

DynaSim Software Support and Maintenance (SSM) Contract

The current contract, covering DynaSim implementation will be completed in April, 2011. Continued support for software maintenance, reporting changes, and model enhancements is necessary after implementation completion. The Energy Commission has maintenance funds budgeted for the purpose of obtaining appropriate and knowledgeable support for DynaSim. As early as the Feasibility Study Report (FSR), conducted in 2006, software support and maintenance activities were identified and included in the scope and budget for the project. Software support and maintenance contract services have been included in the FSR, the Budget Change Proposal (BCP), and subsequent documents which were reviewed and approved by Energy Commission management, the Resources Agency, the Department of Finance, and the Office of the Chief Information Officer.

Energy Commission staff concluded that a two year contract for support would allow adequate time to evaluate on-going support needs. As procurement processes often take a significant amount of time, staff proposes to use the first twelve months of the 24 month software support and maintenance contract to determine the scope, schedule and funding of support and maintenance required for the subsequent SSM contract. The contracted services will provide the Energy Commission with remedial repairs to DynaSim software code, minor model enhancement services, standard report modification, on-call support (informal training, answering questions regarding the model), and other maintenance support. The contract will be funded over three fiscal years for a total of \$299,148, \$57,880 for fiscal year 10/11, \$168,367 for fiscal year 11/12, and 72,901 for fiscal year 12/13. The planned software support and maintenance was clearly defined and budgeted in the BCP and subsequent project files.

The DynaSim application fundamentally consists of three software platforms integrated into a single working system. The three software platforms are:

- 1) Matlab modeling engine – Matlab is a high level programming language that provides the fast and efficient processing of the model construct. Hundreds of equations supporting millions of data processing transactions run through Matlab during a scenario run.
- 2) Microsoft C# User Interface – Microsoft C# is the development tool used to create the user interface and web access for DynaSim. Microsoft C# allows for easy-to-use web screens for all user interactions with the model.
- 3) Microsoft SQL Database – All data is stored in a standard SQL database. When scenarios are run, Matlab retrieves data from over 100 input variables and runs the modeling routines. Once an output is determined, the data is stored in a SQL output file.

The complexity of DynaSim requires extremely high level of programming expertise in all three areas listed above. In addition, the programmer must understand the modeling constructs of transportation energy modeling and the mathematical formulas behind the design of the model. The qualifications required are illustrated by the following RFO requirements:

- Demonstrated expertise in developing, implementing, and maintaining energy models.
- Demonstrated expertise in developing, implementing, and maintaining transportation models.
- Demonstrated expertise in developing, implementing, and maintaining models that are used to evaluate policy alternatives in economic modeling frameworks.
- Demonstrated expertise in developing, implementing, and maintaining custom software solutions using Microsoft .NET, Microsoft SQL, and MatLab software.
- Proven track record of successful experience in support projects similar in size and scope of DynaSim.

DynaSim was developed with the primary purpose of supporting the Fossil Fuels Office's mandated responsibilities by updating the forecasting models used in prior IEPR work. As such, DynaSim is a critical application for the FFO and the foundation of much of the analytical work performed by the FFO. Failure to support and maintain DynaSim would significantly impact FFO's ability to perform mandated work.