The European Spallation Source ERIC

A Successful European Collaboration

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Director General

www.europeanspallationsource.se
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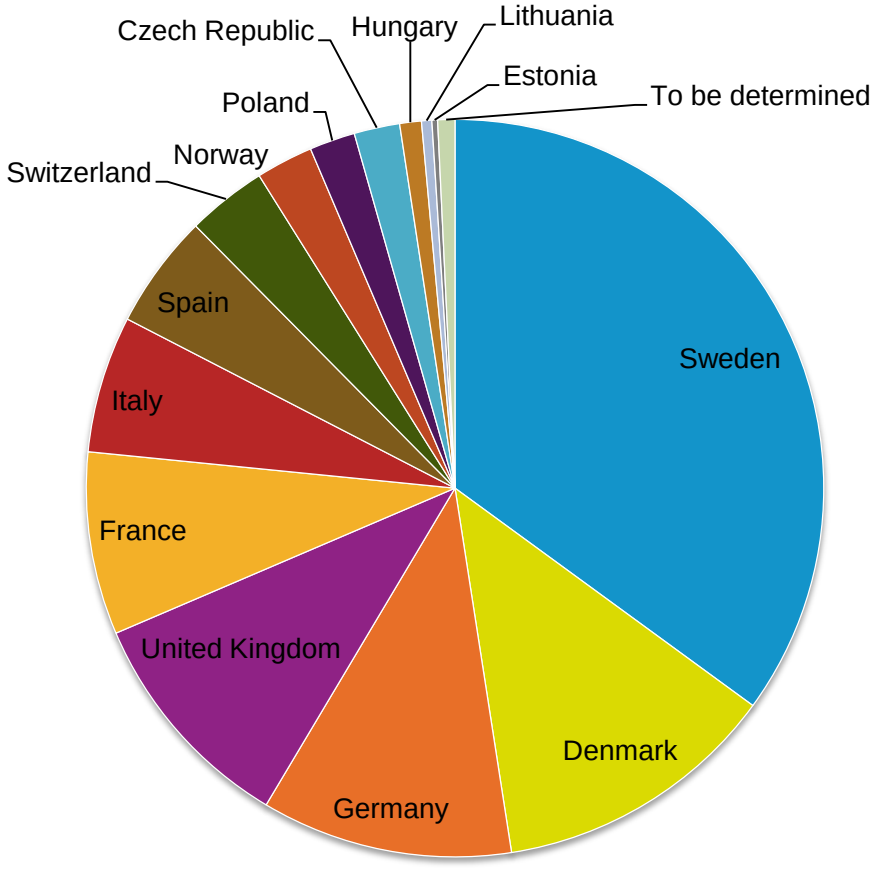
Construction investment

Already Financially Committed

Sweden (member)	**35.0 %**
Denmark (member) *	**12.5 %**
Germany (member) *	**11.0 %**
United Kingdom (observer)	**10.0 %**
France (member)	**8.0 %**
Italy (member)	**6.0 %**
Spain (observer) *	**5.0 %**
Switzerland (member)	**3.5 %**
Norway (member)	**2.5 %**
Poland (member)	**2.0 %**
Czech Republic (member)	**2.0 %**
Hungary (member)	**0.95 %**
Lithuania (future member)	**0.45%**
Estonia (member)	**0.25 %**
Total	**99.15 %**

