

**UNCLASSIFIED**

PE NUMBER: 0603434F

PE TITLE: National Polar-Orbiting Operational Environmental Satellite System (NPOESS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								<b>DATE</b> <b>February 2004</b>	
<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)</b>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	232.082	264.681	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4056 National Polar-orbiting Operational Env. Sat. Syst.	232.082	264.681	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is 50/50 funded by the Departments of Defense and Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY2005, Project 4056, PE 0603434F NPOESS, funding was transferred to Project 4056, PE 0305178F NPOESS, BA 05, in order to accomplish System Development and Demonstration (SDD).

The NPOESS program was rebaselined in Dec 03 to reflect new schedule requirements.

**(U) A. Mission Description and Budget Item Justification**

Presidential Decision Directive/National Science and Technology Council-2 (PDD/NSTC-2) (May 1994) directs the Department of Defense (DoD), Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) to establish a converged national polar-orbiting weather satellite program. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. However, apportionment of DoD and DOC funds to specific activities does not have to be 50/50 and is at the program office discretion. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), combines the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will provide a combination of satellites in sun synchronous 450 nautical miles (nm) polar-orbit at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first NPOESS launch is scheduled for FY10, with Initial Operational Capability (IOC) in FY11 and Final Operational Capability (FOC) in FY13.

Currently, this PE is in Budget Activity 4 (Advance Component Development and Prototypes) because it supported sensor and satellite bus development. In Aug 02, the NPOESS program was approved to enter Key Decision Point C (KDP-C) Acquisition & Operations (A&O) phase at the Defense Space Acquisition Board (DSAB). As a result, the program transitions to Budget Activity 5, System Development and Demonstration, beginning in FY05.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	232.082	267.716	297.668
(U) Current PBR/President's Budget	232.082	264.681	0.000
(U) Total Adjustments	0.000	-3.035	
(U) Congressional Program Reductions		-3.035	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
Consolidation of PE 0603434F to PE 0305178F beginning in FY05.			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2004**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)</b>			<b>PROJECT NUMBER AND TITLE</b> <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4056 National Polar-orbiting Operational Env. Sat. Syst.	232.082	264.681	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is funded 50/50 by the Department of Defense and Department of Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY2005, Project 4056, PE 0603434F NPOESS, funding was transferred to Project 4056, PE 0305178F NPOESS, BA 05 in order to accomplish System Development and Demonstration.

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**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Continue DoD funded program office support for Acquisition and Operations (A&O) efforts.	0.623	0.972	0.000
(U) Continue System A&O effort including ground and space system development, design and fabrication for risk reduction missions.	231.459	263.709	0.000
(U) Total Cost	232.082	264.681	0.000

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2004</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	0.000	0.000	138.278	138.278	497.492	774.048
(U) Total NPOESS Air Force	232.082	264.681	307.668	246.805	255.093	528.659	295.789	Continuing	TBD
(U) Other operations and sustainment funding***	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

\* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. The Air Force (DoD) and NOAA (DoC) fund NPOESS 50/50. Total cost includes prior-year amount of \$425.617K. Total NPOESS program cost is the sum of NPOESS RDT&E AF PE 0603434F/AF PE 0305178F, MPAF PE 0305178F, NPOESS portion of Evolved Expendable Launch Vehicle (EELV) MPAF PE 0305953F, and Polar Convergence NOAA PAC. The actual share of funding for specific program expenses is determined in the year of execution based on the availability of DoD and DOC funds.

\*\* NPOESS launch vehicle funding is budgeted entirely in EELV PE 0305953F, and represents a portion of the DoD's 50% funding contribution.

\*\*\* Operations and Sustainment (O&S) after Initial Operational Capability (IOC) may be funded as either Operations & Maintenance AF, NOAA Operations Research and Facilities (ORF) or other appropriations depending on the concept selected for post IOC O&S. Prior to IOC, O&S funding will be through a combination of RDT&E (AF) and NOAA PAC. These funds will be transferred to the specific appropriation as the budget enters the FYDP.

