NASA Agency Program Management Council
March 2017 Decision Memorandum

Summary: The Agency Program Management Council (APMC) met on March 15-16, 2017. The first day focused on continued progress implementing the Capability Leadership Model across the Agency. For topics covered on March 15, additional background for prior actions referenced in the attachment can be found in the September 2016 Capability Days summary posted to "Inside NASA". The second day of this APMC focused on Mission Directorate first order planning guidance for implementing the Center Roles decision, as well as actions assigned to the Science Mission Directorate. For topics covered on March 16, additional background for prior actions referenced in the attachment can be found in the October 2016 Executive Council decision posted to "Inside NASA". For all topics discussed at this APMC, supporting meeting files can be found on NX in the March 2017 Capability Days meeting folder.

Decisions:

For reference, the September 2016 Capability Days Decision Memorandum attachment, as noted in the blue text language, provides the basis for some of the decisions and new actions documented below. In addition, seven September actions were closed, as documented in the attachment to this memo. Remaining forward work as detailed in the attachment, as well as these decisions and new actions, will be addressed and under compliance at the APMC, EMB, and/or nominal formal and informal action closure processes, as appropriate. The following decisions were made during the meeting based on recommendations.

Systems Capability Leadership — STMD and HEOMD

***Decision 1*:** Based on this meeting and the original APMC discussion on 11.30.2016, the stewardship for systems capabilities will transition from the OCE to STMD and HEOMD. STMD will be responsible for the following systems capabilities: Entry, Descent and Landing (EDL); Autonomous Systems; Rendezvous, Proximity Operations and Capture; and In-Space Transportation. HEOMD will be responsible for the following systems capabilities: Environmental Control and Life Support Systems (ECLSS); Communications and Navigation; and In-Situ Resource Utilization (ISRU). These Mission Directorates will proceed with filling the leadership positions for each systems capability. Once each Systems Capability Leadership Team (SCLT) is established, an implementation plan will be developed that describes expectations, including SCLT roles and responsibilities, structure, team membership, mode of operation, deliverables, and resources to ensure agency-wide integration and perspectives.

Additionally, the following recommendations are accepted: (a) Each of the SCLT's will be led by the appropriate Mission Directorate; (b) SCLT's will fulfill most of the roles currently attributed to other teams (e.g., HEOMD's System Maturation Teams and STMD's Principal Technologists); (c) OCE's Discipline Capability Leadership Teams will provide matrix support to the SCLT's; and (d) SCLT's will provide an annual "state of the capability" assessment to the September Capability Days through the OCE/EMB integration process.

Capability Leadership Assessment Cadence — OCE

Decision 2: The discipline Capability Leadership Teams, under the purview of the OCE, will report on a staggered 3-year cycle and move to a common assessment/reporting approach. Additionally, the following recommendations are accepted: (a) present baseline assessments for any newly formed capability area(s) at September Capability Days; (b) re-baseline 6-7 enduring capability areas annually on a 3-year cycle, using a standard data collection and reporting approach; (c) provide an executive summary for those capabilities not scheduled for a re-baseline at the September APMC; (d) establish an annual focus area, such as strategic vectors, prioritized portfolio, external dependences, detailed facility review, Lead/Leverage/Collaborate alignment, Center roles validation, etc.; (e) allow CLTs to address issues or significant changes for their capability in a non-re-baseline assessment year.

Small/Medium Size Mission Competition — SMD

Decision 3: The Science Mission Directorate performed an analysis of competed missions across mission class size. This focused study is in response to an action from the 10.31.2016 Executive Council decision on Center roles. The recommendations of this study are intended to further inform the Center role assignments for end-to-end science missions. The following recommendations are accepted:

— Centers may propose to the small mission class (SMEX and EVM) in the science research disciplines that they are assigned per Center roles.
— Centers may propose to the medium mission class (MIDEX) if they have successfully executed, within the prior seven years, a small or medium class mission.
  - Success can be for a competitively selected or assigned mission.
  - Successfully executed means developed and operated.
— With respect to NASA Centers, only GSFC and JPL are currently approved to propose for the large mission class (Discovery and New Frontiers).
— For any class mission, proposing Development Centers are responsible for soliciting PIs, as well as instrument providers and co-investigators, from other Centers and external organizations to ensure a continuing diversity of best ideas from the community, and to be competitive for selection.

*See related formal APMC Action **03-15-2017#3***

Actions:

1. 03-15-2017#1, informal APMC Action: Work with all Capability Leadership Teams, including those outside of the OCE purview, to develop an annual cadence schedule and a consistent approach to assessment content. Assigned to: OCE/Dawn Schaible, Due: May 15, 2017.
2. 03-15-2017#2, informal APMC Action: Delete slide #5 from the Chemical Propulsion Capability presentation, with diagram and statement, "Request formal APMC Decision – Approve Management Model Update". Assigned to: MSFC/M.B. Koelbl. This action is **CLOSED**. Updated charts are posted to NX 3/16/17.
3. 03-15-2017#3, formal APMC Action: Develop a process that allows PI's from different centers to be part of the mission proposal process, prior to considering external partners. Consider alternative approaches to representing the diversity of mission ideas across the entire Agency for potential proposals to Announcements of Opportunity. Assigned to: JPL/M. Watkins, GSFC/C. Scolese, Due: July 2017.
4. 03-15-2017#4, informal APMC Action: Add a column to the STMD Center technical roles matrix (slide #4 in presentation) representing JPL's work assignments and personnel allocations across the STMD designated work areas. Update charts and post to NX. Assigned to: STMD/P. Desai, Due: April 15, 2017.