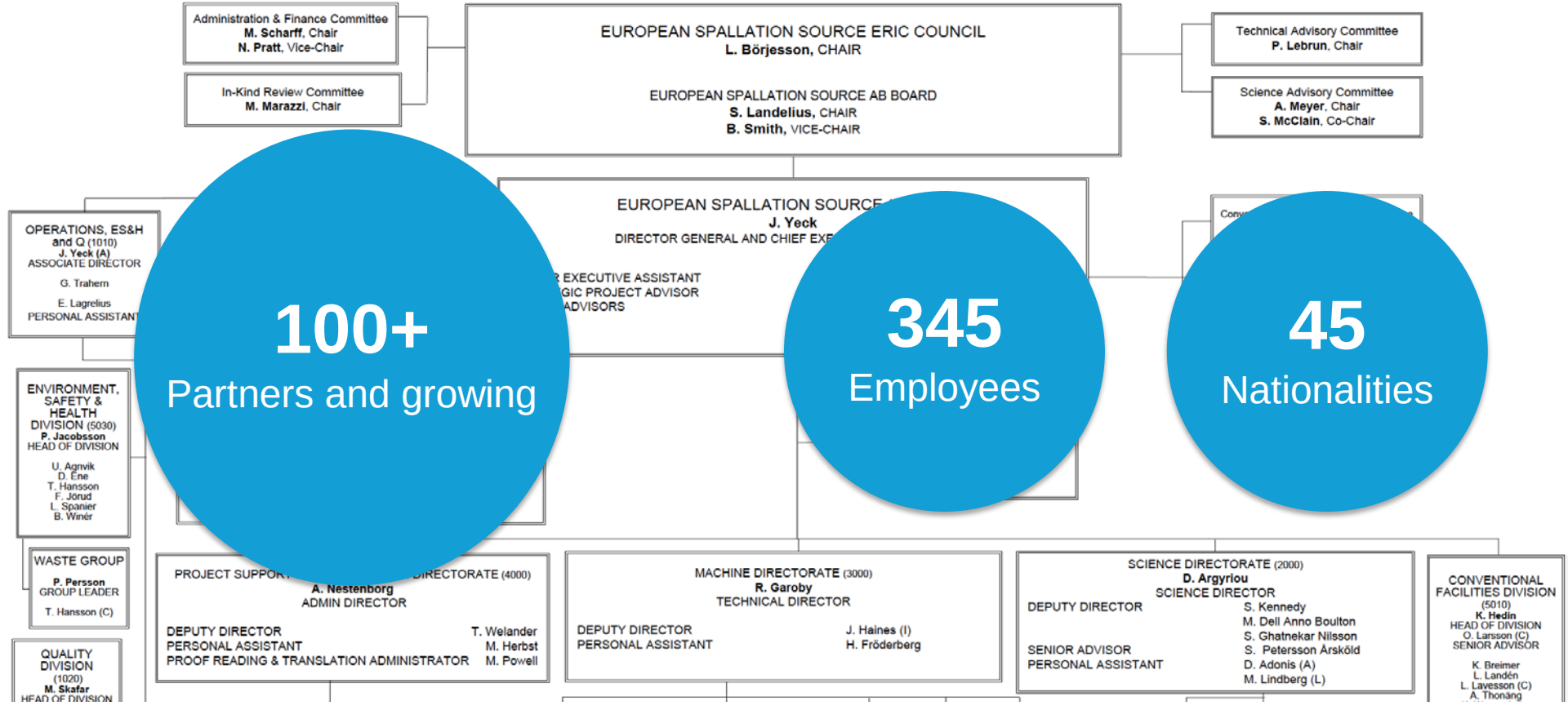
Belgium (observer)	*tbd*
Netherlands (observer)	*tbd*
Greece (future observer)	*tbd*
Turkey (future observer)	*tbd*
Iceland	*tbd*
Latvia	*tbd*

Discussions: Portugal, Finland



** Includes Pre-construction Costs*

Organisation



100+
Partners and growing

345
Employees

45
Nationalities

ESS AB transitioned into European Research Infrastructure Consortium (ERIC)

19 August 2015

The European Commission formally adopted its decision to establish the European Spallation Source (ESS) as a European Research Infrastructure Consortium, or ERIC.

28 August 2015

Decision entered into force

ERIC Founding Members

Czech Republic
Denmark
Germany
Estonia
France
Italy
Hungary
Norway
Poland
Sweden
Switzerland

ERIC Founding Observers

Belgium
Spain
Netherlands
United Kingdom

ERIC Potential Members

Greece
Turkey
Portugal
Finland
Latvia
Lithuania
Iceland

ESS AB transitioned into European Research Infrastructure Consortium (ERIC)

ESS AB

- Swedish limited liability corporation
- owned by the Swedish and Danish governments

transfer of assets, obligations and personnel by Oct 1, 2015

ESS ERIC

- European Research Infrastructure Consortium
- Sole governing body: the European Spallation Source ERIC Council, comprised of representatives from the Member and Observer Countries

