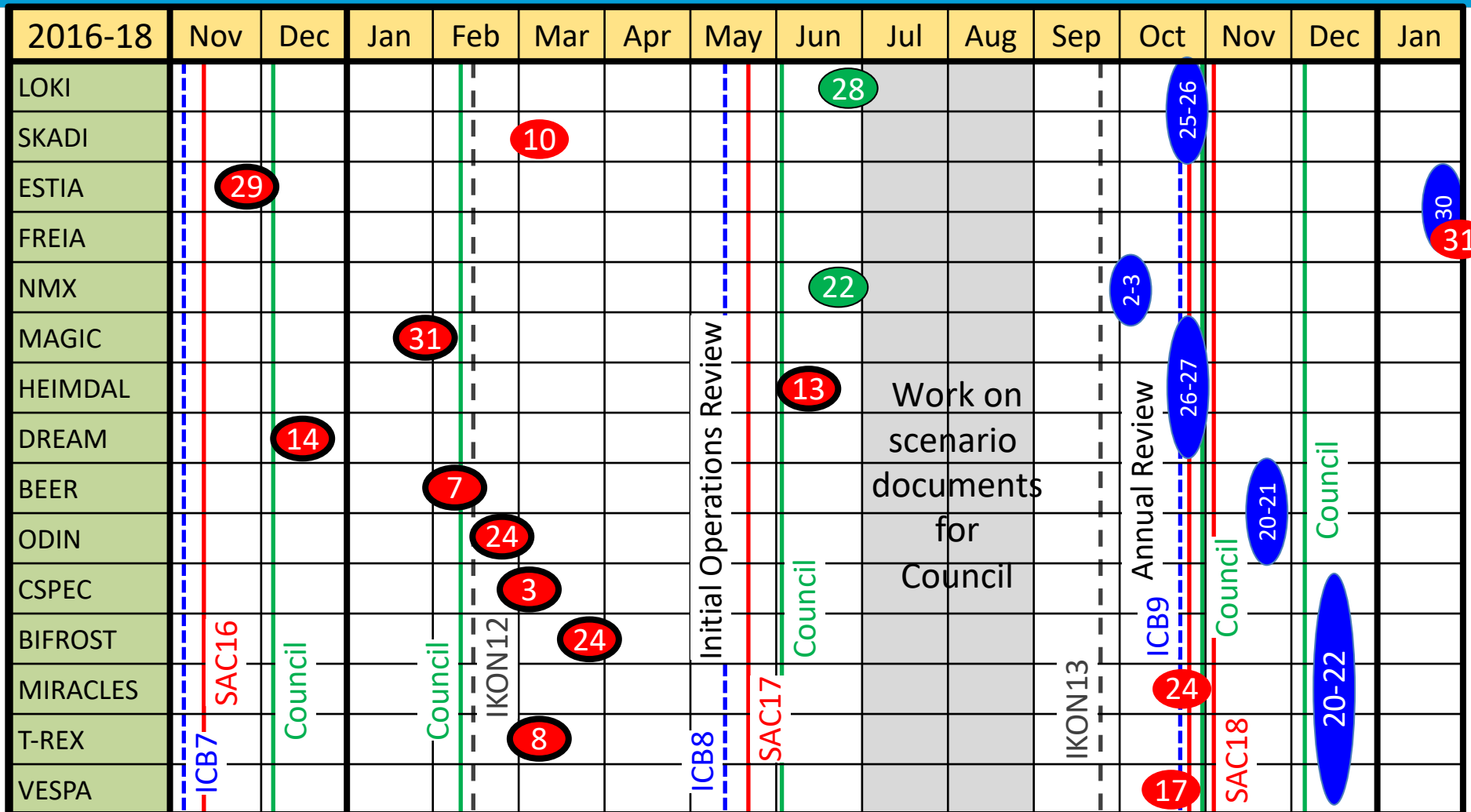


IKON14

Science Directorate Update

Andreas Schreyer
Director for Science
European Spallation Source

Important Dates



- STAP
- TG2 passed/ongoing
- Design Update Review

Overview

- Update on future scenarios and initial operations
- Expressions of interests for instruments 16-22
- Rebaselining
- IKON13 feedback, IKON14
- Instrument papers
- ESS – ILL User meeting

