

Title of Article : *Renewable power supply option for Smartfields implementation in oil and gas production installations in the Niger Delta.*

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Abstract: Power supply at any level in the Nigerian Niger Delta is a challenge due to the high rate of vandalism, the lack of infrastructure and the dependence of the Smartfields implementation on the availability of highly reliable power supply systems. For power supply systems to meet the availability and reliability criteria for Smartfields operations, the systems must be vandal proof and renewable with 100% availability and minimal negative impact on the environment. This paper presents the results of field trials of a renewable power supply system suitable for the deployment of Smartfields in remote locations in the oil and gas industry. The power solution is implemented using lithium polymer batteries, explosion proof enclosures, a thermoelectric generator and a natural gas turbine to create a renewable power supply solution. This solution is capable of providing power to all the well head valves and communication infrastructure of both the gas lifted and natural flowing wells with high reliability and availability and also with a very low susceptibility to vandalization and very negligible negative impact on the environment.