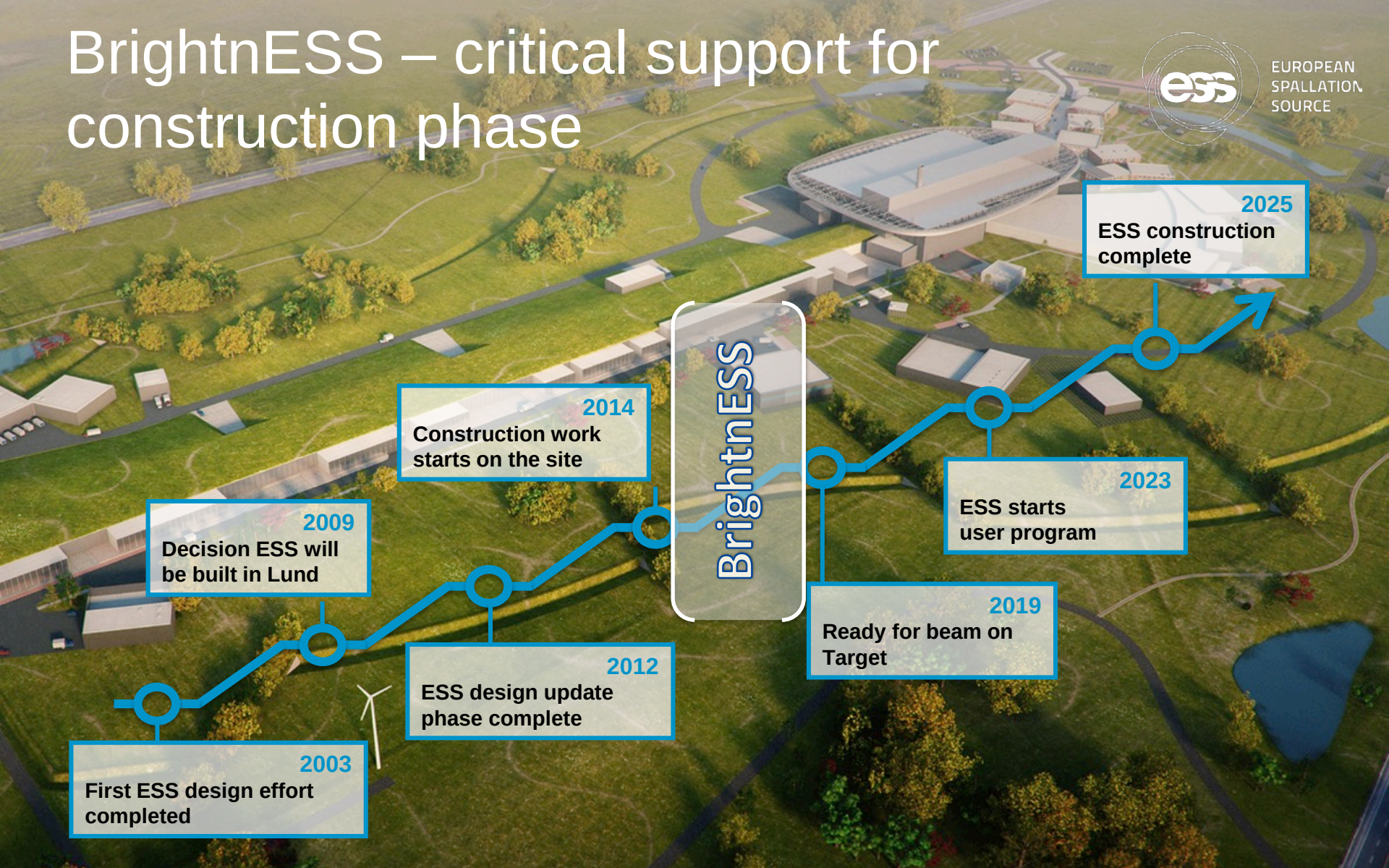
ESS AB transitioned into European Research Infrastructure Consortium (ERIC)

