

UNCLASSIFIED

PE NUMBER: 0305178F

PE TITLE: National Polar-Orbiting Op Env Satellite

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op Env Satellite

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	303.784	323.665	350.516	216.277	163.236	136.052	87.760	0.000	1,581.290
4056 National Polar-orbiting Operational Env. Sat. Syst.	0.000	303.784	323.665	350.516	216.277	163.236	136.052	87.760	0.000	1,581.290

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.

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. 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, 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. A Tri-agency Integrated Program Office (IPO) was established on 1 Oct 94 to manage the acquisition and operations of the converged system. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. On 13 Aug 2004, the Office of Science and Technology Policy directed the incorporation of a Landsat-type sensor on the first and fourth NPOESS spacecraft. Cost sharing requirements of the baseline NPOESS program do not apply to the integration of Landsat onto NPOESS. No DoD funds are used to procure/integrate Landsat-type sensors onto NPOESS. 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-orbits 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 Nov 2009, with Initial Operational Capability (IOC) in Jul 2011 and Full Operational Capability (FOC) in Oct 2013. The remaining satellites will be fully funded with Missile Procurement funding. 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). This PE has been consolidated with PE 0603434F, beginning in FY05. Program remains in BA 04 because near-term efforts focus on Engineering, Manufacturing, and Development portion of the contract.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

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 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget		307.668	236.563	224.503
(U) Current PBR/President's Budget	0.000	303.784	323.665	350.516
(U) Total Adjustments	0.000	-3.884		
(U) Congressional Program Reductions		-3.884		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

The additional funds in FY06 and FY07 reflect changes to match DOC funding levels (AF meets 50/50 funding commitment) and to maintain the FY10 launch schedule, as a result of replan efforts.

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY 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.		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4056 National Polar-orbiting Operational Env. Sat. Syst.	0.000	303.784	323.665	350.516	216.277	163.236	136.052	87.760	0.000	1,581.290
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.

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. 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, 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. A Tri-agency Integrated Program Office (IPO) was established on 1 Oct 94 to manage the acquisition and operations of the converged system. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. On 13 Aug 2004, the Office of Science and Technology Policy directed the incorporation of a Landsat-type sensor on the first and fourth NPOESS spacecraft. Cost sharing requirements of the baseline NPOESS program do not apply to the integration of Landsat onto NPOESS. No DoD funds are used to procure/integrate Landsat-type sensors onto NPOESS. 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-orbits 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 Nov 2009, with Initial Operational Capability (IOC) in Jul 2011 and Full Operational Capability (FOC) in Oct 2013. The remaining satellites will be fully funded with Missile Procurement funding. 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). This PE has been consolidated with PE 0603434F, beginning in FY05. Program remains in BA 04 because near-term efforts focus on Engineering, Manufacturing, and Development portion of the contract.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue DoD funded program office support for Acquisition and Operations (A&O) efforts.		0.989	1.006	1.023
(U) Continue System A&O effort including ground and space system development, design and fabrication for risk reduction missions.		293.355	322.659	349.493

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
04 Advanced Component Development and Prototypes (ACD&P)	0305178F National Polar-Orbiting Op Env Satellite	4056 National Polar-orbiting Operational Env. Sat. Syst.			
(U) Windsat data analysis, refinement, calibration, modeling and retrieval algorithms		1.854			
(U) SBIR Transfer		7.586			
(U) Total Cost	0.000	303.784	323.665	350.516	

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2004</u>	<u>FY 2005</u>	<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>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>Estimate</u>	<u>Complete</u>	
(U) Related NOAA PAC funding: Polar Convergence*	273.789	300.501	323.742	344.020	346.607	299.969	376.616	408.667	740.027	4,066.517
(U) Related NPOESS RDT&E: PE 0603434F	265.483	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
(U) NPOESS RDT&E: PE 0305178F	0.000	303.784	323.665	350.516	216.277	163.236	136.052	87.760	0.000	1,581.290
(U) Related NPOESS MPAF: PE 0305178F	0.000	0.000	0.000	0.000	25.576	32.046	250.514	228.706	114.071	650.913
(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	0.000	138.278	138.278	0.000	124.373	373.119	774.048
(U) Other operations and sustainment funding***	0.000	0.000	0.000	0.000	2.562	2.278	0.000	0.000	329.081	333.921
(U) Total NPOESS Air Force	265.483	303.784	323.665	350.516	382.693	335.838	386.566	440.839	816.271	4,262.393

* 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 \$922.2M (included 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. Due to higher EELV launch service costs, NOAA will work to adjust funds during launch years to match AF funding.

