

ESS Overview

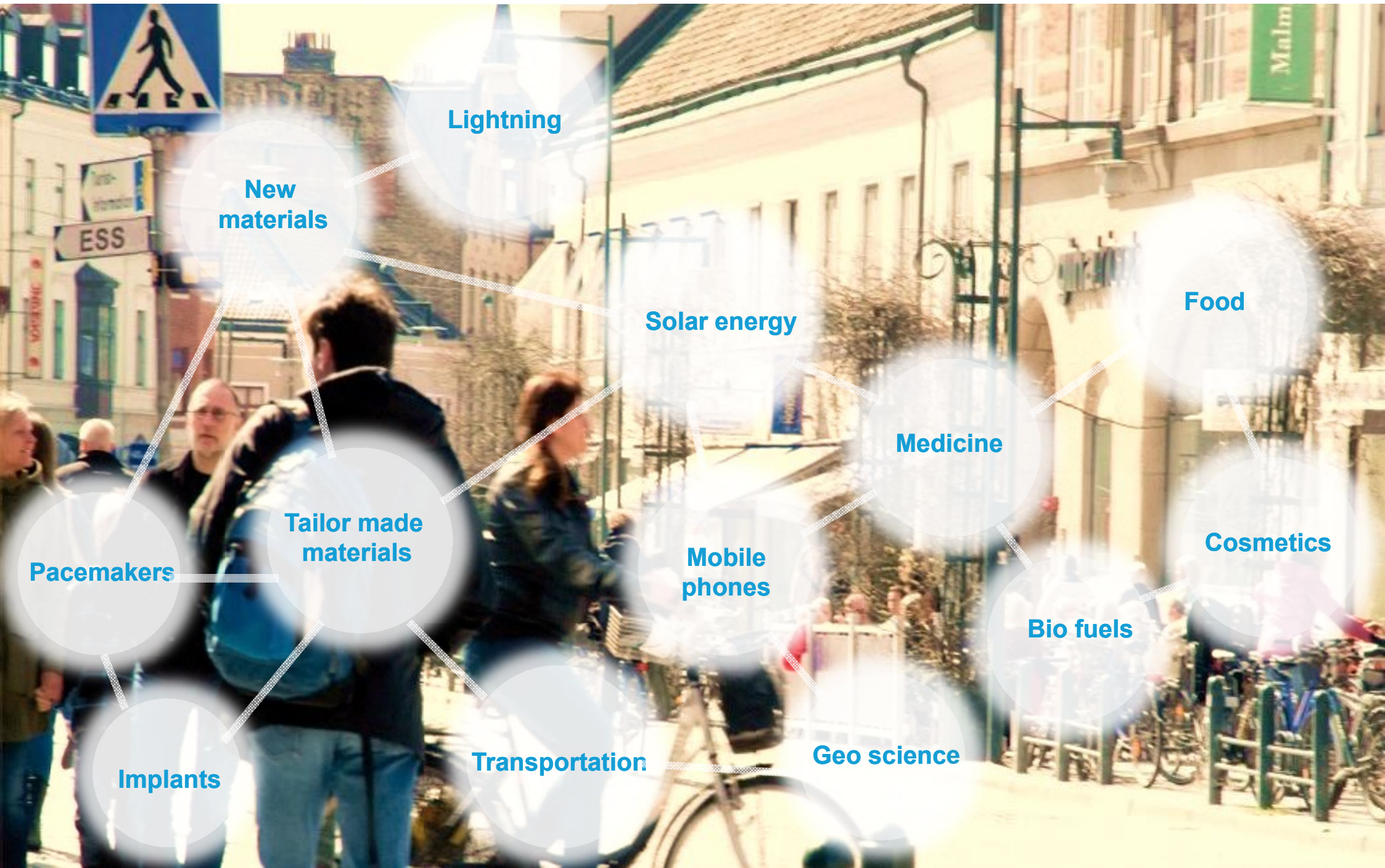
James Yeck

Director General, European Spallation Source ERIC

*An Opportunity for Turkish Organizations and Companies
Mustafa İnan Conference Hall, TÜBİTAK Headquarters
Ankara*