ERIC Plate Ceremony

Handing over of the ERIC Plate

- 8 September 2015 (60 guests) onsite
- Marks the transition from ESS AB to The European Spallation Source ERIC
- Speakers:
  - Robert-Jan Smits, Director-General for Research and Innovation, European Commission
  - Helene Hellmark Knutsson, Swedish Minister for Higher Education and Research
  - Dr. Esben Lunde Larsen, Danish Minister for Higher Education and Science

BrightnESS – critical support for construction phase



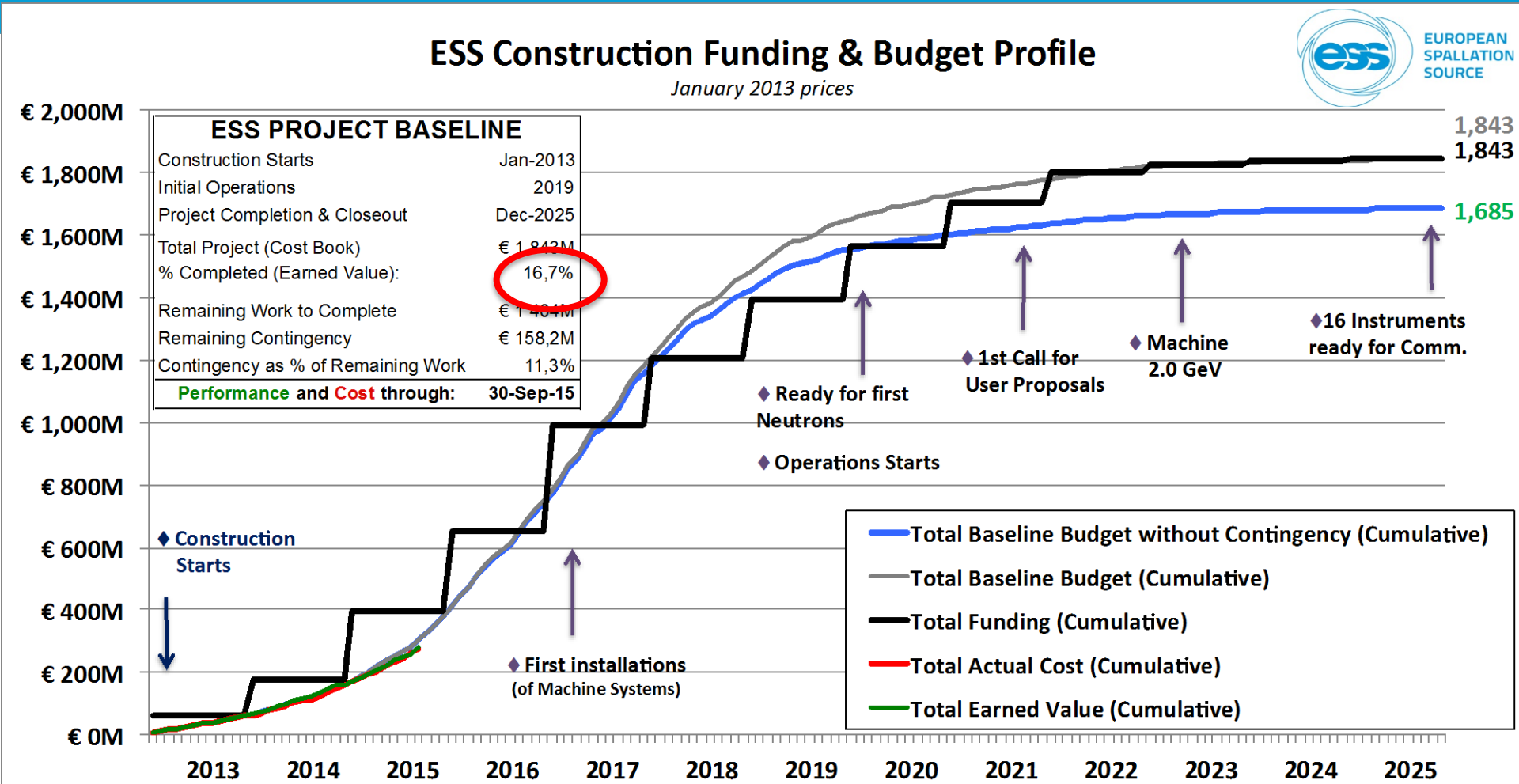
ESS Schedule baseline – external milestones