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15 Instruments selected so far









Large-Scale Structures

ODIN imaging	    
SKADI GP-SANS	   
LOKI Broadband SANS	 
Surface Scattering	   
FREIA Hor. Refl.	  
ESTIA Ver. Refl.	   
HEIMDAL Pow. Diffr.	   
DREAM Pow. Diffr.	   
Monochromatic Powder Diffractometer	  
BEER Eng. Diffr.	  
Extreme Conditions Diffractometer	   
MAGIC Magn. Diffr.	 
NMX Macromol. Diffr.	 

Diffraction

Spectroscopy

CSPEC ColdChopSp	  
VOR BroadbandSp	   
T-REX ThChopSpec	  
BIFROST Xana Spec	   
VESPA Vibr.Spec.	  
MIRACLES BckScatt	  
High-Resolution Spin-Echo	   
Wide-Angle Spin-Echo	   
Fundamental & Particle Physics	

	life sciences		magnetism & superconductivity
	soft condensed matter		engineering & geo-sciences
	chemistry of materials		archeology & heritage conservation
	energy research		fundamental & particle physics

Where do we go from here ?

Clarify Funding:

- Missing member contributions (5.7%)
- Additional cost due to new earthquake and security regulations

ESS Council:

Scenarios 1 – 3

Initial operations budget

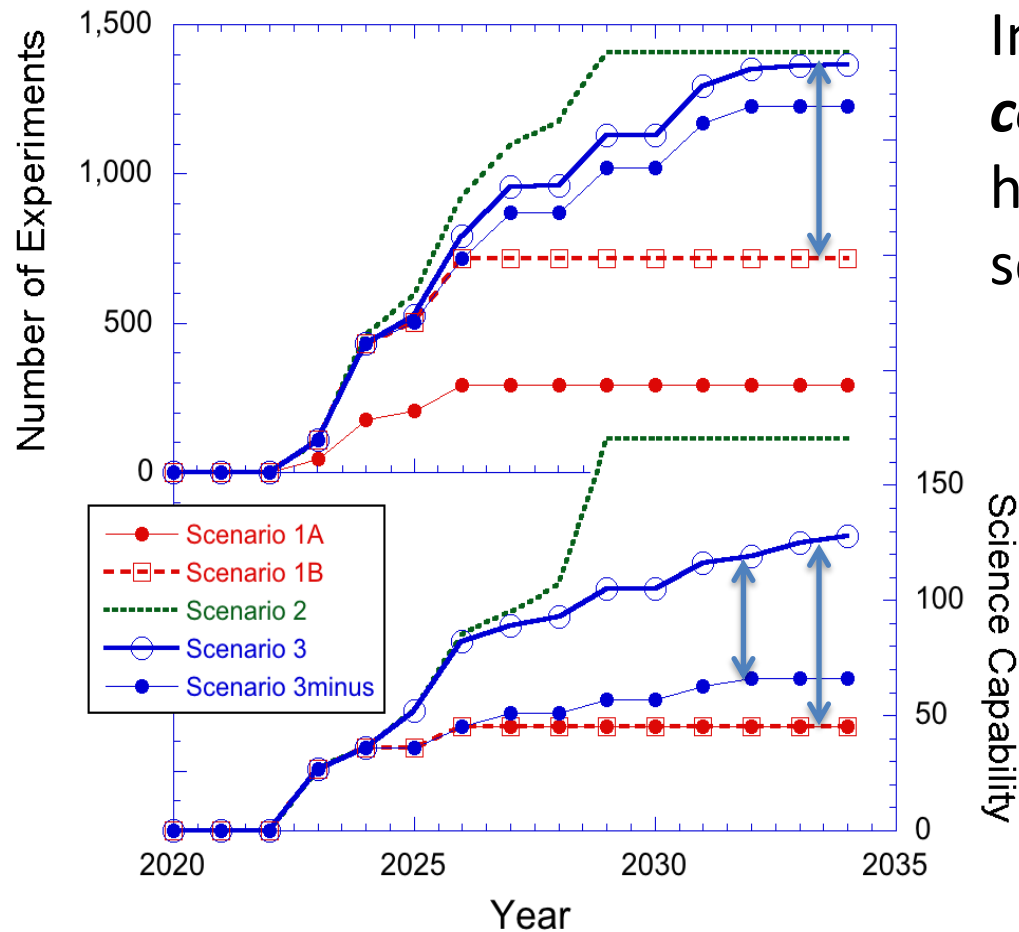
Funding Level A, B (+10%)



