



Pandit Deendayal Petroleum University

Performance of the institution in one area distinctive to its vision, priority and thrust

One of the visions of this University is to become a globally recognized University in all forms of Energy Research. The University in 2019-20 has taken the lab scale research to field scale research in the areas of solar energy, biofuel energy, natural gas, drilling and stimulation of hydrocarbon reservoirs, wind energy, geothermal energy etc.

During July to June, 2019-20 one such thrust area of research which was demonstrated in the field was in the area of geothermal energy. Research in geothermal energy is in nascent stage in India. Not many institutes, both public and private ventured in this area. India has low enthalpy subsurface energy and exploring and extracting is limited. The University under the aegis of Government of Gujarat has done extensive exploration and exploitation activities in the domain of geothermal energy. About 17 hot water spots have been identified in Gujarat by conducting extensive exploration activities and drilled two geothermal wells in Dholera, Gujarat. It established Space Heating and Cooling setup based on geothermal water and demonstrated comfort cooling in a prayer room of a temple. The capacity of the setup is 32 TR. In the mentioned period the University has drilled the hottest well in Unai, Gujarat where the surface temperature recorded was 70 degree Celsius and also an injection geothermal well in Dholera. It also integrated the Space Heating and Cooling setup with an Organic Rankine Cycle for sustainable power generation in the order of 20KW. This is the only demonstration plant producing electricity in Gujarat and most probably in India.

In another renewable energy demonstration, bio fuel was produced from non edible oil, algae and waste tire pyrolysis. The kinematics of the oil produced was studied and blended in different proportion with natural oil. The initial result was found to be encouraging. Compounds tested included a variety of saturated, monounsaturated, diunsaturated and triunsaturated fatty esters.

In the field of Solar Energy of the University continued field research activity in the 1MW solar power plant created in the premises of the University. Enormous amount of data were collected. Research on solar thermal collectors, offered solar applications, grid solar power, modeling of optimum reflector continued.

In the drilling, cementation and stimulation lab field scale research on proppant conductivity, diverters and High Pressure High Temperature Cement studies were conducted. This showcased once again the type of field scale demonstration the University has conducted during this period also in the conventional hydrocarbon sector. This is the third best laboratory probably in the world.

In short, research thrust areas in Renewable and Non Renewable areas scaled height in the above mentioned period in the University.



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