Milstone	Date
Delivery TDR and Start Construction Phase	Jan 2013
Start Site Preparations	Jul 2014
Start First Installations for Accelerator On-site	Sep 2016
Ready for first Beam on Target	Dec 2019
Machine installed 2.0 GeV Performance	Dec 2022
Construction Phase Instruments Complete	Dec 2025

ESS construction cost baseline

(Jan 2013 pricing)	M EUR
Conventional Facilities	531.9
CF scope supported by host countries	-93.0
Accelerator Systems	510.2
Target Systems	155.2
Integrated Control System	73.0
Design & Engineering	33.7
Neutron Scattering Systems	350.0
Project Support & Administration and Licensing	123.8
Contingency	158.2
Total Construction Budget and ESS Cost Book Value	1843.0

Construction project status



Progress on civil construction

June

Progress on civil construction

July

Progress on civil construction

August

Progress on civil construction

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Progress on civil construction

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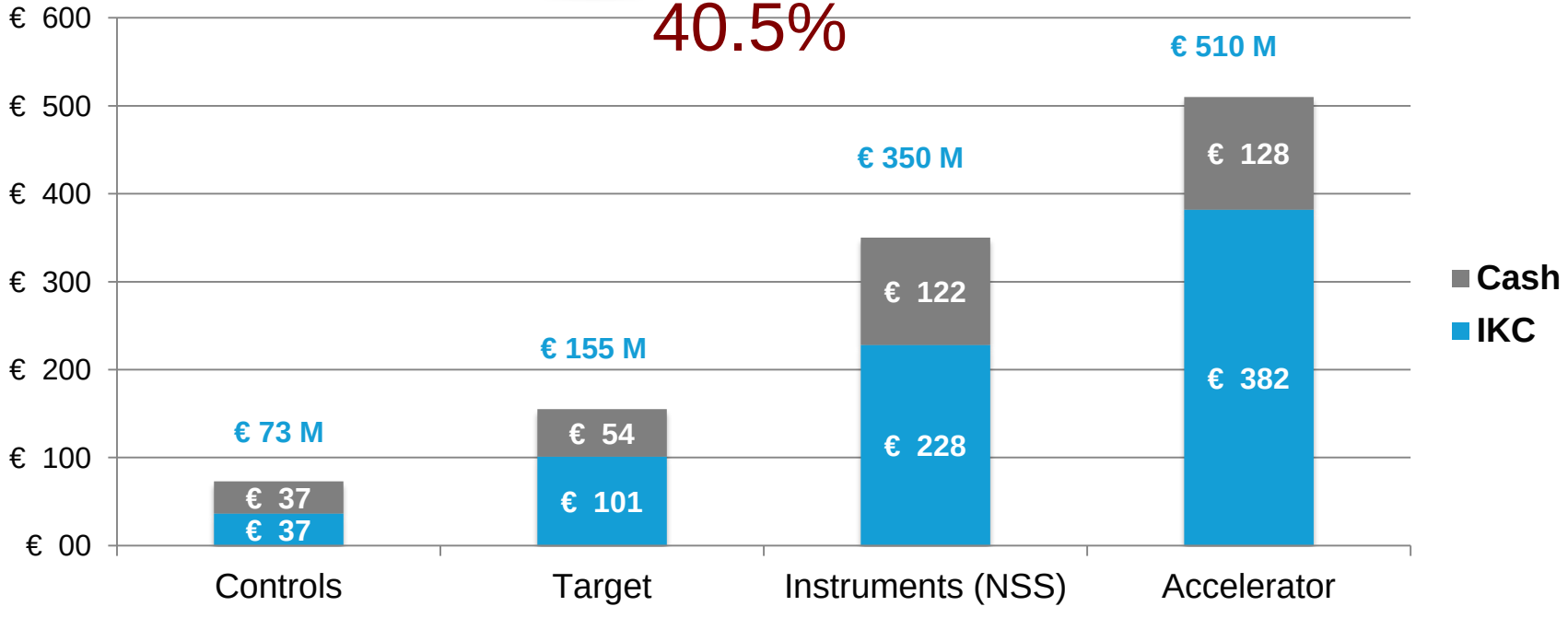
Progress on civil construction

