

Business Case: Capital Asset Summary

Part I: Summary Information and Justification (All Capital Assets)

Section A: Overview & General Information

Date Investment First Submitted: 2009-06-30
Date of Last Change to Activities: 2021-04-27
Investment Auto Submission Date:
Date of Last Investment Detail Update: 2021-04-27
Date of Last Business Case Update: 2021-04-27
Date of Last Revision: 2021-04-27

Agency: 006 - Department of Commerce **Bureau:** 48 - National Oceanic and Atmospheric Administration

1. Name of this Investment: NOAA/OCIO/ NOAA R&D High Performance Computing System (HPCS)

2. Unique Investment Identifier (Ull): 006-000380400

Section B: Investment Detail

- 1. Provide at least one Agency Strategic objective code ([A-11 Section 230](#)) and/or Agency Priority Goal code ([A-11 Section 250](#)) that this investment aligns to on performance.gov. If this investment aligns to more than one Agency strategic objective code and/or Agency Priority goal code list all that apply. If your agency does not report to performance.gov please use "0". This is required for Agency IT Portfolio Summary Part 1 and Part 2 Investments, not for Part 3 Investments.**

Agency Strategic Objective(s):

006SO18022: Advance Innovation

Agency Priority Goal(s):

- 2. Briefly describe the investment's return on investment, including benefits internal and external to the government and outcomes achieved or planned.**
The estimated return on NOAA R&D HPCS was estimated to be approximately \$23.5 billion for the FY 2009 to FY 2017 Life Cycle based on the economic analyses of the benefits of weather and climate research described in the following documents: Benefit/Cost Analysis for Geophysical Fluid Dynamics Laboratory Climate Change Computing Initiative, NOAA, June 2002; and Benefit Analysis for NOAA High Performance Computing System Research Applications, Stratus, December 4, 2003. In addition, the investment demonstrated an average Benefits-to-Cost Ratio of 47:1. These returns, while capturing only a small number of benefits that were estimated and quantified, demonstrate the significant value that HPC-enabled weather and climate forecasting contributes to society. This tremendous benefits-to-cost ratio will continue to increase as computational capability is added.

3. If this investment will result in the elimination or the reduction of another major or non-major investment(s), please complete the following:

Table I.B.1 Affected Investment Information	
Investment UII	To Be Status
NONE	

4. Does the Investment currently include an intra- or inter-Agency shared service (common, shared, or centralized solution)?:

YES

5. Does the Investment plan to include an Intra- or Inter-Agency shared service that it does not currently include (common, shared, or centralized solution)?:

NO

6. If systems contained in this Investment collect data from the public, please identify the OMB Control Numbers which authorize that data collection as per the Paperwork Reduction Act. Use [Reginfo](#) at the following link to identify information collection requests and OMB control numbers. Agencies can work with their Records Officers to determine the applicability.

7. Provide the name of the Investment-level project manager:

Frank Indiviglio

8. Select the qualification/experience level of the Investment-level project manager (select one):

7 - No certification, but with 4 or more years PM experience (within the last five years)

Section C: Life Cycle Costs

1. Provide the total estimated life cycle costs for the investment in millions. Note: Do not enter information in the grey cells as these will be calculated.

Table I.C.1 Life Cycle Costs				
	PY-1 & Prior	PY 2021	CY 2022	BY 2023
Planning Costs:	0	0	0	0
DME (Excluding Planning) Costs:	0	0	0	0
DME (Including Planning) Govt. FTEs:	0	0	0	0
Sub-Total DME (including Internal Labor (Govt. FTE)):	0	0	0	0
O & M Costs:	\$51.731000	\$55.246000	\$58.435000	\$38.431000
O & M Internal Labor (Govt. FTE):	\$4.164000	\$5.304000	\$4.665000	\$4.665000
Sub-Total O & M Costs (Including Internal Labor (Govt. FTE)):	\$55.895000	\$60.550000	\$63.100000	\$43.096000
Total Cost (Including Internal Labor (Govt. FTE)):	\$55.895000	\$60.550000	\$63.100000	\$43.096000
Total Cost Internal Labor (Govt. FTE) costs:	\$4.164000	\$5.304000	\$4.665000	\$4.665000
# of FTE rep by costs:	23	23	24	23
Total change from prior year final President's Budget (\$)		\$60.550000	\$63.100000	
Total change from prior year final President's Budget		0.00%	0.00%	

Table I.C.1 Life Cycle Costs				
	PY-1 & Prior	PY 2021	CY 2022	BY 2023
(%)				

2.
 - a. In which year did or will this investment begin? (specify year - e.g., PY-1= 2019)
2006
 - b. In which year will this investment reach the end of its estimated useful life? (specify year - e.g., FY+5 = 2027)
2030
3. Compare the funding levels for PY and CY to the final FY 2022 President's Budget for those same years. Briefly explain any significant changes. When making comparisons, ensure that you compare same-year-to-same-year (e.g., the FY20 level for 2020 versus the FY21 level for 2020):

In FY 2020, the recurring program funding was flat from the previous year. The FY19 additional \$15M is not in the PB for FY20.

