MARS Scout AO
ELV LAUNCH SERVICES INFORMATION SUMMARY
5/2/02

Domestic ELV Launch Services Groundrules/Policy

Any domestic Expendable Launch Vehicles (ELV) proposed for this AO will be procured and managed by NASA/KSC via the NASA Launch Services (NLS) contract. Under the provisions of this AO, domestic launch services cannot be procured directly by the PI/proposed team, nor can a partner contribute a domestic launch service.

Under the provisions of the NLS Contract, the launch service includes the launch vehicle (LV) and associated standard services, non-standard services (mission unique options), all engineering and analysis, and minimum performance standards. NASA/KSC also provides technical management of the launch service, technical insight into the LV production/test, coordinates and approves mission-specific integration activities, provides payload-processing accommodations, and manages the launch campaign/countdown.

For missions that require a Medium-class LV, the Delta II 7925 is the only Delta configuration that is identified for use on this AO. For those missions requiring an Intermediate-class LV (see Table 1), there are two service providers in the intermediate performance class of launch services; proposers should seek to be dual compatible with both vehicle families. Upon mission selection, NASA/KSC via the NLS Contract will competitively select a launch service provider for the mission, based on customer requirements. Accordingly, assumption of a specific Intermediate class LV configuration as part of the AO proposal will not guarantee that proposed LV configuration will be selected for award of a Launch Service Task Order, unless there is a firm technical rationale. This rationale should be clearly explained in the proposal.

All NASA-procured launch services are to be consistent with NASA Policy Directive (NPD) 8610.7, NASA Launch Services Risk Mitigation Policy. Expendable launch services acquired from NASA will be managed in accordance with NPD 8610.23, Technical Oversight of Expendable Launch Vehicle (ELV) Launch Services. These NPD's can be accessed through the URLs:

http://nodis.hq.nasa.gov/Library/Directives/NASA-WIDE/Policies/Program_Management/N_PD_8610_7.html

http://nodis.hq.nasa.gov/Library/Directives/NASA-WIDE/Policies/Program_Management/N_PD_8610_23A.html

Dual manifested or secondary payloads on domestic LVs will not be considered under the cognizance of this AO.

Foreign Launch Vehicles

Foreign LV can only be proposed as a cooperative partnership arrangement, where there is no exchange of funds. Proposals assuming contributed foreign launch will be evaluated on a case-by-case basis for consistency with NPD 8610.7. The proposal must clearly address the flight history of the foreign LV and mitigation plans for technical risk. These mitigation plans should be structured to meet the same intent as NPD 8610.7. Any costs associated with

mitigation plans/technical insight must be identified and accounted for in the cost proposal. In addition, the proposal must address export control and technology transfer issues, consistent with NASA policy.

Proposals including dual manifest or secondary payloads on foreign LVs will also be considered on a case-by-case basis. The proposal must clearly explain the flight heritage of the proposed approach, including risk mitigation strategy for any new development. In addition, the proposal must address how (process) the dual manifest or secondary payload will find a partner/ride and what potential opportunities exist for the proposed mission. Any NASA funded development (non-recurring) effort/costs associated with accommodating dual or secondary payloads must be identified and accounted for in the proposal.

Risk Assessment

The risk assessment associated with the launch vehicle as it relates to overall mission risk should be handled in terms of LV "classes". The proposals should not attempt to distinguish risk between "brands" of LVs, rather they should account for the risk associated with the respective class. As a guideline, each LV-class has been characterized in the following paragraphs.

Medium-class LVs

The Delta II 7900-series LV has a robust flight heritage and has been certified by NASA to fly Category 3 payloads.

Intermediate-class LVs

The Delta III has one successful flight and the Atlas III has two successful flights. KSC certification efforts are underway for the Delta III and are planned for completion by 2003 to support NASA first planned use in 2004.. Plans for Atlas III are also in work, actual certification process will initiate upon selection of a NASA mission requiring this vehicle configuration. The risk associated with proposing either of these families of LVs is somewhat higher than that in the Medium-class. These vehicles were designed as transition vehicles planned for phaseout with the demonstration of the Atlas V and Delta IV vehicles. Availability in the 2007 timeframe is uncertain at this time. A mitigating factor in the LV risk assessment will be the ability of the proposed approach to be dual compatible with either brand of LV (i.e., Delta or Atlas) and identification of the compatibility with the Delta IV/Atlas V.