Completion of Construction Report: Impact of the Scenarios on Science at ESS



Experiments and Science Ramp-Up



Instruments 16-22 plus ***completions*** of instruments will have a massive impact on the science output of ESS

Scenario 3minus: Scenario 3 w/o instrument upgrades. Added to show their impact on the science output at ESS

Results of Council Meeting

- Member Countries are working to find an additional funding to make up for the missing contributions (5.7%) and the extra costs for the additional earthquake requirements (Fukushima) and additional security requirements.
- Member Countries are working to find money for funding level B (+10%)
- If all funding would be found about half of the cost for Scenario 3B could be funded (i.e. some *completions* /instruments)
- Further funding e.g. from new members (Canada?, ...) for further instrument/upgrades (Continuous Investment Programme, CIP)
- Goal to build 22 instruments remains

Instrument Completions: Priorisation

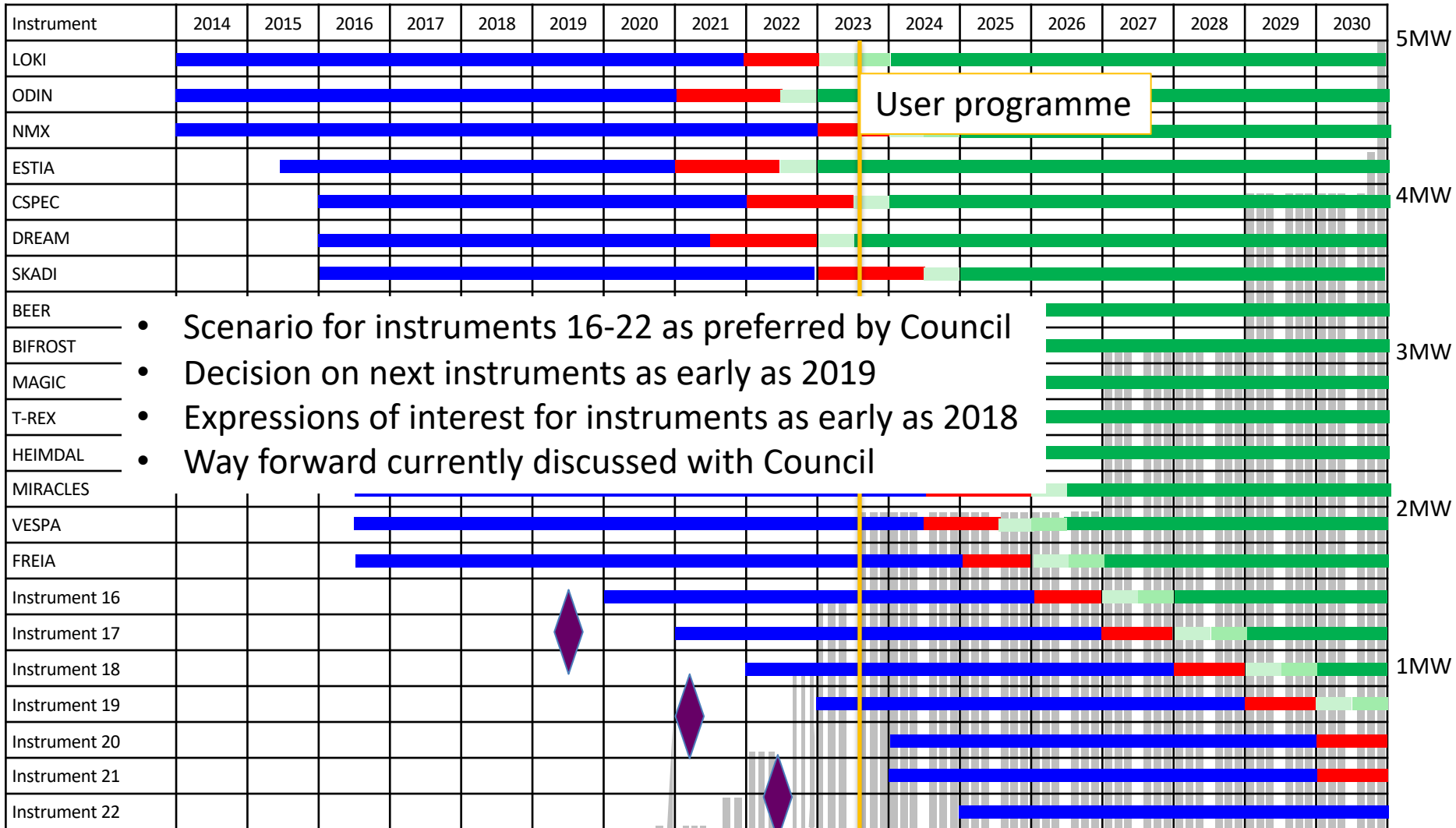
- Proposal by ESS management
- Input from instrument teams
- Input from SAC
- Recommendations by STAPS
- Decisions based on available funding, STAP and SAC advice

