

2015 NSF Large Facilities Workshop



Matthew J. Hawkins
Acting Head, Large Facilities Office
May 12-14, 2015

NSF Large Facilities Workshop ~ 2015

Purpose and Vision

- Two-Way & Open Exchange
 - ✓ Formal & Informal
 - ✓ Transparent
- Best-Practices and New Policy
- Lessons-Learned
- Identify & Solve Challenges

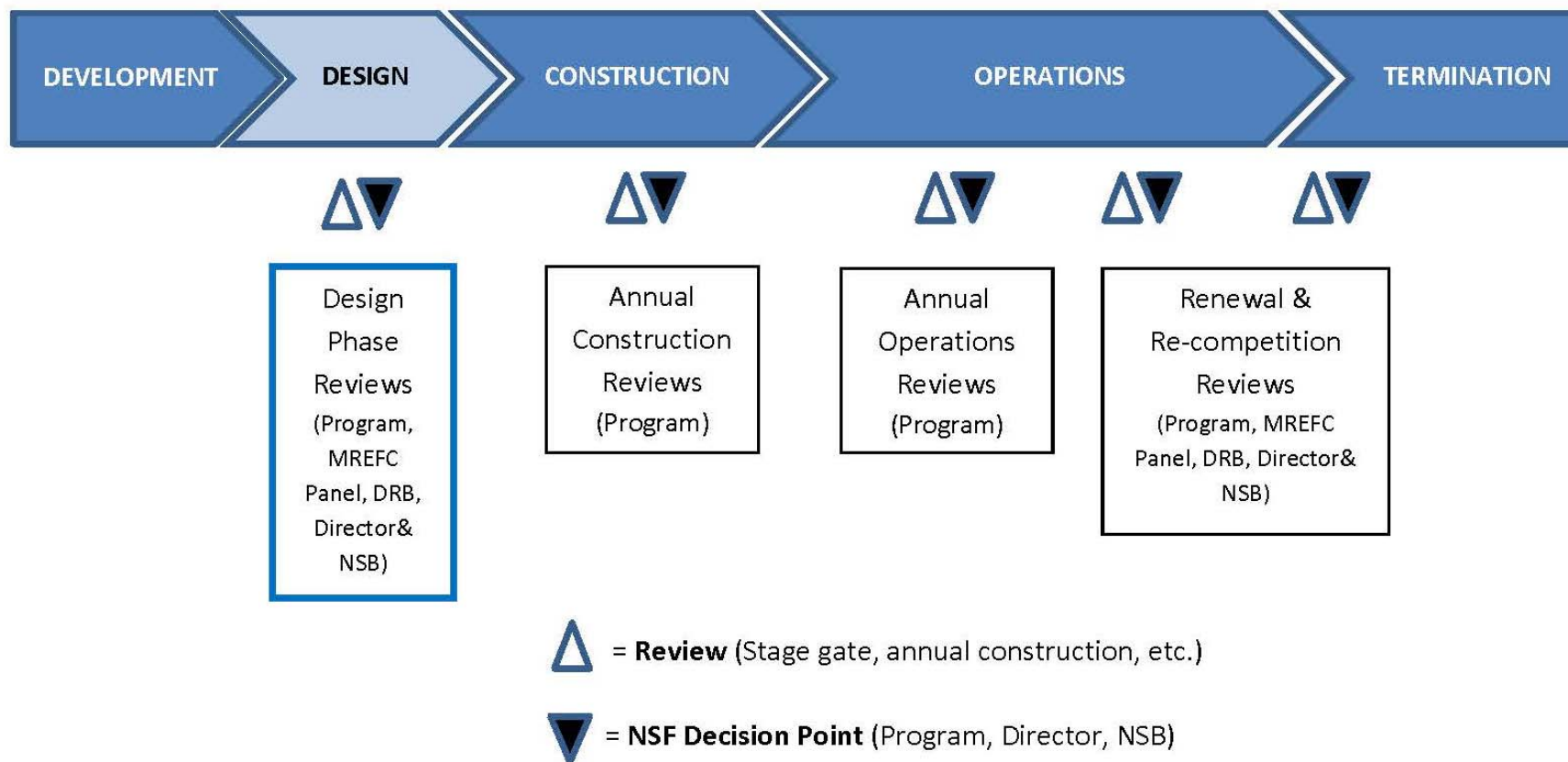
NSF Large Facilities Workshop ~ 2015

Purpose and Vision

- 2015 Workshop Report
- 2016 ~ Washington, DC
- 2017 ~ Off Site
- Format & Agenda Inputs Please!

