

**UNCLASSIFIED**

PE NUMBER: 0305178F

PE TITLE: National Polar-Orbiting Op Env Satellite

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2007</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>0305178F National Polar-Orbiting Op Env Satellite</b>
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	318.575	347.434	334.871	291.877	363.028	282.777	269.773	226.924	200.306	2,941.685
4056 National Polar-orbiting Operational Env. Sat. Syst.	318.575	347.434	334.871	291.877	363.028	282.777	269.773	226.924	200.306	2,941.685

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, BA 04, funding was transferred to Project 4056, PE 0305178 NPOESS, BA 04 Advanced Component Development and Prototypes.

**(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 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. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. Note: part of the Air Force share also resides in the launch vehicle PE MPAF 0305953F. 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 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 constellation of satellites in sun synchronous, 450 nautical mile (NM) polar-orbits (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day).

On November 30, 2005, the NPOESS Program Director notified the Tri-agency Executive Committee (EXCOM) that there was reason to believe, based upon the results of independent reviews, that the program would breach the Program Acquisition Unit Cost (PAUC) and the Average Procurement Unit Cost (APUC) threshold by more than 25 percent.

On January 11, 2006, Congress was notified of the Nunn-McCurdy certification level breach in both PAUC and APUC as a result of sensors and spacecraft development problems.

On June 5, 2006, OUSD (AT&L) certified the NPOESS program to Congress. Program changes include reduction from 6 satellites to 4; first launch in FY2013 (vs FY2010); Initial Operational Capability (IOC) in FY2016 (vs 2011); and significant changes in sensor payloads and funding. The Conical scanning Microwave Imager/Sounder (CMIS) and seven other sensors were eliminated. However, the NPOESS program will develop a new, less-capable/more affordable Microwave Imager/Sounder (MIS) to be delivered with the second satellite (C-2). Additionally, NPOESS will retain the ability to integrate the seven other sensors if external agencies wish to provide those sensors as furnished equipment to the program.

This PE has been consolidated with PE 0603434F, beginning in FY05. The program remains in BA 04 because near-term efforts focus on Engineering, Manufacturing, and Development with the PE 0603434F portion of the contract.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op Env Satellite

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	319.053	349.311	220.695	165.935
(U) Current PBR/President's Budget	318.575	347.434	334.871	291.877
(U) Total Adjustments	-0.478	-1.877		
(U) Congressional Program Reductions	-0.013	-0.558		
Congressional Rescissions		-1.319		
Congressional Increases				
Reprogrammings	-0.465			
SBIR/STTR Transfer				
(U) <b><u>Significant Program Changes:</u></b>				
FY06 changes: Reprogrammed for higher AF priorities				
FY08-09 changes: Changes required to fund to the Nunn-McCurdy certification level				

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0305178F National Polar-Orbiting Op Env Satellite</b>						<b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4056 National Polar-orbiting Operational Env. Sat. Syst.	318.575	347.434	334.871	291.877	363.028	282.777	269.773	226.924	200.306	2,941.685
Quantity of RDT&E Articles	0	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, BA 04, funding was transferred to Project 4056, PE 0305178F NPOESS, BA 04 Advanced Component Development and Prototypes.

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

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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 constellation of satellites in sun synchronous, 450 nautical mile (NM) polar-orbits (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day).

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2007</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>0305178F National Polar-Orbiting Op Env Satellite</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue System development effort including ground and space system development, design and fabrication for risk reduction missions (includes GFE Microwave Imager and Space Environmental Monitoring development).	303.515	335.489	331.446	288.427
(U) Continue DoD funded program office support for system development efforts.	1.316	1.700	1.725	1.750
(U) Continue Launch and Mission Integration Phase II Studies	2.264	1.000	1.700	1.700
(U) Complete Windsat data analysis, refinement, calibration, modeling and retrieval algorithms	3.464			
(U) SBIR Transfer	8.016	9.245		
(U) Total Cost	318.575	347.434	334.871	291.877

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Related NOAA PAC funding: Polar Convergence*	316.581	337.870	331.285	287.985	381.794	420.332	415.829	436.270	2,096.128	6,250.970
(U) Related NPOESS RDT&E: PE 0603434F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
(U) NPOESS RDT&E: PE 0305178F	318.575	347.434	334.871	291.877	363.028	282.777	269.773	226.924	200.306	2,941.685
(U) Related NPOESS MPAF: PE 0305178F	0.000	0.000	0.000	0.000	24.207	66.783	151.152	212.767	1,116.120	1,571.029
(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	0.000	0.000	74.579	0.000	0.000	254.082	328.661
(U) Other operations and sustainment funding***	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	525.623	525.623
(U) Total NPOESS Air Force	318.575	347.434	334.871	291.877	387.235	424.139	420.925	439.691	2,096.131	6,289.219

\* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. The Air Force (DoD) and NOAA (DoC) fund NPOESS 50/50. AF total cost includes prior-year amount of \$306.1M in PE 0305178F and \$922.2M in PE 0603434F. 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

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Env Satellite

PROJECT NUMBER AND TITLE

4056 National Polar-orbiting  
Operational Env. Sat. Syst.(U) **C. Other Program Funding Summary (\$ in Millions)**

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 by pursuing a significant investment in the development and on-orbit testing of selected payload sensors; the first two satellites will be incrementally funded with RDT&E funding. In addition, the Nunn-McCurdy certification production units (C-3 and C-4) were directed to be incrementally funded by the certifying official (OUSD (AT&L)).