**(U) D. Acquisition Strategy**

Accomplish substantial risk reduction with a focus on payload development, enhancing data utility to users, and protecting maximum flexibility to ensure the best overall system design. The program pursues a significant investment in the development and on-orbit testing of selected payload sensors while deferring individual sensor selections among competing international, NASA, military, and industry alternatives to assess and determine the optimum technical performance potential of each candidate sensor. NPOESS is currently pursuing two missions to reduce sensor development and data user segment risk. The WindSat/Coriolis mission will prove technologies to be used for the NPOESS Conical-Scanning Microwave Imager/Sounder (CMIS) sensor. The NPOESS Preparatory Project will fly and test-out four of NPOESS's most complex sensors: the Visible/Infrared Imager Radiometer Suite (VIIRS), the Cross Track Infrared Sounder (CrIS), the Advanced Technology Microwave Sounder (ATMS), and the Ozone Mapper/Profiler Suite (OMPS). Overall system prime contractor selection was deferred until 2002 to minimize system level preliminary costs, allow sensor complement maturation, and delay the commitment to full system acquisition until approximately six years before the first satellite need date. The first two satellites will be incrementally funded with RDT&E funding. The rest will be fully funded with Missile Procurement funding.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)					PROJECT NUMBER AND TITLE 4056 National Polar-orbiting Operational Env. Sat. Syst.		
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
Syst. Arch. Studies	C/CPFF	Various	12.820								12.820	
TRW (PDRR)	C/FFP	Primary, Los Angeles, CA	27.955								27.955	
Lockheed Martin (PDRR)	C/FFP	Primary, Sunnyvale, CA	39.434								39.434	
Lockheed Martin	C/CPAF	Primary, Sunnyvale, CA	4.489								4.489	
Raytheon (VIIRS & CrIS)	C/CPFF	Sensor, Santa Barbara, CA	28.716								28.716	
Ball Aerospace (CMIS & OMPS)	C/CPFF	Sensor, Boulder, CO	29.746								29.746	
Ball Aerospace (OMPS)	C/CPAF	Sensor, Boulder, CO	35.730								35.730	
ITT Aerospace (VIIRS & CrIS)	C/CPFF	Sensor, Fort Wayne, IN	30.475								30.475	
Boeing (formerly Hughes) Space and Communications (CMIS)	C/CPFF	Sensor, El Segundo, CA	27.195								27.195	
Orbital Sciences (OMPS)	C/CPFF	Sensor, Baltimore, MD	2.578								2.578	
SAAB Ericsson (GPSOS)	C/CPFF	Sensor, Goteborg, Sweeden	2.786								2.786	
SAAB Ericsson (GPSOS)	SS/FFP	Sensor, Goteborg, Sweeden	9.168								9.168	
ITT Aerospace (CrIS)	C/CPAF	Sensor, Fort Wayne, IN	40.578								40.578	
Raytheon (VIIRS)	C/CPAF	Sensor, Santa Barbara, CA	51.170								51.170	
Boeing (CMIS)	C/CPAF	Sensor, El Segundo, CA	14.266								14.266	
Northrop Grumman (A&O)	C/CPAF	Primary, Redondo Beach, CA	6.486	231.459	Aug-02	263.709	Aug-02			Continuing	TBD	
Other Contracts	MISC	Various	21.975								21.975	
Government Led Studies	Gov. Orgs.	Various	26.302								26.302	
Subtotal Product Development			411.869	231.459		263.709		0.000		Continuing	TBD	0.000
Remarks: FY05 funding consolidated in PE 0305178F												

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Exhibit R-3, RDT&E Project Cost Analysis							DATE <b>February 2004</b>			
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<u>(U) Support</u>										
Integrated Program Office (IPO) Support		Various	Program Office, Silver Spring, MD	15.098	0.623	0.972		Continuing	TBD	
Subtotal Support				15.098	0.623	0.972	0.000	Continuing	TBD	0.000
Remarks: FY05 funding consolidated in PE 0305178F										
<u>(U) Test &amp; Evaluation</u>										
Included in IPO Support									0.000	
Subtotal Test & Evaluation				0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:										
<u>(U) Management</u>										
Included in IPO Support									0.000	
Subtotal Management				0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:										
<u>(U) Total Cost</u>				426.967	232.082	264.681	0.000	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2004

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)

