

## NASA-Provided Launch Services

The NASA Launch Services Program (LSP) holds contracts with multiple U.S. launch vehicle suppliers for basic launch services. Beyond the basic launch service, LSP budgets for additional mission unique services that are required to meet the mission requirements as defined by the spacecraft project (e.g. additional doors, special cleaning, additional analyses cycles, etc.). This portion of the budget is estimated based on the class of launch service and the NASA customer type, using over 85 completed missions as a benchmark. Integrated Services are added to the budget to cover payload processing at the launch site and LSP's support service contractor costs that will eventually be directly charged to the individual mission based on work performed. Finally, an estimate for downrange launch vehicle telemetry coverage is included; coverage is typically until spacecraft separation (the first if there are multiple). The telemetry assets used during the mission are dependent on the mission unique trajectory to meet the spacecraft requirements. The figure below illustrates the relative contribution of each these components to the total mission budget. The \$50M charge for a NASA-provided launch services in the *Announcement of Opportunity Heliophysics Explorers Program 2016 Small Explorer (SMEX)* includes all of the elements described above, with the exception of specific mission unique services; the LSP POC will determine whether a given mission unique service is outside the scope of those included in the charge, in which case the cost must be included in the PI-Managed Mission Cost (there is no need for associated unencumbered cost reserves).