NSF Large Facilities Workshop ~ 2015

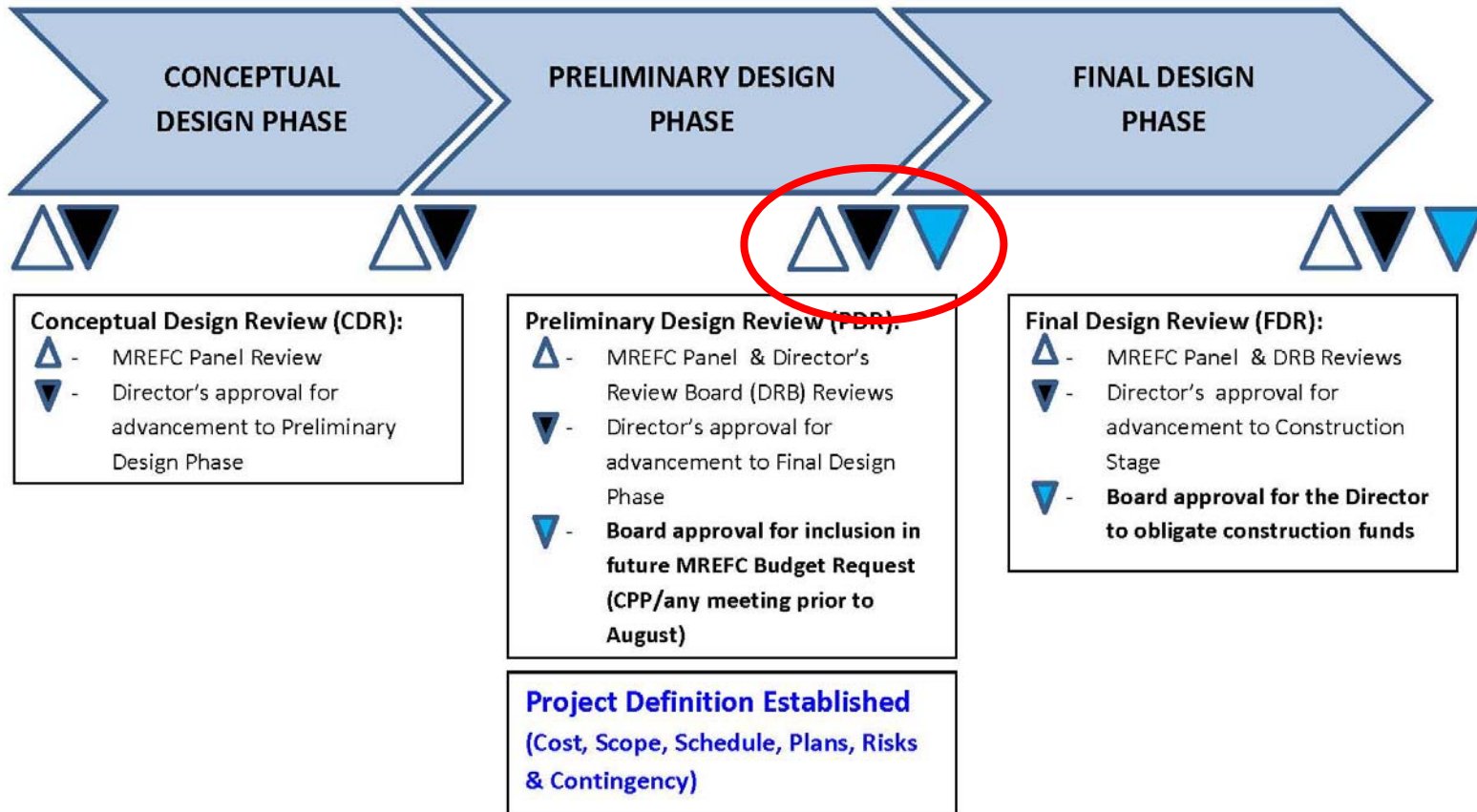
Project Stages and MREFC Process



NSF Large Facilities Workshop ~ 2015

Project Stages and MREFC Process

DESIGN STAGE



NSF Large Facilities Workshop ~ 2015

Projects in the Design Stage

Regional Class Research Vessel (RCRV)

- Preliminary Design Phase
- PDR Complete - **August 2014**
- Decadal Survey of Ocean Sciences (DSOS) Inputs Considered
- Seeking Funding Approval



Antarctic Infrastructure Modernization for Science (AIMS)

- Conceptual Design Phase
- Refining Project Scope and Schedule
- CDR - **March 2015**
- Seeking Approval for Preliminary Design Phase

