

# NA ALMA Development Program



## Overview

- **Goals**
  - enhance capabilities of the ALMA array
  - foster collaboration between and among interested institutions
  - develop capabilities of the NA radio astronomy community
  - cultivate community support for the ALMA program
- **Studies; \$100K funding level**
  - typically 1 year duration
  - total Studies budget approximately \$500k/year
- **Projects; \$1M to \$5M funding level**
  - typically multi-year duration
  - total FY2014 Projects budget approximately \$3.8M
- **Open participation**

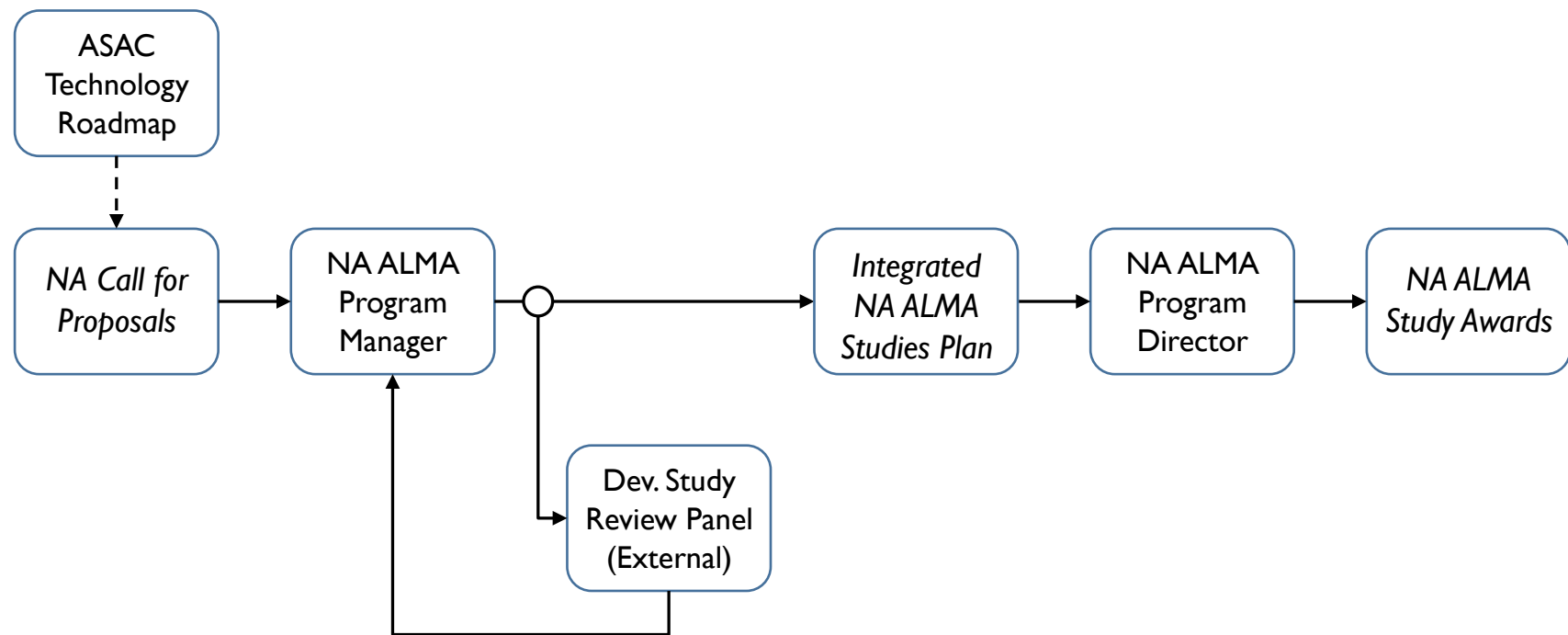
***Overarching goal is enrichment of the NA radio astronomy community.***