5. 03-15-2017#5a, informal APMC Action: Incorporate the Mission Directorate first order planning guidance for Center roles into the Strategic Planning Guidance (SPG) for PPBE19. Assigned to: OCFO/E. Lehnhardt, Due: April 10, 2017.
   03-15-2017#5b, informal APMC Action: Develop a configuration-controlled Master List of Center technical roles, representing Mission Directorate assignments from the EC decision (10/31/16) and the APMC update (03/16/17). Include assumptions, as available. Provide as supporting documentation to the SPG for PPBE19. Assigned to: Office of the Administrator /L. Guerra and OACS/D. Boccippio, Due: April 10, 2017.

Concurrence

(b) (6) 3/24/17

Deputy Associate Administrator Date
MSC Chair

Approval

(b) (6) 3/24/17

Associate Administrator Date
APMC Chair

Attachment
Agency Program Management Council
March 15 - 16, 2017

March 15, 2017— Capability Leadership Update – Day 1

Presenter	Summary
HEOMD/G. Williams	**Deputies Team:** Approach to Workforce Reconciliation March 2017 Summary The Deputies Team is facilitating communication and problem resolution regarding workforce reconciliation across the Centers. Primarily looking at prioritization of workforce in year of execution, while not disrupting the governance model. Efforts thus far include: • Deputies Team fosters relationships that ease 1-on-1 informal contacts to work problems • Deputies Team provides a forum to facilitate problem resolution when lower-level agreements cannot be reached • Used HEO Workforce BPR action as a test case for process Forward Work: 1. Contribute to the Strategic Workforce Planning (SWP) efforts around the role of the civil servant through better definition, as well as a strategic look for NASA's workforce in the future. 2. Determine whether PBAT recommendations from Associate Administrator memo (6/25/14) should be codified formally into Agency policy, giving consideration to BSA implementation plans for human capital. Report forward work progress to a future APMC.
STMD/P. Desai HEOMD/J. Free	**SCLT Implementation Plan** (follow-up to 11.30.2016 APMC) *See Decision 1.* March 2017 Summary The System Capability Leadership Team (SCLT) leads in STMD and HEOMD will be selected in 2017, with the goal of placement by June. The designated SCLTs will work with OCE to determine schedule cadence and product development, with the intent of reporting on some system capabilities for the September 2017 APMC Capability Days. The SCLTs will utilize the Engineering Management Board (EMB) to allow for a seamless process of advice and reporting, prior to the APMC. Forward Work: 1. HEOMD — determine if there is a need for Communications & Navigation SCLT, given the roles and responsibilities with SCaN. If a decision is made not to have a Communications & Navigation SCLT, then approval is required from the APMC.
OCE/R. Roe OCE/D. Schaible	**OCE Status on Capability Leadership** *See Decision 2.* *See Action 1.* March 2017 Summary OCE reported the status of the nine integrated recommendations from their briefing at the September 2016 APMC Capability Days. In addition, the OCE recommended an annual cadence of reporting for the 19 discipline capabilities in

	their purview. The staggered approach to assessments and reporting results in the following for 2017: Baselining for sensors/instruments; Re-baselining for flight mechanics, GN&C, human factors, loads & dynamics, mechanical systems, and passive thermal. Forward Work: 1. Determine the reporting process in the event of major systems changes or issues, to include a status of green/yellow/red. It may be necessary for larger CLTs to report more routinely for situational awareness, having established the CLTs as a key advisory role for the APMC. The summer 2017 EMB will decide if "red" capabilities need to be briefed at September 2017 Capability Days.
OCE/M. Aguilar *Reference Sept '16 Capability Days Decision Memo*	**Software Development Efficiency – Action closed with recommendations** *September 2016 Action:* Based on OCE integrated recommendations, in particular recommendation #5 — Increase Software development efficiency. Assign Software CLT to recommend practices and determine best approach to capturing in policy, or other means for insuring application. Assign Software CLT to create and promote an Engineering Software Catalog. Work with the OCIO and the Mission Operations CLT to identify and inventory software as well as means for sharing Agency wide. March 2017 Summary Move forward on software development efficiencies as presented: Part 1 - apply state of the art coding practices; Part 2 - reinforce cross-Agency support and prioritization for fully leveraging reusable software. Future CL reports should provide status on progress towards efficiencies and report to the EMB. Currently, the OCIO has a requirement to catalog corporate software; this effort could extend to the technical software inventory. The larger requirement remains with the OCIO action (as part of FITARA) on all Agency tools. Forward work: 1. Open up currently identified Center repositories (via the firewalls), with OCIO leading. 2. Engage the legal community for potential ramifications. 3. Establish policy documents, to include NPRs, if required. Report forward work progress to the EMB. If necessary, the EMB may determine to bring issues forward to the APMC. The Software Capability will report next to the APMC with its re-baseline assessment in FY19, per the OCE cadence schedule.
EC-2015-10-002 #8b: GRC/R. Button *Reference Sept '16 Capability Days Decision Memo*	**Batteries – Action closed with recommendations** *March 2016 Action:* "Electrical power system capability lead to further assess the remaining battery capability across NASA to determine 1) if testing activities beyond the abuse testing covered in the APMC action warrants further consolidation and 2) if there are any additional opportunities not yet addressed within battery subject matter expert area. Integrate these findings into the EPS State-of-the-Capability report for 2016." March 2017 Summary

