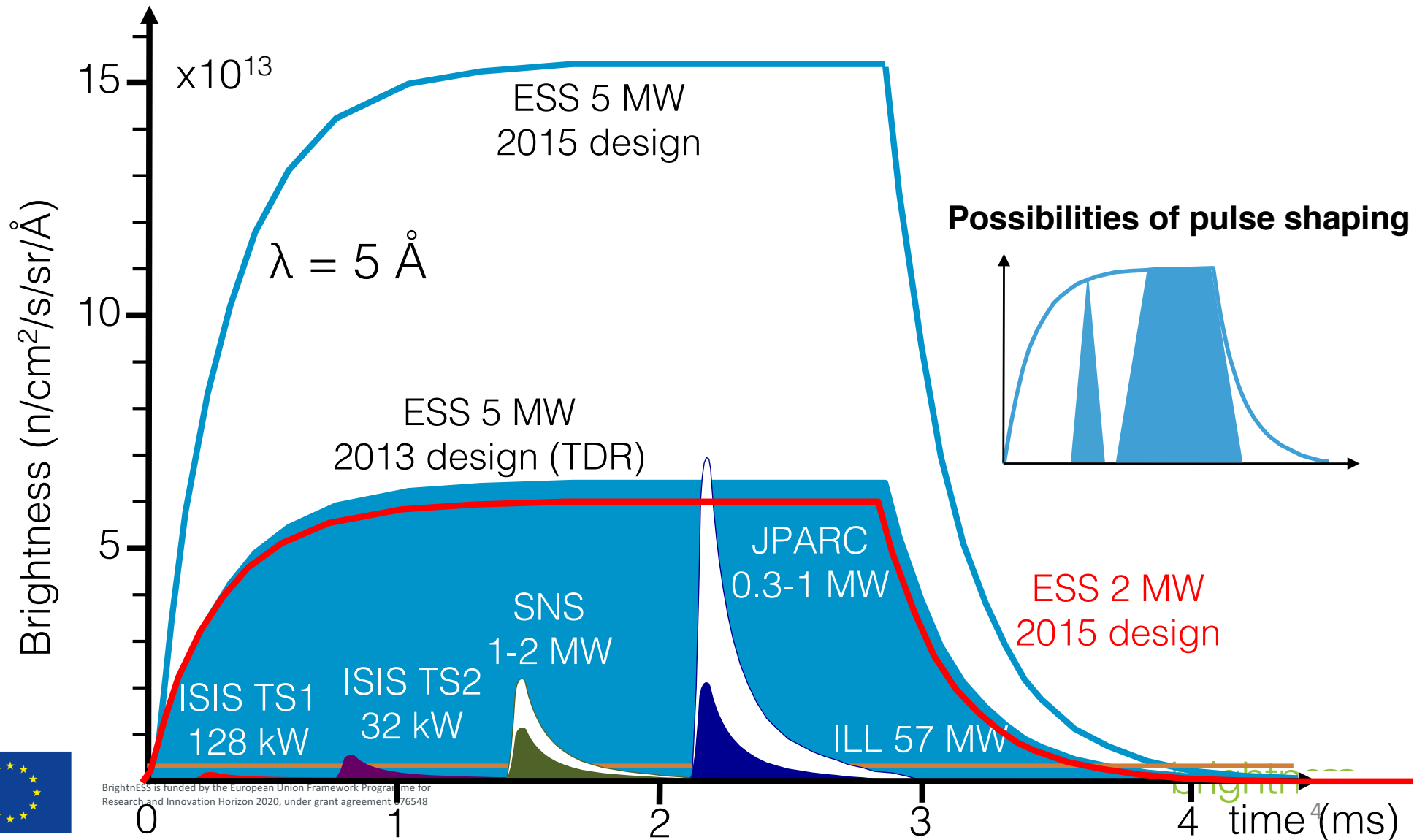
An Innovative Target Station that
can host >30 instruments

