
The Eco-Rig Concept: Converting Decommissioned Offshore Platforms for Energy Production

Brian J. Harder, Chacko J. John, and Reed J. Bourgeois

Louisiana Geological Survey – Louisiana State University,
3079 Energy, Coast, and Environmental Bldg., Baton Rouge, Louisiana 70803

ABSTRACT

The Gulf of Mexico is a major petroleum producing basin for the United States. Currently there are over 4000 oil and gas platforms in the Gulf area and these will need to be decommissioned over time. Through the utilization of the Eco-Rig Concept, such platforms could potentially be converted to mini-power structures through the use of three renewable energy resources available at the sites: solar, wind and wave energy. This process would involve the initial removal of the oil and gas processing facilities which would no longer be of any use. This would be followed by the installation of two to four wind generators, wave generators and solar energy collecting units on the platforms, which would create a power generating capability of 8-300 megawatts, depending on the number of the various types of generators installed.

The utilization of the multiple renewable power generation sources not only maximizes energy production, but it also allows for maintenance of one system without interrupting power production. On windy days with wave activity, maintenance on the solar generators can be completed, and on clear, calm, windless days the wind and wave turbines could be serviced if necessary. Platform locations are usually out of site of land and have established pipeline and flowline networks which could be used as electrical transmission conduits to other platforms as well as to the shore where they could be tied directly to the power grid. Further, the infrastructure and offshore support systems are already well established. The costs for the Eco-Rig design could potentially be much lower than that for a similar land based generating facility, and though maintenance costs may be higher, it would be offset by greatly reduced fuel costs. The environmentally friendly Eco-Rig Concept is a way to economically and usefully recycle existing unused platforms.