	Agency capabilities in battery/cell testing were evaluated, with the following recommendations:
	• Maintain distributed capability for general battery/cell testing.
	  o Encourage full utilization of Agency capability before growth
	• Establish a policy on long-duration testing (in-source vs. outsource)
	  o Primarily project decision based on lowest cost option
	  o Encourage outsource over expanding Agency capability
	• Establish an informal policy for battery R&D coordination/adjudication
	  o Initially using the Capability Leadership Team
	Forward Work:
	1. Continue assessing each block on the power taxonomy, with considerations toward a strategic vector for long-term capability; assessment of the capability needed at all centers; and IRAD, reimbursable, and SBIR leveraging.
	2. Pursue recommendations, particularly informal policy of intelligent use of in-house capability, considering various options as stated, including— (a) projects decide in-source vs. out-source on lowest cost; and (b) preference towards out-source over expanding Agency capability.
	
	Report forward work progress to the EMB. If necessary, the EMB may determine to bring issues forward to the APMC. The Power Capability will report next to the APMC with its re-baseline assessment in FY18, per the OCE cadence schedule.

Materials CLT/D. Parker *Reference Sept '16 Capability Days Decision Memo*	**Materials Capability — Advanced Manufacturing – Action closed** Advanced manufacturing (AM) and Polymer Matrix Composite (PMC) processing: The AM recommendation included center roles associated with low TRL, med/high TRL, and materials R&D at LaRC, MSFC, and GRC respectively. The PMC processing recommendation includes development of pathfinder tasks in ARMD, SMD and HEOMD to demonstrate viability of the concept. <u>March 2017 Summary</u> No implementation plan is required. This assessment baselines current capabilities and defines center roles going forward. • LaRC will lead the AM research and development for lower-TRL (1-5) aerospace structures (SMD/ARMD/STMD), currently utilizing EBF3 technologies. • MSFC will lead the AM processes research and development of mid-to-higher TRL (4-9) efforts currently using the SLM powder bed fusion technologies. • MSFC will also lead in-space manufacturing related areas TRL 1-9 (HEOMD/STMD). • GRC will lead materials research and development, low TRL 1-5, of high temperature turbine engine and high power density electric propulsion/power materials, leveraging AM resources at multiple NASA Centers, Industry, and National Labs and support MSFC and LaRC with detailed evaluation and optimization of feedstock materials, post-processing heat treatments, microstructural and mechanical property characterization (ARMD/HEOMD/STMD). • LaRC will also lead the development and integration of computational modeling capabilities in support of AM material process development. o Leverages additional existing computational capabilities at MSFC, GRC, and ARC.

	Report progress to the EMB. If necessary, the EMB may determine to bring issues forward to the APMC. The Materials Capability will report next to the APMC with its re-baseline assessment in FY18, per the OCE cadence schedule.
KSC/D. Parker *Reference Sept '16 Capability Days Decision Memo*	**Materials Capability — Polymer Matrix Composites (PMC) Processing – Action closed** Advanced manufacturing (AM) and Polymer Matrix Composite (PMC) processing: The AM recommendation included center roles associated with low TRL, med/high TRL, and materials R&D at LaRC, MSFC, and GRC respectively. The PMC processing recommendation includes development of pathfinder tasks in ARMD, SMD and HEOMD to demonstrate viability of the concept. March 2017 Summary Based on a comprehensive center capability assessment and TCAT data, three NASA Centers have extensive PMC processing capability and capacity. MSFC – Center focus is on PMC materials processing development and engineering for space flight vehicle hardware (TRL 4-9). GRC – Center focus is on PMC materials processing research and development for high temperature applications, primarily power and propulsion applications (TRL-1-6). LaRC – Center focus is on PMC materials processing research and development for lightweight aerospace structures (TRL 1-6). Five Centers with minimal PMC processing capability and capacity: ARC, GSFC, JPL, JSC, KSC. A portion of their PMC processing capability is required for meeting Center mission needs. Progress was made on 3 pilot pathfinders that demonstrate Agency readiness for Center-to-Center cooperation, addressing needs of ARMD, HEOMD, and SMD. Forward work: 1. Continue developing implementation plans for the three lead Centers in PMC processing. Report forward work progress to the EMB. If necessary, the EMB may determine to bring issues forward to the APMC. The Materials Capability will report next to the APMC with its re-baseline assessment in FY18, per the OCE cadence schedule.
MSFC/M.B. Koelbl *Reference Sept '16 Capability Days Decision Memo*	**Chemical Propulsion – Action closed** Accepted recommendation to include the management model "option 2" with associated center roles for JSC, MSFC, GSFC, JPL, KSC, and GRC. Also, two areas of chemical propulsion investment, the Orion Service Module (SM) evolution and LOX/Methane propulsion were accepted for acquisition strategy and analysis. *See Action 2.* March 2017 Summary Discussions occurred with respect to the collaboration management model. Clarity was provided on various players — Capability Leadership Teams provide strategic advice for their discipline; the OCE/EMB provides integrated recommendations across disciplines; Agency leadership considers recommendations and provides