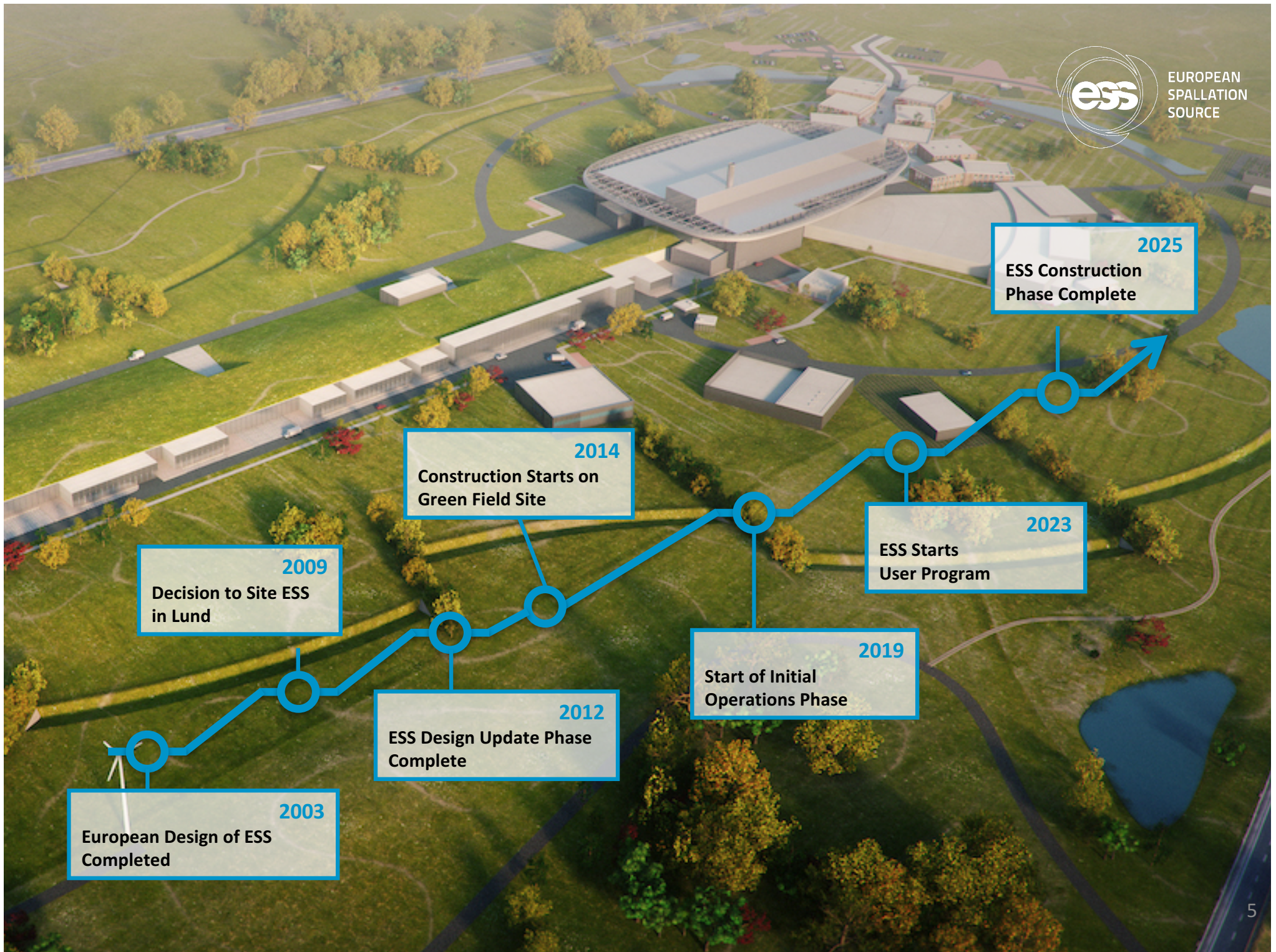
High brightness and tuneable resolution makes new
measurements possible