www.europeanspallationsource.se

6 October 2015



Lightning

New materials

Food

Solar energy

Medicine

Cosmetics

Pacemakers

Tailor made materials

Mobile phones

Bio fuels

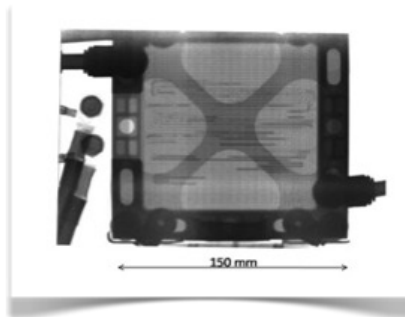
Implants

Transportation

Geo science

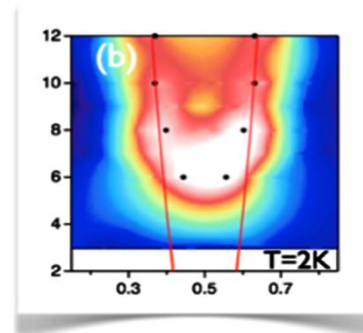
Properties of neutrons for measurements

Charge neutral
Deeply penetrating



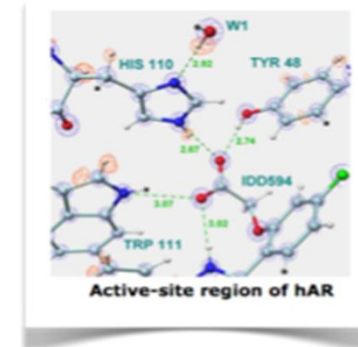
Li motion in fuel cells

Magnetic moment (spin)
Directly probe magnetism



High-Tc superconductivity

Scattering
Sensitive to light elements



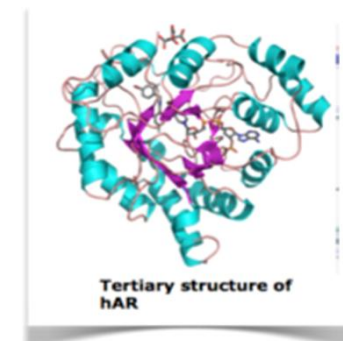
Active sites in proteins



Help build electric cars

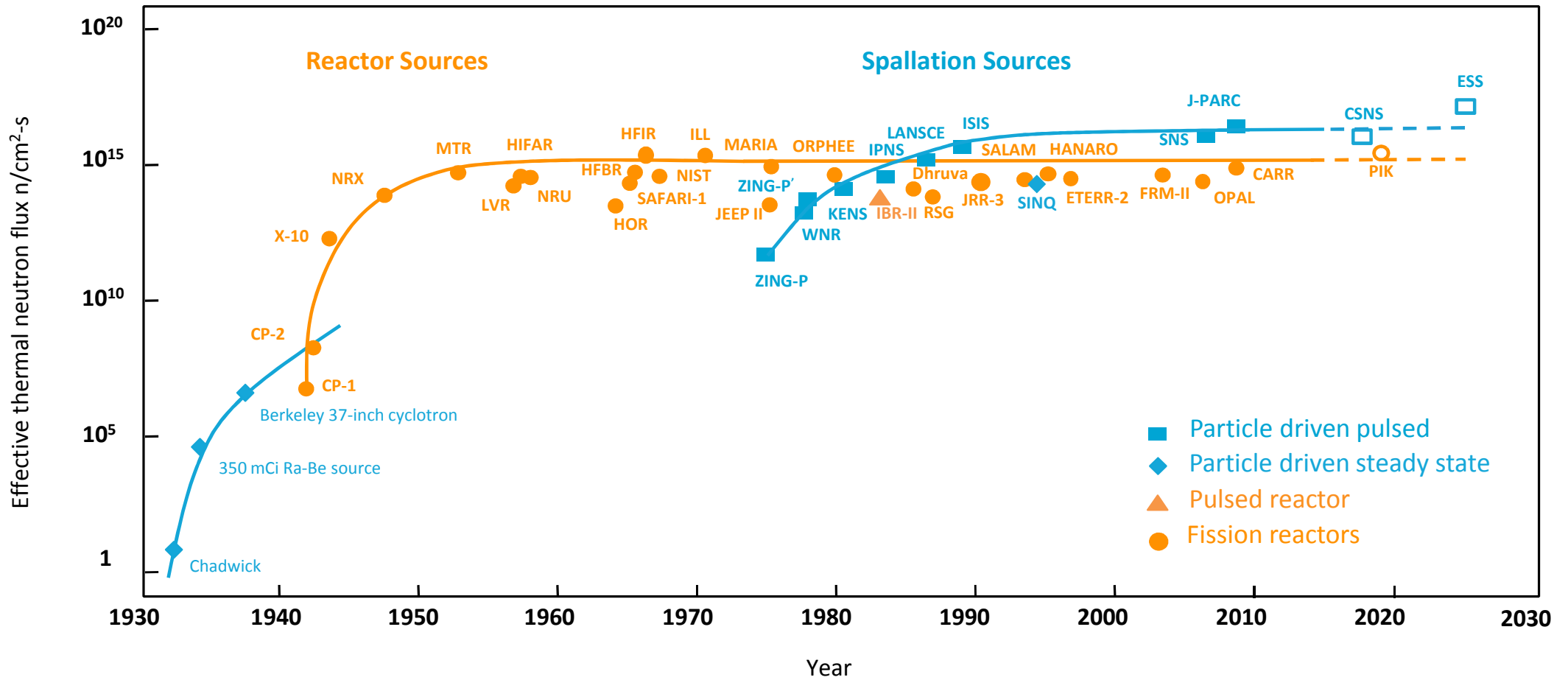


