



## **Carbon Offsets – An Overview**

### **Carbon Offset – Definition**

Carbon offset is the process of balancing a defined unit of carbon dioxide emissions with a product that saves or stores an equivalent amount of carbon dioxide.

### **Emissions Calculation**

Carbon dioxide emissions are directly related to the carbon content of fuel types. This can be very accurately assessed in laboratory conditions. The emissions from any activity involving the combustion of fossil fuels will be determined by the method of combustion and any blending of fossil fuels with performance enhancing ingredients. The per passenger calculations for carbon dioxide emissions will in crude terms depend mainly upon the number of people who use the fuel as energy or for travel, either directly or as a consumer of goods and services, the method of combustion and conditions of use. The calculation of emissions will determine the quantity of carbon dioxide that will form the basis of any offset. The more detailed the emissions calculation the greater the chance that it is actually matched to an offset quantity.

### **The Role of Offset**

Offset rebalances specific emissions, but its overall role in climate change prevention as an independent activity is to retard not reverse it. The value of retarding the pace of climate change through offset is to help to provide more time for behavioural change, technology and legislation to begin to reduce emissions overall and thus arrest climate change. To address the rapidly increasing carbon content of the atmosphere it is critical to reduce emissions overall. The accepted approach to carbon emissions is that emissions should be saved where possible and offset where they cannot be saved. Currently offsets are used as part of integrated corporate carbon strategies, but are also used as demonstrable environmental credentials. Irrespective of the motive for using offsets, how is it possible to distinguish between the available options? Purchasers must consider a range of factors in their offset choice.

### **Carbon Neutral**

The carbon tonnage of the emissions and the savings are calculated to provide a purchasable offset. This process is often referred to as becoming "carbon neutral". The immediate act of purchasing an offset, for example 1 ton of offset, does not always confer immediate carbon neutrality upon the purchaser, as the savings are not immediate but often gradual over a period of time. For this reason The Carbon Consultancy promotes the more correct corporate message of carbon responsibility.

### **Morals and Ethics**

The use of developing world offset projects is not without its moral and ethical debates. In paying residents of developing countries to emit less so that we can in effect emit at the same pace can be seen as a form of green imperialism, just as some projects may retard or restrict local development in these countries. The low per capita level of emissions in many developing countries suggests that a marginal per capita change will have less effect than encouraging UK residents to emit less.

The lower cost of some voluntary projects in the developing world has also raised concerns about carbon exploitation.

### **'Additionality'**

For any offset project to have a balancing value it must be originated for the purposes of creating additional carbon savings or storage. It cannot be a saving or storage of emissions created in a business as usual activity and sold retrospectively. This means that existing savings being created by a project that would have been created by an individual or organization in the course of their every day activities cannot be sold retrospectively as an offset. Funds for offset projects must be channelled into additional/new projects that will save or store carbon dioxide. They must be able to demonstrate that their activity is an additional carbon benefit.

### **Double Counting**

Offset values must be calculated and apportioned in a precise manner that avoids the possibility of any double counting of savings. Double counting can result from any situation where carbon savings are present in a supply chain and claimed by more than one component part of that supply chain. In a renewable energy project that is created to save carbon emissions for a specific company, the company could not claim the carbon value of the renewable energy for its own footprint and then sell on these savings to consumers as a product or service benefit that allowed consumers to claim reductions in their personal footprint. The savings must remain with the company or be passed on directly to its consumers.

### **Offset Types**

#### **Voluntary Emissions Reduction Units (VERs )**

These offsets range from well audited to poorly defined emissions savings/storage. At the most regulated end of the market VERs are certified offsets in waiting, at the least regulated end of the market they can be theatrical and fail to fully offset the emissions they have been designed to balance. The VER market has a number of distinct project types.

**Trees.** Woodland is one of the earths natural carbon sinks, processing and storing carbon dioxide. The creation of new woodland supports natural carbon reprocessing. The location and management of new woodland will determine how successful it is as a carbon sink.