moderator delivering smaller and
brighter neutron beams



Long-pulse performance





2003
European Design of ESS
Completed

2009
Decision to Site ESS
in Lund

2012
ESS Design Update Phase
Complete

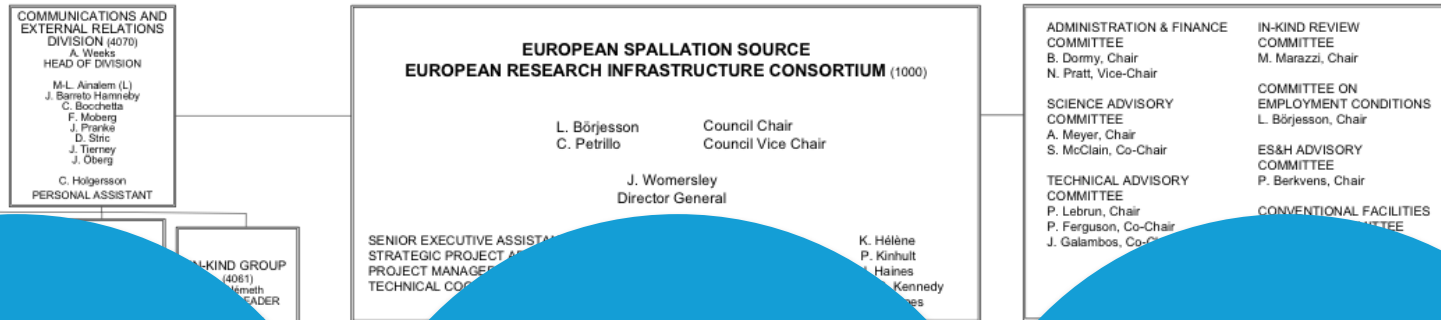
2014
Construction Starts on
Green Field Site