Business Case Detail: Performance Measurement Report

Section A1: General Information

1. **Name of this Investment:** NOAA/OCIO/ NOAA R&D HIGH PERFORMANCE COMPUTING SYSTEM (HPCS)
2. **Unique Investment Identifier (UII):** 006-000380400

Section C1: Projects Table

Projects Table C.1

Unique Project ID	Project Name	Project Goal	Project Start Date	Project Completion Date	Project Lifecycle Cost (\$M)	Software Project?
3804M09001	Development facility		06/16/2009	12/15/2011	\$27.6	
3804M09002	Research HPC-ORNL		06/18/2009	05/02/2012	\$49.1	
3804M10003	R&D HPCS		08/25/2010	02/28/2012	\$40.7	
3804M11004	Hurricane Forecast Improvement (HFIP)		05/10/2011	12/02/2011	\$2.5	
3804M11005	GFDL Data Portal		11/01/2011	02/29/2012	\$1.4	
3804M11007	FY12 Hurricane Forecast Improvement (HFIP)		03/16/2012	09/30/2012	\$2.4	
3804M14010	FY14 Hurricane Forecast Improvement (HFIP)		03/16/2014	09/30/2014	\$2.7	
3804M14011	Hurricane Sandy Supplemental R&D HPCS Augmentation		11/01/2013	04/06/2015	\$24.3	
3804M14012	R&D HPCS FY 2015 O&M		10/01/2014	09/30/2015	\$27.2	
3804M14013	FY15 Hurricane Forecast Improvement (HFIP)		10/01/2014	09/30/2015	\$2.0	
3804M14015	FY16 Hurricane Forecast Improvement Project(HFIP)		10/01/2015	09/30/2024	\$2.0	
3804M14016	R&D HPCS Recapitalization and enhancement		10/01/2015	09/30/2024	\$21.0	
3804M16003	NGI-Mississippi Collaboration	NOAA is working with the Northern Gulf Institute to acquire High Performance Computing capability. This is a grant.	07/31/2017	09/30/2022	\$36.0	No
3804M16002	FY21 R&D HPCS O&M	Operations and Maintenance necessary to sustain the availability of the R&D High Performance Computing System.	10/01/2020	09/30/2021	\$63.1	No

Section C2: Project Activities

1. Provide all non-agile project activities for projects in Table C.1 that started in a previous FY (PY and earlier) and that have not been completed by the beginning of the CY, as well as activities that are scheduled to start in the current FY and BY.

Project Activity Table C.2.1

Unique Project ID	Activity Name	Activity Description	Structure ID	Planned Start Date	Projected Start Date	Actual Start Date	Planned Completion Date	Projected Completion Date	Actual Completion Date	Planned Total Costs	Projected Total Costs	Actual Total Costs
3804M14011	Install and configure supercomputing system	Deilver, install, and configure supercomputing system	3804M14011.1 .1.3	2014-08-11	2014-08-11	2014-08-11	2015-01-20	2016-04-20	2016-08-08	0.000010	0.000010	0.000010
3804M14011	Supercomputing system acceptance test	Test all of the computing system hardware and software components	3804M14011.1 .1.4	2015-01-21	2015-01-21	2014-12-31	2015-04-06	2016-08-05	2016-12-16	0.000010	0.000010	0.000010
3804M14015	Acquire large scale compute (LSC) system	Acquire, deliver, install and integrate LSC	3804M14015.1 .1	2016-03-15	2016-03-15	2016-03-15	2016-08-31	2016-08-31	2016-08-31	1.999990	2.999990	2.999990
3804M14016	FY 2016 R&D HPCS Recapitalization and enhancement	Acquire, deliver, install and integrate new Gaea system	3804M14016.1 .2.1	2016-03-15	2016-03-15	2016-03-15	2016-08-31	2016-08-31	2016-08-31	6.699990	7.180407	7.180407
3804M14015	LSC Acceptance testing	Perform acceptance testing of LSC	3804M14015.1 .2	2016-09-01	2016-09-01	2016-09-01	2016-09-30	2016-09-30	2016-09-30	0.000010	0.000000	0.000010
3804M14016	FY 2016 Acquire large scale compute (LSC) system	Acquire, deliver, install and integrate new Gaea system	3804M14016.1 .2	2016-03-15	2016-03-15	2016-03-15	2016-09-30	2016-09-30	2016-09-30	6.700000	7.180417	7.180417
3804M14016	LSC Acceptance testing	Perform acceptance testing of LSC	3804M14016.1 .2.2	2016-09-01	2016-09-01	2016-09-01	2016-09-30	2016-09-30	2016-09-30	0.000010	0.000010	0.000010
3804M14016	Acquire large scale compute (LSC) system	Acquire, deliver, install and integrate file system into	3804M14016.1 .1.1	2017-03-15	2017-03-15	2017-03-15	2017-08-31	2017-08-31	2017-08-31	6.299990	2.299990	0.000010

Project Activity Table C.2.1

Unique Project ID	Activity Name	Activity Description	Structure ID	Planned Start Date	Projected Start Date	Actual Start Date	Planned Completion Date	Projected Completion Date	Actual Completion Date	Planned Total Costs	Projected Total Costs	Actual Total Costs
		Gaea										
3804M14016	R&D HPCS Recapitalization and Enhancement	Sustained recapitalization and enhancement of NOAA's R&D HPCS capabilities	3804M14016.1	2016-03-15	2016-03-15	2016-03-15	2017-09-30	2017-09-30	2017-09-30	13.000000	9.480417	7.180427
3804M14016	FY 2017 Acquire large scale compute (LSC) system	Acquire, deliver, install and integrate Large Scale Compute	3804M14016.1	2017-03-15	2017-03-15	2017-03-15	2017-09-30	2017-09-30	2017-09-30	6.300000	2.300000	0.000010
3804M16003	FY 2017 grant action to NGI	Grant action to Northern Gulf Institute to acquire HPC capability.	3804M16003.1	2017-07-31	2017-07-31	2017-07-31	2017-09-30	2017-09-30	2017-09-30	9.999990	9.999990	9.999990
3804M14016	LSC Acceptance testing	Perform acceptance testing of file system	3804M14016.1	2017-09-01	2017-09-01	2017-09-01	2017-09-30	2017-09-30	2017-09-30	0.000010	0.000010	0.000000
3804M16003	NOAA-NGI HPC Collaboration	NOAA is collaborating with the Northern Gulf Institute to acquire High Performance Computing capability. This is a grant.	3804M16003.1	2017-07-31	2017-07-31	2017-07-31	2018-03-31	2018-03-31	2018-03-31	10.000000	10.000000	10.000000
3804M16003	FY 2017 NOAA-NGI Collaboration	FY 2017 grant action to the Northern Gulf Institute to acquire HPC Capability	3804M16003.1	2017-07-31	2017-07-31	2017-07-31	2018-03-31	2018-03-31	2018-03-31	10.000000	10.000000	10.000000
3804M16003	NGI provision of HPC Capability	Collaboration with NGI to acquire HPC	3804M16003.1	2017-10-01	2017-10-01	2017-10-01	2018-03-31	2018-03-31	2018-03-31	0.000010	0.000010	0.000010