Efficient high speed trains



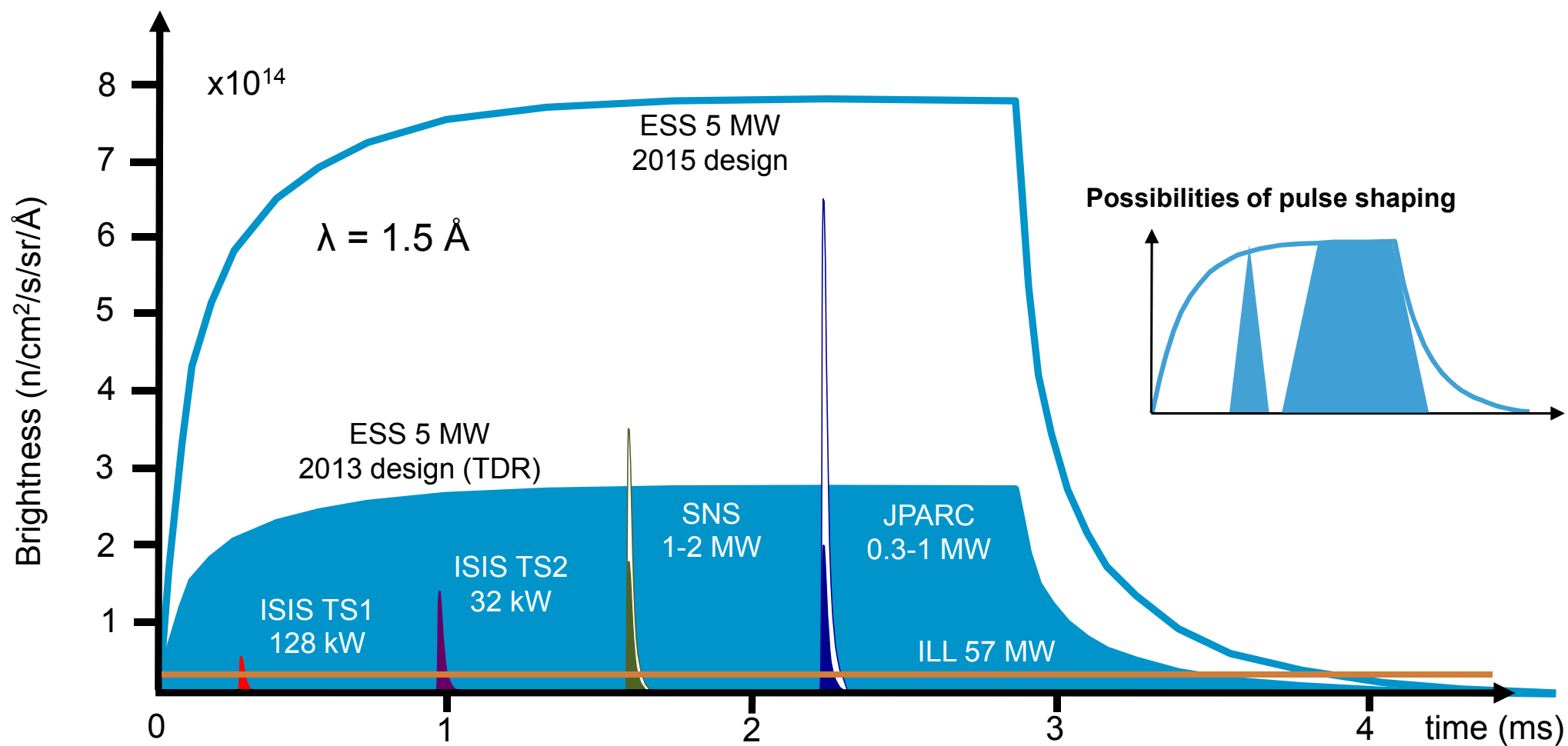
Better drugs

Neutron facilities – reactors and particle driven



(Updated from *Neutron Scattering*, K. Skold and D. L. Price, eds., Academic Press, 1986)

Long-pulse performance



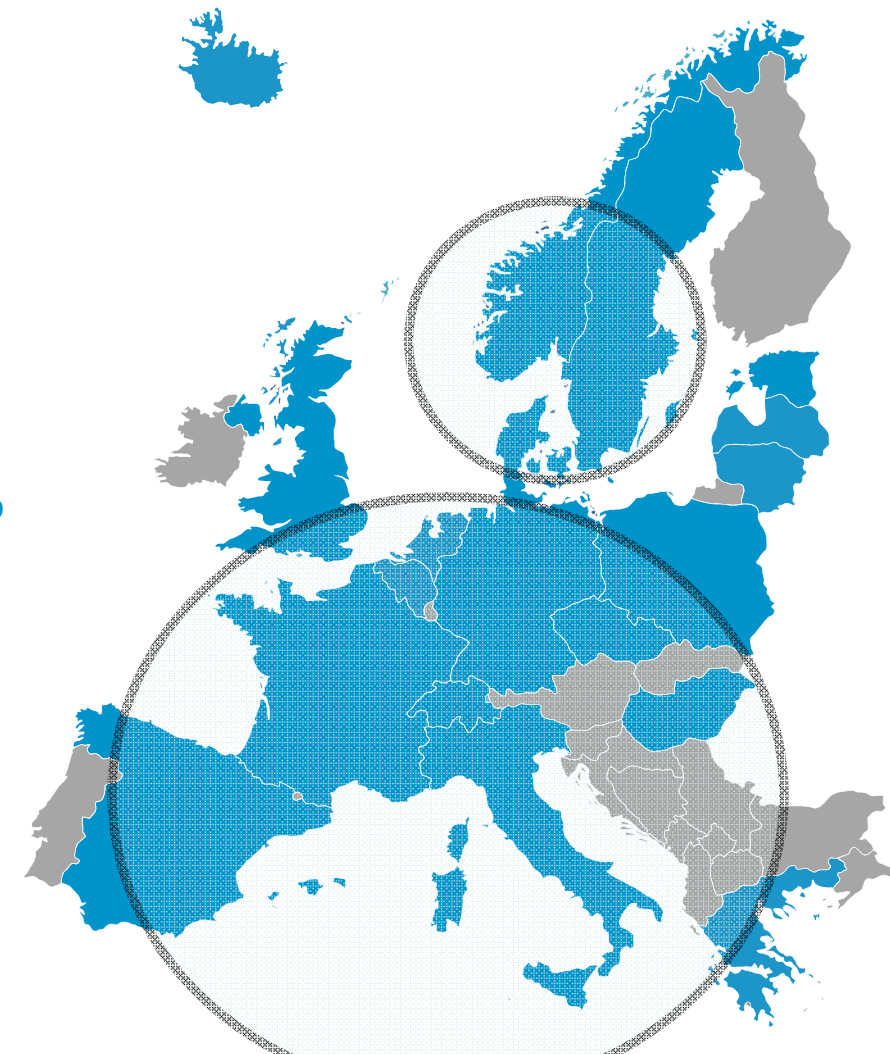
Financing includes cash and deliverables