PROJECT NUMBER AND TITLE

4056 National Polar-orbiting Operational Env. Sat. Syst.

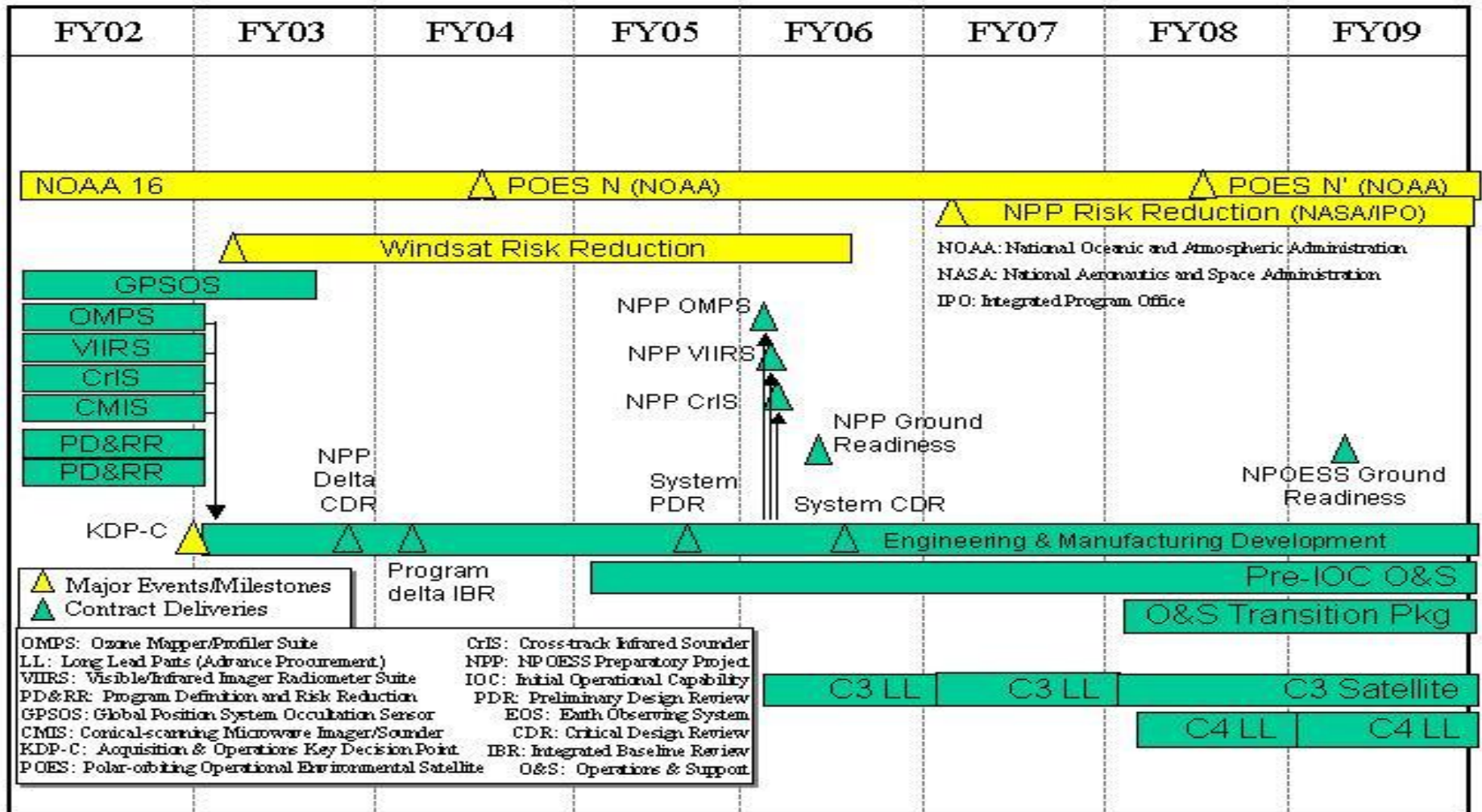


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2004

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)</b>	PROJECT NUMBER AND TITLE <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Sensors Critical Design Reviews	2-3Q		
(U) System Delta Preliminary Design Review			3Q
(U) Initial Baseline Review	2Q	1Q	
(U) NPOESS Replan		1Q	
(U) Executive Committee Review	3Q	2-4Q	1-3Q
(U) NPP Critical Design Review	4Q		