Delta IV and Atlas V vehicles are both targeting initial flights in 2002. Certification strategy for these vehicles is being developed, pending initial flight demonstrations of each vehicle. It is recommended that dual compatibility between the Delta and Atlas families of ELVs be maintained as far into development as practical (through PDR as a minimum). The risk associated with this yet to be flown class LVs is somewhat higher than the flight demonstrated Delta III and Atlas III LVs, until first successful flight of each. A mitigating factor in the LV risk assessment will be the ability of the proposed approach to be dual compatible with either brand of LV (i.e., Delta or Atlas).

Foreign LVs – see Foreign LVs section above.

Launch Vehicle Information/Configuration/Performance

NASA/KSC/ELV Launch Services Directorate has developed an on-line payload planner's guide for NASA missions. This web site contains information relevant to NLS-procured launch services. The information provided includes all NLS LV configurations, standard/non-standards services that are available as well as payload fairing envelopes and environments. This planning tool can be found at the following web address: http://elvppg.ksc.nasa.gov. Access to this site requires a self-determined password, which is activated by the site administrator. A user can request access/password activation by going to the site and following the directions provided on the log-in screen as well as providing the required information. Access to this web site can typically be activated within 24-48 hours during the week. For questions, contact NASA/KSC/ELV. This web site contains no information on foreign LVs.

The Offerors should select the minimum ELV configuration(s) that meets their requirements including adequate performance margins. As a reference tool, the NASA ELV Launch Services group has developed an on-line tool to assist in determining LV performance. This tool is publicly accessible at the following web address: http://elvperf.ksc.nasa.gov. The Delta II performance information contained on this site reflects current best estimate (CBE) figures. The Intermediate class performance information reflects figures consistent with the NLS Contractual commitments. All of these figures reflect separated Spacecraft mass and each have associated groundrules/assumptions (including the adapter-type). For variations from that which is found on-line, contact NASA/KSC/ELV for an assessment. The Offeror should specifically state in the proposal the ELV configuration(s) meet their requirements for this mission. This web site contains no information on foreign LVs.

The NLS contract does not offer a 3rd stage (kick-stage) as an option on any of the Intermediate class LVs and thus, it is assumed that the kick-stage will be the responsibility of the Offeror. Since this would require a significant development effort to qualify this stage for flight on a NASA mission, the Launch Service cost figures shown do **not** include the procurement or development effort and must be priced separately in the proposal.

Nuclear Launch Approval

For missions using nuclear materials, NASA/KSC ELV Launch Services is responsible for managing the development, coordination and technical content of the LV Databooks. The costs for the mission unique databook(s) and other LV-related items (e.g., range requirements for the LV, FTS system, event sequence diagrams,etc.) have been accounted for in the noted LV cost figures. These costs are only applicable for missions that are using nuclear sources on-board.

Launch Service Costs

For purposes of this AO, the NLS ELVs have been consolidated into two Launch Services classes; Medium and Intermediate class. Table 1 provides Launch Service cost figures for

each of the given Launch Service classes. Based on the Offeror's selection of the individual ELV configuration(s) that meet their technical requirements, the Offeror should use the respective Launch Service class dollar figures in the overall mission cost. Cost risk within each Launch Service Class should be considered constant for purposes of this AO (i.e, proposals should not attempt to distinguish differences in cost between Delta and Atlas within a respective class).

A Delta 7925H can be considered for a mission to be selected under this AO. Proposers interested in this configuration should access the KSC-developed performance web site at: http://elvperf.ksc.nasa.gov. For evaluation and planning purposes, proposers considering a 7925H should augment the price of the Medium Class Launch Services by $10M equitably phased over the last 3 payment cycles.

The Delta III and Atlas III commercial vehicles are designed to be transition systems and planned for phase out as the new Atlas V and Delta IV systems become operational. The performance of these systems is encompassed in the intermediate class of performance. However, for evaluation and planning purposes, proposers considering either of these two vehicles could deduct $10M from the Intermediate "A" Launch Service Class price, equitably phased over the payment cycle.

In the higher end of performance in the Intermediate class, the systems have an inherent flexibility for a range of tailorable vehicle configurations (eg number of solid strap-ons, fairings, etc). For evaluation and planning purposes, a proposer requiring the lower end of the performance range could deduct $10M from the Intermediate "B" Launch Service Price, equitably phased over the payment cycle. More detailed optimization assessments can be supported in the next phase of the mission design for the more limited number of down-selected proposers.