Project Activity Table C.2.1

Unique Project ID	Activity Name	Activity Description	Structure ID	Planned Start Date	Projected Start Date	Actual Start Date	Planned Completion Date	Projected Completion Date	Actual Completion Date	Planned Total Costs	Projected Total Costs	Actual Total Costs
		capability. NOAA will work with NGI to communicate mission requirements. NGI, as a grant recipient, may use them for the acquisition.										
3804M16002	FY21 Contract Support Service Q1Q2	FY21 Contract Support Service Q1Q2	3804M16002.1 .1	2020-10-01	2020-10-01	2020-10-01	2021-03-31	2021-03-31	2021-03-31	1.036000	1.036000	1.236000
3804M16002	FY21 Research HPC Oak Ridge Q1Q2	FY21 Research HPC Oak Ridge Q1Q2	3804M16002.2 .1	2020-10-01	2020-10-01	2020-10-01	2021-03-31	2021-03-31	2021-03-31	0.000010	0.000010	0.000010
3804M16002	FY21 R&D HPCS Facilities Q1Q2	FY21 R&D HPCS Facilities Q1Q2	3804M16002.3 .1	2020-10-01	2020-10-01	2020-10-01	2021-03-31	2021-03-31	2021-03-31	2.105000	2.105000	2.105000
3804M16002	FY21 R&D HPCS SENA Q1Q2	FY21 R&D HPCS SENA Q1Q2	3804M16002.4 .1	2020-10-01	2020-10-01	2020-10-01	2021-03-31	2021-03-31	2021-03-31	2.350000	2.350000	2.350000
3804M16002	FY21 NWAVE Q1Q2	FY21 Wide Area Network NWAVE Q1Q2	3804M16002.5 .1	2020-10-01	2020-10-01	2020-10-01	2021-03-31	2021-03-31	2021-03-31	2.943000	2.943000	2.943000
3804M16002	FY21 Contract HPC Support Service	FY21 Contract HPC Support Service	3804M16002.1	2020-10-01	2020-10-01	2020-10-01	2021-09-30	2021-09-30		19.064000	19.064000	1.236000
3804M16002	FY21 Contract Support Service Q3Q4	FY21 Contract Support Service Q3Q4	3804M16002.1 .2	2021-04-01	2021-04-01	2021-04-01	2021-09-30	2021-09-30		18.028000	18.028000	
3804M16002	FY21 Research HPC - Oak Ridge DOE	FY21 Research HPC - Oak Ridge DOE	3804M16002.2	2020-10-01	2020-10-01	2020-10-01	2021-09-30	2021-09-30		19.800000	19.800000	0.000010
3804M16002	FY21 Research HPC Oak Ridge Q3Q4	FY21 Research HPC Oak Ridge Q3Q4	3804M16002.2 .2	2021-04-01	2021-04-01	2021-04-01	2021-09-30	2021-09-30		19.799990	19.799990	

Project Activity Table C.2.1

Unique Project ID	Activity Name	Activity Description	Structure ID	Planned Start Date	Projected Start Date	Actual Start Date	Planned Completion Date	Projected Completion Date	Actual Completion Date	Planned Total Costs	Projected Total Costs	Actual Total Costs
3804M16002	FY21 R&D HPCS Facilities	FY21 R&D HPCS Facilities	3804M16002.3	2020-10-01	2020-10-01	2020-10-01	2021-09-30	2021-09-30		4.701000	4.701000	2.105000
3804M16002	FY21 R&D HPCS Facilities Q3Q4	FY21 R&D HPCS Facilities Q3Q4	3804M16002.3 .2	2021-04-01	2021-04-01	2021-04-01	2021-09-30	2021-09-30		2.596000	2.596000	
3804M16002	FY21 R&D HPCS Software Engineering	FY21 R&D HPCS Software Engineering	3804M16002.4	2020-10-01	2020-10-01	2020-10-01	2021-09-30	2021-09-30		2.969000	2.969000	2.350000
3804M16002	FY21 R&D HPCS SENA Q3Q4	FY21 R&D HPCS SENA Q3Q4	3804M16002.4 .2	2021-04-01	2021-04-01	2021-04-01	2021-09-30	2021-09-30		0.619000	0.619000	
3804M16002	FY21 Wide Area Network NWAVE	FY21 Wide Area Network NWAVE	3804M16002.5	2020-10-01	2020-10-01	2020-10-01	2021-09-30	2021-09-30		3.450000	3.450000	2.943000
3804M16002	FY21 NWAVE Q3Q4	FY21 Wide Area Network NWAVE Q3Q4	3804M16002.5 .2	2021-04-01	2021-04-01	2021-04-01	2021-09-30	2021-09-30		0.507000	0.507000	

