

## Technical Assistance Request

Epiphany Solar Water Systems' 100% Solar (CSP+PV), 500 gpd, Zero Liquid Discharge (ZLD) Concentrated Solar Power (CSP) Trans-critical water desalination system is a sophisticated integration of the Epiphany designed concentrated solar power subsystem and a new trans-critical water desalination system that is being designed and built as part of this Department of Energy American-Made Solar Desalination Prize (see figure below).



### Epiphany Trans-critical Desalination System

As a result of the unique nature of this system design, with high temperature and pressure, Epiphany will require:

- Accurate delivery systems for heat and pressure
- Accurate testing and measurement systems that can withstand the heat and pressure
- Realtime data logging systems
- 24x7 runtime and logging capabilities

We are very confident in our engineering expertise but understand that it is always important to have a 3<sup>rd</sup> party expert engineer review the design, materials, build and testing information. As such, we will need an independent and confidential review of our design calculations for mass energy balance and P&ID along with our component and vendor selection, and our build and testing processes.

Because the fundamental effluent of our Epiphany water desalination system is drinking water, Epiphany will also need a certified water and solids test lab with the capability of testing to United States drinking water quality standards and test procedures, to test both the influent and effluent streams water quality. We have contacts at these types of labs we can use for testing purposes.

In addition to our excellent internal engineering team and partners, our recent discussions with Sandia National Laboratories and other national labs have proven that Sandia has the most expertise in the area of trans-critical/super-critical research and development. These discussions have provided us with a high degree of confidence that the Sandia scientists and engineers will be able to provide Epiphany with assistance in all of our required support areas.

We have developed a task plan and goals with Sandia National Labs that will help us through the prototype distillation/crystallizer development, cost effectively leveraging the Sandia expertise in the key project areas detailed above.

*For additional information contact Mike Broeker at [mbroeker@epiphanysws.com](mailto:mbroeker@epiphanysws.com)*