

# From Watershed to Energyshed

## *Determining the Implications of Place-Based Generation*

In fiscal year 2021, Congress directed the renewable power sector within the Office of Energy Efficiency and Renewable Energy to develop and demonstrate an "energyshed" management system that addresses a discrete geographic area in which renewable sources currently provide a large portion of electric energy needs. In the publication, *Energyshed Framework: Defining and Designing the Fundamental Land Unit of Renewable Energy*, John C Evarts defines an energyshed as "that area in which all power consumed within it is supplied within it."

Analogous to the idea of a watershed, there are a number of similarities between the delivery of both water and electricity over the last 100 years. As the need for water and electricity grew in the 20<sup>th</sup> century, both of these types of utilities have greatly expanded in scale—delivering resources long distances through extensive networks to large population centers. Moving into the 21<sup>st</sup> century, many communities are investigating how to use more locally derived water to improve efficiency and decrease their dependence on water transported from long distances. The energyshed concept follows a similar theme in terms of enabling understanding of an area's energy generation – where it comes from geographically as well as what type of resources are used. Understanding the implications of implementing an energyshed management system may lead to a more efficient and resilient power system.

Given that the term "energyshed" is relatively new, DOE is organizing a workshop to create a shared interpretation of the concept and obtain stakeholder feedback on its definition and its application to the electric grid. This will help inform DOE's path toward the development and demonstration of an energyshed management system.

DOE is seeking input in these five key areas as part of the workshop:

1. **Analysis:** The development of tools and analysis will be required to determine the proportion of electricity that is derived within the energyshed. Discussions may include the types of analysis that may be required to determine where the electricity for a city or community is generated.
2. **Planning:** Understanding the impact of more locally derived generation may require planning efforts that are different than traditional integrated resource planning efforts. Participants will be asked to share their perspectives on how planning procedures or tools need to be updated in a more locally derived generation mix.
3. **Operations:** As more generation is located within the energyshed, the way the power system is operated on a day-to-day basis may need to change. Stakeholder input sessions will seek a greater understanding of the implications of power system operations when more electricity is locally generated.
4. **Business Models:** As more generation is locally derived, utilities may need to partner with customers or other organizations to obtain more locally derived electricity generation. This may change the way a traditional utility operates. During the workshop sessions, discussions include how the relationships between utilities, customers, and local governments need to change with more locally derived generation.
5. **Resilience:** Locally generated electricity may lead to the development of a more resilient power system, including microgrids. The workshop will seek stakeholder input regarding what system architecture and operations lead to a more resilient power system with more locally-derived generation.

Please contact [energyshed@ee.doe.gov](mailto:energyshed@ee.doe.gov) with questions.