	direction; and the Centers enable implementation of work based on their designated leadership role. The APMC agreed with MSFC moving forward with their implementation planning for the collaborative model, given the forward work. Forward Work: 1. An upcoming EMB will provide clarification for roles & responsibilities between Center designated implementation efforts (MSFC for Chemical Propulsion) and discipline capability leadership (propulsion CLT). EMB to consider a global model for implementing Centers, which would also apply to Electric Propulsion and EEE Parts. OCE/EMB has the responsibility for reporting on model results to senior leadership at Headquarters and Centers. The EMB will monitor progress on implementation.

GRC/G.Schmidt *Reference Sept '16 Capability Days Decision Memo*	**Electric Propulsion – Action closed** The lead Center representative will pursue the following recommendations and provide an implementation plan at the next Capability Days APMC. The APMC chair accepted the following recommendations. The recommendations are shown on page 8 of topic D2-S6 of the September 2016 capability day presentations: "EP Consolidation Testing Plan proposed with the following recommendations: • EPSM manages the EP test facility footprint in collaboration with the SET Management Office. • EP test activities remain consolidated at GRC and JPL. • EP facility portfolio at GRC and JPL maintained consistent with Agency needs. • Current and future EP needs addressed via augmentation of existing large volume EP test chamber with additional pumping capability or new larger-scale EP test facility in the future." <u>March 2017 Summary</u> The following recommendations were presented: 1. Consider divestment only if it could potentially lead to significant consolidation of facility/building footprint. 2. Continue investment in higher performance test capabilities to meet the growing demand for EP technology and systems by NASA, DOD and industry. Discussion included concern with the "divestment only if" approach. The Electric Propulsion Sub-Capability Management (EPSM), in concert with the Propulsion Capability Leadership should bring forth candidates for divestment, looking across the board. The group should also demonstrate collaboration with SETMO on managing the EP test footprint. It was recommended that the EPSM membership should be extended to include other Centers, Mission Directorates, and stakeholders. *See forward work statement under chemical propulsion.*
GSFC/F. Jones-Selden *Reference Sept '16 Capability Days Decision Memo*	**EEE Parts – Action closed** The lead Center representative will provide an implementation plan status at the next Capability Days APMC. The APMC chair accepted the CLT recommended option 2 regarding EEE parts consolidation. The recommendations are shown on page 27 of topic D3-S2 of the September 2016 capability day presentations:

	• "Option 2 approach was developed during one-on-one discussions with Centers • Consolidate both foundational and specialized capability to GSFC and JPL • Regional consolidation with expertise depth residing only at GSFC and JPL • Centers maintain only a very basic level of expertise • Level of consolidation up to 20 WYE." <u>March 2017 Summary</u> Move forward with implementation plan per next steps outlined below: • Hire Agency EEE Parts Manager o Position Description is in classification process. o Initial Agency-wide detail seeking GS-15s. o Statement of duties for detail were drafted and agreement to use HRMES for ad was reached with HQ prior to freeze. o Agency-wide detail advertisement was impacted by freeze. • ESES III EEE Parts Task o Discussions with HQ and GSFC procurement officials have determined that ESES III is the best contract vehicle to support the Agency on EEE parts. • JPL EEE Parts Task Order o Discussions with JPL and the NASA Management Office are in process for developing a JPL EEE Parts Task Order. • Meet with HQ Mission Directorate budget POCs. • Continue to perform JSC CCP work at GSFC/JPL. o Goddard has been supporting JSC in the Commercial Crew Program: ▪ Review of Data Packages for EEE parts for CCP • Parts Production Approval Process data from manufacturers. • Destructive Physical Analysis (DPA) and/or Construction Analysis (CA) results ▪ Discussing vendor visits to EEE parts manufacturers to assess their production/packaging process. *See forward work statement under chemical propulsion.*

Attachment
Agency Program Management Council
March 15 - 16, 2017

March 16, 2017— EC-2016-10-001 Action Closure on Center Roles – Day 2

Presenter	Summary
SMD/D. Schurr *Reference 10/31/16 Executive Council Decision Memo on Center Roles*	**Study on Small/Medium Size Mission Competition, addressing access by PI's at all centers** Deliver an Implementation Plan for small/medium sized mission competition to APMC, which also addresses access by PI's at all Centers to the lead Center. *See Decision 3.* *See Action 3.* March 2017 Summary SMD presented class of missions (small, medium, large) and historical awards for NASA Centers, with and without NASA Principal Investigators (PIs). It was noted that 75% of winning PIs are external to NASA. Center partnering is not common at PI level (only 4%) but is common at instrument level. Discussions included how Category 3 and 4 proposals resubmit and win based on feedback and improvements. It was noted that GSFC's and JPL's competitive success can also be attributed to their executing directed missions. Decision 3 of this memo reflects changes to the wording of the SMD recommendation regarding rules for proposing Centers based on mission class, as well as enabling Center-to-Center collaboration for AO proposals.