# NA ALMA Development Program



## Process - Studies

- **NA ALMA Program Office coordination**



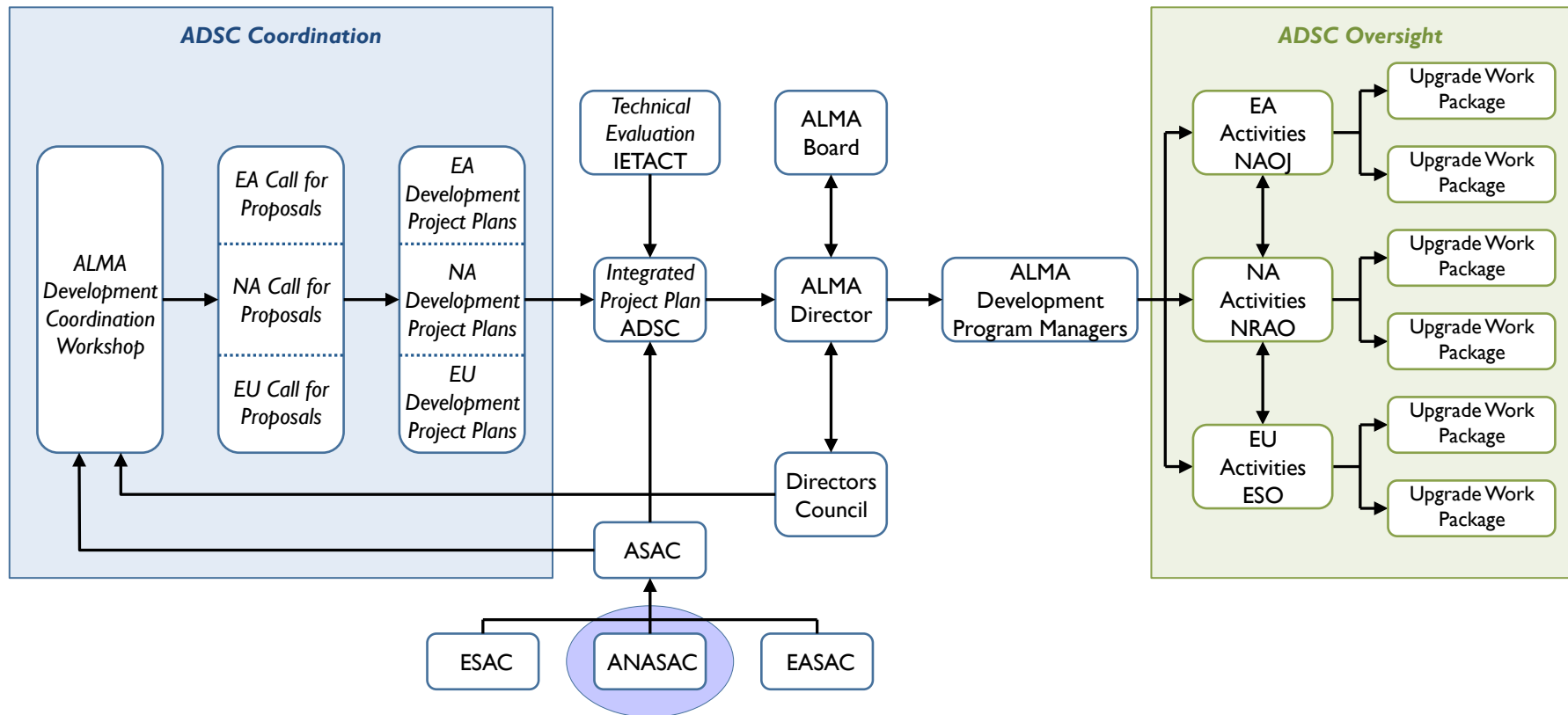
***Next proposal cycle for Studies planned for Q1 CY 2013.***

