
MEMORANDUM

TO: OMAR AL-SHAFIE
FROM: BEN VOEL
SUBJECT: CCAT AND SERTC TOUR
DATE: OCTOBER 10, 2013

Purpose

The purpose of this memorandum is to describe a few of the new technologies that are being worked on at the Schatz Energy Research Center and Campus Center for Appropriate Technology.

Discussion

We observed a new vehicle that the Schatz Energy Research Center is testing that is fueled by hydrogen gas. The car which is a modified Toyota Highlander SUV, has its own special fueling station right on campus. The purpose of the fueling station is not only to provide a place for the car to get gas but it actually creates the hydrogen fuel on site. It does this through electrolysis. Electrolysis is a process that splits compounds into single elements. In this case the fueling station is putting very pure and clean water through electrolysis. Therefore making the hydrogen gas. The gas has to be stored in two tanks at a very high pressure as to keep it in its gaseous state. In the car the hydrogen fuel is stored in very high-pressure kind of vault tank. In the US these tanks literally have to be bullet proof to pass regulations. The Highlander's gasoline engine has been switched out for an electrical engine, therefore completely emission free. The only thing that comes out of the tail pipe is water vapor and is therefore very environmentally friendly. As of now there is only one hydrogen fueling station past San Francisco and that is the one here at HSU. As more research about hydrogen fueled cars is conducted hopefully more of these stations will start popping up.

On a related note about energy efficiency and alternative energy, something that was really interesting to me was the whole CCAT house. I would definitely be interested in working on future projects to create self-sustainable housing. They are doing a number of things at CCAT for growing their own herbs and vegetables to building structures out of the materials available around them. I think it is important that we start researching more into self sufficient housing because our population is going to continue to grow and its possible our infrastructure will not be able to grow at as rapid of a pace. Therefore it would be beneficial to be able to live and carry out your life by yourself without any aid from external entities.

Conclusion

With the research that is being conducted at CCAT and SERC it is possible to see effective and efficient alternative energy solutions in the near future. Not only are both centers researching clean energy, but they are planning for the future and putting their effort into something that will last.