Development Fund

Biofuels

Introduction

A key reason why many regions of the world lack GSM coverage is the limited reach of the electricity grid. In Nigeria for example only 25% of base stations are connected to 'the grid' which means Operators have to solve the power issue themselves in order to extend coverage to remote parts of the world. As a result, Africa alone consumes over 30 million litres of diesel per annum powering base stations (an average of 18,000 litres per base station per year). There are numerous challenges for Operators using diesel generators including:

- Diesel prices are high and rising. Operators in parts of Africa cite diesel accounting for potentially more than two-thirds of their total operating costs
- Many emerging markets do not have their own oil reserves or they are not refine oil locally, hence diesel becomes a significant import cost
- Diesel powered base stations require good road access to transport the diesel
- Diesel generators and diesel stores require good security to protect stocks
- Diesel is a non-renewable fossil fuel, which, when burned, causes environmental damage

Programme Overview

The Biofuels Programme aims to connect off-grid locations by identifying a locally grown crop that can be locally processed to power the community's base station. In doing so, the end to end solution generates local agricultural employment, reduces the need for road and other infrastructure development, lowers transportation and security costs and provides a cleaner and greener solution. The project team is committed to the avoidance of mass plantations and is ultimately committed to the use of non-edible crops.

Biofuels are a promising alternative to fossil fuels and a realistic option for Operators planning to rollout base stations in remote areas. As the price of petrodiesel rises, biofuels becomes a more realistic option. Extracting oil from crops such as jatropha and producing biodiesel is relatively straightforward. Furthermore, security concerns are significantly reduced due to the use of locally grown crops. Overall, the global market for biofuels is being led by international energy policy as well as increasing public awareness.

Role of the GSMA Development Fund and Ericsson

The Development Fund and Ericsson in partnership work with local Operators in emerging markets to assess the feasibility of using locally produced biofuels to power base stations in remote, rural, off-grid locations. The Development Fund has provided a fulltime in-country resource to deliver an assessment and pilot first in Nigeria and then India. Ericsson develops the technical solution and together with the Development Fund this is taken to the Operators.

Programme Drivers

The GSMA Development Fund believes biofuels offer the potential to:

- Adopt a new and more reliable alternative to mains electricity which extends the potential reach of base station technologies
- Provide Operators with a carbon neutral solution. Biofuels recycle carbon from the atmosphere and therefore do not contribute to global warming
- Switch to a fuel with stable pricing patterns, lower associated costs (eg raw materials, transportation and infrastructure costs) and long term availability
- Enable local rural communities to benefit from sustainable livelihoods, resulting from the farming of the biofuels crops in the area immediately surrounding the base station
- Connect the unconnected
- Stimulate indirect benefits through the ripple effect of employment and income generation

Case Study: MTN Nigeria

Nigeria's telecom industry has experienced immense growth since the GSM auction and consequential commercial launch in 2001. From less than a million at launch the market had well over 20 million GSM subscribers by September 2006 (according to the Nigerian Communications Commission). This equates to about 18% of the population. In the high growth process, billions of dollars are being invested, new jobs are being created, and businesses are becoming even more efficient and productive. New business opportunities are emerging daily and friends and families are better connected to each other.

However, about 70% of Nigeria's population especially those who reside in rural areas, remain unconnected. As GSM networks expand their coverage into these remote areas, operational issues associated with the lack of basic infrastructure including power are raised. Telecom sites in remote rural areas pose the logistical challenges of regular maintenance and fuelling. This is a particular issue when current diesel-based solutions are expensive and face regular price distortions.

The GSM Association, in partnership with MTN group and Ericsson, are piloting the use of biodiesel in the telecom industry. The project is based in Nigeria and was officially launched in October 2006. A variety of crops and locations were assessed as part of the feasibility study in preparation for the pilot. The project has forged many local partnerships in preparation for the local growth and processing of crops, for the long term solution. This in turn will create local employment.

To date, generator tests have been completed using locally produced biofuels and by the end of Q1 2007, it is expected that three base stations in the Badagry region will be running on biodiesel produced from locally grown soybean.

"MTN regards the Biofuels Programme to be of great importance. We are working with our partners the GSMA and Ericsson to develop an environmentally friendly, self-sustainable, cost effective solution to extending mobile coverage into remote and rural parts of Nigeria, and potentially the rest of Africa where MTN is operating. I am personally excited that the Biofuels Programme could create employment for tens of thousands of agricultural workers, whose labour will bring communications to their villages for the first time, placing the mobile industry at the forefront of social development."

Karel Pienaar
Chief Technology & Information Officer
MTN Group

Case Study: IDEA India

Local Operator IDEA Cellular, Ericsson and the GSMA's Development Fund have teamed up to develop biofuels as a power source for wireless networks in rural India. In a pilot project, biofuels will be used to power mobile base stations located in Pune, Maharastra, where mains electricity is highly unreliable.

The first phase of the project, which is testing the feasibility of non-edible plant-based fuels, such as cotton and jatropha, is nearing completion. The second phase of the project will entail setting up a supply chain using locally grown crops to produce biodiesel to power between five and 10 base stations by mid 2007 in the Maharashtra region and 20 – 40 sites by project completion. The goal is to have these base stations powered by cotton or jatropha by mid 2007.

The Indian government is encouraging companies in India to adopt biofuels and potentially could become a leading exponent of this alternative power source.

Rob Conway, CEO of the GSMA, says: "The early adoption of biofuels will give IDEA a pioneering role in the development of cost effective and environmentally sustainable mobile networks to serve rural communities. We look forward to sharing the expertise and knowledge gained from this project with other mobile Operators around the world."

Mats Granryd, Managing Director, Ericsson India, says: "As GSM Operators expand their network coverage into new areas, one of the biggest challenges is to overcome operational issues associated with the lack of basic infrastructure. Through this initiative, we are also involving local communities in the wireless revolution and taking the benefits of technology to the masses."

"Almost three-quarters of India's population lives in rural areas that often lack a reliable power supply," said Sanjeev Aga, Chairman of IDEA Cellular. "Biofuels will help us further extend mobile coverage into these areas bringing major economic and social benefits to rural communities."

Sanjeev Aga
Managing Director
IDEA Cellular

GSM ASSOCIATION

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