Funding estimates are stated in real-year dollars and assume a launch in August 2007. The cost estimate for launches in years other than 2007, please contact NASA/KSC/ELV for a different estimate. The funding profiles provide for the launch service, nominal allocation for mission unique launch vehicle modifications/services, mission integration, launch site payload processing, telemetry support, and the LV-related tasks for the Nuclear Launch Approval process. The estimated costs for Nuclear Launch Approval covered in these figures include items such as LV Databooks, Launch site accommodations for nuclear materials, material handling/logistics by DOE, and Range Safety requirements associated with the LV. For the Intermediate-class LVs only, these cost figures do not include the cost for development/procurement of a 3rd-stage (kick-stage), if required. The LV configuration provided in the Medium class is a 3-stage configuration, so the cost estimate does cover the costs for the kick-stage (i.e., Star 48) for this vehicle only.

Evaluation Criteria

Attachment 1 shows the Evaluation checklist that will be used as a guide for the evaluators during the proposal evaluation phase. This checklist should give the offerors an indication of the types of information that are expected to be contained in the proposals.

NASA ELV Launch Services Point of Contact for Additional Information

Additional information including, but not limited to, availability of smaller or larger launch vehicles, performance quotes, mission integration inquiries and costs may be obtained from:

Darrell Foster
Mission Integration Manager, Advanced Planning
NASA/Kennedy Space Center/ELV Launch Services
Code VB-C
Kennedy Space Center, FL 32899

Phone: 321-476-3622
Email: darrell.foster-1@ksc.nasa.gov

TABLE 1

Launch Services Cost Figures to be used for Evaluation Purposes

Medium Launch Service Class

Delta II 7925 {Note: Other configurations of the Delta II are not available for use on this AO}

FY04	FY05	FY06	FY07	Total
$4M	*$25M*	*$25M*	*$25M*	*$79M*

Intermediate Launch Service Class

Delta III and Delta IV 4040
Atlas IIIB and Atlas V/401

FY04	FY05	FY06	FY07	Total
$2M	*$41M*	*$40M*	*$33M*	*$116M*

Delta IV 4240 and 4450
Atlas V 501, 511, 521, 531, 541, and 551

FY04	FY05	FY06	FY07	Total
$2M	*$47M*	*$46M*	*$38M*	*$133M*

NOTE:

- All costs are estimated in real-year dollars (order year = L-30) based on current NLS contracts information.
- Assumes August 2007 launch date from CCAFS
- The funding profiles provide for the launch service, nominal allocation for mission unique launch vehicle modifications/services, mission integration, launch site payload processing, telemetry support, and the LV-related tasks for the Nuclear Launch Approval process. The estimated costs for Nuclear Launch Approval covered in these figures include items such as LV Databooks, Launch site accommodations for nuclear materials, material handling/logistics by DOE, and Range Safety requirements associated with the LV.
- For the Intermediate-class table only, these cost figures do not include the cost for development and flight hardware for a 3rd-stage (kick-stage), if required. For the Medium class vehicle only, the given configuration is a 3-stage vehicle, so the 3rd-stage (kick-stage) is included in the cost figure.

Attachment 1

AO Proposal Evaluations
KSC ELV Launch Services Evaluation Input

Proposal Name: _____

Proposal #: _____

Evaluator POC: _____

Phone: _____

Email: _____

Technical Evalution:

Overall Assessment – given the groundrules in the AO, is the proposed LV concept feasible for this application?

☐ Yes ☐ No ☐ Yes with comments – see details below

LV Performance: ☐ Area of Concern

Proposed LV configuration: ☐

Proposed Mass-to-Orbit Requirements:

Mass: ☐ kg Apogee: ☐ km Perigee: ☐ km Incl: ☐ deg

Does the proposed LV configuration have adequate performance capability? ☐ Yes ☐ No

If yes, how much performance margin is available? ☐ kg ☐ %

Comments/Issues/Concerns:

LV-to-SC Interfaces: ☐ Area of Concern

Payload Fairing Envelope – adequate envelope for proposed SC? ☐ Yes ☐ No ☐ Unclear

Proposed Mechanical Interface (LV/SC Adapter)?

☐ Standard Interface ☐ Custom Adapter Req'd ☐ Unclear

Mission Unique Modifications Required?

☐ Yes ☐ No ☐ Unclear

Comments/Issues/Concerns:

LV Cost Assessment: ☐ Area of Concern

Is LV cost profile consistent to that given in the AO LV Appendix?

☐ Yes ☐ No ☐ Unclear

If mission unique mods have been identified, have they been properly accounted for in cost profile?

☐ Yes ☐ No ☐ Unclear

Attachment 1

AO Proposal Evaluations
KSC ELV Launch Services Evaluation Input

Comments/Issues/Concerns:

	Area of Concern
Comments/Issues/Concerns – general in nature and/or with other sections of the proposal:	