

JUSTIFICATION AND APPROVAL

P/R 0040256650

Estimated Price \$179,000.00

Justification for Other than Full and Open Competition

1. Contracting Agency and Activity. The Department of the Interior, United States Geological Survey (USGS), Office of Acquisition and Grants (OAG) Sacramento, plans to contract by means other than full and open competition. This document sets forth the justification and approval as required by FAR 13.106-1.

2. Nature of Action Being Approved.

The USGS requires a sole source follow on order to G13PX00477, State & Transition Simulator (ST-SIM) software with Apex Resource Management Solutions Ltd, Ottawa, ON, Canada.

3. Description of Supplies or Services.

The USGS has been directed by Congress in the Energy and Independence Security Act (EISA) to help determine carbon storage in the United States. The Western Geographic Science Center (WGSC) has been directed by the Climate and Land Use Mission Area to help accomplish this task. In Fiscal Year 2013, the U.S. Geological Survey's WGSC began a research project aimed at developing an improved methodology for downscaling global environmental change scenarios to ecoregions of the U.S. The project addresses carbon, climate and land cover mapping-related science priorities of the USGS Science Strategy, the USGS Climate and Land Use Change (CLU) mission area, and the USGS LandCarbon activity. The research uses the ST-SIM model, a state-of-the-art software tool for tracking and distributing changes in land use and vegetation structure in both spatial and aspatial environments, developed by Apex Resource Management Solutions Ltd. Apex Resource Management Solutions Ltd. is the only known supplier/maker of this software.

The proposed software updates will add the following functions: the ability to track land-use transition attributes, such as carbon fluxes, as land uses change from one type to another, the ability to parameterize the model by time-step for both state attributes and transition attributes in order to account for the role of climate change on carbon dynamics, and the ability to produce spatial maps of state and transition attributes.

4. Estimated Dollar Value. \$179,000.00

5. Statutory Authority. The proposed action may be awarded without full and open competition under FAR 13106-1.

6. Rationale Supporting Use of Citation in No. 5.

The Government requires an integrated modeling software package which can do multi-scale stochastic modeling of land change (land use, wildfire, harvesting) and ecosystem carbon dynamics under a range of scenario conditions. Additionally, the software should be freely available and easy to use. Apex's ST-SIM software is the only known product which can meet these minimum specifications, specifically the software's ability to model changes in both discrete and continuous variables through time in an integrated way. Apex is the sole source for ST-SIM software and the only company with the expertise needed to produce the additional unique tools and modeling needed to complete this project. It was developed by Apex Resource Management Solutions Ltd. and is the only known supplier/maker of this software. Additionally, Apex is the only company with the intellectual property rights to modify all of the code in the ST-Sim software. The Government has invested approximately \$380,000 over the last several years developing this model framework, which includes a number of unique features not found in any other software application, as previously discussed. No other software application exists which contains these main features. To transition away at this point would be devastating to the project and would result in the total loss of the significant investment already made as the project would have to start over with a new vendor's software. Savings hoped to be achieved through competition at this point would not overcome the total loss of initial investment in the project. The delay in meeting our project deadlines would be measured in years and at the cost of hundreds of thousands of dollars.

7. Other Information.

N/A

8. The Efforts to Identify Additional Sources Including the Market Research Conducted.

No other sources are known to possess the unique and essential qualifications outlined in Paragraph 6 of this justification. There are no other known software applications which can achieve project goals by building on the existing software for which the Government has a significant investment. The collaborative work done with Apex of the past several years has led to the development of this very unique and customized modeling framework which does not exist anywhere else. Apex does not offer resellers among whom competition can be obtained.

9. Future Plans to Permit Competition. Through identification of other software packages (if/when they come on the market), future requirements will be competed to the maximum extent practical.

10. Recommendation and Certification from Program Office

Based on the above, I recommend this acquisition be conducted on the basis of other than full and open competition. I certify that technical data which form a basis for this justification that are the responsibility of technical or requirements personnel are complete and accurate.

**BENJAMIN
SLEETER**

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Date: 2016.03.07 09:55:19 -0800

Benjamin Sleeter
Research Geographer

Date

11. Certifications from the Contracting Officer:

- a. The Contracting Officer will compare pricing structure with the previous order and other contracts of a similar nature to determine prices fair and reasonable.
- b. This justification is accurate and complete to the best of my knowledge and belief.

12. Approvals

 *Signature Redacted P11*

Theodore W. Peck, Contracting Officer

3/8/2016

Date

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Jennifer Kelley, Bureau Competition Advocate

Date