Host Countries of Sweden and Denmark

Construction	47.5%	In-kind Deliverables	~ 3%
Operations	15%	Cash Investment	~ 97%

Non Host Member Countries

Construction	52.5%	In-kind Deliverables	~ 70%
Operations	85%	Cash Investment	~ 30%



Construction investment

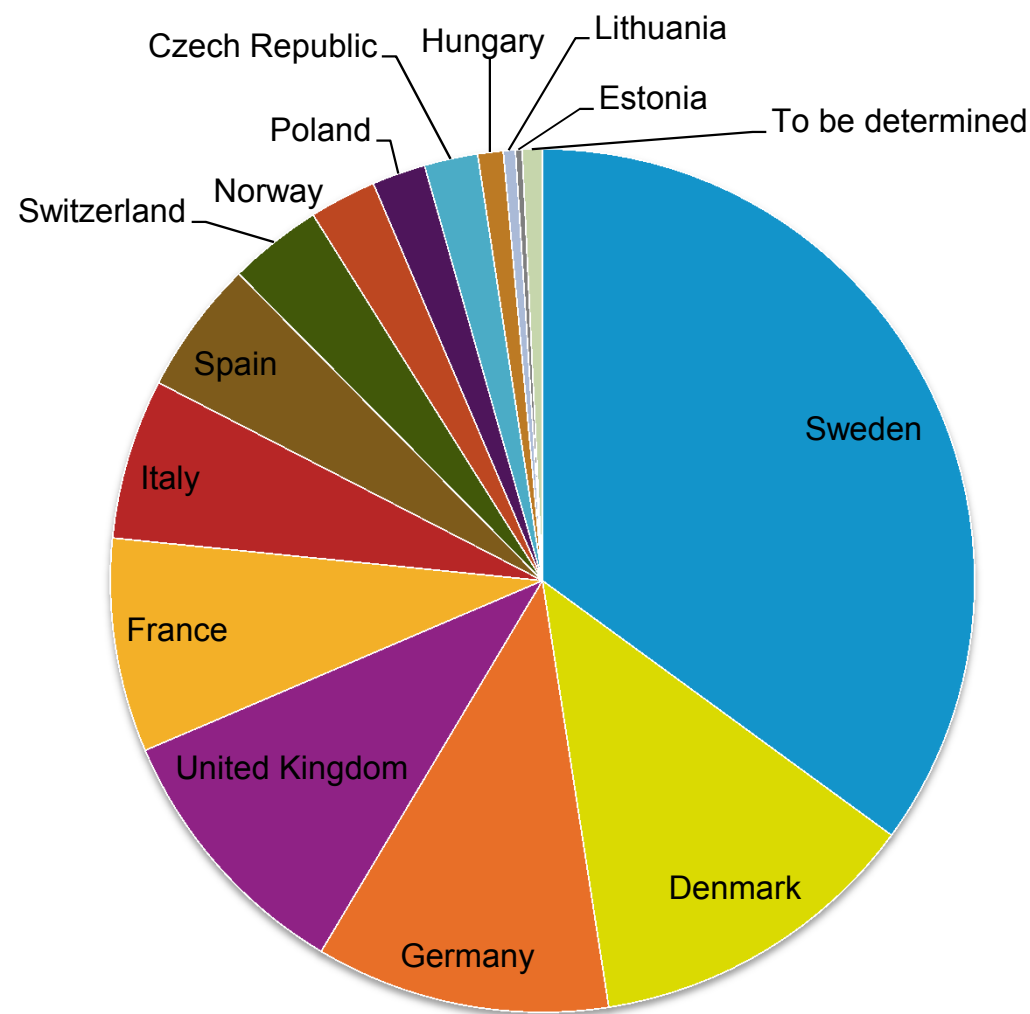
Already committed

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)	<i>tbd</i>
Netherlands (observer)	<i>tbd</i>
Greece (future observer)	<i>tbd</i>
Iceland	<i>tbd</i>
Latvia	<i>tbd</i>