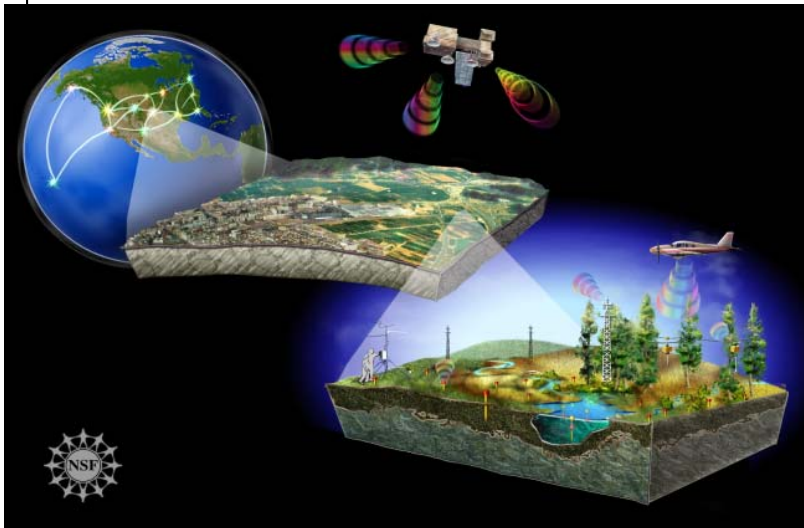


NSF Large Facilities Workshop ~ 2015

Projects in the Construction Stage

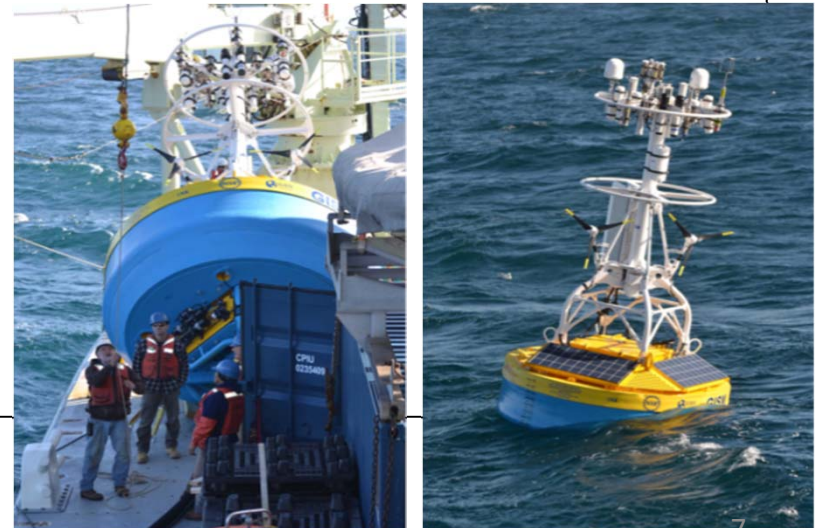
National Environmental Observatory Network (NEON)

- ~65% Complete
- Transition to operations at some sites
- Schedule and budget re-planning
- Construction End - **October 2017**



Ocean Observatory Initiative (OOI)

- ~95% Complete
- Transition to Operations
- All major assets deployed
- Cyber-Infrastructure and Science User Interface under final development
- Construction End - **July 2015**



NSF Large Facilities Workshop ~ 2015

Projects in the Construction Stage

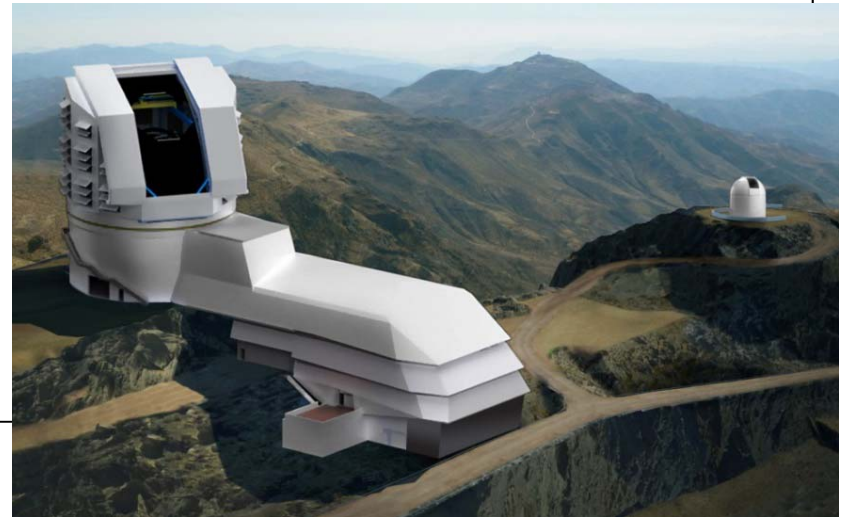
Daniel K. Inouye Solar Telescope (DKIST)