** 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 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; the rest of the satellites will be fully funded with Missile Procurement funding.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
BUDGET ACTIVITY 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) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development Northrop Grumman (A&O)	C/CPAF	Primary, Redondo Beach, CA				293.355	Oct-04	322.659	Oct-05	349.493	Oct-06	588.008	1,553.515	
Government Led Studies	Gov. Orgs.	Various				1.854	Oct-04						1.854	
Subtotal Product Development			0.000	0.000		295.209		322.659		349.493		588.008	1,555.369	0.000
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.													
(U) Support Integrated Program Office (IPO) Support	Various	Program Office, Silver Spring, MD				0.989	Oct-04	1.006	Oct-05	1.023	Oct-06	15.317	18.335	
SBIR Transfer						7.586							7.586	
Subtotal Support			0.000	0.000		8.575		1.006		1.023		15.317	25.921	0.000
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.													
(U) Test & Evaluation 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) Management 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			0.000	0.000		303.784		323.665		350.516		603.325	1,581.290	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

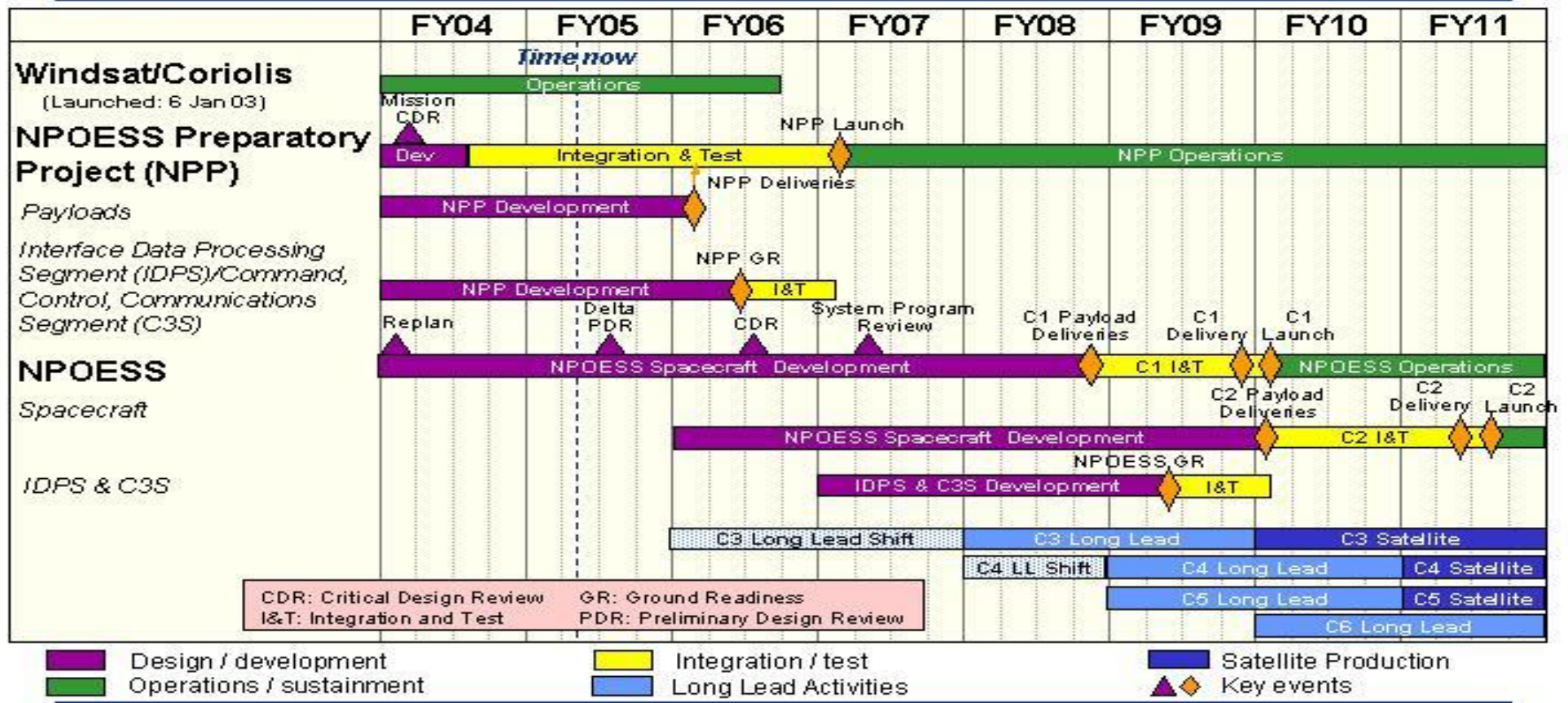
0305178F National Polar-Orbiting Op
Env Satellite

PROJECT NUMBER AND TITLE

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

U.S. AIR FORCE

NPOESS Schedule



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

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 ProfileFY 2004FY 2005FY 2006FY 2007

(U) NPOESS Replan

1Q

(U) NPOESS Preparatory Project (NPP) Delta Critical Design Review

1Q

(U) NPOESS System Delta Preliminary Design Review

3Q

(U) NPP Sensor Delivery

1Q

(U) NPP Ground Ready

2Q

(U) NPOESS System Critical Design Review

3Q

(U) NPP Launch

1Q

(U) NPOESS System Program Review

2Q