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Drought Response Docket 15-Water-01 WET / SOLAR PUMPING

Additional submitted attachment is included below.



INNOVATIONS IN SOLAR PUMPING TECHNOLOGY

DROUGHT RESPONSE - 15-WATER-01, WET PROGRAM

1. *What emerging technologies should be considered that provide direct on-site energy, water, and greenhouse gas savings for each of the identified sectors?*

A new emerging technology that can be considered is Solar Pumping utilizing Solar Variable Frequency Drive (S-VFD) as opposed to conventional VFD. The S-VFD can operate pumps directly from solar PVs in Off-Grid, On-Grid, and Hybrid power modes. It has direct impact on 3 sectors focuses of WET program. S-VFD Reduce power demand on existing pump stations will result in a lower electricity demand thus reducing GHG. The Solar VFD allows for replacing diesel generators with clean solar pumping for irrigation and water treatment in rural areas and disadvantaged communities. Pumps are not replaced. S-VFD operates high pressure pumps for RO and Desalination plants, in industrial food and beverage, waste water –processing –It can dramatically reduce power and improve water usage.

2. *What rebate levels would be most appropriate? What grant award amounts would be most appropriate for customized projects?*

Consider a 50% rebate for installation of solar water pumping. For customized projects, from 1MW to 50MW to be determined by water purveyor requirements. Customized projects will require partnerships linking growers, industrial plants, and municipal water to access a new technology S-VFD powering pumps from 10KW to 100 KW (15- to- 150HP pumps). Solaropia is currently developing S-VFD for large water transportation pumps up to 15000 GPM (500KW pumps).

3. *What changes to the draft guidelines are needed to ensure the purpose, instructions, and eligibility are clear?*

Add clearly OFF-Grid and On-Grid Solar VFD for efficient pumping to meet needs of growers, disadvantaged communities (wells, and process water), Desalination Plants, and industrial water and waste water processing.

4. *How can the WET Program benefit disadvantaged communities?*

Solar Pumping with a Solar VFD allow rural areas to operate expensive pumps in off grid pumping situations, allowing for more water, water treatment and waste water operations to be conducted with solar.

5. *What are some of the main barriers preventing implementation of advanced water and energy saving projects*

Lack of trained professionals to install PV's to operate pumping applications. Solaropia can actually train installers and maintenance personnel on the industrial

6. To what extent is broadband or Internet availability a factor that prevents implementation of water and energy saving projects, ESPECIALLY in rural areas?

This can be overcome by other communication technologies including cellular, GPRS and other protocols. Internet and broadband would be a nice to have. Built-In remote communication of any of these protocols in the S-VFD to report pumping volume data to district irrigation and water resources agencies for monitoring and advising.

7. What operational, regulatory or other constraints may arise to prevent installing project quickly?

Permitting of solar installations as per local jurisdictions. Solar VFD must be installed by a trained individual. Both are probably inconsequential.

8. What is the capability of accumulating utility data pre- and post-energy and water use? If data not available, how will data be documented?

Post data collected immediately by S-VFD (with built-in power and water meters). They can be reported remotely against pre-data to demonstrate energy savings. If no utility data available (example, replaced a diesel generator with a Solar VFD), calculations can be made to convert diesel to calories to KW/H.

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