- ~55% complete
- Legal challenges being managed
- Construction End -**August 2019**



Large Synoptic Survey Telescope (LSST)

- Construction Start – **August 2014**
- Partnership with DOE (Camera)
- New Cost Analysis Procedures Implemented to establish award at or below Board-approved TPC
- New Contingency Policy Implemented



NSF Large Facilities Workshop ~ 2015

Projects in the Construction Stage

Alaska Region Research Vessel (ARRV; R/V *Sikuliaq*)

- ~98% Complete
- First funded science cruises (Dec 2014)
- Final trials and shipyard warranty period
- Construction End - **February 2016**



Advanced Laser Interferometer Gravitational-wave Observatory (AdvLIGO)

- ~98% Complete
- NCE approved to allow for most advanced computing and data storage
- Construction End - **September 2017**

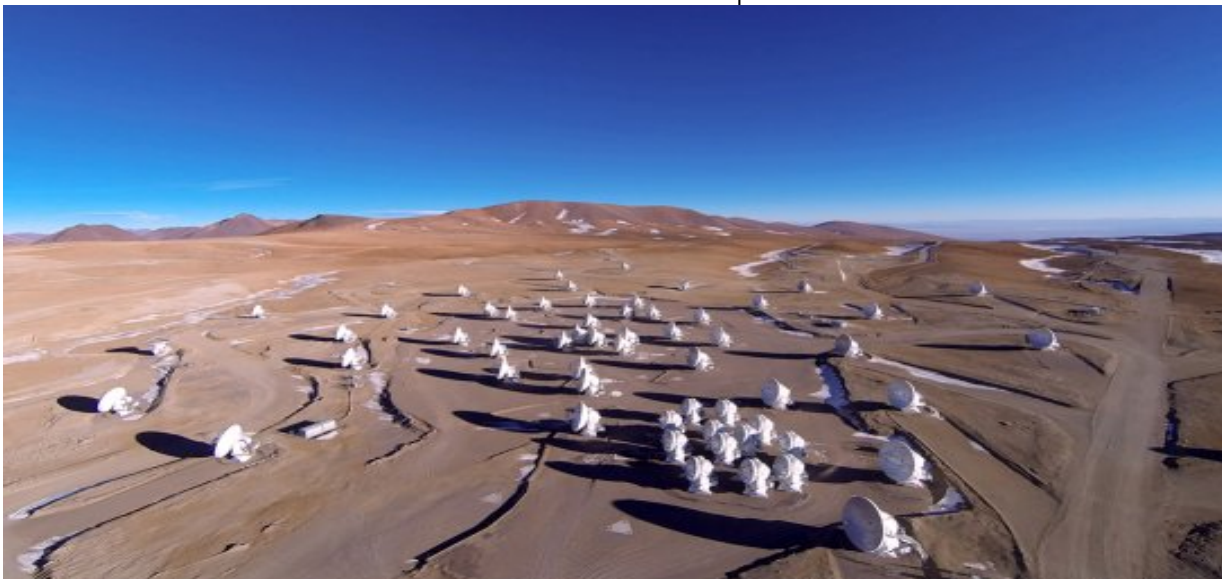


NSF Large Facilities Workshop ~ 2015

Projects in the Construction Stage

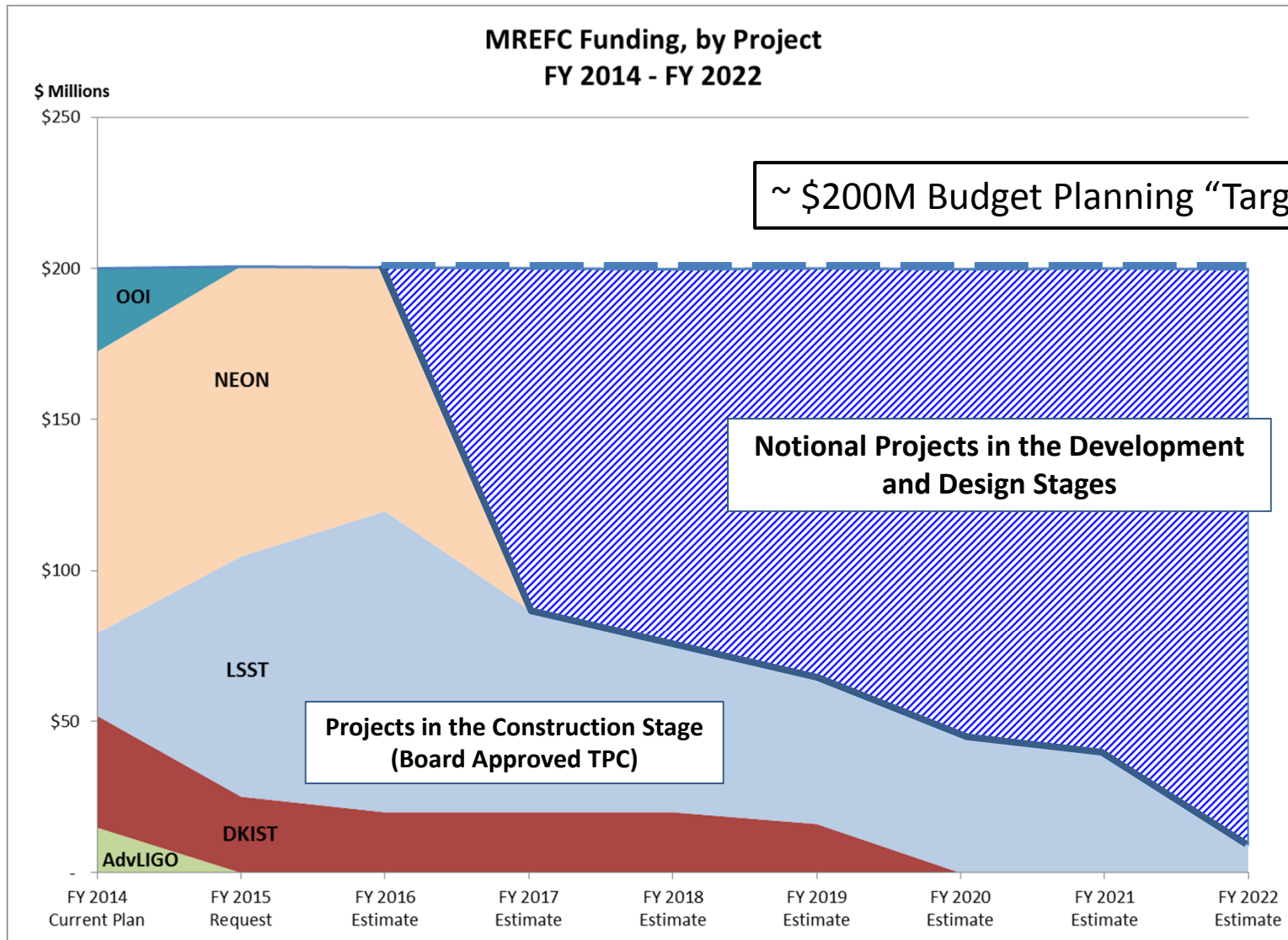
Atacama Large Millimeter Array (ALMA)

