



Dr. Timothy K. Nelson  
Staff Scientist, HPS Department  
SLAC MS 43  
tknelson@slac.stanford.edu  
+1-650-926-2274

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Dr. Glen Crawford  
Office of Science  
U.S. Department of Energy  
1000 Independence Ave., SW  
Washington, DC 20585  
+1-301-903-4829

Dear Glen,

**RE: UPGRADE OF THE HPS SVT**

The accompanying white paper outlines the case for an upgrade to the HPS SVT and defines the general scope of the project. While we are still studying the full impact of adding this new layer to the tracker, the improvement in sensitivity in the most interesting part of our experimental reach will be remarkable for a project of such small scope. A preliminary estimate of the project cost is \$225-\$250K, including contingencies as specified in the original SVT project. The major cost categories are sensors, hybrids, modules, support structures and integration. Quotes for the sensors range from \$25K to \$50K, depending upon specifications. Based upon previous experience, hybrids are budgeted at \$50K including design, fabrication, assembly, and testing. Based on previous experience, module design, assembly, and testing are budgeted at \$90K. Design and modifications to the existing supports to accommodate the new layer together with integration labor are expected to be approximately \$60K. Inclusion of some additional contingency to cover elements of the project that are not yet completely defined would yield an upper limit of \$300K on the total cost. In order to reap the full benefit of this upgrade, it is important to complete the project before HPS runs again in CY2018. As a result, it will be critical to obtain funds for the project soon so that items with long lead times, especially the sensors, may be ordered. I hope this answers your most pressing initial questions about the project. Once we have sufficiently understood the expected performance, requirements, and cost of the upgrade, we will produce a complete proposal. In the meantime, feel free to contact me with any questions you may have.

Best Regards,

A handwritten signature in black ink, appearing to read 'Timothy K. Nelson', written in a cursive style.

Timothy K. Nelson