

# OSMOTIC POWER DEVELOPMENT

The Osmotic Power Development team is housed at NM Tech in Socorro, and a team of undergraduate and graduate students is led by Dr. Frank Huang of the Chemistry department. They have partnered with Masson Farms of New Mexico, a local geothermal greenhouse, to work toward meeting its demand for irrigation at a

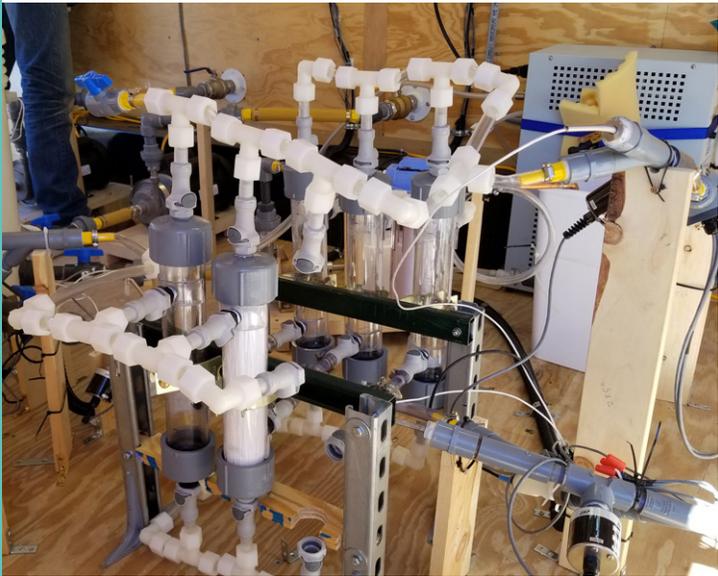
lower cost while conserving existing fresh-water resources. In order to do this, the team has spent the last 4 years working on filtration through membrane fabrication, and designing a geothermal membrane distillation (GMD) system to clean the brackish water for reuse.

## Highlights:

As part of the *Energize New Mexico* project, the Osmotic Power Development team developed from scratch a geothermal membrane distillation system that has the potential to clean brackish geothermal waters to be used for irrigation. The success of the system allowed the team to bridge the gap between real-world applications and the lab by installing the system in a research trailer at a local geothermal greenhouse north of Las Cruces, Masson Farms of New Mexico.

The team’s membrane characterization process is revolutionary; membrane desalinization will become increasingly popular in New Mexico as water becomes scarce. Results are promising, and the team intends to continue their work by optimizing the membrane fabrication process to improve performance for commercialization.

Water scarcity is an issue in the desert Southwest, and this system may allow for industries that rely on irrigation or agriculture to use brackish, abundant sources of water rather than freshwater sources such as groundwater that communities rely on. Membrane distillation of this type may also help local businesses such as Masson remain competitive in a changing economic and environmental climate.



**TOP:** The Direct Contact Membrane Distillation (DCMD) system;  
**BOTTOM:** The Osmotic Power Development team with their pilot-scale DCMD system trailer at Masson Farms