Section D: Operational Data

1. Provide the date and results of the last Operational Analysis (for operational and mixed life cycle systems/Investments):

1. Date of Analysis:

2. Analysis Results:

3. Analysis Conclusion: continue as is

2. Report a minimum of 5 metrics using the following table to provide metrics and actual results for each individual metric:

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
24829	Cost per teraflop of R&D HPC. This includes all of the costs, including hardware, power, facility, and labor.	\$/TF	3 - Financial Performance	7.096000	8.000000	8.000000	Under target	Annual	006SO18022 : Advance Innovation	No
Metric ID	Actual Result ID	Actual Result	Date of Actual Result	Comment						
24829	271418	5.679000	09/30/2020	Lower cost by incorporation of Orion outside of program resources						
24829	250034	7.144000	09/30/2019							
24829	234108	6.800000	09/30/2018							
24829	181888	5.269000	12/30/2016							
2146	Fairmont HPC System Availability	Percentage	1 - Customer Satisfaction (Process Results)	96.000000	96.000000	96.000000	Over target	Monthly	006SO18022 : Advance Innovation	No
Metric ID	Actual Result ID	Actual Result	Date of Actual Result	Comment						
2146	289549	98.610000	06/30/2021							
2146	287437	99.040000	05/31/2021							
2146	287436	98.170000	04/30/2021							
2146	283725	98.480000	03/31/2021							
2146	281527	98.990000	02/28/2021							
2146	278548	98.920000	01/31/2021							

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2146	276667	98.070000	12/31/2020		
					2146	275168	97.780000	11/30/2020		
					2146	274217	98.670000	10/31/2020		
					2146	271419	98.070000	09/30/2020		
					2146	270717	100.000000	08/31/2020		
					2146	270716	98.520000	07/31/2020		
					2146	265845	98.410000	06/30/2020		
					2146	265844	97.590000	05/31/2020		
					2146	265843	98.730000	04/30/2020		
					2146	265842	97.010000	08/31/2016		
					2146	265841	99.260000	09/30/2015		
					2146	265840	98.850000	08/31/2015		
					2146	265839	98.030000	07/31/2015		
					2146	259234	98.830000	03/31/2020		
					2146	258065	100.000000	02/29/2020		
					2146	256323	100.000000	01/31/2020		
					2146	253722	100.000000	12/31/2019		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2146	253332	100.000000	11/30/2019		
					2146	251634	100.000000	10/31/2019		
					2146	250033	92.670000	09/30/2019	Planned maintenance and a system outage caused by an electrical failure combined to reduce the overall compute availability at Fairmont. The performance targets will still be met for the year.	
					2146	246580	99.020000	07/31/2019		
					2146	246579	98.150000	08/31/2019		
					2146	245233	98.690000	06/30/2019		
					2146	243849	99.540000	05/31/2019		
					2146	242511	98.380000	04/30/2019		
					2146	241248	98.640000	03/31/2019		
					2146	239442	98.560000	02/28/2019		
					2146	237018	100.000000	11/30/2018		
					2146	237017	98.430000	01/31/2019		
					2146	237016	99.900000	12/31/2018		
					2146	234107	98.510000	10/31/2018		
					2146	232168	98.210000	09/30/2018		
					2146	229414	98.330000	07/31/2018		

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2146	229413	96.550000	08/31/2018		
					2146	224744	98.580000	06/30/2018		
					2146	223804	98.800000	05/31/2018		
					2146	222308	98.580000	04/30/2018		
					2146	220663	98.250000	03/30/2018		
					2146	219289	98.280000	02/28/2018		
					2146	217478	98.870000	01/31/2018		
					2146	215916	98.870000	12/31/2017		
					2146	214482	98.180000	11/30/2017		
					2146	213341	98.700000	09/30/2017		
					2146	213340	97.890000	10/31/2017		
					2146	193193	97.870000	04/30/2017		
					2146	193192	98.670000	05/31/2017		
					2146	193191	100.000000	06/30/2017		
					2146	193190	98.300000	07/31/2017		
					2146	193189	97.500000	08/31/2017		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2146	186979	97.900000	03/31/2017		
					2146	184665	97.900000	02/28/2017		
					2146	183251	98.880000	01/31/2017		
					2146	181887	98.800000	12/30/2016		
					2146	178935	98.700000	09/30/2016		
					2146	178934	98.600000	10/31/2016		
					2146	178933	100.000000	11/30/2016		
					2146	171006	97.010000	08/04/2016		
					2146	170347	97.970000	07/11/2016		
					2146	167256	98.100000	06/08/2016		
					2146	163434	98.600000	03/31/2016		
					2146	160797	98.220000	02/29/2016		
					2146	158972	98.520000	01/31/2016		
					2146	156583	97.570000	12/31/2015		
					2146	155324	98.270000	10/31/2015		
					2146	155323	98.760000	11/30/2015		
					2146	145743	94.500000	06/30/2015	Target missed for this month due to electrical outage at Fairmont facility. Target expected to be met in next	

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
									month's report.	
					2146	141657	98.100000	05/31/2015		
					2146	137989	98.100000	04/30/2015		
					2146	133075	100.000000	03/31/2015		
					2146	127645	100.000000	02/28/2015		
					2146	125679	100.000000	01/31/2015		
					2146	120047	100.000000	12/31/2014		
					2146	117525	100.000000	11/30/2014		
					2146	112909	100.000000	10/31/2014		
					2146	109059	100.000000	09/30/2014		
					2146	106755	100.000000	07/31/2014		
					2146	106753	100.000000	08/31/2014		
					2146	99709	100.000000	06/30/2014		
					2146	95487	100.000000	05/30/2014		
					2146	92027	99.300000	03/31/2014		
					2146	92025	100.000000	04/30/2014		
					2146	84017	100.000000	02/28/2014		
					2146	80315	100.000000	01/31/2014		