ESS In-kind Goals

Construction cost: € 1.84 Billion

In-kind: € 747.5 Million

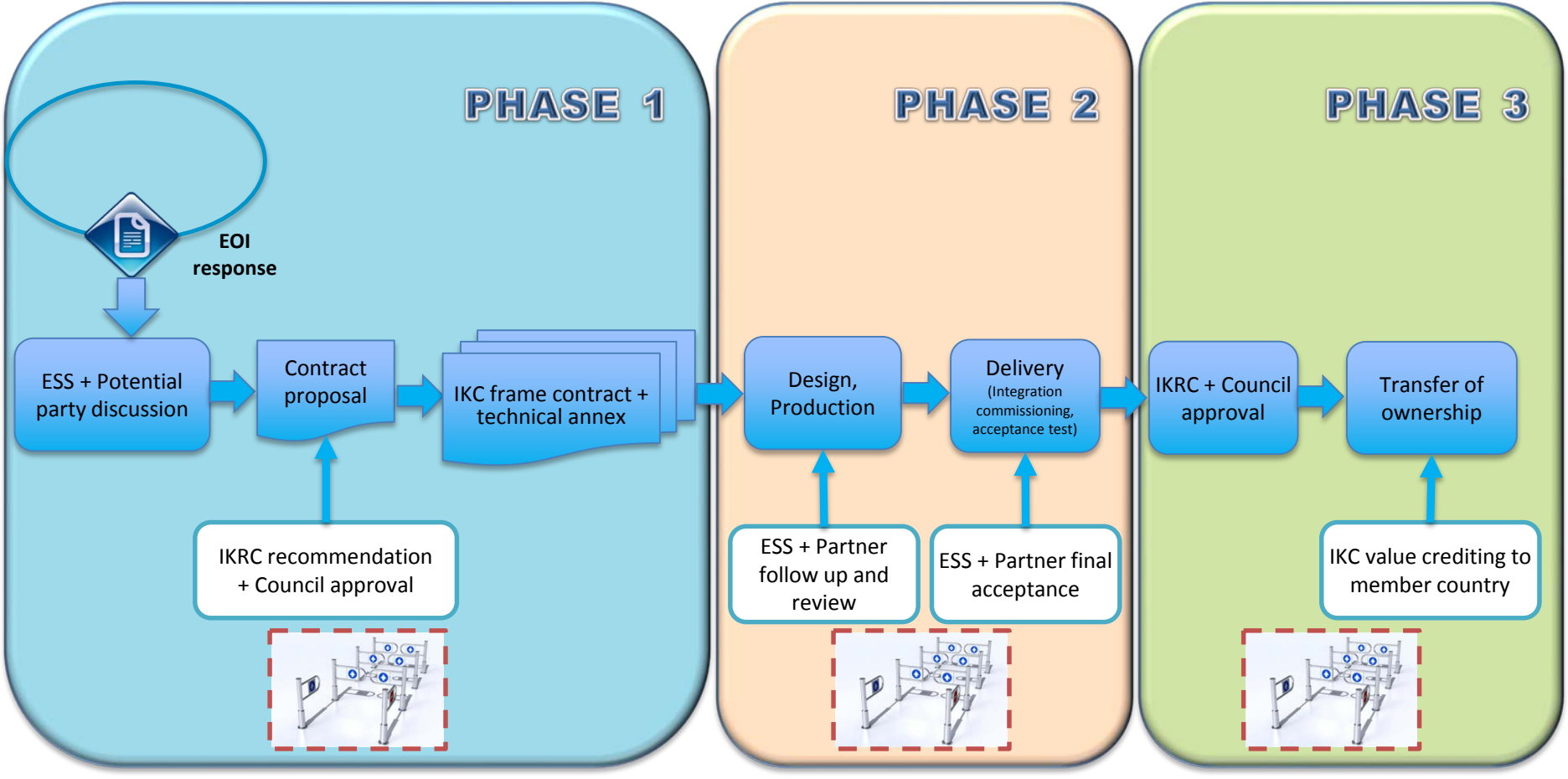