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Tentative Instrument Ramp-up Scenario 3B

Version 17/11/2017, based on Instrument Construction Working Schedule V3.4



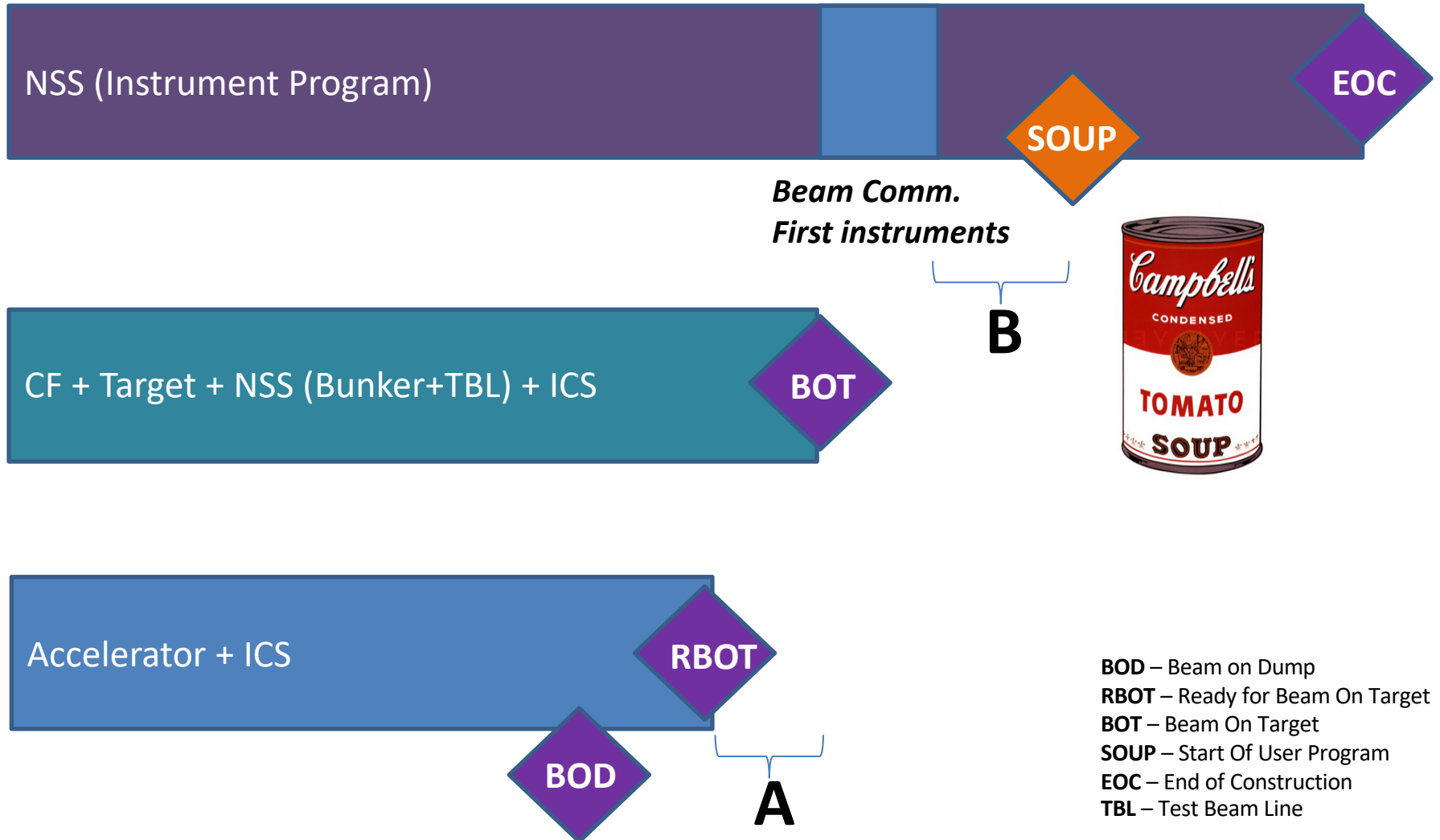
- Scenario for instruments 16-22 as preferred by Council
- Decision on next instruments as early as 2019
- Expressions of interest for instruments as early as 2018
- Way forward currently discussed with Council

