

MD developer seeking US power plant partners

Swedish membrane distillation (MD) manufacturer Scarab AB is seeking US power plant operators to allow it to demonstrate the technology's ability to convert waste streams to feed water using waste heat from turbines and engines.

This follows a report by the US Electrical Power Research Institute in June 2009, which picked out membrane distillation, "advanced" reverse osmosis (RO) and capacitive deionization (CD) as desalination technologies worthy of development by the electrical power industry.

The report, *Program on Technology Innovation: Electric Efficiency Through Water Supply Technologies--A Roadmap*, says about MD, "There are synergies between MD systems and renewable energy initiatives. The technology is ideally suited to take advantage of low grade heat available via solar energy collectors. The relatively low electrical energy required for operations could also be provided by photovoltaic arrays. Since many regions in the US with limited water resources have abundant solar energy potential, MD systems could be a natural fit for future water projects".

However, the report observes that the volume of source water pumped is relatively high compared with the net volume of treated water. "Improving the vapor flux across the membrane would increase the volume of vapor diffused through the membrane on each pass of the feed water. This would reduce the recirculation rate of the feed water and save on pumping energy," it says.

About Scarab, the report, prepared by Global Energy Partners LLC of Lafayette, California, says, "Scarab has multiple subsidiaries that are developing and marketing various products based upon the MD process. This includes small personal water purification products as well as ventures to develop solar-powered seawater desalination plants."

During 2009 Scarab has started the following demonstration projects with proprietary membrane distillation equipment:

1. The Energy department at the Royal Institute of Technology in Stockholm, Sweden, has included an MD module in the polygeneration project Explore Energy for waste heat from power plants.
2. The Bushnak Group in Jeddah, Saudi-Arabia, is testing for concentration of RO brine.
3. The EU-consortium MEDESOL in Carboneras, Spain, is investigating reduction of energy use in solar desalination.
4. Sujana Energy of Hyderabad, India, has started development work for a small POE (Point-of-Use) unit for solar powered drinking water purification.
5. Grameen Shakti of Dhaka, Bangladesh, intends to run four of Scarab's demos for biogas co-generation of electricity and water in a campaign to remedy widespread poisoning of well water by natural arsenic.

The International Desalination & Water Reuse Quarterly industry website. Posted on 07 September 2009