2019
Start of Initial
Operations Phase

2023
ESS Starts
User Program

2025
ESS Construction
Phase Complete

Organisation and People



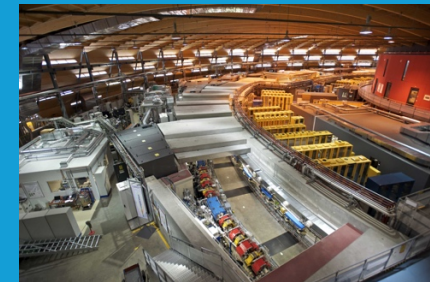
409
Employees



48
Nationalities



~ 100
Collaborating Institutions



BrightnESS is funded
Research and innova

Framework
er grant ag

Financing includes cash and deliverables



The European Spallation Source ERIC established in 2015

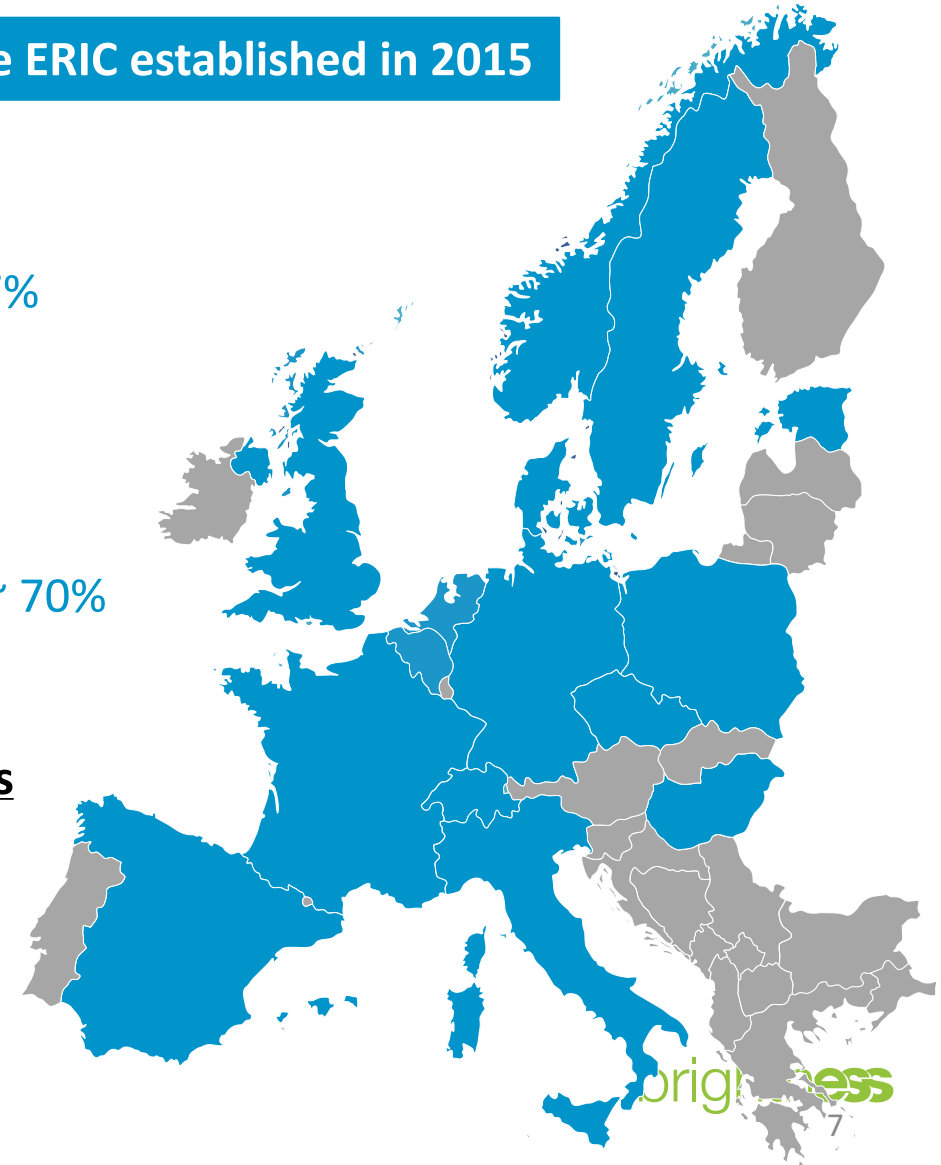
Host Countries Sweden and Denmark

Construction 47.5% Cash Investment ~ 97%
Operations 15%

Non Host Member Countries

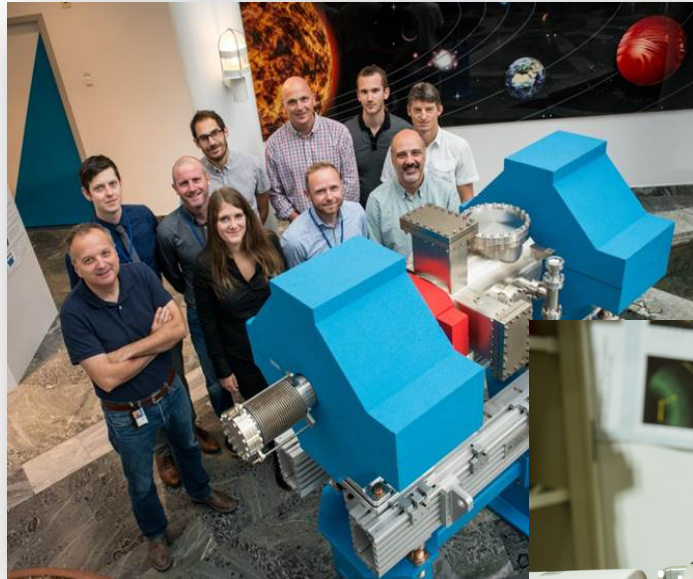
Construction 52.5% In-kind Deliverables ~ 70%
Operations 85%

15 European Member and Observer Countries



ESS is funded by the European Union through the Horizon 2020 Research and Innovation programme, under grant agreement 676548

