Renewable energy technologies are changing the face of the world’s energy market. Currently, these technologies are being incorporated within existing structures to increase energy efficiency. Crucial to the success of the emerging renewable market is the availability of accurate, global-scale radiation, and meteorology data. This poster outlines the history of the development of an effort to distribute data parameters from NASA’s research for use in the energy sector applications spanning from renewable energy to energy efficiency. These data may be useful to several renewable energy sectors: solar and wind power generation, agricultural crop modeling, and sustainable urban development. The POWER project, co-funded by NASA’s Applied Sciences Program through the Discovery and Exploration Research (DARE) Office, has provided a data access and visualization web application for over two decades. The POWER project has increased the variety of methods for users to download data. These products were made available from NASA research to support increased solar and wind power generation, agricultural crop modeling, and sustainable urban development. The main data source for surface meteorological data parameters. This shows validation results for these efforts together with more focused applications. Also, the web site is undergoing a complete transformation to allow users to obtain custom data sets and parameters utilizing an ArcGIS platform. Users will be able to obtain custom data sets and parameters in a variety of formats including GIS-compatible formats.

The POWER/SSE are currently undergoing major updates that include the production and validation of data products in the new spatial resolution of 1 km degree and the expansion of the data set to 130 years. As part of this transition, data parameters from the Modern Era Retrospective–Research Edition (MERRA) have been incorporated into the POWER/SSE project. The MERRA product, which has been the main data source for surface meteorological data parameters, has been in production for over 15 years. The MERRA product is an atmospheric reanalysis (GEOS-5) system that generates daily average surface meteorological data products. POWER/SSE partnerships and collaboration have resulted in noteworthy improvements to the web site and forum. The most important of these was the addition of the TOA (Top of the Atmosphere) radiation parameters to the service. POWER/SSE parameters, including surface meteorological parameters required for renewable energy data products.

The upcoming update of the POWER/SSE project will include additional data accessibility options and geospatial tools for the renewable energy and agricultural application users. This will result in graphical functionality to the POWER web applications, allowing users to view and produce images of their desired parameters in relation to a larger geographical scale. The updated POWER/SSE product provides an open computing platform for maps and geographic information, making it easy to create and share POWER data as useful and geospatially intelligent maps. The POWER/SSE web site is undergoing a complete transformation to allow users to obtain custom data sets and parameters utilizing an ArcGIS platform. Users will be able to obtain custom data sets and parameters in a variety of formats including GIS-compatible formats.