- Completed – March 2015



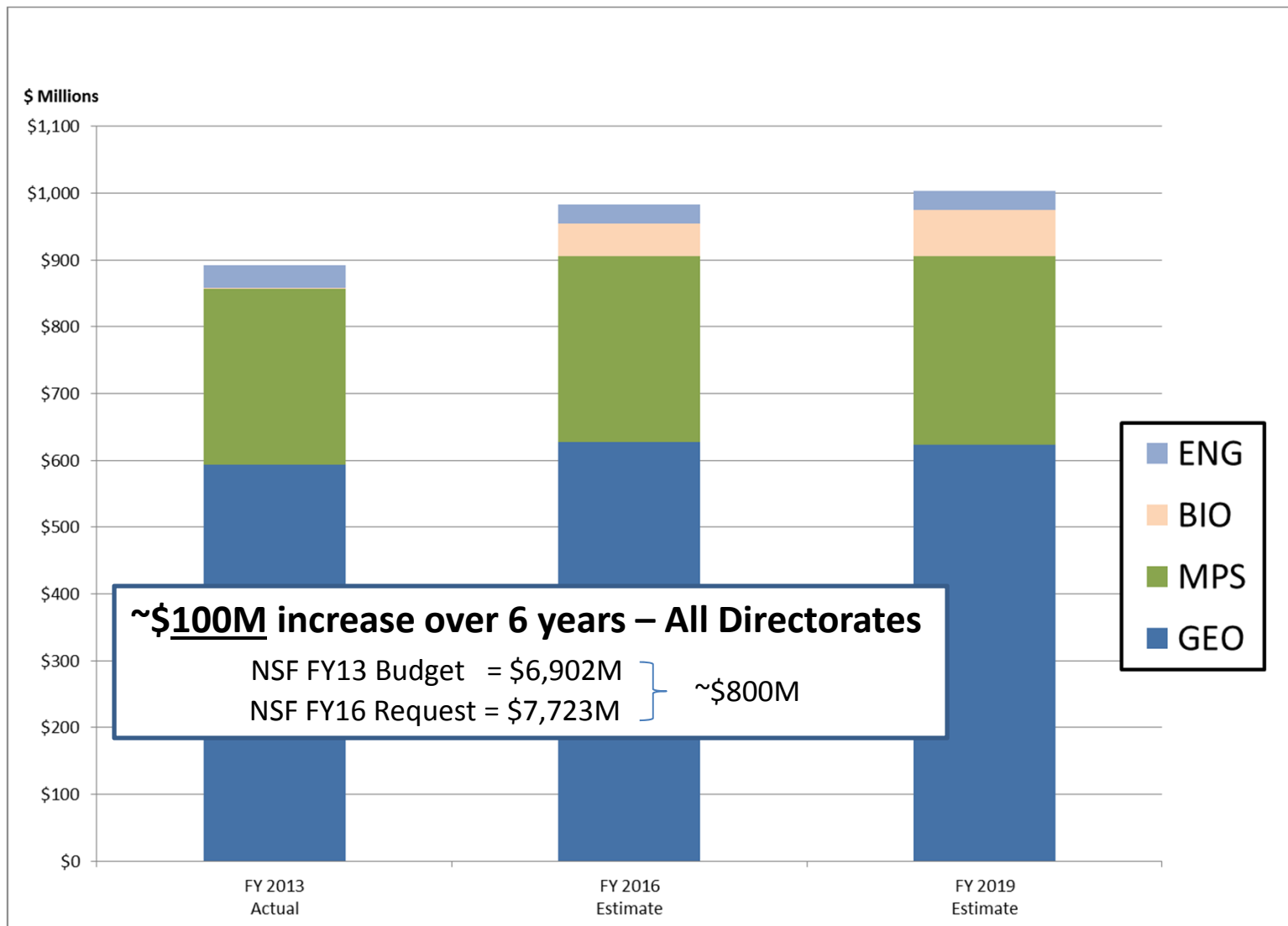
NSF Large Facilities Workshop ~ 2015

MREFC Budget Profile



NSF Large Facilities Workshop ~ 2015

Projected Operational Cost Profile



NSF Large Facilities Workshop ~ 2015

NSF Budgets

FY13 = \$6.883B

FY14 = \$7.172B (4.1%)

FY15 = \$7.344B (2.4%)

FY16 = \$7.724B (Request)

FY17 = ?

NSF Large Facilities Workshop ~ 2015

Challenges

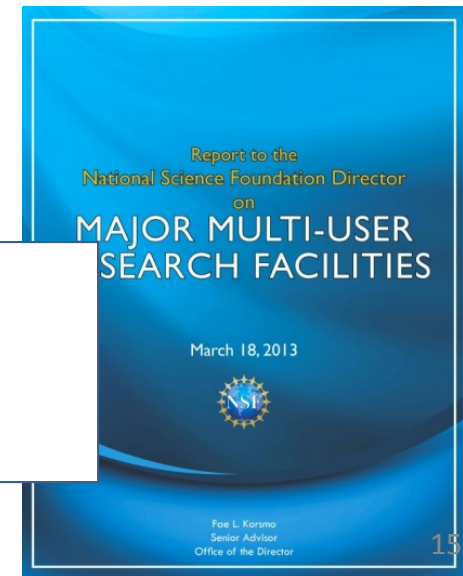
- “Care and Feeding” of Infrastructure Investments
- Balance with Science Investments
 - ✓ On-going Discussion
 - ✓ % Depends on Directorate/Division/Discipline
 - ✓ Infrastructure necessary to do science
- “Next Generation” Research Infrastructure
 - ✓ **What’s Needed?**
 - ✓ **How do we pay for? (Operations)**
- Community-based
 - ✓ P5 Report (Particle Physics)
 - ✓ Decadal Survey of Ocean Sciences

NSF Large Facilities Workshop ~ 2015

Large Facilities Office

- **Large Facilities Manual (LFM):**
 - ✓ Contingency Policy & Risk Management
 - ✓ Cost Analysis
 - ✓ Improved internal NSF Coordination of oversight & assurance via new Integrated Project Teams (IPT)
 - ✓ **OMB Clearance ~ Public Release End of May 2015**
- **Next Steps:**
 - ✓ Large Facilities Lexicon Standardized
 - ✓ Roles & Responsibilities Clarified (NSF-wide)

1. Ensure a Foundation-wide risk management approach
2. Provide additional rigor to technical, cost, schedule, and management reviews.
3. Improve transparency, communication, and clarity on process and expectations.
4. Increase capacity for efficient and effective project planning.



NSF Large Facilities Workshop ~ 2015

Large Facilities Office

Assistance: The act of giving support or help; making it easier for someone to do something or for something to happen.