SMD/D. Andrucyk
 	
Reference 10/31/16 Executive Council Decision Memo on Center Roles
	Study to clarify Program Office roles and responsibilities in SMD
	Deliver study that clarifies roles and responsibilities in SMD Program Offices, including the roles of management, program systems engineering, and technical support. Report to APMC.
	
	March 2017 Summary
	SMD presented the outline of the Program Office study, designated in three phases of work. The discussion focused on the 19 existing program offices and the variation in their structures, functionality, and interfaces. It was noted that Program Management is a capability at NASA, so this study provides a perspective for the Agency and broader opportunities for identifying best practices. Results could be extrapolated to other program work within the Agency. The following Action Plan for the SMD Program Office Study was agreed to:
	
	• Phase 1 – Data Gathering
	  • Define the scope of the Program Office Review.
	  • Review applicable governance/documentation.
	  • Data gathering within each Division & Program Office.
	• Phase 2 – Interviews & Analysis
	  • Conduct interviews with key personnel.
	  • Survey external organizational program offices/structure.
	  • Respond to questions.
	• Phase 3 – Recommendations & Report Out
	  • Draw conclusions regarding Program Office Roles & Responsibilities.

	• Prepare recommendations and action plan as/if applicable. • Brief SMD AA and Centers. • Brief at future APMC. Forward work: 1. Complete original EC action (10/31/16). Extend the action to address efficiencies, as well as potential modifications to governance and requirements. Due no later than September 2017; with a report to APMC.
SMD/D. Andrucyk HEOMD/J. Free STMD/P. Desai ARMD/R. Pearce *Reference 12/12/16 Memo on Guidance for Implementing Strategic Workforce Planning*	**Mission Directorate First Order Planning and Guidance for Center Roles** As part of the decision, the EC directed that: "Mission Directorates/Programs, working with impacted Centers and NMO, submit first-order planning guidance for movement/divestment of technical work across Centers to a joint APMC/MSC. Due in March" *See Action 4; Action 5a/5b.* <u>March 2017 Summary</u> The four Mission Directorates presented their updates to the Center role assignments as well as their interpretation of the green (primary), yellow (support), and red (divest) designations. Any changes and accompanying assumptions will be captured in the Center Roles (technical) Master List, per Action 5b. Throughout the Mission Directorate presentations, it was noted that the updates and clarifications to the Center roles matrices foster important conversations with Centers. The matrix designations are not set in stone, rather updates are enabled through the APMC, and assumed necessary as budgets and situations change. For SMD, Decision 3, as part of this memo, is reflected in the Center roles update, designating which Centers can execute which mission class. Additional SMD efforts are as follows: • SMD has been focused on the flight-mission exercise and while the activities below have been identified we have not yet had the chance to discuss it with any of the affected Centers. • The following activities are areas that still require collaborative discussions: – CubeSat/SmallSats is an area currently under strategic review and discussions will occur in the future. – The role of program offices and the Centers that fulfill that role is under strategic review. – Recommend requiring JPL to offer, and GSFC to accept, support to Planetary missions through use of existing operations tools at JPL for deep space navigation and deep space communications. • The future of XRCF is still open, pending future SMD decision. SMD is making not future commitments at this time. For HEOMD, continued work is required to show the path forward for reducing the ISS workforce. The budget cycle for FY19 is an opportunity to articulate the transition for the ISS workforce wedge. HEOMD also has a goal for a work area to have only one Center designated as green/primary. This needs to be resolved for ECLSS (MSFC and JSC) and systems analysis (LaRC and JSC). Discussion included the designation for KSC on ISRU; as long as resource prospector mission is active, KSC will be designated as yellow/support in ISRU.

	HEOMD will capture language on future assessment of ISRU with Systems Capability Leadership Team, in agreement with STMD. Further reinforcement and alignment in Center roles will occur through the budget process. For STMD, the Center roles assignment matrix was not updated, noting that STMD-funded projects are quick-turnaround with completions within a year. STMD provided assumptions which will be captured in Action 5b. STMD views the matrix as the strategic vector for future work assignments. An additional matrix in the STMD presentation showed FTE working in areas designated as white; i.e., work proceeding at Centers funded indirectly by STMD, such as work on Restore-L assigned by GSFC to KSC. Such designations of effort will be resolved with STMD through Action 5b. Finally, STMD intends to rebalance priorities at the completion of the following: • While GSFC will remain a lead center for Comm and Robotics, STMD does not currently have new demonstration missions in the pipeline for these areas. • STMD is currently heavily invested in robotics; expect this investment to be reduced/adjusted after completion of currently planned activities (GSFC, LaRC, KSC, JSC workforce implications). • MSFC current electric propulsion activities expected to be migrated to chemical propulsion and/or cryogenic fluid flight systems following completion of current iSat activities. • Electric Propulsion at GRC may be reduced after 2019 with delivery of Hall Thrusters. Expect workforce to migrate toward related activities including advanced electric propulsion and cryo fluid flight systems activities. • STMD plans to fully divest ISRU work at KSC on the completion of existing work. For ARMD, provided additional clarity on their Center roles matrix, including new annotations and thrust area designations as follows: • Some definitional clarifications required (based on research themes in Aeronautics Strategic Implementation Plan/SIP). – Thrust area column updated to reflect cross-cutting impact • Air Vehicle System & Component Modeling, Simulation & Testing (Thrust 2,3,4). • Propulsion System & Component Modeling, Simulation & Testing (Thrust 2,3,4). – Content of categories clarified • Ultra-efficient propulsion (includes vertical lift propulsion). • Conclusion: No movement/divestment of technical work associated with this matrix. These additions as well as identified assumptions will be captured as part of Action 5b. It was noted that multiple greens for Centers in primary roles does not imply duplication but rather different skills in same theme area. ARMD intends to use documented Center roles for long-term, strategic workforce planning.

