NSF AST Update

OIR Study Committee

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- Portfolio Review and Budget
- NSF Goals for OIR System Study
- Impact/Content of MSIP

Portfolio Review and Budget

Portfolio Review Status

- Dear Colleague Letter NSF 14-022 (December 20, 2013) lays out future steps for all telescopes recommended for divestment in the near term or for future consideration
  - Beginning feasibility/environmental studies for a number of telescopes, while consideration of some others awaits specific external milestones
  - AST continues to discuss and negotiate partnerships for O/IR system telescopes
    - Mayall 4m and WIYN 3.5m: Not on NOAO base budget post-2015, but funding will continue for special projects
    - 2.1m: No longer funded by NSF, as of Sept. 30

AST Budget Free Energy 2015 to 2020

- Individual Investigator Grants Programs
  - **Not available!** AST will not decrease
- Facility Divestment per PR Recommendations
  - Furthest along wrt Kitt Peak telescopes
    - Savings in 2016 at small level, more in 2018-2019
    - Dependencies on interagency discussions
  - GBT and VLBA not included in NRAO solicitation
- New Facilities: DKIST ops ramping up, LSST ops to ramp up at end of decade
- Mid-Scale Innovations Program (MSIP)
  - 1st competition just completed
  - 2nd solicitation in FY15 for FY16/17 funds

OIR System Study (this activity)

Background of OIR System Study

- Awarded February 15, 2014, for 12 months: “A Strategy to Optimize the U.S. Optical/Infrared System in the Era of the Large Synoptic Survey Telescope
  - Study being carried out by (this) committee under auspices of CAA
  - Concerned with O/IR system as a whole
    - Observing capabilities
    - Instrumentation
    - Data management
    - Human resources
  - Not tied to maximizing science output of LSST, but taking account of LSST as a key centerpiece in US O/IR system

NSF Goals of O/IR Study

- Goal 1: Position the observational, instrumentation, data management, and support capabilities in U.S. O/IR astronomy to best address the science frontiers and science goals as identified in the decadal surveys *"New Worlds, New Horizons in Astronomy and Astrophysics"* and *"Vision and Voyages for Planetary Sciences in the Decade 2013-2022"* in the era of LSST as the primary new federal asset in the O/IR portfolio.

- Goal 2: Achieve the best science return from the NSF investment in night-time O/IR astronomy, including, but not limited to, the role of the O/IR system in delivering LSST-related science.

Desired Study Outcomes

- Working description of the O/IR system, its capabilities and resources, inclusive of federal and non-federal assets
- Maximize access to system capabilities for the U.S. community, whenever possible
- Focus on science outcomes and needed coordination, not particular organizational structures
- Suggested paths forward on instrumentation & data management training/development
- Report expected early in Calendar Year 2015
  - NSF will develop an implementation response, which is likely to start with the FY 2017 budget request
  - Recommendations with little/no budget implications could be responded to sooner than FY 2017
  - Potential implications in areas such as MSIP, Gemini instrumentation, postdoc/training programs, partnerships, and observatory coordination

Impact/Content of Mid-Scale Innovations Program (MSIP)

MSIP Solicitation

- From Synopsis
  - "The MSIP will emphasize both strong scientific merit and a well-developed plan for student training and involvement of a diverse and inclusive workforce in instrumentation, facility development, or data management"
- From Solicitation Specific Merit Review Criteria:
  - "All proposals must show the project's value and benefit to the US astronomical community. Examples of benefit include, but are not limited to, open-access observing time on the facility, access to data products and software, and cooperation and sharing of technology with other projects."
  - "Except for those in Category 4 [open access] with no instrumentation, proposals must include, and will be evaluated on, a substantial component of student training and involvement of a diverse and inclusive workforce in instrumentation, facility development, or data management/analysis"