■ Construction Project
 ■ Hot Commissioning
 ■ 50 75 100% User Programme

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Rebaselining Schedule



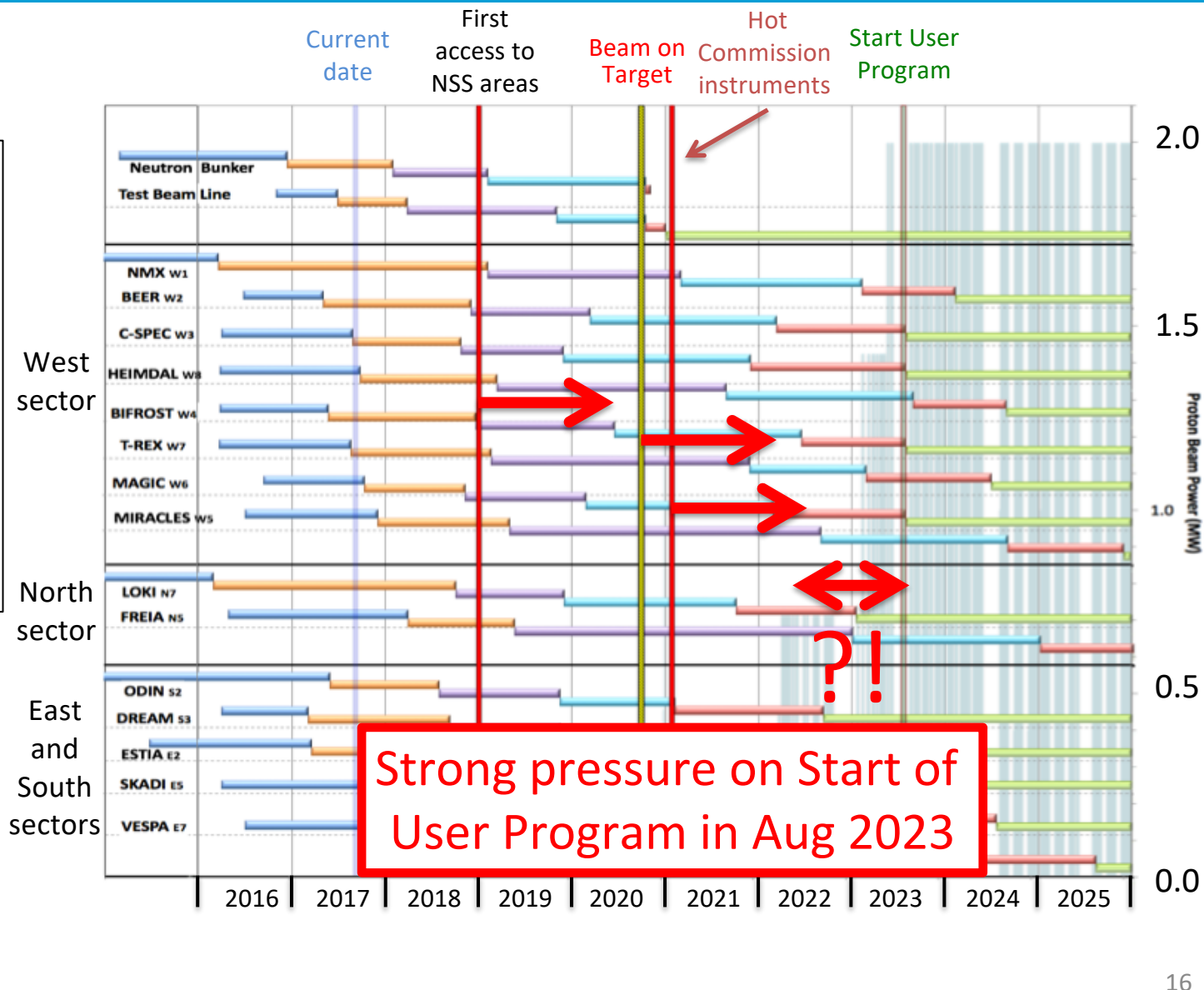
Internal* Neutron Beam Instrument Schedule

DRAFT FOR DISCUSSION V3.4, 15th September 2017

* still under discussion with ESS-ERIC Council

NOTES:

- Assumes 2MW maximum power until end 2025
- Phases aligned with TG2 reviews on 1st 10 NBIs
- Installation & Integration (TG4) + Hot Commissioning (TG5) for first 8 NBIs aligned with draft BOI plan (*schedule match typically within 1 month*)



Strong Pressure on Start of User Program in Aug 2023



- Details, see paper and subsequent talk by Shane Kennedy
- Detailed planning and optimization required to minimize the impact of this delay
- Problem discussed in Feb. 2018 Strategy Meeting of Council
- Potential mitigations may also include:
 - Focus on expert users
 - Delay from August to December 2023 (or later)
 - Focus on fewer instruments
 - Similar measures were taken at XFEL and SwissFEL

Close collaboration with all instrument teams is required to minimize the impact of these severe delays

Strong focus at IKON14

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IKON13 feedback: compliments

- Session structure was good
 - allowed lots of information to be given
 - great idea to allocate time for ad-hoc meetings
- workshop and site visit much appreciated
- In most cases, slides were made available beforehand – very useful
- increased technical focus is good
- high levels of interaction and engagement
- good low levels of panic
- “can do” attitude emerging
- clashes between instruments could be dealt with directly
- focused, interesting, engaging
- good topics for plenary and parallel sessions