Discussions: Portugal, Turkey, Finland

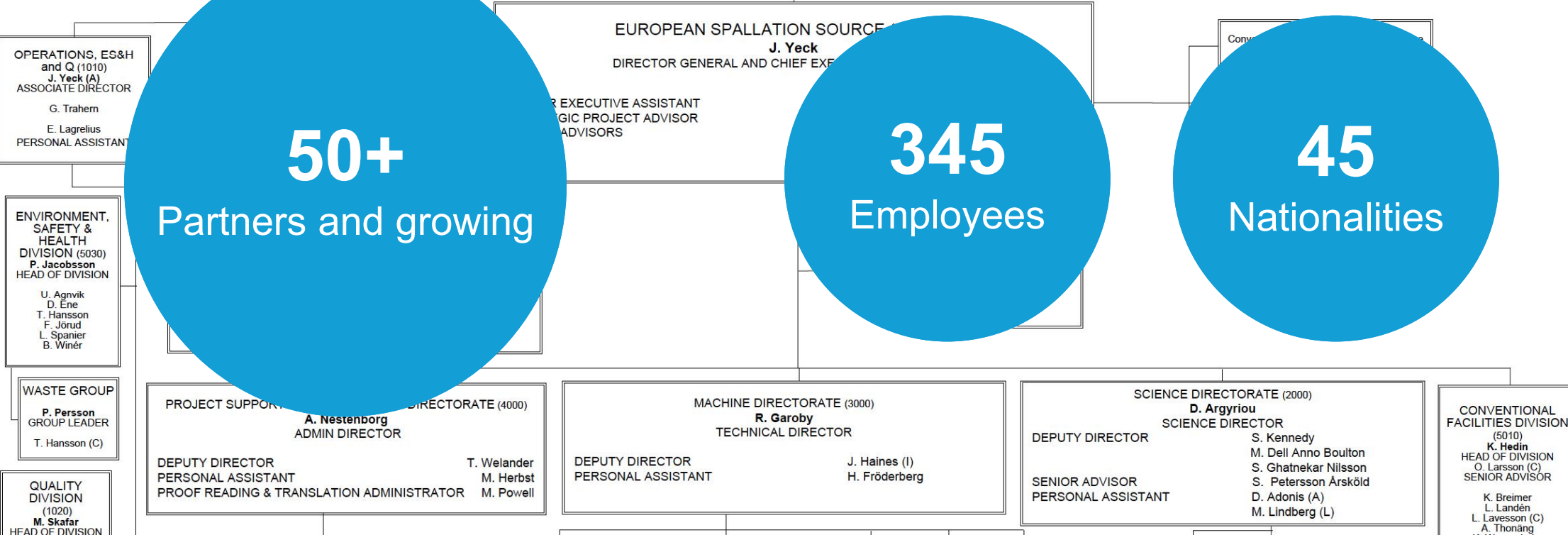
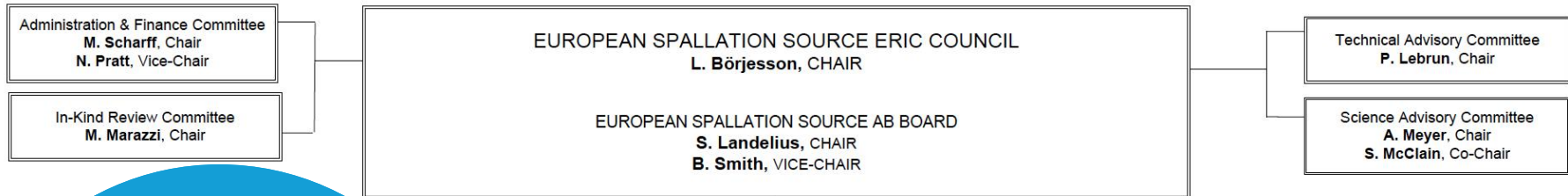
* Includes Pre-construction Costs



Organisation



EUROPEAN
SPALLATION
SOURCE



50+
Partners and growing

345
Employees

45
Nationalities

Transition to European Spallation Source 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

Ground Break & Foundation Stone Ceremony



Ground Break Event

- 2 September 2014 (200 guests)
- Official start of the construction!



Foundation Stone Ceremony

- 9 October 2014 (700 guests)
- Programme on site including speeches, partner video, walking tour and reception
- Science Symposium in Lund
- Mobilized partners and stakeholders for construction!

