

## DOCKETED

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## **EPIC Request for Comments: Modeling Tools RFC**

*Additional submitted attachment is included below.*

- 1. (For all groups) Are the proposed funding amounts identified in this Request for Comments (RFC) appropriate for the work requested? Please explain the rationale behind the recommendations, and if applicable, what the appropriate level of funding should be to develop the products identified in this draft solicitation?**

Generally, the funding amounts in the draft are appropriate for the corresponding products. However, the expected funding would depend on the identified features or functions identified in the requirement stages.

For the projects in groups 2 and 4, the requirements and functions definitions are relatively clear and the funding amount should be sufficient for the developments. For group 1 and 3, the expected features, functions, and test and evaluation methodologies could significantly affect the funding amount requirement. One example is if the software/simulation tools would need real world project data to test and evaluate, it would depend largely on awardees' past project experiences since it may require a significant time commitment and expense to acquire this data.

- 2. (For all groups) What are specific recommendations you can provide to improve the group descriptions of the solicitation outlined in this RFC that would result in a better evaluation of the impacts of high concentrations of DER? Please explain the rationale behind the recommendations.**

In order to result in a better evaluation of high concentrations of DER, real world project data should be used. For Group 1, the simulation tools should be able to provide comprehensive analysis results addressing the microgrid/DER customer's concerns and requirements, such as project financial analysis study and environmental analysis study. For group 3, the high performance-computing framework could be applied to address real grid modeling problems.

- 3. (For all groups) Are there existing efforts that complement the groups identified in this RFC? Are there specific changes to this proposed solicitation that you would suggest to better leverage these existing efforts? Please explain the rationale behind the recommendations and the expected value of your recommendations.**

Regarding the Group 3, there are open-source software/packages, which apply GPU to address the high performance-computing problem (deep learning using Google TensorFlow). Willdan has applied third-party simulation tools and developed its microgrid planning tool for related microgrid projects. Comprehensive review and analysis of the current modeling tool could identify the upgrades and improvements which would benefit all involved groups during their individual requirement analysis stages.

- 4. (For groups 2,3 and 4) Should it be required that all source code generated as a result of this solicitation be hosted on a public open-source developers site such as GitHub? If not, describe how to ensure distributed**

**version control and source code management functionality while making the open-source code available to the open-source developers' community.**

GitHub would be a great place to host the source code and manage release versions after the projects are done. In addition, a dedicated website to the code and release versions would maximize the merits of the projects in the industry.

- 5. (For all groups) Are there suggestions to better complement the needs associated with CPUC proceedings related to Modeling, distributed renewable generation, electric vehicles, the use of Smart Grid Technologies and Distribution Resource Planning? Please provide specific recommendations and rationale.**

We recommend using real-world project data to test and evaluate the tools (Group 1,3,4). For Group 1, CO2, Demand Response revenue, Ancillary service revenue, and Energy Arbitrage, which are closely related to specific DER technology should be evaluated and analyzed in detail. For Group 2, JSON/XML or other popular data format/protocol could be taken into account as data format for translation between different modeling tools, which provides potential extension capabilities. For Group 3 and 4, open source based programming language such as python and java should be considered for developing the framework or user interface, which would be good to build a development eco-system in the future.