

NSLS-II Science Advisory Committee Meeting

March 24-25 2016

Executive Summary

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The spring 2016 NSLS-II SAC meeting focused on three main topics

- Beamline Development
- Specific aspects of the scientific program
- User program

and included exchange with NSLS-II staff.

The SAC members congratulate the NSLS-II team and staff for the very successful start of user operation. The user program has started on several beamlines and there are sound plans to place 10 beamlines in the user program by the end of FY16. The early science program is on a good path. There is, however, a big concern about the delays in the ramp-up of the science program with the delays in beamline construction induced by the lack of adequate resources on the floor.

Concerning beamline development, NSLS-II management presented projections for beamline development and user operation for the period FY16-19 under the constraint of a flat operating budget of 110 M\$ per year, supplemented by a detailed comparison with APS operation. The analysis shows that the planned staffing level per beamline in the initial phase as well as in steady-state operation is fully justified and in line with APS staffing levels. There is currently a construction program underway for another 18 beamlines, in part using operation funds, to be completed and commissioned by FY19. In total 28 beamlines are expected to be in user service by FY20. SAC has a big concern that there is no funding secured for the construction and operation of **all** 28 planned beamlines. The construction of four **additional** beamlines to be fully funded from the operations budget in this period seems therefore unrealistic unless beamline operation is reduced to a level that will not allow to exploit the unique capabilities of the new NSLS-II beamlines and to ensure adequate user support. The plans for the construction of four additional beamlines should therefore be revised taking into account funding/resource constraints and the effect on the developing user program.

Questions concerning the scientific program were focused on the development of the CSX-2 beamline and the development of the life science program. Both topics were covered by presentations from NSLS-II staff members followed by an in-depth discussion. SAC

concluded that the plans brought forward for the CSX-2 are sound and will lead to a strong user program. The long-term development with the inclusion of IR and an option to develop RIXS on this beamline will lead to a unique capability which, at this point, only lacks funding. Concerning the strategic plan for life sciences, SAC finds that excellent progress has been made on the first five life science beamlines and that the vision presented for the future with the development of multi-scale X-ray imaging capabilities and complementary techniques, such as cryo-EM, is timely and has the potential to create a world-leading resource for life science research.

Concerning the user program, SAC fully supports the current strategy with a mix of different user access modes in the early stages of beamline operation. SAC recommends that the balance between the acceptance of new proposals and ongoing proposals be closely monitored such as to ensure a steady increase in scientific output while attracting new users. SAC also recommends that the balance between user operations and commissioning studies is appropriately monitored to ensure that the full functionality of the beamlines is implemented. The proposal scoring system is appropriate while a formalized procedure for ‘aging’ proposals should be put in place. The proposed BAG (block allocation group) and rapid access schemes can enhance productivity and efficiency of the life science and some other beamlines.

A full report with more detailed recommendations is in preparation and will be provided in due time.