RADIOISOTOPE THERMOELECTRIC GENERATOR (RTG) TOPICS

Presented At The Pluto Kuiper Belt Mission
Preproposal Conference

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Topics

- RTG Potential Usage
- RTG Facts
- Environmental Documentation
- Nuclear Safety Launch Approval
- RTG Costs
- Additional Information

RTG Potential Usage

- If Radioisotope Power Is Required, Then US DOE RTGs May Be Baslined For Providing Spacecraft Power
- If Radioisotope Heating Is Required, Then US DOE Radioisotope Heater Units (RHUs) May Be Baslined For Providing Spacecraft Heating
- If Baselined, US DOE RTGs And RHUs Would Be Provided BY NASA As Government Furnished Equipment VIA DOE, But DOE Will Maintain Ownership

RTG Facts

- DOE Existing Hardware
  - Two Sets Of Hardware That Could Be Made Available Have Been Designated As F-5 And E-8
  - Power Estimates
    - F-5 Estimated Power Output In 2004 Is 219 W_e
    - F-5 Estimated Power Output in 2014 Is 180 W_e
    - E-8 Estimated Power Output in 2004 Is 290 W_e
    - E-8 Estimated Power Output in 2014 Is 230 W_e

RTG Facts (Continued)

- Mass Of Fueled RTG Is Approximately 56 kg
- RTG's Are Cylindrical End Mounted Units That Are 114 cm Long And 42 cm Diameter

Environmental Documentation

- Necessary Documentation And Support Will Have To Be Provided In A Timely Manner In Order For NASA To Complete Any Required Environmental Documentation For A Pluto Mission
- NASA Policy And Regulations Implementing NEPA, And Executive Order (EO) 12114 Appear At [14 CFR Subparts 1216.1 And 1216.3]. These Regulations:
  - Define The Types Of NASA Actions And Activities Subject To NEPA and EO 12114
  - Comply With Council On Environmental Quality Regulations For Implementing The Procedural Requirements Of NEPA (40 CFR Parts 1500-1508]

Nuclear Safety Launch Approval

- Necessary Documentation And Support Will Need To Be Provided To NASA In A Timely Manner In Order To Facilitate The Nuclear Safety Launch Approval Process

RTG Costs

- Proposals Must Include Sufficient Resources To Secure Any Baselined RTGs And RHUs
  - Costs Must Include Support And Development Of Any Necessary Environmental Documentation
  - Launch Costs Must Include The Provision Of Sufficient Launch Vehicle Data To Support Any Necessary Environmental And Launch Approval Analyses And Documentation

RTG Costs (Continued)

- Costs Must Include Other Support And Documentation That NASA Has To Prepare For Nuclear Safety Launch Approval
- Estimated Costs To Assemble, Service, And Support The RTGs Through Launch, Including Analysis Or Data Necessary For The Launch Approval Process.
  - F-5 Would Cost Approximately $40M*
  - E-8 Would Cost Approximately $50M*
  - Both Units Would Cost Approximately $75 M*

Additional Information

- Specific RTG Technical Information Regarding Interface Details And Other Requirements Can Be Accessed Via The Internet At :
  http://www.nra-aoinfo.com/space/pluto/library.htm
- For Additional Information About The RTG's Or RHUs Or Their Flight Implementation, Contact:
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