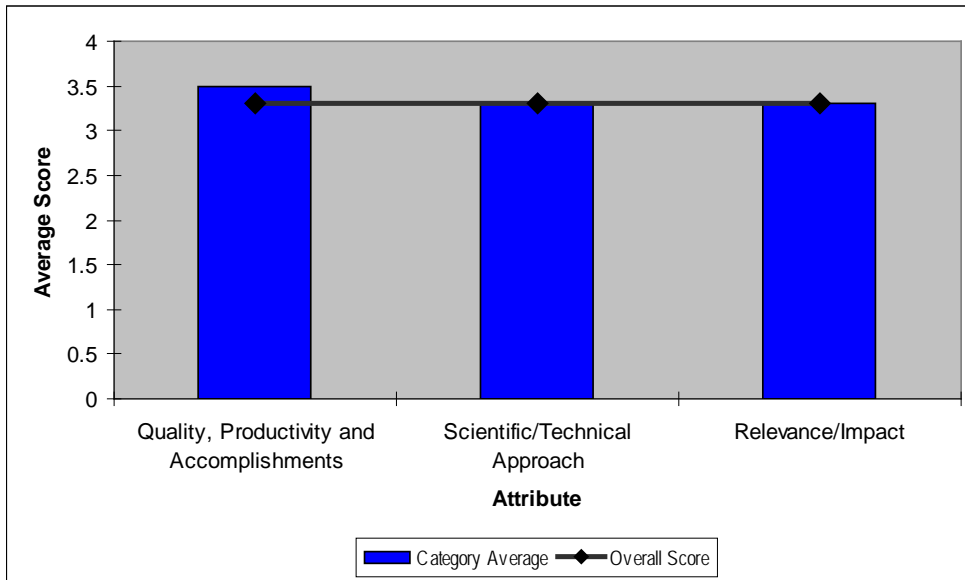


**Solar Resource Assessment**

**Principal Investigator:** *Dave Renne, National Renewable Energy Laboratory*



Review of work at NREL in solar resource assessment modeling and analysis. Project highlights include initiation of solar resource roadmapping, installation of four SOLRMAP solar monitoring stations for CSP, initiation of new forecasting efforts with the State University of New York (SUNY) in Albany, NY, and launch of in-house PV and CSP solar model development.

**Quality, Productivity and Accomplishments (Average Rating 3.5)**

**Rating      Comments**

- 4.0      The team qualifications are outstanding, and the funding and scientific productivity seems to be more than appropriate.
- 3.5      Strong experienced team, good technical and scientific approach, and relevant work for the development of CSP industry.
- 3.0      An appropriate number of people, with well recognized technical credentials, have been engaged in this project. The members of the team and collaborators clearly demonstrate their ability to contribute to the project. The facilities deployed on the project appear to be adequate, but limited, for the task at hand. The work under way is producing an appropriate level of accomplishment relative to the costs incurred. The project team appears to be on schedule, but the project is clearly still in progress and not yet complete.

Resource assessment  
 Initiated solar resource roadmapping exercise  
 Solar paces conference coming up in September  
 Rsi – wind energy money \$100k  
 CSP - \$950k  
 PV - \$750K

- 3.6      This project provides high quality solar resource information, address risk analysis associated with data quality, and short term forecast including same day, and day ahead) forecast. For optimal CSP project development, has provided several solar resource monitoring stations.

Solar heating and cooling  
 Best practices manual – annual basis  
 Grid integration studies(e.g. Hawaii, WWSis)  
 Solar satellite radiation (clean power)

**Scientific/Technical Approach (Average Rating 3.3)**

Rating	Comments
3.0	The approaches used seem to be appropriate. However, the relationships with the private data providers and the limitations those relationships may impose to NREL R&D in the field of solar resource modeling and forecasting are not well explained, and may be should be reassessed.
3.5	[none]
3.0	The project team applied an appropriate technical approach in pursuit of project objectives. The design and execution of the approach are good.
3.6	One of the major accomplishments is installation of several solar resource monitoring stations in western US. Therefore, NREL is an excellent source for the solar resource assessment, which is helpful for the development of solar energy. Capability for in-house satellite-based solar resource assessment is highly encouraged.

**Relevance/Impact (Average Rating 3.3)**

Rating	Comments
3.0	This project is highly relevant to the CSP industry at large. There is the danger, however, that the limitations imposed by the agreements reached with private data providers may limit the impact that the execution of the project may have in contributing to the development of the CSP industry and to he improvement of CPS technologies.
3.5	Solar resources assessment is very important for developing the CSP industry. The solar resource data is needed for system planning and design, solar electricity forecasting, dispatching, and grid operation.
3.0	Solar 2009 , May 13-15 Buffalo NY How “bankable” are the data sets we are providing to the industry? Refers to funding Best practices manual for extrapolating data sets, etc ASIS conferences are one of the best venues ... (refers to buff?) Looking for strategic hires to build up solar predictive modeling capability Growing need for sub hourly data sets – how fast do you go? SOLRMAP – site specific estimates PVWatts, Solar Power Prospector  NSRDB updates 0-6 hour look ahead 1-3 day look ahead Seasonal , inter-annual variability solar forecasting...  GIS work at NREL was built around the wind resources and solar resource modeling Data sets developed are readily adaptable for mapping software and GIS either for static or dynamic modeling Also interested in smaller than 10 km spatial resolution Can probably get to 5 km data at 30 minute intervals
3.7	This project addresses critical strategy of the DOE CSP Program by providing resource assessment to the industry, which will result in the lower cost by helping reduce barriers to the

deployment of CSP projects:

Improved solar forecasting

Benchmarking different datasets – statistical

Subhourly data

CSP – may not be critical with storage, but need help for cloud cover

10 km data

Clean power research

Private sector is marketing data produced by NREL, thus keeping it away from public use. A major recommendation is that NREL should manage and have it easily available to the public rather than relying on private sector, who manage it for profit.

### Overall (Average Rating 3.3)

Rating	Comments
3.0	The team qualifications are outstanding, and the funding, scientific productivity, and the approaches used seem to be appropriate. Although, this project is highly relevant to the CSP industry, the limitations imposed by the agreements reached with private data providers may limit its impact in contributing to the development of the CSP industry and to the improvement of CPS technologies.
3.5	Richard Perez has contracted with Clean Power Research (CPR) to produce solar resource assessment, which they want to sell. NREL is staying out of the way from the private business. However, they have agreement to access and use the CPR data for internal use, which they can release in the public domain after two years. Privatization of the solar resource data is of great concern. It would adversely affect the CSP developers. Two years lag time for NREL before they can release the data in public domain is too long.
3.0	The solar data set is a core enabling technology. Ready access to data is critical. We understand concerns about competition with private sector, however, fostering an open source development of solar resource prediction modeling efforts based on underlying government provided data would be highly valuable. There are clearly lots of open source development teams that exist in parallel with private sector development efforts. How can we foster such an open source approach to this data and forecasting?
3.7	The lab has highly qualified computing staff, and have access to consultants with up to date capabilities. NREL provides highly valuable solar resource assessments. Resource Assessment: There is a real concern with the restriction for immediate release of data to public immediately. This will create problem for the industry.