

Carbon Offset Verification for Solar PV home light systems in rural Karnataka

The project

Aurore was commissioned by **The CarbonNeutral Company** <http://www.carbonneutral.com/> to carry out an independent verification of carbon emission reductions (Voluntary Emission Reduction VER under Voluntary Carbon Standard VCS) contributed by solar home light systems in rural Karnataka, supplied and maintained by **SELCO Solar Light Pvt. Ltd., India.** <http://selco-india.com>

What is carbon offset?

In layman's terms Carbon offset is a mechanism that enables projects that help reduce carbon emission sell their carbon savings to excess emitters through a carbon exchange.

http://unfccc.int/essential_background/items/2877.php

This is part of the Kyoto Protocol, an international and legally binding agreement to reduce greenhouse gas emissions worldwide, that entered into force on 16 February 2005.

What is CDM & CER

<http://cdm.unfccc.int/about/index.html>

Under Kyoto protocol one such mechanism is Clean Development Mechanism (CDM). The CDM allows emission-reduction (or emission removal) projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO₂. These CERs can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol.

What is Voluntary Carbon Standard (VCS) and Voluntary Emission Reduction (VER)?

<http://www.ieta.org/ieta/www/pages/getfile.php?docID=1919>

In response to this, the Voluntary Carbon Standard (VCS) seeks to provide a credible but simple set of criteria that will provide integrity to the voluntary carbon market and underpin the credible actions that already exist. Specifically, The Voluntary Carbon Standard will ensure that all voluntary emission reductions that

are independently verified meet its criteria – defined as Voluntary Carbon Units (VCUs) - represent real, quantifiable, additional and permanent project-based emission reductions.

http://en.wikipedia.org/wiki/Voluntary_Emissions_Reduction

Voluntary Emissions Reductions (VERs) are carbon credits developed by carbon offset providers which are not certified.

Certification of carbon credits (Certified Emissions Reductions) are backed by an international framework and institutions, for example under the UN's Clean Development Mechanism, to ensure that real greenhouse gas emission reductions take place, as well as providing a clear audit trail.

Objectives of the Project

The purpose is to objectively review:

- i) Carbon emission reductions from the installations as documented and presented by SELCO
- ii) Completeness, consistency and accuracy of the data

SELCO's Work

Prior to SELCO's intervention, households in rural areas that were not serviced by electricity used kerosene lamps to provide lighting.

Kerosene is a petroleum distillate that produces CO₂ emissions when burned. Solar powered systems provide emission free, affordable, sustainable power to electric lights and small appliances, thereby displacing kerosene and offering a potential alternative.

Site Visits made by Aurore

Erik Conesa (Environmental Consultant from Spain volunteering at Aurore) and Min visited three regional SELCO offices located in the western ghats of Karnataka. The site visits entailed around 2,000 KMs of travel by bus to get to the three regional offices and around 800 KMs by car in local travel to visit sites from these regional offices.

<http://picasaweb.google.com/MinhajAmeen/SELCOCarbonOffset>

Pictures from site visit

<http://www.youtube.com/watch?v=8sq5HkO0QCY>

Short interview footage with one staff member, Raghvendra Naik, of the Kumta Branch of SELCO.

<http://www.youtube.com/watch?v=8sq5HkO0QCY>

Interview with SELCO Lighting System User Mahadev B Siddi from Biddaralli near Kumta in the western ghats of Karnataka, India

Site Visit Findings

- All users seemed very happy with the performance of the system and the service they received from SELCO staff, who command the respect of celebrities.
- Most systems were found fully functional and in perfect working condition. All batteries were found to be well maintained. Systems installed since 2003 were under warranty. However, systems installed in 2002 were found to be equally well maintained.
- System performance was undermined to some degree during the four monsoon months when the skies are overcast on most days. Additionally, it was also noticed that users were taxing the system with more lights and other domestic applications thereby draining the battery more quickly.
- The use of fossil fuels –Kerosene - for lighting was found to be almost non-existent in most houses. However, users were forced to resort to kerosene use for lighting and even cooking in the monsoons, when their batteries were empty and firewood was wet.

Regional Office findings

- The staff of the regional offices are a highly committed group. SELCO has inculcated the ethos of customer service and understanding throughout the organization. They have consistently managed to service systems in remote areas which are difficult to access and sometimes involve commuting by foot over long distances
- Maintenance records are in standard format and filed in proper order since 2004, reflecting a commitment to efficient and consistent record keeping.
- Service contracts were registered for a few customers only, as the vast majority cannot afford a service contract. However, SELCO service staff pays courtesy calls when in a certain area, looking into minor repairs and allowing poor customers to pay for these random services as and when they can. Many times refreshments or a cooked meal would be accepted gratefully in exchange. Over time the relations between customer and service provider have extended into friendships.

Other Observations

Leeches

We were confronted with blood sucking leeches up on the hills in western ghats of Karnataka. Apparently leeches stay dormant all through the year and lie on the forest floor like dry twigs. They come alive during the rainy season. Leeches are crafty buggers and can move very fast and creep into remotest parts of the body particularly softer ones. It is said that they can spread HIV. The lesson learnt

was if you are stuck in the forest with leeches during rainy season then “ check your arses (for leeches), cut your losses and log off swiftly. ☺

Jokes aside, there are ways to protect oneself from leeches and they are also used for medicinal purposes. <http://en.wikipedia.org/wiki/Leech>

The Siddis

<http://en.wikipedia.org/wiki/Siddi>

We were astonished to discover a community of African descendants called the Siddi in a remote part of Western Karnataka near Kumta. The Siddi are the descendants of slaves first brought to India by Arab merchants in medieval times from the Bantu-speaking parts of eastern Africa.

SELCO's passion

One of the remarkable achievements of SELCO has been to imbibe the culture of customer service into their staff. The employees are usually local and less driven by any lofty vision and more charged by travelling to the remotest parts to install lighting systems for communities and households who have never had good quality light. Their fulfilment stems from seeing smiles on people's faces when they experience the light for the first time. What's outstanding is this culture of service permeates throughout the organisation.