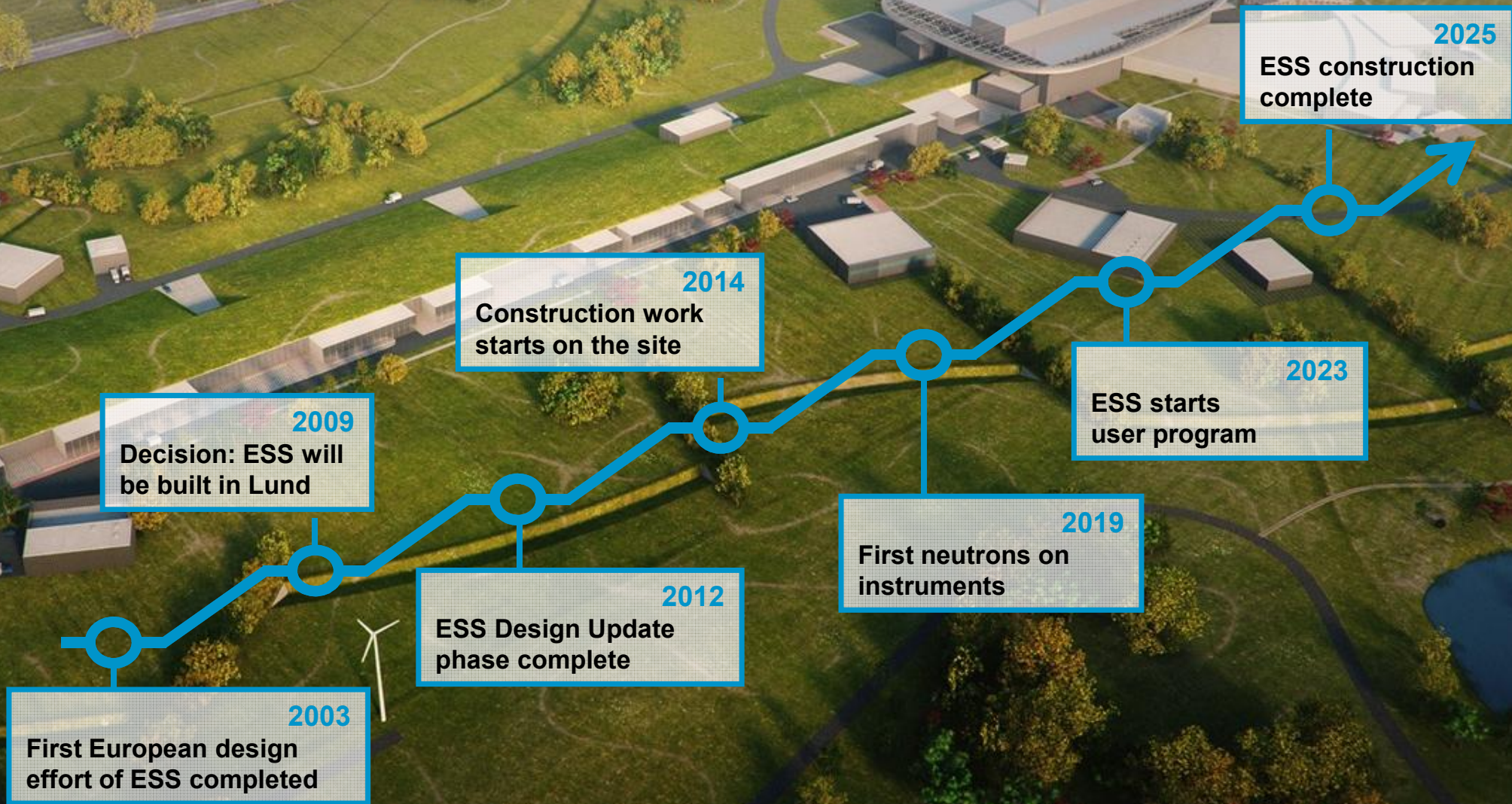
ERIC Plate Ceremony



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

Road to realizing the world's leading facility for research using neutrons



Civil Construction July 2014 to today



July

Civil Construction July 2014 to today



August

Civil Construction July 2014 to today



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September

Civil Construction July 2014 to today



October

Civil Construction July 2014 to today



November

Civil Construction July 2014 to today



December

Civil Construction July 2014 to today



January

Civil Construction July 2014 to today



February

Civil Construction July 2014 to today



March



Civil Construction July 2014 to today



April

Civil Construction July 2014 to today



May

Civil Construction July 2014 to today



June

Civil Construction July 2014 to today



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July

Civil Construction July 2014 to today



August





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Key Project Parameters