# NA ALMA Development Program



## Process - Projects

- Community-wide coordination



**First call for Project proposals TBD.**

# NA ALMA Development Program

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## Metrics

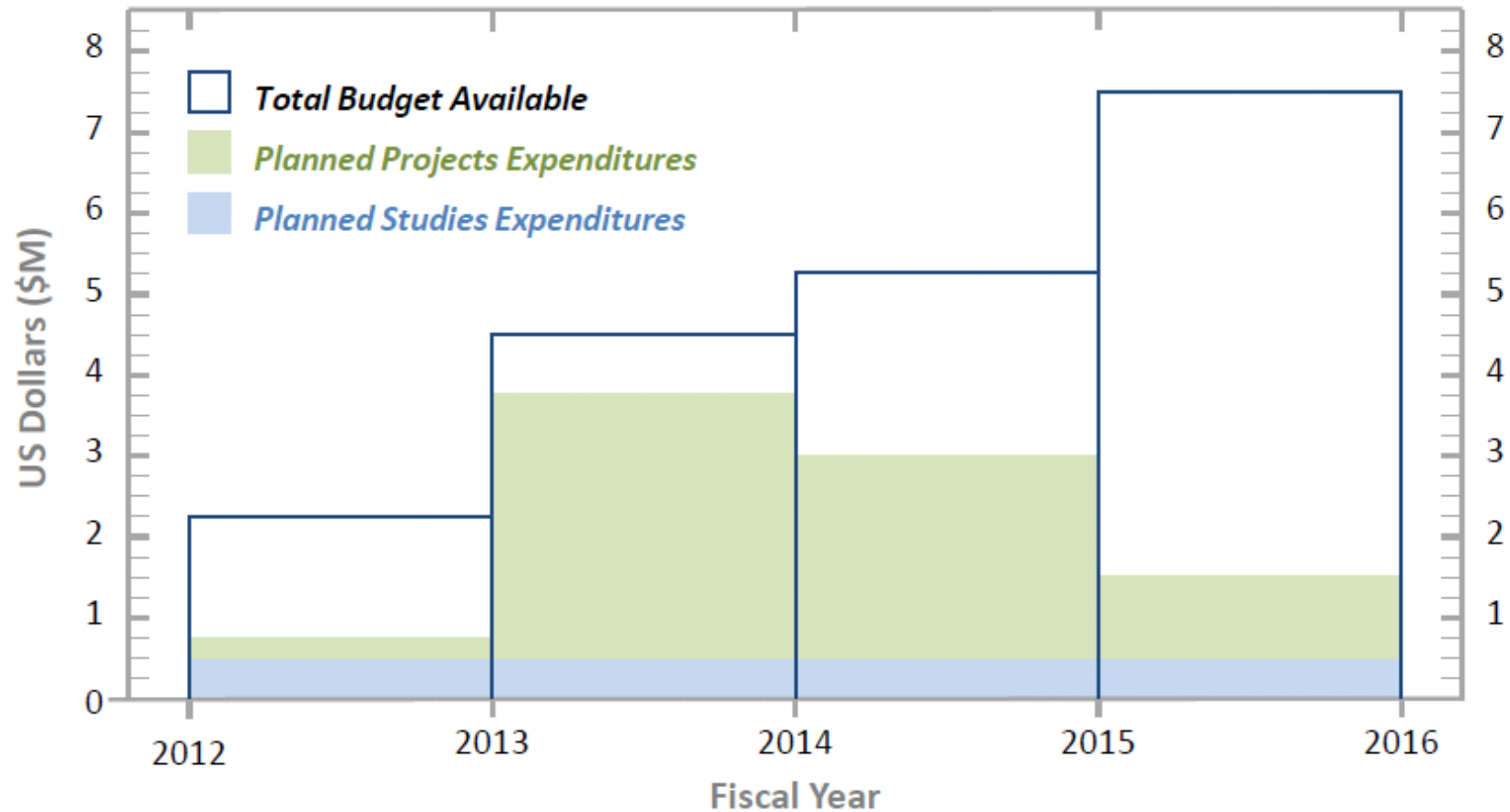
- **Technology Readiness Levels** – *ensures objective assessment*
- **Opportunity Ranking** – *quantifies positive impact and feasibility*
- **Performance to Specifications** – *quarterly review*
- **Performance to Schedule** – *quarterly review*
- **Performance to Cost** - *quarterly review*

***Transparent process and criteria ensure a level playing field.***

# NA ALMA Development Program



## Funding



***Slow start, now accelerating; Project capacity increases in FY 2014.***

# NA ALMA Development Program



## Portfolio overview - Studies

Study	PI	Lead Institution	Collaborating Institution(s)	Funding (\$US)
2 <sup>nd</sup> Generation Receiver for Band 6	A. Kerr	NRAO	U. Virginia	84,045
Design Study for Band 2 Cartridges	E. Bryerton	NRAO	U. Arizona	98,119
mm/submm VLBI with ALMA	J. Kern	NRAO	MIT, Haystack	0
Increase the ALMA Data Rate	B. Glendenning	NRAO		0
Ultra-wideband Quantum Limited Amplifiers	D. Woody	CalTech		92,498
A Visualization Portal for ALMA Data	E. Rosolowsky	U. British Columbia	U. Calgary, Harvard U.	73,438
Unleashing Large Dataset Science	L. Mundy	U. Maryland	U. Illinois, NRAO	34,320
ALMA Band 1 Receiver Development Study	P. Ho	ASIAA	HIA, NRAO, U Chile	100,000

**38% of total Studies funding allocated to NRAO**

**TOTAL (\$US) 482,420**

**62% of total Studies funding allocated to collaborating institutions**

***Abiding by a balanced Study portfolio strategy.***

# NA ALMA Development Program



## Portfolio overview - Projects

Projects	PI	Lead Institution	Collaborating Institution(s)	Funding (\$US)
Band 5 Local Oscillator Production	E. Bryerton	NRAO		3,328,718
Fiber Optic Connectivity (pending)	J. Ibsen	JAO	Contractor	1,849,001
ALMA Phasing Project (proposed; ALMA Development funds only)	S. Doleman	MIT, Haystack	NRAO, MPIfR, NAOJ, ASIAA, U. Concepcion, Onsala	* 516,800
UVA Microfabrication Laboratory (proposed)	A. Lichtenberger	University of Virginia	NRAO	675,000

