



Integrating Social Science into NSF Observatories Workshop

Overview of NSF Major Research Equipment and Facility Construction Account (MREFC)

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Topics Covered

- MREFC Account Definition
- MREFC Pre-construction planning and approval process
- Example project timeline



MREFC Account Definition

- Account created to finance “necessary expenses for the acquisition, construction, commissioning and upgrading of major research equipment, facilities, and other such capital assets pursuant to the National Science Foundation Act of 1950, as amended.” (NSF Section of P.L.109-108)
- Created as a mechanism for all directorates at NSF to take on large projects
- MREFC applies to projects with construction costs that exceed 10% of the annual budget of a particular directorate at NSF



MREFC Projects

- Ideas generated by the research community with NSF support (workshops, R&D, etc)
- Peer review process emphasizes intellectual merit of the proposals and broader societal impacts
- Must satisfy the following additional criteria:
 - Transformative impact on a field of research
 - NSF specific priorities in multidisciplinary competition for resources
 - Meet national needs as perceived by NSB, OMB and Congress



Motivations for MREFC process

- Improve process leading to National Science Board consideration and approval so that candidate projects have well defined and fully budgeted scope and schedule
 - Avoid problems with descoping, cancellation, or deferral of construction start
- Brinkman Report: “Setting Priorities for Large Research Facility Projects Supported by the NSF”
 - Addresses these issues
 - Cited need for a well defined, rigorous pre-construction planning process



MREFC Process – “Well Defined”

- “Well Defined” means:
 - What science questions will the facility answer?
 - What infrastructure is required to answer those questions?
 - What budget is required to build that infrastructure?
 - What is the schedule for accomplishing this work?
 - What budget/schedule uncertainties exist?
 - How will the Awardee manage/execute the project?

*Collectively, the answers to these questions
form the Project Baseline.*

Board Approval Stage/Phase “the Q”

MREFC
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appropriation

Conceptual Design

Definition of science objectives and quantitative science requirements

Notional proposal that NSF can react to and encourage or discourage

Conceptual design report

System definitions

Site independent design

Top-down budget and contingency estimates

Forecasts for international partnership

Operations budget estimates

Conceptual design review by NSF

NSB approval to enter “Readiness Stage” (preliminary design)

Design - aka “Stage”

ed - detailed design and
form the basis for a request
uction funds

ers and major risk factors

ign

pacts and mitigations

ntions firmly stated

the project is described in an
Plan, approved by NSF

d Final Design activities
in Project Development Plan
deliverables

press against objectives of
ess Stage

ving successful Preliminary
F



Example project timeline