40.5%



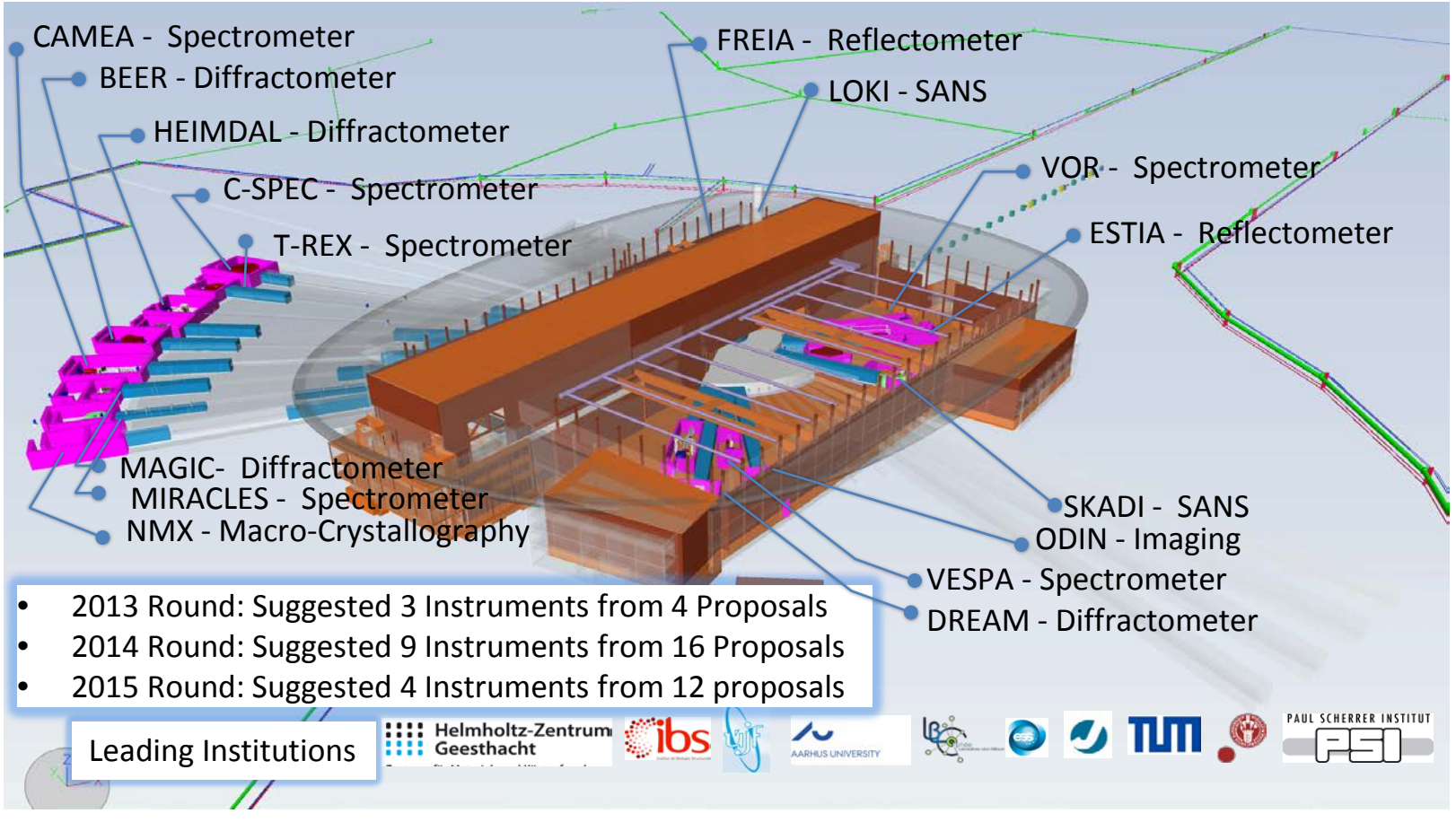
In-kind Contributions – general principles