*\* An additional \$3.5M will be provided by NSF/MRI*

**TOTAL (\$US) 6,369,519**

**52% of total Project funding allocated to NRAO**

**48% of total Project funding allocated to collaborating institutions**

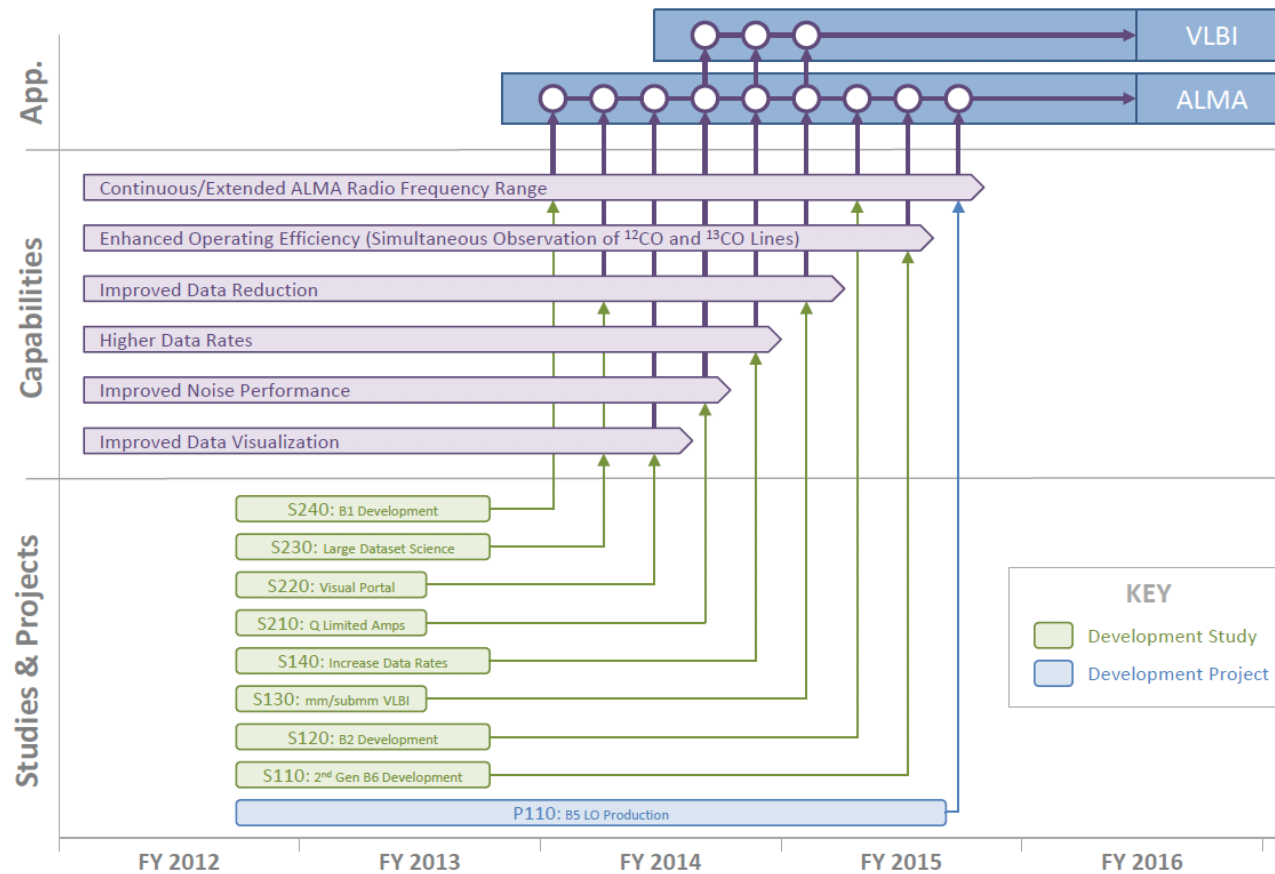
- Total Phase I Program expenditures (through FY 2015) = \$6,851,939**

***Abiding by a balanced Project portfolio strategy.***

# NA ALMA Development Program



## Technology Roadmap



***A focused, user-driven technology development program.***