**Education.** The use of dedicated UK energy education programmes to deliver carbon savings has a direct bearing on emissions creation/reduction in the UK. The focus is upon reduction of developed world emissions.

**Biomass Stoves.** The use of biomass stoves is designed to reduce the deforestation of developing world countries and to directly reduce CO<sub>2</sub> by promoting more fuel-efficient cooking methods.

**Low Energy Lightbulbs.** The distribution of lightbulbs in the developing world is designed to reduce CO<sub>2</sub> from lighting use, with a reduction in electricity usage which may have been generated at a higher than average CO<sub>2</sub> cost.

**Solar Panels** Technology is one of the key ingredients in the drive towards lower carbon emissions and in many developing countries with high levels of annual sunshine they can be very effective.

**Methane Capture** Methane is more powerful than CO<sub>2</sub> although it has a shorter life span. It is produced naturally by wetlands and farm animals, but also through landfill

sites. Methane capture from landfills and coalmines can be used to reduce methane and provide a power source.

### **Certified Emissions**

Traded units or certified emissions come in three main forms. Any projects that are VERs may be CERs in waiting.

**Emissions Reduction Units (ERUs)** are emissions reduction units that are created in the developed world from projects that have saved carbon emissions through low carbon technology or biomass for example.

**Certified Emissions Reduction Units (CERs)** are emissions reduction units created in developing world locations using low carbon technology, but whose savings may be used in developed world emissions reduction calculations under a mechanism known as the Clean Development Mechanism.

**European Union Allowances (EUAs)** are allowances that are created by EU national governments to limit emissions. They are a traded unit that allows surplus carbon credits to be sold on the open market to those who have exceeded their allowances.

### **Offset Selection**

#### **VERs**

The key issues for prospective purchasers of VERs are the ability to verify their existence, to be assured that the projects are viable and that funds provided are destined for the selected project. In addition to these central issues are additional considerations of their wider environmental value, their additionality and their role in reducing and promoting emissions reduction overall.

#### **Certified units**

In theory but not entirely in practice certified units will deliver savings of emissions that have been more thoroughly vetted than VERs and will be compliant with stringent project certification and a framework that provides the purchaser with greater security. This will include definition on areas such as project leakage, double counting, and lifetime of a carbon project. The purchaser is still, as with VERs, taking the risk of the purchase upon themselves.

Many of the projects that comprise VERs are not acceptable certified projects. This does not necessarily reflect any deficiency in carbon saving/storage of VERs, but more that their aims may be a combination of carbon and wider social and environmental considerations.

Certified products that are CDM based may be graded upon their wider social and environmental value. The CDM Gold Standard based in Basel is an organization that helps to define suitable projects for purchasers in this respect.

### **Key Points to Consider**

1. **Verification** – both of project existence but also how it delivers carbon balance.
2. **Emissions calculation** – the calculated emissions method must be understood to enable a clear match with any offset product.

3. **Viability** – there must be clarity on the long-term viability of any project, where carbon savings are delivered over a long period of time.
4. **Value** – what is the offset value in terms of carbon saved/stored and wider benefits in the context of CO2 reduction?
5. **Content** – what does the offset unit include and is this specified by the broker or project originator.
6. **Delivery** – how does the offset unit actually deliver the content and value that it claims?
7. **Reason for purchase** – the purpose of offset will help to determine choice. Companies in a regulatory framework must purchase certified credits. Individuals may choose offsets according to personal taste. Unregulated companies may choose projects that fit their brand or product profile in terms of project location and type.

## **Conclusion**

The purchase of offset is similar to the purchase of any technical consumer item or even a financial instrument like a share. They are created and priced based upon the best available data, which itself will continue to evolve and improve. The purchaser must satisfy themselves on key product issues and establish a basic understanding of the mechanics of offset projects. They must look beyond the immediate surface content and consider the key points that have been outlined above.