Agenda
Agency Program Management Council Meeting
NASA Headquarters, Room 8Q40 & ViTS

March 15 — Capability Leadership Update

10:00	Roll Call and General Admin	PMC Exec/Stephanie Sowards
10:05	Opening Remarks	NASA DAA/Lesa Roe
10:15	Deputies Team approach to workforce reconciliation	HEOMD/Greg Williams
10:45	SCLT Implementation from 11.30.2016 APMC ➢ Decision Memo Review	STMD/Prasun Desai HEOMD/Jim Free
11:15	OCE Status on Capability Leadership	OCE/Dawn Schaible
12:00	Lunch (pre-ordered)	
12:15	Software Development Efficiency	Software CLT/Mike Aguilar
12:45	#8b – Batteries (EC-2015-10-002 action)	Battery CLT/Robert Button
1:15	Break	
1:30	Materials Capability Status ➢ Advanced Manufacturing Update (15 min) ➢ PMC Processing Pathfinder Status (30 min)	Materials CLT/Don Parker
2:15	Capability Implementation Plans ➢ Chemical Propulsion (30 min) ➢ Electric Propulsion (30 min) ➢ EEE Parts (30 min)	 Center Rep/MSFC/Mary Beth Koelbl Center Rep/GRC/George Schmidt Center Rep/GSFC/Felicia Jones-Selden
3:45	Overall Discussion	All
4:00	Review Day 1 Actions	PMC Exec/Stephanie Sowards
4:05	Closing Remarks	NASA DAA/Lesa Roe
4:15	Adjourn	

Agenda
Agency Program Management Council Meeting
NASA Headquarters, Room 8Q40 & ViTS

March 16 - EC-2016-10-001 Action Closure on Center Roles

10:00	Roll Call and General Admin	PMC Exec/Stephanie Sowards
10:05	Opening Remarks	NASA AA/Robert Lightfoot
10:15	Study on Small/Medium Size Mission Competition, addressing access by PI's at all centers	SMD/David Schurr
11:15	Status Briefing on Study to Clarify Program Office roles and responsibilities in SMD	SMD/Dennis Andrucyk
12:15	Lunch (pre-ordered)	
12:30	Mission Directorate First Order Planning and Guidance for Center Roles (30 min ea)	SMD/Thomas Zurbuchen HEOMD/Jim Free STMD/Prasun Desai ARMD/Jon Montgomery
2:30	Center Director Feedback (6 min ea)	Center Directors
3:30	Review Day 2 Actions	PMC Exec/Stephanie Sowards
3:35	Closing remarks and summary	NASA AA/Robert Lightfoot
3:45	Adjourn	

PROGRAM MANAGEMENT COUNCIL
CAPABILITY DAYS - DAY 1
15-Mar-17
Members

Position Title	Name	Signature (b) (6)
General Counsel	Sumara Thompson-King	[redacted]
ARC Center Director	Eugene Tu	
ARC Center Director	Thomas Edwards (for)	
AFRC Center Director	David McBride	
GRC Center Director	Janet Kavandi	
GSFC Center Director	Chris Scolese	
GSFC Deputy Center Director	George Morrow	
JPL Center Director	Michael Watkins	
JSC Center Director	Ellen Ochoa	
KSC Center Director	Robert Cabana	
KSC Deputy Center Director	Janet Petro	
LaRC Center Director	Dave Bowles	
LaRC Deputy Center Director	Clayton Turner	
MSFC Center Director	Jody Singer (for)	
SSC Center Director	Randy Galloway (for)	
Associate Administrator, Mission Support	Krista Paquin	
Associate Administrator, STMD	Prasun Desai (for)	
Associate Administrator, SMD	Thomas Zurbuchen	
Associate Administrator, HEOMD	Jim Free (for)	
Associate Administrator, ARMD	Jaiwon Shin	
Chief Technologist	David Steitz (for)	
Chief Scientist	Gale Allen, Acting	
Chief Engineer	Ralph Roe	
Deputy Chief Engineer	Dawn Schaible	
Chief Information Officer	Renee Wynn	
Chief Financial Officer	~~Lisa Ziehmann~~ (for)	
Chief Safety & Mission Assurance	Terry Wilcutt	
Deputy Chief, Safety & Mission Assurance	Hal Bell	
Chief Health & Medical Officer	James (J.D.) Polk	
Deputy Associate Administrator	Lesa Roe	
Associate Administrator	Robert Lightfoot, Jr	
APMC Executive	Stephanie Sowards	