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2146	77457	100.000000	12/31/2013		
					2146	73251	100.000000	11/30/2013		
					2146	69561	100.000000	10/31/2013		
					2146	67793	99.700000	08/31/2013		
					2146	67791	100.000000	09/30/2013		
					2146	61909	100.000000	07/31/2013		
					2146	59962	99.500000	06/30/2013		
					2146	58381	100.000000	05/31/2013		
					2146	56411	100.000000	04/30/2013		
					2146	51451	100.000000	03/31/2013		
					2146	48009	100.000000	02/28/2013		
					2146	45025	100.000000	01/31/2013		
					2146	40727	100.000000	12/31/2012		
					2146	37215	100.000000	11/30/2012		
					2146	32875	100.000000	10/31/2012		
					2146	30625	100.000000	09/28/2012		
					2146	27789	100.000000	08/31/2012		

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
2145	Climate: Number of regional scale projections for assessments & decision support	Number of Projections	2 - Strategic and Business Results	3.000000	3.000000	3.000000	Over target	Semi-Annual	006SO18022 : Advance Innovation	No
Metric ID	Actual Result ID	Actual Result	Date of Actual Result	Comment						
2145	283726	3.000000	03/31/2021							
2145	271420	3.000000	09/30/2020							
2145	259233	3.000000	03/31/2020							
2145	250032	3.000000	09/30/2019							
2145	234106	8.000000	09/30/2018							
2145	214481	3.000000	11/30/2017							
2144	Climate: Cumulative number of new decadal prototype forecasts and predictions made with high-resolution coupled climate model	Number of Forecasts	2 - Strategic and Business Results	3.000000	3.000000	3.000000	Over target	Semi-Annual	006SO18022 : Advance Innovation	No
Metric ID	Actual Result ID	Actual Result	Date of Actual Result	Comment						
2144	283727	3.000000	03/31/2021							

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2144	271421	3.000000	09/30/2020		
					2144	270718	3.000000	03/31/2020		
					2144	250031	3.000000	09/30/2019		
					2144	234105	6.000000	09/30/2018		
					2144	214480	3.000000	11/30/2017		
					2144	109049	1.000000	09/30/2014		
					2144	67775	1.000000	09/30/2013		
					2144	51447	2.000000	03/31/2013		
					2144	27785	1.000000	08/31/2012		
2143	Computational Hours made available to users (in Millions)	millions of hrs per month	1 - Customer Satisfaction (Process Results)	101.675000	130.000000	130.000000	Over target	Monthly	006SO18022 : Advance Innovation	No
					Metric ID	Actual Result ID	Actual Result	Date of Actual Result	Comment	
					2143	289550	189.924000	06/30/2021		
					2143	287439	196.641000	05/31/2021		
					2143	287438	190.258000	04/30/2021		
					2143	283728	194.217000	03/31/2021		
					2143	281528	177.034000	02/28/2021	New algorithm used in SLURM workload manager to calculate	

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
									Compute Hours available	
					2143	278549	196.991000	01/31/2021		
					2143	276668	195.737000	12/31/2020		
					2143	275169	187.485000	11/30/2020		
					2143	274218	192.624000	10/31/2020		
					2143	271422	189.399000	09/30/2020		
					2143	270720	196.963000	08/31/2020		
					2143	270719	194.044000	07/31/2020		
					2143	265852	183.898000	06/30/2020		
					2143	265851	196.110000	05/31/2020		
					2143	265850	188.507000	04/30/2020		
					2143	265849	80.758000	08/31/2016	Target missed this month due to ongoing recapitalization of Gaea at ORNL. Expect to meet target in Q1 of FY 2017 once new system is fully operational.	
					2143	265848	150.729000	09/30/2015		
					2143	265847	149.844000	08/31/2015		
					2143	265846	143.115000	07/31/2015		
					2143	259232	195.972000	03/31/2020		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2143	258064	176.125000	02/29/2020		
					2143	256322	177.510000	01/31/2020		
					2143	253721	178.678000	12/31/2019		
					2143	253331	168.955000	11/30/2019	Compute hours at high point due to transition of Theia to Hera at Fairmont, WV. Last part of Theia will be removed which will decrease compute hours for next month.	
					2143	251633	128.215000	10/31/2019		
					2143	250030	153.246000	09/30/2019		
					2143	246578	160.558000	07/31/2019		
					2143	246577	158.377000	08/31/2019		
					2143	245232	150.323000	06/30/2019		
					2143	243848	158.500000	05/31/2019		
					2143	242510	152.369000	04/30/2019		
					2143	241247	157.236000	03/31/2019		
					2143	239441	140.041000	02/28/2019		
					2143	237015	130.445000	11/30/2018		
					2143	237014	136.380000	01/31/2019		
					2143	237013	132.839000	12/31/2018		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2143	234104	130.155000	10/31/2018		
					2143	232167	136.025000	09/30/2018		
					2143	229412	132.320000	07/31/2018		
					2143	229411	132.219000	08/31/2018		
					2143	224743	130.377000	06/30/2018		
					2143	223803	135.128000	05/31/2018		
					2143	222307	131.128000	04/30/2018		
					2143	220662	121.533000	03/30/2018		
					2143	219288	135.963000	02/28/2018		
					2143	217477	136.937000	01/31/2018		
					2143	215915	130.854000	12/31/2017		
					2143	214479	135.453000	11/30/2017		
					2143	213339	134.403000	09/30/2017		
					2143	213338	130.961000	10/31/2017		
					2143	193188	133.302000	04/30/2017		
					2143	193187	126.825000	05/31/2017		
					2143	193186	137.100000	06/30/2017		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2143	193185	132.863000	07/31/2017		
					2143	193184	134.973000	08/31/2017		
					2143	186978	124.237000	03/31/2017		
					2143	184664	134.841000	02/28/2017		
					2143	183250	135.041000	01/31/2017		
					2143	181886	125.694000	12/30/2016		
					2143	178932	89.588000	09/30/2016	Target missed this month due to ongoing recapitalization of Gaea at ORNL. Expect to meet target in Q1 of FY 2017 once new system is fully operational.	
					2143	178931	83.272000	10/31/2016	Target missed this month due to ongoing recapitalization of Gaea at ORNL. Expect to meet target in Q1 of FY 2017 once new system is fully operational.	
					2143	178930	130.116000	11/30/2016		
					2143	171009	80.585000	07/31/2016	Target missed due to ongoing recapitalization of Gaea.	
					2143	170349	100.000000	06/30/2016		
					2143	167255	110.326000	05/31/2016		
					2143	165148	112.823000	04/30/2016		
					2143	163435	109.035000	03/31/2016		
					2143	160796	136.312000	02/29/2016		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2143	158973	135.396000	01/31/2016		
					2143	156586	130.824000	12/31/2015		
					2143	155322	124.456000	10/31/2015		
					2143	155321	136.160000	11/30/2015		
					2143	145745	144.288000	06/30/2015		
					2143	141655	140.018000	05/31/2015		
					2143	137987	146.566000	04/30/2015		
					2143	133077	119.269000	03/31/2015		
					2143	127643	130.188000	02/28/2015		
					2143	125681	131.707000	01/31/2015		
					2143	120043	127.459000	12/31/2014		
					2143	117523	130.437000	11/30/2014		
					2143	112915	125.888000	10/31/2014		
					2143	109057	125.742000	09/30/2014		
					2143	106751	112.735000	07/31/2014		
					2143	106749	126.454000	08/31/2014		
					2143	99711	122.812000	06/30/2014		