Assurance: To give a strong and/or definite statement that something will happen or that something is true; to give confidence to.

NSF Large Facilities Workshop ~ 2015

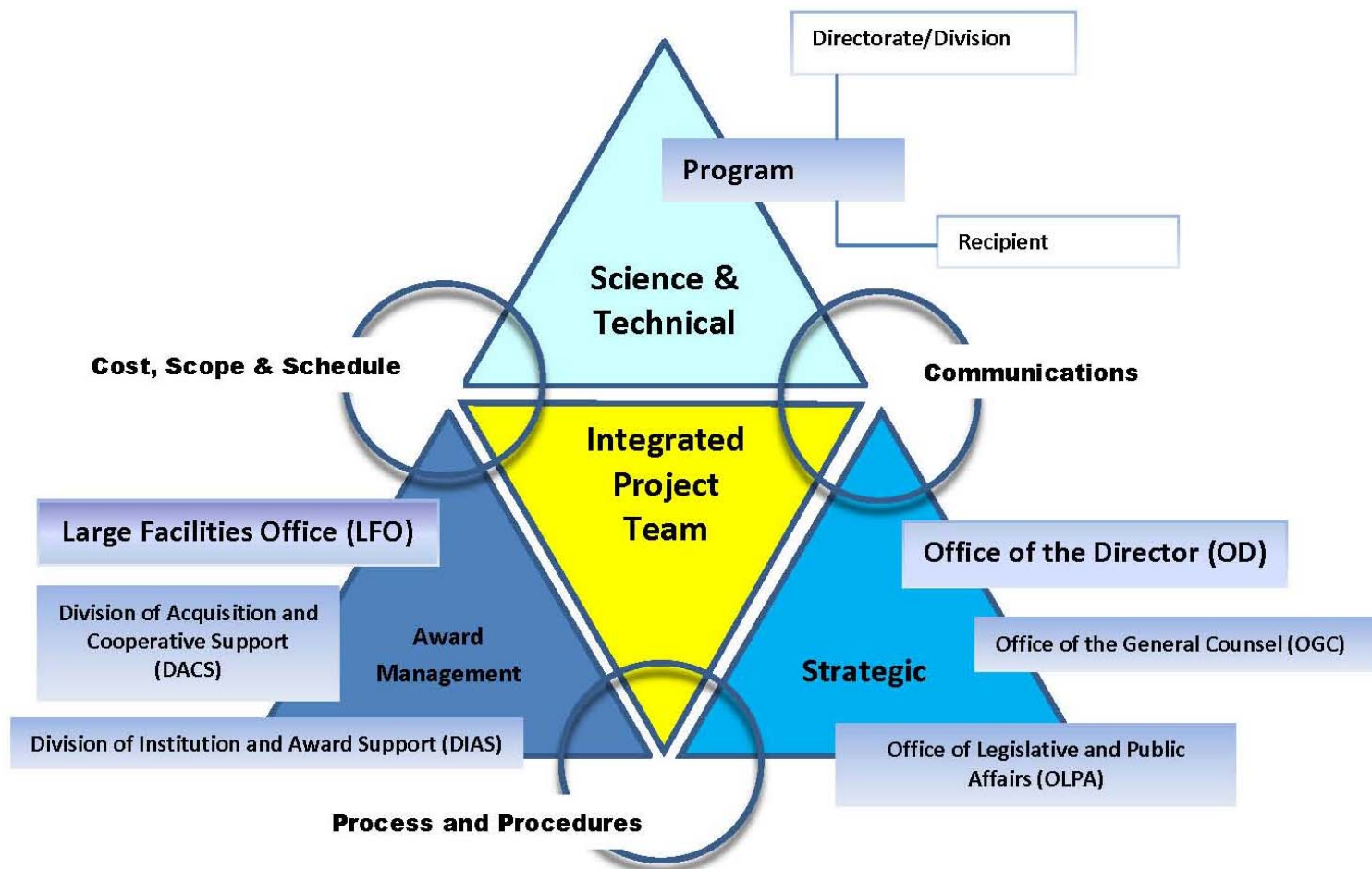
Assurance

“It has been increasing apparent that a single office is challenged to perform all three functions [planning, assistance, assurance] and the lack of clarity around the performance of these three functions can leave the Foundation vulnerable. To overcome this challenge, the Foundation needs to define the functions more precisely and assign them across the agency to more than one unit.” (Major Multi-User Research Facilities Report, March 2013, pg 3)

