

**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 2008</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 2007 Actual	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	343.290	332.525	289.469	359.584	280.067	267.197	224.747	200.306	2,924.744
4056 National Polar-orbiting Operational Env. Sat. Syst.	343.290	332.525	289.469	359.584	280.067	267.197	224.747	200.306	2,924.744

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 FY05, 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's 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).

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

Exhibit R-2, RDT&E Budget Item Justification

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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 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	347.434	334.871	291.877
(U) Current PBR/President's Budget	343.290	332.525	289.469
(U) Total Adjustments	-4.144	-2.346	
(U) Congressional Program Reductions		-0.223	
Congressional Rescissions		-2.123	
Congressional Increases			
Reprogrammings	-4.144		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY07: \$4.144M reprogrammed for higher program priorities			

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

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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 2007 Actual	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.	343.290	332.525	289.469	359.584	280.067	267.197	224.747	200.306	2,924.744
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, 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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**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<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).	330.488	323.024	287.408
(U) Continue DoD funded program office support for system development efforts.	1.349	1.051	1.061
(U) Continue Launch and Mission Integration Phase II Studies	1.153	1.000	1.000
(U) Technical analysis/resolution of anomalies/failures, Independent Verification and Validation (IV&V) and risk reduction of NPOESS sensors and payload program	1.055		
(U) SBIR Transfer	9.245	7.450	
(U) Total Cost	343.290	332.525	289.469

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0305178F National Polar-Orbiting Op Env Satellite</b>	PROJECT NUMBER AND TITLE <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<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>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related NOAA PAC funding: Polar Convergence*	337.532	331.300	287.985	381.794	420.332	415.829	436.270	2,096.129	6,250.647
(U) Related NPOESS RDT&E: PE 0603434F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
(U) NPOESS RDT&E: PE 0305178F	343.290	332.525	289.469	359.584	280.067	267.197	224.747	200.306	2,924.743
(U) Related NPOESS MPAF: PE 0305178F	0.000	0.000	0.000	24.207	66.783	149.179	211.338	1,116.119	1,567.626
(U) Related EELV MPAF: PE 0305953F**	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	525.622	525.622
(U) Total NPOESS Air Force	343.290	334.871	289.469	383.791	421.429	416.376	436.085	2,096.129	6,268.873

\* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. Total NOAA total cost include prior-year amount of \$1,543.5M. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50. AF total cost includes prior-year amount of \$624.6M 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 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 developing payloads, 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 certified production units (C-3 and C-4) were directed to be incrementally funded by the certifying official (USD (AT&L)).

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

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<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 2007 Cost</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)	CPAF		598.531	330.488	Oct-06	323.024	Oct-07	287.408	Oct-08	1,284.071	2,823.522		
Government Led Studies	Gov. Orgs.	Various	5.318	1.055	Jul-07						6.373		
Launch Mission Integration Studies	Gov. Orgs.	Various	2.764	1.153	Apr-07	1.000	Mar-08	1.000	Mar-09	41.000	46.917		
Small Business Innovative Reseach			15.607	9.245	May-07	7.450	May-08				32.302		
Subtotal Product Development			622.220	341.941		331.474		288.408		1,325.071	2,909.114	0.000	
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.												
(U) <u>Support</u>													
Integrated Program Office (IPO) Support	Various	Program Office, Silver Spring, MD	2.355	1.349	Oct-06	1.051	Oct-07	1.061	Oct-08	17.737	23.553		
Subtotal Support			2.355	1.349		1.051		1.061		17.737	23.553	0.000	
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.												
(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) Total Cost			624.575	343.290		332.525		289.469		1,342.808	2,932.667	0.000	

**Exhibit R-4, RDT&E Schedule Profile**

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**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0305178F National Polar-Orbiting Op  
Env Satellite**

PROJECT NUMBER AND TITLE

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Exhibit R-4a, RDT&E Schedule Detail

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04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op  
Env Satellite

PROJECT NUMBER AND TITLE

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

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

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

3Q

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

4Q

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

4Q

(U) NPP Ground Ready

1Q

(U) NPOESS System Critical Design Review

3Q