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2143	95483	120.620000	05/30/2014		
					2143	92029	121.929000	04/30/2014		
					2143	88443	115.587000	03/31/2014		
					2143	84015	128.332000	02/28/2014		
					2143	80313	127.845000	01/31/2014		
					2143	77459	127.159000	12/31/2013		
					2143	73253	123.668000	11/30/2013		
					2143	69555	122.122000	10/31/2013		
					2143	67789	124.920000	08/31/2013		
					2143	67787	126.119000	09/30/2013		
					2143	61911	126.280000	07/31/2013		
					2143	59963	126.370000	06/30/2013		
					2143	58380	123.774000	05/31/2013		
					2143	56415	128.067000	04/30/2013		
					2143	51455	114.232000	03/31/2013		
					2143	48015	127.598000	02/28/2013		
					2143	45023	128.259000	01/31/2013		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2143	40725	124.091000	12/31/2012		
					2143	37221	118.521000	11/30/2012		
					2143	32871	104.972000	10/31/2012		
					2143	30623	111.778000	09/28/2012		
					2143	27783	101.141000	08/31/2012		
2142	HPC Data Availability	Percentage	2 - Strategic and Business Results	99.000000	99.000000	99.000000	Over target	Monthly	006SO18022 : Advance Innovation	No
					Metric ID	Actual Result ID	Actual Result	Date of Actual Result	Comment	
					2142	289551	99.930000	06/30/2021		
					2142	287441	99.840000	05/31/2021		
					2142	287440	99.940000	04/30/2021		
					2142	283729	99.860000	03/31/2021		
					2142	281529	99.960000	02/28/2021		
					2142	278550	99.920000	01/31/2021		
					2142	276669	99.890000	12/31/2020		
					2142	275170	99.860000	11/30/2020		
					2142	274219	99.940000	10/31/2020		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2142	271423	99.500000	09/30/2020		
					2142	270722	99.690000	08/31/2020		
					2142	270721	99.960000	07/31/2020		
					2142	265867	99.910000	06/30/2020		
					2142	265866	99.540000	05/31/2020		
					2142	265865	99.500000	04/30/2020		
					2142	265864	99.810000	08/31/2016		
					2142	265863	99.900000	09/30/2015		
					2142	265862	99.540000	08/31/2015		
					2142	265861	99.500000	07/31/2015		
					2142	265860	99.900000	04/30/2015		
					2142	265859	99.940000	11/30/2014		
					2142	265858	99.910000	09/30/2014		
					2142	265857	99.900000	08/31/2014		
					2142	265856	99.900000	07/31/2014		
					2142	265855	99.900000	06/30/2014		
					2142	265854	99.890000	05/30/2014		

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2142	265853	99.990000	12/31/2013		
					2142	259231	99.690000	03/31/2020		
					2142	258063	99.340000	02/29/2020		
					2142	256321	99.940000	01/31/2020		
					2142	253720	99.990000	12/31/2019		
					2142	253330	99.940000	11/30/2019		
					2142	251632	99.990000	10/31/2019		
					2142	250029	99.990000	09/30/2019		
					2142	246576	99.960000	07/31/2019		
					2142	246575	99.890000	08/31/2019		
					2142	245231	99.900000	06/30/2019		
					2142	243847	99.600000	05/31/2019		
					2142	242509	99.990000	04/30/2019		
					2142	241246	99.990000	03/31/2019		
					2142	239440	99.990000	02/28/2019		
					2142	237012	100.000000	11/30/2018		
					2142	237011	99.850000	01/31/2019		