PROGRAM MANAGEMENT COUNCIL
CAPABILITY DAYS - DAY 1
15-Mar-2017
Other Attendees & Presenters

Position Title	Name	Signature (b) (6)
Administrator	Robert Lightfoot, Acting	
Deputy Administrator	Lesa Roe, Acting	
Chief of Staff	Erik Noble, Acting	
Assistant Administrator, Human Capital	Lauren Leo	
Associate Administrator, Strategy and Plans	Ave Kludze (for)	
Assistant Administrator, Procurement	Bill McNally	
Assistant Administrator, Strategic Infrastructure	Rick Marrs (for)	
Director, OCFO/SID	Cristina Guidi	
Director, NASA Management Office	Marcus Watkins	
Deputy Director, NASA Management Office	J.C. Duh (for)	
Labor Management Liaison	Tifarah Thomas	
Associate Administrator, Communications	Bob Jacobs, Acting	
Associate Administrator, OLIA	Rebecca Lee, Acting/Chris Flaherty (for)	
Associate Administrator, Small Business	Glenn Delgado	

PROGRAM MANAGEMENT COUNCIL
CAPABILITY DAYS - DAY 1
15-Mar-2017
Other Attendees & Presenters

Position Title	Name	Signature
OACS Analyst	Amir Deylami	(b) (6)
GSFC/Power CLT Member	Amri Hernandez-Pelle	
SESCDP Candidate on rotation to OCE working Capability Leadership Integration	Andy Eckel	
LaRC MLLP to OCE	Barbara Janoiko, MLLP	
Presidential Appointments Team	Brandon Eden	
MSFC/Engineering Director	Carl (Preston) Jones	
Power CLT Tech Fellow	Chris Iannello	
Deputy Chief Engineer for Engineering Integration	Chris Singer	
SMD	David Schurr	
SMCDMission Directorate First Order Planning & Guidance on Center Roles - SMD	Dennis Andrucyk	
Director, OACS	Dennis Boccippio	(b) (6)
Materials CLT	Donald Parker	
Capability Implementation Plan - EEE Parts	Felicia Jones-Selde	
EEE Parts Support	George Jackson	
GRC/Capability Implementation Plan - Electric Propulsion	George Schmidt	
OSMA	Gerry Schumann	
Presidential Appointments Team	Greg Kennedy	
Deputies Team - Workforce Reconciliation	Greg Williams	
JPL Power CLT Member	Gregory Carr	
LaRC Power CLT Member	Guillermo Gonzalez	
OACS Analyst	Ines Salcedo	
Independent Assessment-APM	James Ortiz	
GRC Power CLT Member	James Soeder	
Presidential Appointments Team	Jeff Waksman	
Presidential Appointments Team	Jen Rae Wang	

PROGRAM MANAGEMENT COUNCIL
CAPABILITY DAYS - DAY 1
15-Mar-2017
Other Attendees & Presenters

Position Title	Name	Signature (b) (6)
ARMD/Mission Directorate First Order Planning & Guidance on Center Roles - ARMD	Jon Montgomery	
ARC Power CLT Member	Josh Forgione	
MSFC Power CLT Member	Karen Cunningham	
JSC Power CLT Member	Karla Bradley	
OACS Valador Support	Lisa Connell	
Office of the Associate Administrator	Lisa Guerra	
Deputy Center Director, GRC	Marla Pérez-Davis	
Capability Implementation Plan - Chemical Propulsion	Mary Beth Koelbl	
Software Development Efficiency	Mike Aguilar	
NESC Deputy Director	Mike Kirsch	
Space Environments Testing Management Office	Mike Mastaler	
KSC Power CLT Member	Mike Stirling	
GSFC Associate Director	Nancy Abell	
Capability Leader for Avionics	Oscar Gonzales	
MSC Representative	Patricia Jones	
KSC Engineering - Director	Patrick Simpkins	
NESC Technical Fellow for Materials	Richard (Rick) Russell	
JPL Power CLT Member	Richard Ewell	
GRC Deputy Capability Lead (Power CLT)	Rob Button	
Presidential Appointments Team	Rodney Liesveld	
OACS MSC Executive	Sarah Murray	
AFRC Power CLT Member	Sean Clarke	
Presidential Appointments Team	Shana Dale	
Space Enviornments Testing Management Office (SETMO)	Ted Biess	
Senior Technical Leader for Capability Leadership Integration	Terry Spagnuolo	

PROGRAM MANAGEMENT COUNCIL
CAPABILITY DAYS - DAY 1
15-Mar-2017
Other Attendees & Presenters

Position Title	Name	Signature
OACS Valador Support	Thanh Dinh	(b) (6)
OACS Analyst	Tim Warner	
NESC Director	Tim Wilson	
MSFC	Tom Brown	
GSFC Power CLT Member	Tom Yi	
Office of the Chief Technologist	Vicki Crisp	
HEO RMD	SUE LEIBERT	
OP	André Sheppard	

PROGRAM MANAGEMENT COUNCIL
CAPABILITY DAYS - DAY 2
16-Mar-2017
Other Attendees & Presenters