IKON13 feedback: constructive criticism

- share questions before IKON
 - instrument teams are on organising committee and have put their questions on agenda
- ad-hoc sessions too short
 - the sessions have been made longer (but fewer)
 - group photo and coffee breaks took time away: they are now separate in agenda
- reduce number of parallel sessions
 - three are needed to deal with amount of information
 - proportion of plenary vs parallel is tilted slightly more towards plenary
 - tours take half day – no possibility of parallel sessions at CEA venue
- difficult for some instruments to attend several parallel sessions simultaneously
 - we keep parallel sessions to max 3
 - instrument teams need to bring sufficient people: min 3 people/instrument, increasingly engineering focused
- need bigger rooms for parallel sessions
 - should be much better in this venue
- insufficient preparation for parallel session on integrated schedule
 - don't accept. All instrument teams were informed. Read your e-mails!
- more time for instrument class sessions – time for sharing lessons learnt
 - not done this time: not unanimous opinion, unclear if instrument classes are right grouping, can be done at ad-hoc sessions which are longer

IKON13 feedback: constructive criticism

- consider inviting vendors
 - they are invited for plenary sessions
 - not for parallel technical sessions – avoid giving unfair advantages
- avoid discussion on things which cannot be dealt with at this level: politics, high-level budget/schedule misalignment, VAT
 - the agenda includes only subjects which are relevant at the working level
 - session chairs should focus on what is relevant
 - Andreas/Shane/JohnW are available to answer higher-level questions
- agenda issues
 - it was finalised last Wednesday at the last preparation meeting
 - there were variations between web/print version: should not happen this time
 - session titles were sometimes unclear: session titles were reviewed and finalised at the preparation meeting
- running over 4 days results in exhaustion and information overload by the end
 - three full days are really needed
 - this time we run for 3 full days instead of 0.5+1+1+0.5
- rethink the feedback session
 - too long: restructured from all 15 instruments into 4 instrument classes and 3 project areas
 - unclear remit: feedback on full ESS/NSS rather than IKON, focus on content rather than format, a template has been produced

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Instrument papers

- Single long paper for all instruments
 - agreement to submit to Nucl. Instrum. Meth. A
 - template for individual instruments agreed
 - most instruments have written their part
 - Ken A. will act as editor
 - introductory sections to each instrument class will be written by the instrument class coordinators
 - overall introduction to be written by Andreas/Shane/Ken/Dimitri
 - aim for first complete draft by mid-March
- Individual instrument papers
 - to be timed roughly with TG3 of each instrument
 - preliminary discussions on paper format – some divergence of opinion exists
 - several journals contacted – all agree to publish virtual issue
 - journal decision to be made before first paper, probably Q3 2018
 - agreement that the journal needs to be included in the WoS database

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- **ESS – ILL User meeting**

ILL – ESS European Neutron User meeting



- Methodological focus: user feedback on *ILL New instruments Endurance 2* and *ESS Instruments: Next 7 / Completions / Suite 15 / First 8*.
- Start series of ‘European Neutron User Meeting’ or ‘Meeting for Users of European Neutron Facilities’
- Periodicity every 2 years (even years e/o ecns/icns) oscillate ILL / ESS.
- 200+100 participants, initial location WTC Grenoble, France
- Include satellite events with scientific focus
- Date: 10 – 12 Oct. 2018

- Good project progress
- Rebaselining effort is key to minimize impact of delays
- Progress on contracts and TAs is needed
- High level discussions on the future of ESS have progressed
- Discussions on instruments 16-22 started
- Selection of most rewarding instrument completions projects involving STAPs and SAC well advanced
- Agreement with member countries on operations budget is critical, it needs to be high enough to allow reliable operation of the facility
- ESS-ILL User meeting Oct 10-12, 2018
- June: Move up to site!

Arial view December 2017

Temporary offices
as of June 2018