- Deliver on the Technical Design Report performance and Steering Committee commitments
 - **5 MW accelerator capability**
 - **Cost Book construction cost of 1.843 B€₂₀₁₃**
 - **Cost Book annual operations cost target of 140 M€₂₀₁₃**
 - **22 “public” instruments (16 included in the construction budget)**
- Start w/ unconstrained resources (technically limited schedule) and develop credible project execution plans
- Comprehensive review of project baseline and execution plans
- Secure funding and resources and align schedules with the available resources

ESS construction cost baseline

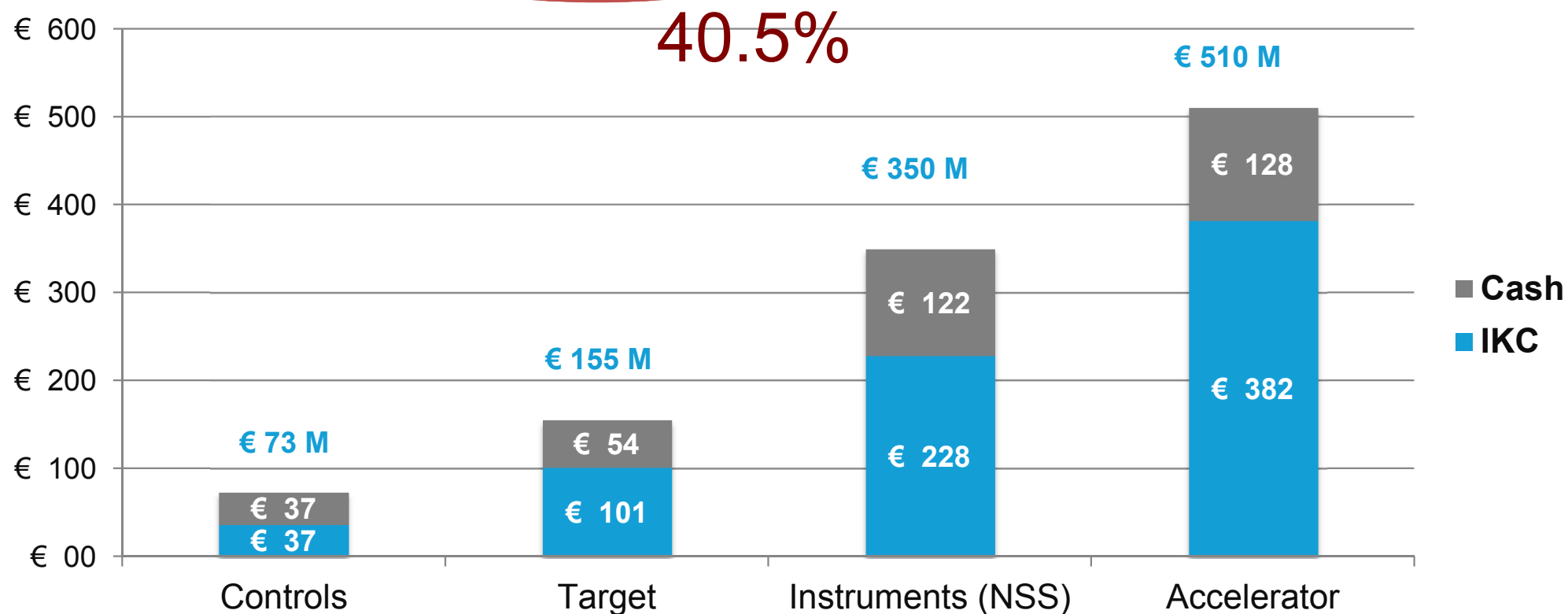


(Jan 2013 pricing)	M EUR
Conventional Facilities	531.9
CF scope supported by host countries	-93.0
Accelerator Systems	510.2
Target Systems	155.2
Integrated Control System	73.0
Design & Engineering	33.7
Neutron Scattering Systems	350.0
Project Support & Administration and Licensing	123.8
Contingency	158.2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

ESS In-kind Goals

Construction cost: € 1.84 Billion

In-kind: € 747.5 Million





Thank you!



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