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**February 2007**

BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>0305178F National Polar-Orbiting Op Env Satellite</b>									<b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>		
(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 Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
Northrop Grumman (system development)- Includes Microwave Imager and Environmental Monitoring development Government Led Studies	C/CPAF	Primary, Redondo Beach, CA	295.200	303.515	Oct-05	335.489	Oct-06	331.446	Oct-07	288.427	Oct-08	1,287.923	TBD	
Launch Mission Integration Studies	Gov. Orgs.	Various	1.854	3.464	Jun-06								5.318	
Small Business Innovative Reseach	Gov. Orgs.	Various	0.500	2.264	Mar-06	1.000	Mar-07	1.700	Mar-08	1.700	Mar-09	46.100	53.264	
Subtotal Product Development			7.591	8.016	Jul-06	9.245	Jun-07						24.852	
Remarks:			305.145	317.259		345.734		333.146		290.127		Continuing	TBD	0.000
(U) <u>Support</u>														
Integrated Program Office (IPO) Support	Various	Program Office, Silver Spring, MD	0.975	1.316	Oct-05	1.700	Oct-06	1.725	Oct-07	1.750	Oct-08	8.785	16.251	
Subtotal Support			0.975	1.316		1.700		1.725		1.750		8.785	16.251	0.000
Remarks:														
(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	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	0.000
Remarks:														
(U) Total Cost			306.120	318.575		347.434		334.871		291.877		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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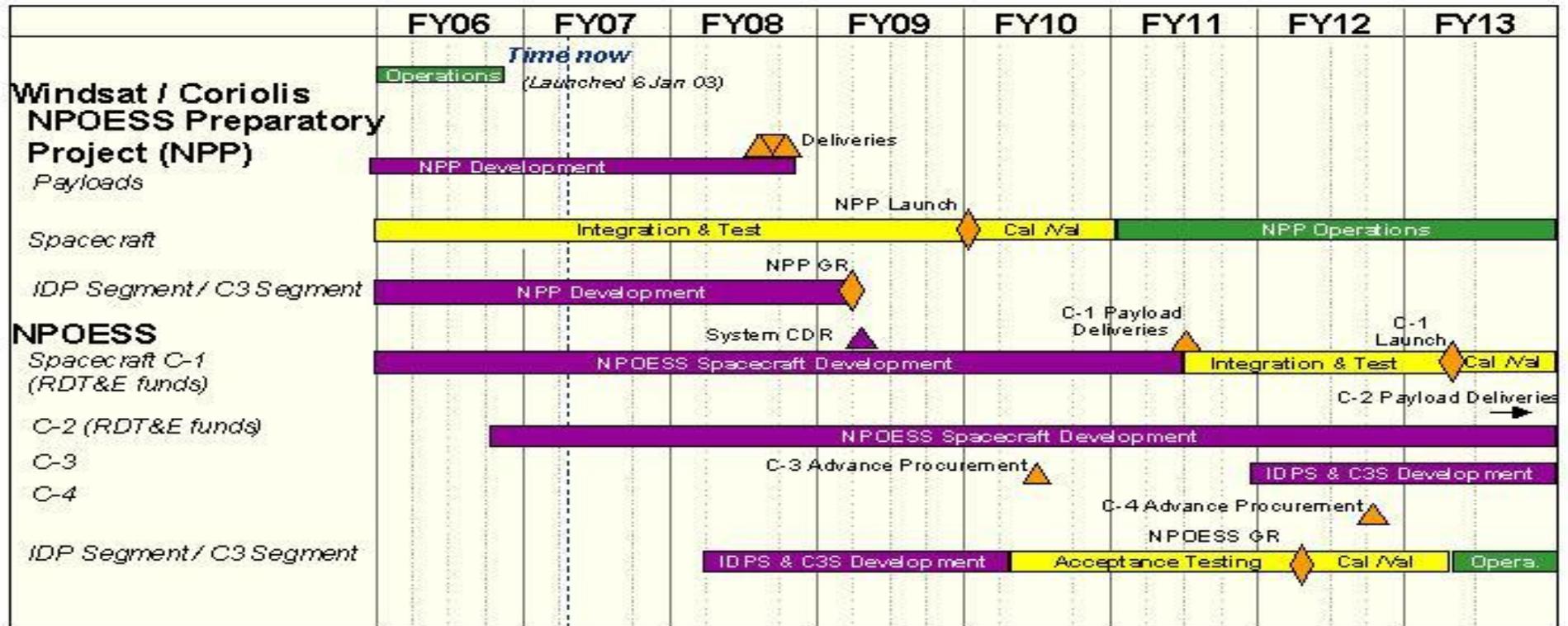
BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

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PROJECT NUMBER AND TITLE  
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# NPOESS Schedule\*

\* Notional Schedule until program restructure and contract negotiations are completed



■ Concept activities      ■ Design / development      ■ Integration / test  
■ Production / fielding      ■ Operations / sustainment      ◇ Key events

C3: Command, Control, Communications      Cal/Val: Calibration/Validation      CDR: Critical Design Review      GR: Ground Readiness  
 I&T: Integration & Test      IDP: Interface Data Processing      IOC: Initial Operational Capability      PDR: Preliminary Design Review  
 NPOESS C-3 and C-4: Production units to be incrementally funded

Exhibit R-4a, RDT&E Schedule Detail

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(U) Schedule Profile

(U) Cross-track Infrared Sounder (CrIS) for NPP

(U) Ozone Mapping and Profiler Suite (OMPS) for NPP

(U) Visible Infrared Imager Radiometer Suite (VIIRS) for NPP

(U) NPP Ground Ready

(U) NPOESS System Critical Design Review

FY 2006

FY 2007

FY 2008

FY 2009

2Q

3Q

3Q

1Q

2Q