

BUDGET JUSTIFICATION – MBARI

Salaries/Wages

A. Senior personnel:

Steve Etchemendy (PI, 2 months at no cost to NSF), Director of Marine Operations at MBARI will function as to the PI for MARS until retirement (Dec. 2015). He deals with policy issues, permitting, insurance, staffing, and reporting obligations with NSF. Additionally, Steve will represent MARS O&M for UNOLS ship scheduling functions.

Craig Dawe (Co-PI, 2 person months) deals with policy issues, permitting, insurance, staffing, and reporting obligations with NSF. In addition to duties as PI, Craig will continue as the MARS Operations Manager and will be responsible for maximizing the success of the MARS users' community. Additionally, the MARS Operations Manager is the primary resource to assess deployment “readiness” of science experiments as well as any infrastructure component of MARS. The MARS Operations Manager will function as the MBARI Marine Operations Technical Manager and Ventana Chief Pilot during the unfunded portion of the year. The logic here is to integrate MARS maintenance and operations requirements with the primary service vessels for MARS as much as possible.

B. Other personnel:

B. 2. Other Professionals:

Funds are requested for three months of time split between an MBARI Electrical Engineer and MBARI Software Engineer in year 1 (2015) to complete the inductive power and data transfer strip and test it on MARS.

Funds are requested for one month/year for MBARI Engineering support. In year 1 the mechanical design of the inductive power and data transfer strip will require this engineering time. In subsequent years we have needed engineering support for the maintenance of the MARS facility. These funds will cover the “as needed engineering support” to maintain MARS.

The MARS Facility Support Technician (12 person months/year) is responsible for the day-to-day control of the MARS system. This position monitors data streams and adjusts power levels using PMACS (Power Management and Control System) and monitors system functional parameters and provides watchdog functions to ensure smooth operations. The MARS technician insures the data store and forward functions are working and maintains the system and manages the day-to-day needs of the MARS computer network. The MARS technician also assists with the test tank experiment installations and supports users.

C. Fringe Benefits:

Rates are set by MBARI annually. The base is labor dollars and the pool costs consist of payroll taxes, health benefits, retirement benefits, workers compensation, and leave. The rate for full-time regular and part-time (30-39hrs/wk) employees is 56%.

D. Equipment

MARS will require replacement of five Cisco routers (all are now 10 years old) over the five-year term of this proposal. Currently, we have two Cisco Routers immersed in fluorinert in the subsea node and the survivability of these routers is in question (year 3). The three shore based routers (also 10 years old) will need to be replaced (years 1 and 4).

Two ODI (Ocean Design Inc.) connectors have partially failed on the subsea node. Funds are requested to purchase these connectors in year 2 and replace these connectors when we replace the Cisco routers in the subsea node (year 3). A spare connector will be purchased in year 4.

E. Travel

E.1. Domestic:

Over the years of MARS O&M, travel has been necessary to coordinate technical issues with vendors, meet with NSF to discuss policy issues, participate in OOI workshops and go to a national scientific meeting (American Geophysical Union). 1,000/year

E.2. Foreign: None

G. Other Direct Costs:

G.1. Materials and Supplies:

Maintenance of the MARS system over the last 6 years has averaged:

Supplies computer hardware: \$750/year

Computer software: \$200/year

Non-Cap Equipment: \$4,500/year

Supplies General: \$2,000/ year but we need \$3,000 for the inductive power and data transfer strip in year 1 (2015) and \$15,000 is budgeted for fluorinert (Year 3).

G.2 Publication Costs: none.

G.6

Other:

Internal ship time

Year 1 (2015): We are budgeting for six ship/ROV days (R/V Rachel Carson/ROV Ventana at the 12 hour daily rate of \$16,500/day). Four of these days will be to complete the "Actual Impacts Assessment" surveys required every five years by the California State Lands Commission and the other two will be to maintain the MARS subsea node. We already completed four Western Flyer days and three Rachel Carson days in 2014 starting the Actual Impacts Survey in 2014. Periodic maintenance includes servicing the actual site to clear up old cables, and to recover anchors and periodic testing of ports with the Port Test Tool.

Year 2: (2016): We are budgeting two ship/ROV days (R/V Rachel Carson/ROV Ventana at the 12 hour daily rate) for routine maintenance.

Year 3 (2017): We are budgeting six ship/ROV days. (R/V Rachel Carson/ROV Ventana at the 12 hour daily rate). Four of these days will be for the recovery of the MARS electronics node and redeployment after servicing. The other two days will be for routine maintenance.

Year 4 (2018): We are budgeting two ship/ROV days (R/V Rachel Carson/ROV Ventana at the 12 hour daily rate) for routine maintenance.

Year 5 (2019) We will budget four days of the R/V Western Flyer and six days (R/V Rachel Carson/ROV Ventana at the 12 hour daily rate) to complete the "Actual Impacts Assessment" environmental impact survey required by California State Lands Commission every five years. It is more cost effective to use the R/V Western Flyer for the deeper parts of the survey than the R/V Rachel Carson.

Ship rates have a 3% inflation rate built into the cost for outlying years.

Outside Services

CISCO router maintenance license are only prudent to maintain MARS routers for the three shore based routers. CISCO will not provide service for the subsea routers. We would like to buy two new routers in year 1, and one more in year 4. This will require a maintenance contract, \$300/year/router.

The three servers HP DL360s will require service contracts for all 5 years of the award \$292/yr/server = \$4380.

Actual Impacts Assessment: Year 1 and year 5 we need \$22,980 for laboratory analysis of the samples for the California State Lands required Actual Impacts survey.

Right of way: A portion of the MARS cable route transverses Moss Landing Harbor District (MLHD) property, costs are \$1,300 each year raised by the CPI for the year.

Shipping/Postage

Nominal amounts are requested (200/year for shipping) for activities directly assignable to MARS O&M.

I. Indirect Cost - The institutional IDC rate is 53% MTDC. The base excludes capital items, participant support costs, internal ship time and subcontract costs exceeding the first 25K of each subcontract.