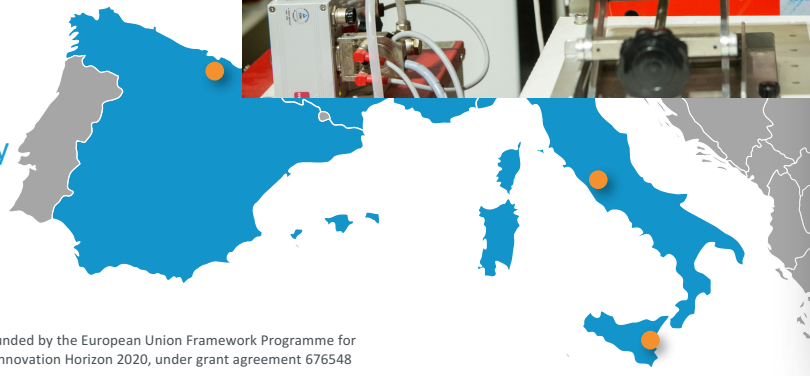
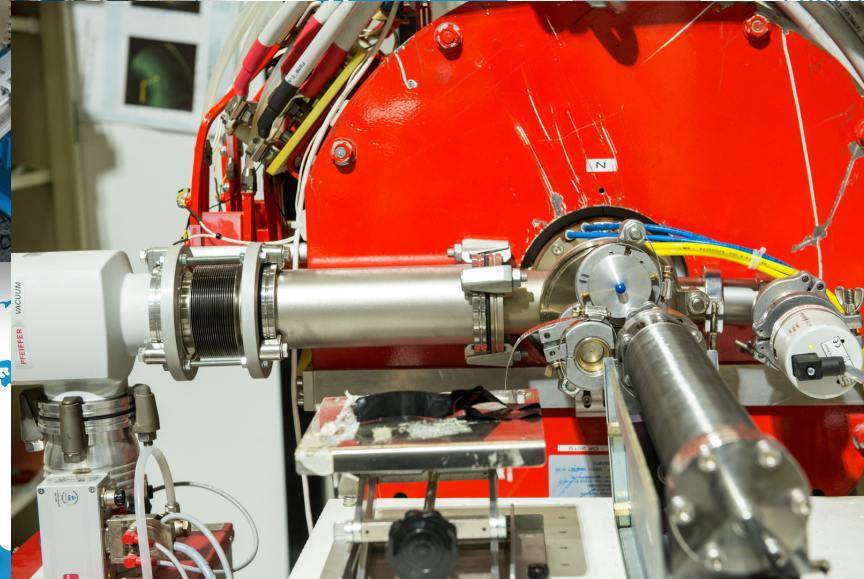
ESS In-kind Partners



Forschungszentrum Jülich
Helmholtz-Zentrum Geesthacht
Huddersfield University
IFJ PAN, Krakow
INFN, Catania
INFN, Legnaro
INFN, Milan
Institute for Energy
Research (IFE)



ISIS - Rutherford-Appleton Laboratory, Oxford
Laboratoire Léon Brillouin (LLB)
Lund University
Nuclear Physics Institute of the ASCR
Oslo University
Paul Scherrer Institute (PSI)
University of Groningen
Electronic Group (PEG)
RWTH Aachen University
Technical University
of Denmark (DTU)
Technical University of Munich (TUM)