MSIP and Open Access

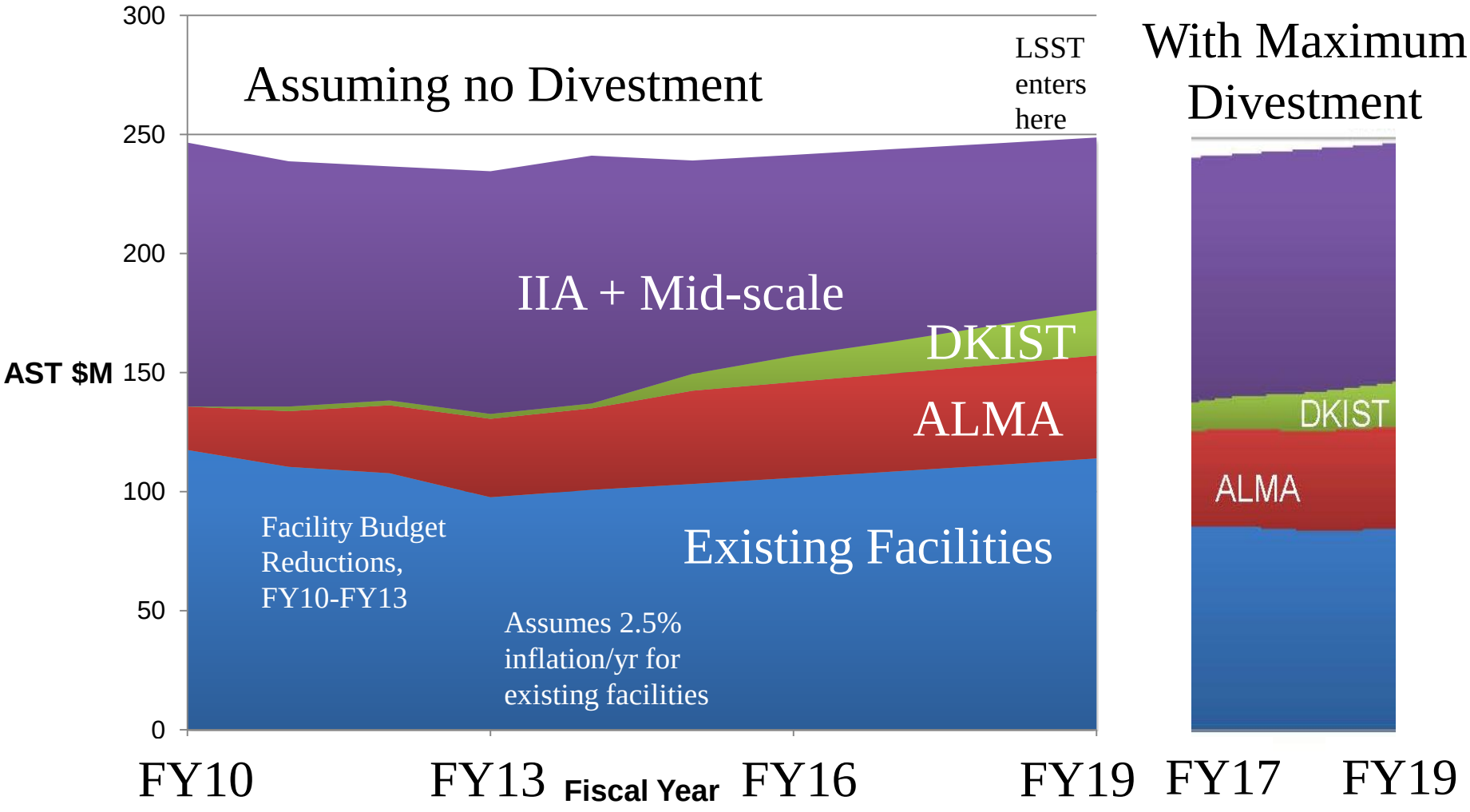
- Two previous programs provided "open access"
  - TSIP (Telescope Systems Instrumentation Program) provided fixed number of nights per dollar, funding instrument development; typical budgets of $3-4 million/yr in ~2010
  - URO (University Radio Observatories) provided 30-50% of observing time in return for operations funding; typical budgets of $6-10 million/yr in 2008-2014
  - TSIP and URO programs generally received 3-6 proposals, with funding rates of 25-50%
- MSIP subsumed these open access programs as a component of MSIP program
  - Total MSIP budget started at ~$14 million/yr
  - FY 2013 solicitation for FY 2014/15 funds
  - Expect similar FY 2015 solicitation for FY 2016/17 funds

MSIP First Results

- 38 pre-proposals, requesting $400 million (12 full proposals invited)
  - Between a quarter and half classified their proposals as “Open Access” (could specify multiple categories)
  - Observing time/access offered relative to funding (aka cost/benefit) varied widely compared to either TSIP or URO standards
  - Most other proposals (and some with Open Access) involved instrumentation development
    - Community benefit criterion meant that panel had to weight the value per dollar of open access time against the value per dollar of, for example, student training in instrumentation
- MSIP Awards
  - Three full awards, so full-funding rate is below 10%
    - One offers open data access, others are primarily science instrumentation
  - Seed funding or co-funding expected for 2-3 other awards

Backups

AST Portfolio Scenarios



AST budget assumption: FY15=FY14, 1%/yr growth thereafter

Portfolio Review Scenarios