

# Overview of Discovery 2010 Draft AO

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# Purpose of Conference



- To solicit further comments on the Draft AO.
- To engage in discussions with the potential proposing community about:
  - ◆ Errors
  - ◆ Unclear statements
  - ◆ Issues that should be reconsidered
- To explain the logic behind some decisions
- We'll focus on what's new in the Draft AO

# Targets



- Any solid body in the Solar System except the Sun and the Earth
  - ◆ Missions to Mars or its satellites are allowed (again)
  - ◆ Studies like Genesis of the solar wind as a window on the composition of the early Solar System are still allowed.
  - ◆ Identification and characterization of extra-solar planets are no longer allowed.
- No Missions of Opportunity (MOs) — all MOs now solicited through SALMON.

# Money & Time



- Base cost cap = \$425M (FY10)
  - ◆ Standard launch services are no charge to cost cap.
  - ◆ Based on inflated value of last cost cap
- 9 month Phase A, \$3.0M (RY)
  - ◆ Clock starts from expected award of Phase A contracts
- Current launch-by date 31 December 2016
  - ◆ Is a later date appropriate? If so, what date?

# More Money & Time



- The minimum reserve level of 25% is now assessed against the Phase A-E cost rather than the Phase A-D cost.
  - ◆ We've seen a number of missions that under-costed their Phase Es for a variety of reasons.
  - ◆ Often, software development, flight & ground system, continues into Phase E.

# Education & Public Outreach



- Core E/PO activities must be at least 1% of base PI-Managed Mission Cost.
  - ◆ Core E/PO activities may extend up to 1 year past end of prime mission.
  - ◆ Student Collaborations (SC) are optional but if proposed, will receive up to 1% of base PI-Managed Mission Cost as incentive
    - ✧ Incentive won't exceed actual cost of SC.
- An E/PO plan is *not required* in the Step 1 proposal

# Data & Sample Curation



- All data must be archived at a NASA data archive in minimum time, NTE 6 months after collection.
  - ◆ Proposers are encouraged to work with the appropriate archive now to establish data management plans.
  - ◆ Generation and archiving of higher-order, derived data products may extend up to 1 year past end of prime mission
- Any samples returned to Earth & *any returned space-exposed hardware* shall be curated at JSC.
  - ◆ Missions must pay for actual costs for all aspects of curation, from inception to two years following sample return.

# NASA-Developed Tech



- Three NASA-developed propulsion-related technologies are offered with incentives:
  - ◆ NEXT solar electric propulsion system
  - ◆ AMBR advanced bi-prop engine
  - ◆ Aerocapture h/w and s/w
- The Advanced Stirling Radio-isotope Generator is also offered as GFE.
- NASA will ensure that if one of the above is selected, it will be at TRL 6 in time.
- Proposers may choose none or one of the above technologies



# How were tech incentives calculated?



- Started from estimate of cost of h/w, s/w, I&T, etc.
- Added half of that amount to cost cap; remainder to come from base cost cap.
  - ◆ NASA and proposer thus share in flight development costs
  - ◆ NASA assumes risk of reaching TRL 6.
  - ◆ See TMC & ISPT presentations.

# ASRG is seems different



- Value of 2 ASRGs + I&T hardware: \$54M
  - ◆ NASA has also invested ~\$120M in design, development, & test.
- Cost of NEPA/NLSA: ~\$40M
- By previous slide, cost cap should have been raised by ~\$47M.
  - ◆ BUT... DOE builds and *owns* the ASRGs.
  - ◆ Private entities can't contract with DOE for ASRGs.
  - ◆ So, cost of 2 ASRGs held at NASA HQ (>\$47M)
  - ◆ Mission pays for its part of NEPA/NLSA
  - ◆ Therefore, no apparent cost cap increase

# Other ASRG issues



- “Enabling” vs. “Enhancing”
  - ◆ Pu-238 precious and rare
    - ✧ Can’t justify using some for merely enhancing a mission’s science return.
  - ◆ NEPA schedule more relaxed for RPS-enabled missions
    - ✧ Unlikely to achieve NEPA/NLSA in time for launch if RPS use merely enhancing
    - ✧ Even if achievable, obtaining NLSA for a mission using RPSs in an enhancing role risky.

# Other ASRG issues (2)



- In the past, Discovery missions have been Category 2 missions with Class B or C payloads.
  - ◆ Criteria for classification in NM 7120-81, *NASA Space Flight Program and Project Management Requirements* and NPR 8705.4, *Risk Classification for NASA Payloads*
  - ◆ Any mission using a nuclear power source is Category 1, by regulation.
  - ◆ This cannot be waived.

# Telecommunications



- NASA is planning on transitioning to  $K_a$ -band in the future due to congestion in other bands.
- SMD decision to do so starting with missions launching in 2015.
- Thus the draft AO requires use of  $K_a$ -band for science telemetry.
  - ◆ If  $K_a$ -band inappropriate, proposal needs to explain why and justify use of X- or S-band.

# Telecommunications (2)



- NASA is planning on retiring its 70m radio antennae over the next decade and a half.
- They will be replaced with smaller aperture antennae.
- In preparation for the retirement of the 70m dishes, SMD has decided on a single 34m policy.
  - ◆ This does not apply to critical events, emergencies, radio science, delta-DOR, and station hand-offs.

**QUESTIONS? COMMENTS?  
BRICKBATS?**