- Potential In-kind Contributions (IKC) defined by ESS Project plans
- In-kind values based on the ESS Cost Book
- Contracts adhere to approved template + technical annex
- In-kind partners responsible for financing and delivery
- In-Kind Review Committee (IKRC) evaluates ESS proposed IKC agreements
- ESS Council approves all in-kind contracts
- Following delivery European Spallation Source ERIC member countries are accredited the IKC value for their contributions

ESS In-Kind Contributions – In-Kind Process



16 – instrument suite taking shape



- 2013 Round: Suggested 3 Instruments from 4 Proposals
- 2014 Round: Suggested 9 Instruments from 16 Proposals
- 2015 Round: Suggested 4 Instruments from 12 proposals

Leading Institutions

Current status of instrument delivery

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class	Instrument	cost category	In-kind Partners	Cost (M€)	% IK
Large scale structures	LOKI broadband SANS		**ESS (30%) +** ES (Bilbao ~32%), IT (CNR ~24%), UK (STFC ~8%), CH (PSI ~3%), HU (Wigner ~1%)	12.1	**68%**
	SKADI general-purpose SANS (note 1)	B	**DE(FZJ 50%) + FR(LLB 50%)**	12	95%
	ESTIA focusing reflectometer	A	**CH(PSI)**	9	95%
	FREIA liquids reflectometer	A	**ESS (<30%) -> UK (ISIS)? or DE(FZJ) ?**	9	90%
Diffraction	NMX macromolecular crystallography		**ESS (<30%) +** HU (Wigner 16%) + FR (LLB ~4%) + NO (~17%) + IT/UK (~15%)	11.7	**52%**
	DREAM powder diffractometer (bispectral)	B	**DE(FZJ 75%) +** FR(LLB 25%)	12	95%
	HEIMDAL hybrid diffractometer	B	**DK(AU <30%)** +CH(PSI ~ 30%) + HU (~5%) +UK? (~20%) + ?	12	**70%**
	MAGIC magnetism single-crystal diffractometer	B	**FR (LLB 75%)** + DE (FZJ 25%)	12	100%
Engineering	BEER engineering diffractometer	B	**DE (HZG 50%), CZ (NPI 50%)**	12	100%
	ODIN multi-purpose imaging	A	**ESS** -> DE(TUM 50%) +CH (PSI 50%)	9	95%
Spectroscopy	C-SPEC cold chopper spectrometer	C	**DE(TUM 50%) +FR(LLB 50%)**	15	100%
	BIFROST extreme-environments spectrometer	B	**DK(DTU/KU <30%)** +CH(PSI ~ 20%) + HU (~20%) +NO (~15%) + ?	12	**70%**
	T-REX bispectral chopper spectrometer	C	**DE (FZJ 75%)** + IT (Perugia) -25%	15	95%
	VESPA vibrational spectroscopy	B	**IT** (CNR) **+ UK (ISIS)?**	12	100%
	MIRACLES backscattering spectrometer	B	**DK (KU) ->** ES(Bilbao ~70%?) +FR(LLB ~20%?) +HU (Wigner~5%?) + ESS (~5%)	12	95%
	6th Spectrometer (unassigned)	B		12	90%
	16 instruments		**cost**	**188.77**	**88.1%**
	neutron guide bunker		CZ (Skoda?, Envinet?)	14	**80.0%**
			total cost (with bunker)	**202.77**	**87.7%**

Slide #1 from the 152 slide review closeout session

2nd Annual Review – General Impression

- Very positive, impressive progress since 2014. We have now a real project with a right atmosphere.
- ESS is now a rolling machine which will reach its target.
- ESS is defining also for future projects how to deal with in-kind. A very impressive progress in this area.
- Schedule is very tight, but not impossible.
- More than 100 people have joined ESS in the last 12 months.
- Technical problems are finding solutions
- We are seeing an increasing in the amount of details to deal with (this is very positive!!).
- Operation begins to be an integral part of the overall project.


Thank you!
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