Assurance is a shared responsibility

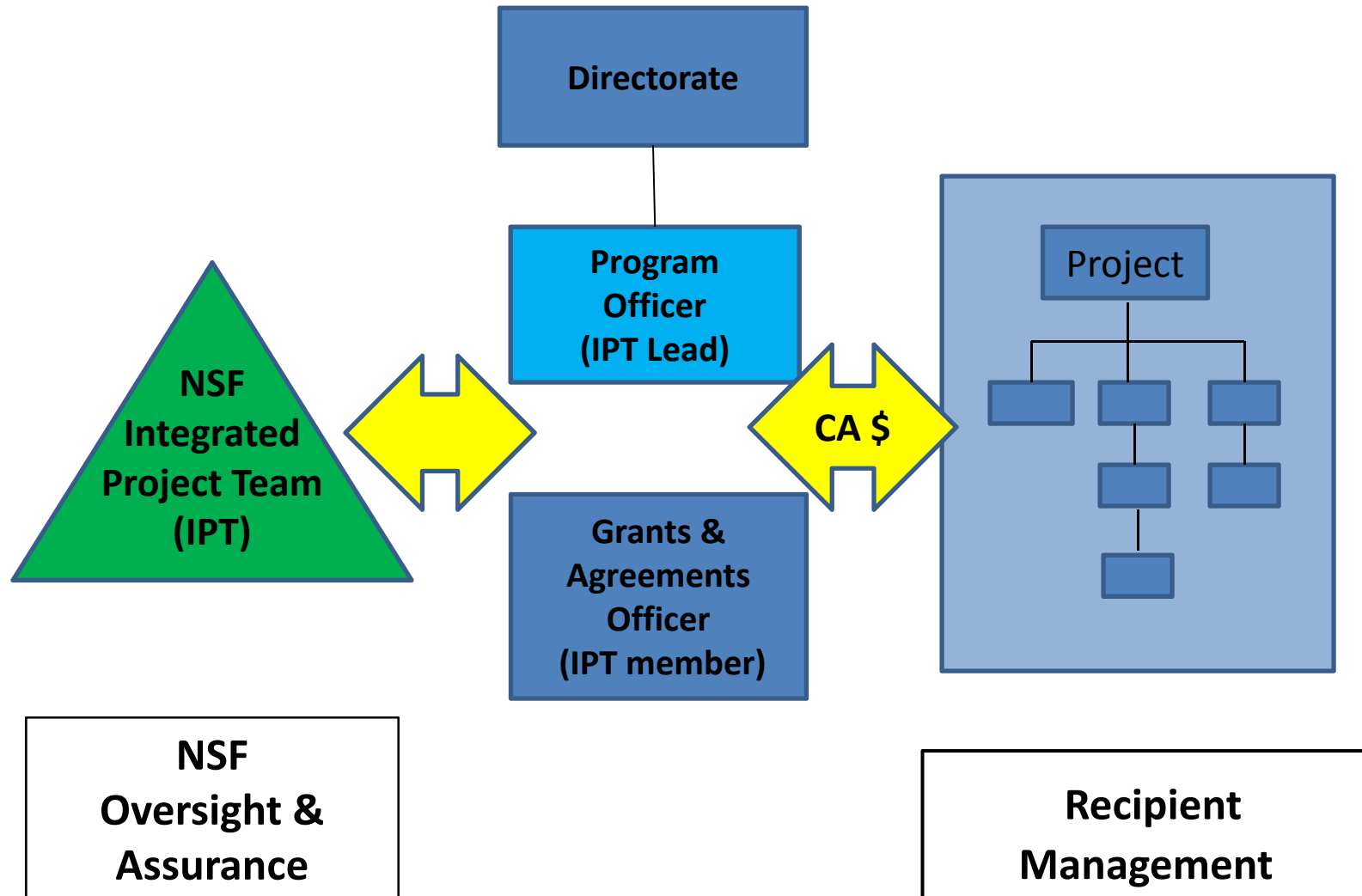
NSF Large Facilities Workshop ~ 2015

NSF Integrated Project Team (IPT)



NSF Large Facilities Workshop ~ 2015

NSF Integrated Project Team (IPT)



NSF Large Facilities Workshop ~ 2015

NSF Process Improvements

- Clarification on Policies & Procedures
 - ✓ Budget Contingency Use
 - ✓ Management Fee
 - ✓ Proposal Budget Cost Analysis
- Verify Configuration Control/CCB (PEP) and NSF Approval Thresholds
- Improved Cost Analysis (CDR > PDR > FDR)
 - ✓ GAO Cost Estimating Guide
 - ✓ Cost Book Guidance (Pending)
 - ✓ Operational Proposal Budget Guidance (Pending)
- Incurred Cost Audits > \$100M
- Third-Party Study of NSF Oversight of Large Facilities
<http://www.napawash.org/current-studies.html>