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2142	237010	99.900000	12/31/2018		
					2142	234103	100.000000	10/31/2018		
					2142	232166	100.000000	09/30/2018		
					2142	229410	100.000000	07/31/2018		
					2142	229409	100.000000	08/31/2018		
					2142	224742	100.000000	06/30/2018		
					2142	223802	100.000000	05/31/2018		
					2142	222306	100.000000	04/30/2018		
					2142	220661	100.000000	03/30/2018		
					2142	219287	100.000000	02/28/2018		
					2142	217476	100.000000	01/31/2018		
					2142	215914	99.980000	12/31/2017		
					2142	214478	100.000000	11/30/2017		
					2142	213337	100.000000	09/30/2017		
					2142	213336	100.000000	10/31/2017		
					2142	193183	99.440000	04/30/2017		
					2142	193182	99.980000	05/31/2017		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2142	193181	99.960000	06/30/2017		
					2142	193180	99.400000	07/31/2017		
					2142	193179	100.000000	08/31/2017		
					2142	186977	100.000000	03/31/2017		
					2142	184663	99.900000	02/28/2017		
					2142	183249	99.900000	01/31/2017		
					2142	181885	99.740000	12/30/2016		
					2142	178929	99.700000	09/30/2016		
					2142	178928	99.930000	10/31/2016		
					2142	178927	99.930000	11/30/2016		
					2142	171007	99.980000	07/31/2016		
					2142	170348	85.305000	06/30/2016	Monthly target missed due to ongoing Gaea recapitalization effort.	
					2142	167254	99.900000	05/31/2016		
					2142	165149	99.990000	04/30/2016		
					2142	163433	99.900000	03/31/2016		
					2142	160794	99.930000	02/29/2016		
					2142	158974	99.740000	01/31/2016		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2142	156585	99.840000	12/31/2015		
					2142	155320	99.850000	10/31/2015		
					2142	155319	99.990000	11/30/2015		
					2142	145741	99.900000	06/30/2015		
					2142	141653	99.900000	05/31/2015		
					2142	133071	99.900000	03/31/2015		
					2142	127641	99.890000	02/28/2015		
					2142	125675	99.800000	01/31/2015		
					2142	120041	99.900000	12/31/2014		
					2142	112913	99.990000	10/31/2014		
					2142	92021	99.930000	04/30/2014		
					2142	88439	99.900000	03/31/2014		
					2142	84013	100.000000	02/28/2014		
					2142	80311	100.000000	01/31/2014		
					2142	73249	100.000000	11/30/2013		
					2142	69559	100.000000	10/31/2013		
					2142	67785	99.870000	08/31/2013		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2142	67783	100.000000	09/30/2013		
					2142	61912	99.960000	07/31/2013		
					2142	59961	99.770000	06/30/2013		
					2142	58382	100.000000	05/31/2013		
					2142	56413	99.990000	04/30/2013		
					2142	51453	99.990000	03/31/2013		
					2142	48011	99.990000	02/28/2013		
					2142	45021	99.960000	01/31/2013		
					2142	40721	99.560000	12/31/2012		
					2142	37219	99.700000	11/30/2012		
					2142	32867	99.900000	10/31/2012		
					2142	30621	99.600000	09/28/2012		
					2142	27781	99.600000	08/31/2012		
2141	Improved treatment of key physical processes in climate models aimed at improving: model performance, understanding of	Number of improvements	1 - Customer Satisfaction (Process Results)	3.000000	3.000000	3.000000	Over target	Semi-Annual	006SO18022 : Advance Innovation	No

Page 33 / 41 of Business Case Date of Last Revision: 2021-04-27 Business Case (2022)

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
2139	ORNL HPC System Availability	Percentage	1 - Customer Satisfaction (Process Results)	96.000000	2140	271425	65.000000	09/30/2020		
					2140	259229	75.000000	03/31/2020		
					2140	250027	65.000000	09/30/2019		
					2140	234101	60.000000	09/30/2018		
					2140	214476	65.000000	11/30/2017		
					2140	109053	96.000000	09/30/2014		
					2140	67771	100.000000	09/30/2013	Funding was not appropriated for this activity in FY 2013.	
					2140	51445	0.000000	03/31/2013	Target not met due to lack of funding. Expected modeling funding was not appropriated.	
					2140	27777	0.000000	08/31/2012	Target for FY11 not met due to lack of expected funding	
					96.000000	96.000000	Over target	Monthly	006SO18022 : Advance Innovation	No
					Metric ID	Actual Result ID	Actual Result	Date of Actual Result	Comment	
					2139	289552	98.590000	06/30/2021		
					2139	287443	99.030000	05/31/2021		
					2139	287442	99.390000	04/30/2021		
					2139	283731	97.080000	03/31/2021		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2139	281530	98.500000	02/28/2021		
					2139	278551	99.450000	01/31/2021		
					2139	276670	98.480000	12/31/2020		
					2139	275171	96.030000	11/30/2020		
					2139	274220	96.010000	10/31/2020		
					2139	271426	98.880000	09/30/2020		
					2139	270724	98.870000	08/31/2020		
					2139	270723	96.830000	07/31/2020		
					2139	265874	93.030000	06/30/2020	OS upgrade took more time than anticipated and Luster file system outages reduced availability below target. 97.7% availability average for calendar year.	
					2139	265873	99.080000	05/31/2020		
					2139	265872	97.450000	04/30/2020		
					2139	265871	100.000000	08/31/2016		
					2139	265870	100.000000	09/30/2015		
					2139	265869	99.250000	08/31/2015		
					2139	265868	97.980000	07/31/2015		
					2139	259228	98.620000	03/31/2020		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2139	258062	98.960000	02/29/2020		
					2139	256320	98.230000	01/31/2020		
					2139	253719	99.270000	12/31/2019		
					2139	253329	88.050000	11/30/2019	Availability impacted by planned two week downtime and file system issues on the reboot process after the system was moved. Issued have been corrected and all parts of Gaea are full up operational.	
					2139	251631	25.940000	10/31/2019	14 day scheduled downtime to move compute racks at ORNL due to facility change. Subsequent file system failure extended downtime.	
					2139	250026	97.940000	09/30/2019		
					2139	246574	99.660000	07/31/2019		
					2139	246573	97.870000	08/31/2019		
					2139	245230	94.400000	06/30/2019		
					2139	243846	97.520000	05/31/2019		
					2139	242508	98.160000	04/30/2019		
					2139	241245	98.600000	03/31/2019		
					2139	239439	97.750000	02/28/2019		
					2139	237009	99.750000	11/30/2018		
					2139	237008	98.620000	01/31/2019		