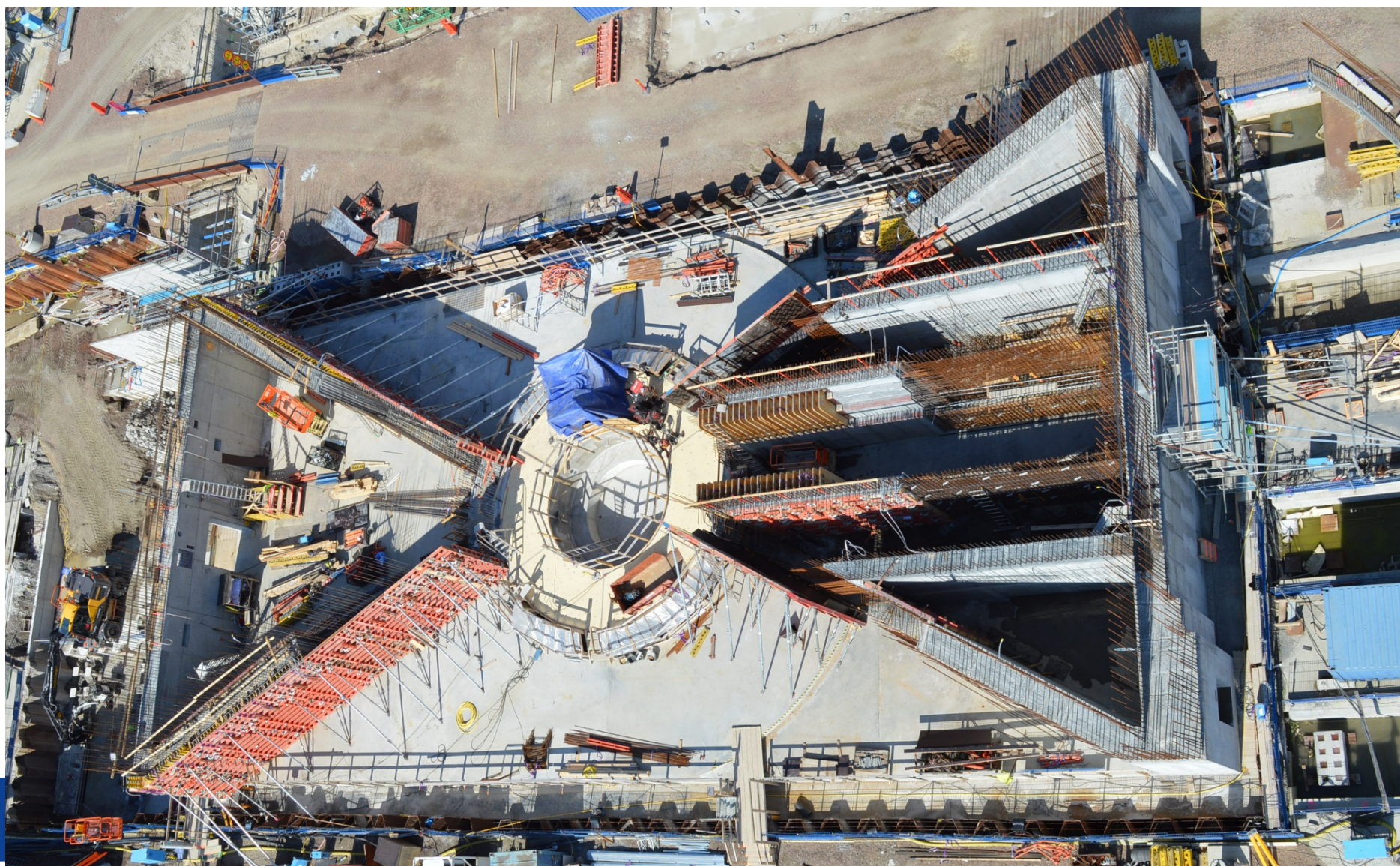


September 2017

ESS is 40% Complete at this point ...