Position Title	Name	(b) (6)
OACS Analyst	Amir Deylami	
SESCDP Candidate on rotation to OCE working Capability Leadership Integration	Andy Eckel	
Presidential Appointments Team	Brandon Eden	
MSFC/Engineering Director	Carl (Preston) Jones	
Power CLT Tech Fellow	Chris Iannello	
Deputy Chief Engineer for Engineering Integration	Chris Singer	
SMD	David Schurr	
SMCDMission Directorate First Order Planning & Guidance on Center Roles - SMD	Dennis Andrucyk	
Director, OACS	Dennis Boccippio	
Materials CLT	Donald Parker	
OSMA	Gerry Schumann	
Presidential Appointments Team	Greg Kennedy	
OACS Analyst	Ines Salcedo	
Independent Assessment-APM	James Ortiz	
Presidential Appointments Team	Jeff Waksman	
Presidential Appointments Team	Jen Rae Wang	
ARMD/Mission Directorate First Order Planning & Guidance on Center Roles - ARMD	Jon Montgomery	
OACS Valador Support	Lisa Connell	
Office of the Associate Administrator	Lisa Guerra	
Deputy Center Director, GRC	Marla Pérez-Davis	
NESC Deputy Director	Mike Kirsch	
Space Environments Testing Management Office	Mike Mastaler	
GSFC Associate Director	Nancy Abell	
KSC Engineering - Director	Patrick Simpkins	

PROGRAM MANAGEMENT COUNCIL
CAPABILITY DAYS - DAY 2
16-Mar-2017
Other Attendees & Presenters

Position Title	Name	Signature
Administrator	Robert Lightfoot, Acting	(b) (6)
Deputy Administrator	Lesa Roe, Acting	
Chief of Staff	Erik Noble, Acting	
Assistant Administrator, Human Capital	Lauren Leo	
Associate Administrator, Strategy and Plans	Ave Kludze (for)	
Assistant Administrator, Procurement	Monica Manning (for)	
Assistant Administrator, Strategic Infrastructure	Rick Marrs (for)	
Director, OCFO/SID	Cristina Guidi	
Director, NASA Management Office	Marcus Watkins	
Deputy Director, NASA Management Office	J.C. Duh (for)	
Labor Management Liaison	Tifarah Thomas	
Associate Administrator, Communications	Bob Jacobs, Acting	
Associate Administrator, OLIA	Rebecca Lee, Acting/Chris Flaherty (for)	
Associate Administrator, Small Business	Glenn Delgado	
Deputy Assoc Admn. MSN Support	Dan Tenney	

PROGRAM MANAGEMENT COUNCIL
CAPABILITY DAYS - DAY 2
16-Mar-2017
Members

Position Title	Name	Signature
General Counsel	Sumara Thompson-King	(b) (6)
ARC Center Director	Eugene Tu	
ARC Center Director	Thomas Edwards (for)	
AFRC Center Director	David McBride	
GRC Center Director	Janet Kavandi	
GSFC Center Director	Chris Scolese	
GSFC Deputy Center Director	George Morrow	
JPL Center Director	Michael Watkins	
JSC Center Director	Ellen Ochoa	
KSC Center Director	Robert Cabana	
KSC Deputy Center Director	Janet Petro	
LaRC Center Director	Dave Bowles	
MSFC Center Director	Jody Singer (for)	
SSC Center Director	Randy Galloway (for)	
Associate Administrator, Mission Support	Krista Paquin	
Associate Administrator, STMD	Prasun Desai (for)	
Associate Administrator, SMD	Thomas Zurbuchen	
Associate Administrator, HEOMD	Jim Free (for)	
Associate Administrator, ARMD	Jaiwon Shin	
Chief Technologist	David Steitz (for) Vicki Griffin	
Chief Scientist	Gale Allen, Acting	
Chief Engineer	Ralph Roe	
Deputy Chief Engineer	Dawn Schaible	
Chief Information Officer	Renee Wynn	
Chief Financial Officer	Lisa Ziehmann (for)	
Chief Safety & Mission Assurance	Terry Wilcutt	
Deputy Chief, Safety & Mission Assurance	Hal Bell	
Chief Health & Medical Officer	James (J.D.) Polk	
Deputy Associate Administrator	Lesa Roe	
Associate Administrator	Robert Lightfoot, Jr	
APMC Executive	Stephanie Sowards	

GEC Podium

PROGRAM MANAGEMENT COUNCIL
CAPABILITY DAYS - DAY 2
16-Mar-2017
Other Attendees & Presenters

Position Title	Name	Signature (b) (6)
NESC Technical Fellow for Materials	Richard (Rick) Russell	[redacted]
GRC Deputy Capability Lead (Power CLT)	Rob Button	
OACS MSC Executive	Sarah Murray	
MSC Representative	Scott Robinson	
Presidential Appointments Team	Shana Dale	
Space Enviornments Testing Management Office (SETMO)	Ted Biess	
Senior Technical Leader for Capability Leadership Integration	Terry Spagnuolo	
OACS Valador Support	Thanh Dinh	
OACS Analyst	Tim Warner	
NESC Director	Tim Wilson	
Office of the Chief Technologist	Vicki Crisp	
JSC	Darryl Gaines	
OCFO	Emma Lehnhardt	
SMD	David Schurr	
SE	Rodolphe de Rosee	
OCHMO	Vince Michaud	
AEO RMO	SUE LEIBERT	
GSF	Richard Marrs	