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2139	237007	98.930000	12/31/2018		
					2139	234100	95.500000	10/31/2018		
					2139	232165	97.820000	09/30/2018		
					2139	229408	98.580000	07/31/2018		
					2139	229407	93.770000	08/31/2018		
					2139	224741	90.730000	06/30/2018		
					2139	223801	97.600000	05/31/2018		
					2139	222305	97.130000	04/30/2018		
					2139	220660	96.120000	03/30/2018		
					2139	219286	97.800000	02/28/2018		
					2139	217475	98.930000	01/31/2018		
					2139	215913	98.930000	12/31/2017		
					2139	214475	98.640000	11/30/2017		
					2139	213335	94.720000	09/30/2017	Target missed for September due to unplanned maintenance. Quarterly and annual target will be met.	
					2139	213334	97.260000	10/31/2017		
					2139	193178	100.000000	04/30/2017		

Metrics Definitions and Actual Results Table D.2 / D.3										
Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2139	193177	91.600000	05/31/2017	There was a number of node failures pertaining to memory errors(if a node fails during a job it is removed from the system) the nodes needed a downtime to be reintroduced. Errors have been fixed.	
					2139	193176	99.700000	06/30/2017		
					2139	193175	99.800000	07/31/2017		
					2139	193174	97.900000	08/31/2017		
					2139	186976	99.900000	03/31/2017		
					2139	184662	100.000000	02/28/2017		
					2139	183248	100.000000	01/31/2017		
					2139	181884	100.000000	12/30/2016		
					2139	178926	100.000000	09/30/2016		
					2139	178925	100.000000	10/31/2016		
					2139	178924	100.000000	11/30/2016		
					2139	171008	100.000000	07/31/2016		
					2139	170346	100.000000	06/30/2016		
					2139	167253	100.000000	05/31/2016		
					2139	165147	98.730000	04/30/2016		
					2139	163432	93.000000	03/31/2016	This month's metric was missed due	

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
									to the transition to a new system. Next month's results should be above the target and the annual metric should not be impacted.	
					2139	160795	100.000000	02/29/2016		
					2139	158971	98.900000	01/31/2016		
					2139	156584	98.870000	12/31/2015		
					2139	155318	94.880000	10/31/2015	Target missed due to unscheduled downtime. Annual target will be met.	
					2139	155317	99.700000	11/30/2015		
					2139	145739	99.600000	06/30/2015		
					2139	141659	95.400000	05/31/2015		
					2139	137985	96.900000	04/30/2015		
					2139	133073	100.000000	03/31/2015		
					2139	127647	98.410000	02/28/2015		
					2139	125677	99.800000	01/31/2015		
					2139	120045	99.800000	12/31/2014		
					2139	117521	98.420000	11/30/2014		
					2139	112911	97.960000	10/31/2014		
					2139	109055	96.990000	09/30/2014		

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2139	106747	86.200000	07/31/2014	A file system outage that began at the end of the previous month reduced the overall compute availability at ORNL. The performance targets will still be met for the year.	
					2139	106745	99.460000	08/31/2014		
					2139	99707	95.150000	06/30/2014	Planned maintenance and a file system outage at the end of the month combined to reduce the overall compute availability at ORNL. The performance targets will still be met for the year.	
					2139	95485	99.080000	05/30/2014		
					2139	92023	98.930000	04/30/2014		
					2139	88437	98.660000	03/31/2014		
					2139	84011	99.810000	02/28/2014		
					2139	80309	99.260000	01/31/2014		
					2139	77461	99.940000	12/31/2013		
					2139	73255	99.900000	11/30/2013		
					2139	69557	99.100000	10/31/2013		
					2139	67781	97.610000	08/31/2013		
					2139	67779	98.430000	09/30/2013		
					2139	61910	100.000000	07/31/2013		

Metrics Definitions and Actual Results Table D.2 / D.3

Metric ID	Metric Description	Unit of Measure	Performance Measurement Category Mapping	Agency Baseline Capability	2020 Target	2021 Target	Measurement Condition	Reporting Frequency	Agency Strategic Objective / Agency Priority Goal	Is Metric Retired?
					2139	59960	100.000000	06/30/2013		
					2139	58379	98.970000	05/31/2013		
					2139	56417	99.480000	04/30/2013		
					2139	51457	97.440000	03/31/2013		
					2139	48013	98.850000	02/28/2013		
					2139	45019	99.300000	01/31/2013		
					2139	40723	99.000000	12/31/2012		
					2139	37217	99.000000	11/30/2012		
					2139	32863	91.000000	10/31/2012	Planned maintenance on GAEA Phase II resulted in lower system availability this month. System availability targets should be met in November and the overall, annual target will be met.	
					2139	30619	99.500000	09/28/2012		
					2139	27775	98.500000	08/31/2012		