Monolith, August 2017



Monolith



Active Cells



Active Cells



E-buildings, August 2017



**E01 Superstructure
14 September 2017**



D01, base slab for Exp. Hall 1



D01 First bottom slab casting 12 September 2017



Buildings

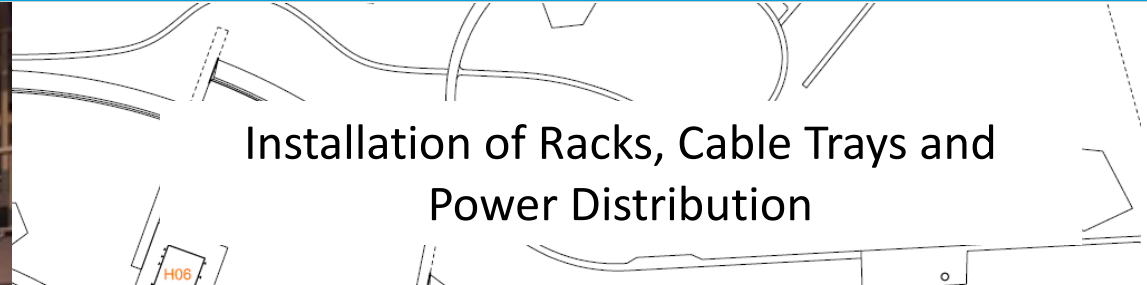


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Green Roof, G02



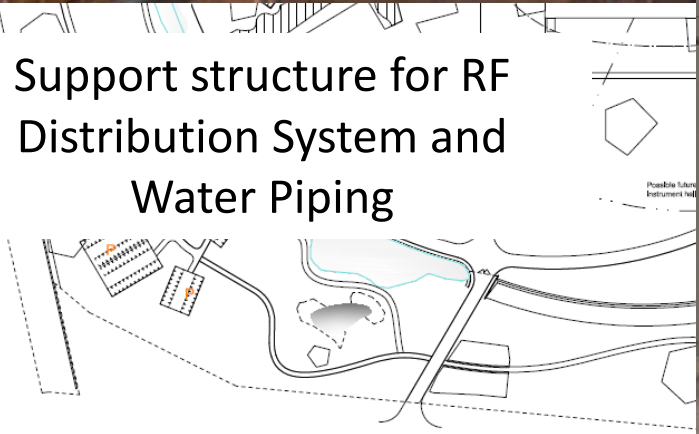
Progress on RF Test Stand 2 in G02



Installation of Racks, Cable Trays and Power Distribution



Support structure for RF Distribution System and Water Piping



Helium Systems in G04



ACCP compressors and oil removal system

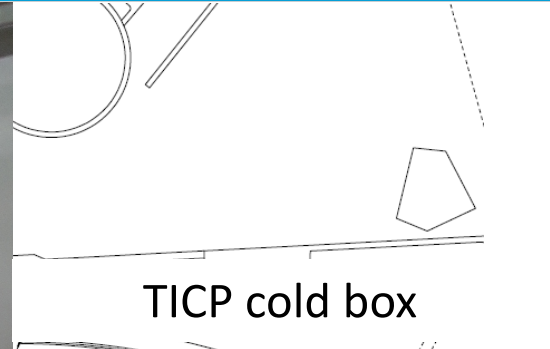


Helium Recovery System
Compressors

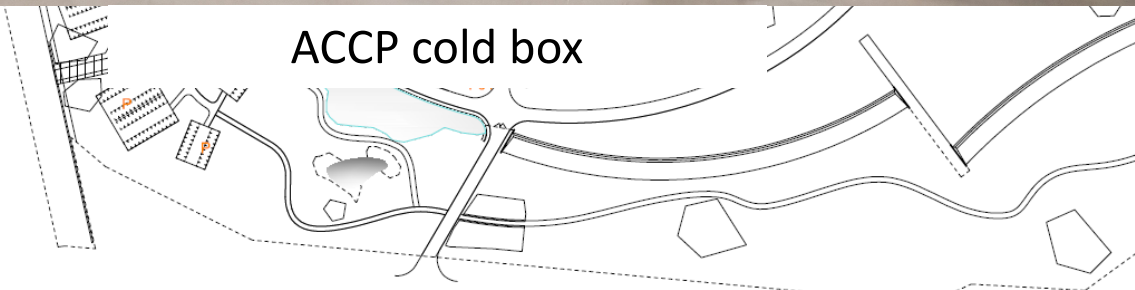
Cold Boxes in G02



TICP cold box



ACCP cold box



Control Room Room



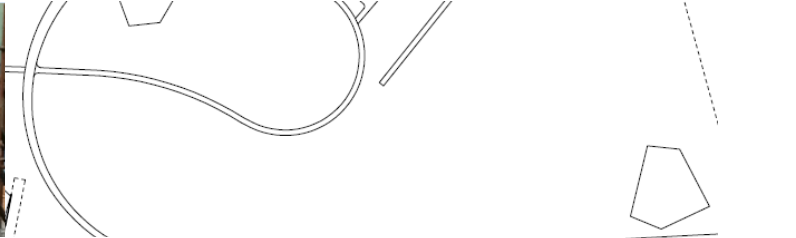
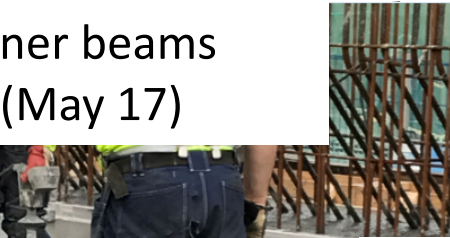
Embedments in Active Cell



Electrical conduits
(April 17)



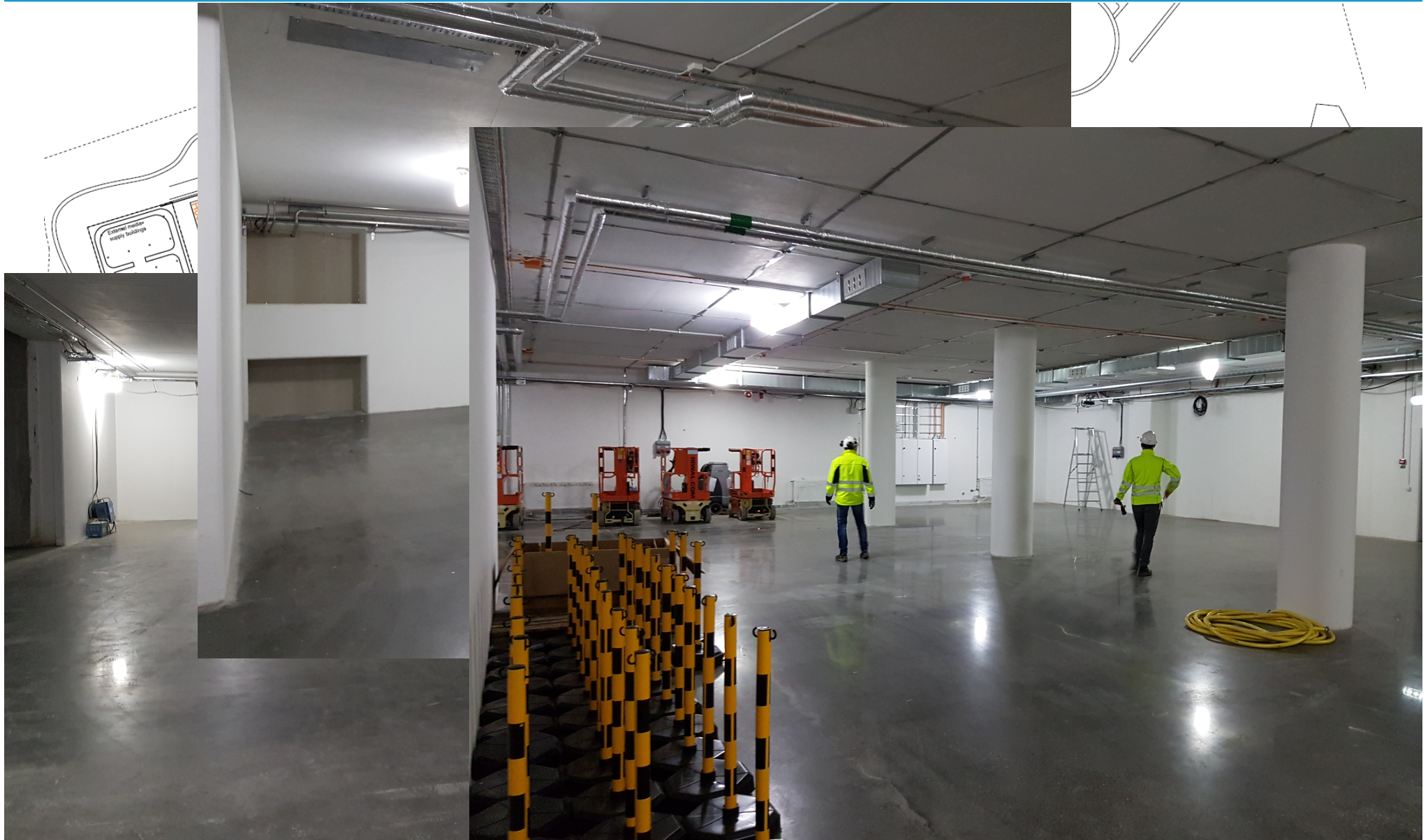
Liner beams
(May 17)



Embedments in walls
(on-going)



Important next step: Ion Source and LEBT



“Policy makers and funders increasingly expect to see economic benefits as well as scientific outputs resulting from R&D investments. RIs that demonstrate an actual or potential contribution to the wider innovation ecosystem are therefore more likely to be successful in arguing their cases for sustainable funding.”

**- Strengthening The Sustainability And Effectiveness
Of International Research Infrastructures**

OECD Draft Report, 2017



- No resources allocated in Construction Budget
- BrightnESS in 2015 provided resources
 - ILO Support
 - Innovation Procurement (Pre-competitive procurement)
 - Innovation Policy and Strategy
- Innovation Policy Draft in August 2016
- Approval August 2017
- Here we are today – next step: Strategy formulation



Thanks to Everyone for Coming Today



- We appreciate your contributions!



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