Mobile Pilot Objectives

The methodology of testing will be as following:

- The prototype is built as one self-contained, single passing unit housing +/- **3.978m3/s** of air volume.
- The air flow will come into contact with 2980 membranes.

- Increase efficiency of the elimination for Sulphur dioxide (SO_2) **@ 58%** in Beta test to at least a **99%**.
- Increase efficiency of the elimination for Carbon monoxide (CO) **76%** % in Beta test to at least a **99%**.

(Please note that although CO_2 results were not obtained, CO and CO_2 are the same species and thus expect the same results.)

- Further improvement over the Oxygen (O_2) **0.5%** increase outputs.
- Increase efficiency of the elimination for Nitrogen dioxide (NO_2) **91%** in Beta test to at least a **99%**.

Income Streams

Unit sales

- **Unit sales (Hardware)**

Large Unit $ 5 500 000

5m x 5m = 50m³/s or 180 000m³/ hr = 42 768kg CO_2 / hr
An average of 40 tons / hour or 340 000 t/y

Medium Unit $ 3 500 000

3.5m x 3.5m = 24.5m³/s or 88. 2Km³/hr = 20 956kg CO_2/hr
An average of 20 tons / hour or 170 000 t/y

Small Unit $2 500 000

2m x 2m = 8m³/s or 28 800m³/ hr = 6 842kg CO_2 / hr
An average of 6 tons / hour or 51 000 t/y

Income Streams

Carbon Credits

<u>Large Unit – 170 000 Carbon Credits</u>

An average of 40 tons / hour or 340 000 t/y.

50% x 340 000t/y = 170 000t/y x €13cc = €2 210 000 /y

<u>Medium Unit – 85 000 Carbon Credits</u>

An average of 20 tons / hour or 170 000 t/y

50% x 170 000t/y = 85 000t/y x €13cc = €1 105 000 /y

<u>Small Unit – 25 500 Carbon Credits</u>

An average of 6 tons / hour or 51 000 t/y

50% x 51 000t/y = 25 500t/y x €13cc = €331 000 /y

Income Streams

Carbon Credits

Prototype

+/- 2.8 tons / hour @ 12%

2.5t/hr x 24hr/d x 355d/y = 21 300t/y

50% x 21 300t/y = 10 000t/y x €13cc = €130 000 /y

Carbon Brick

- **500g of captured CO_2 = Double brick**
- **1Ton CO_2 = 10,000 Double Bricks**
- **1 Ton CO_2 = 1 x 45m³ RDP House @ ZAR 50,000**

or

- **1000g of captured CO_2 = Double brick**
- **1Ton CO_2 = 10,000 Double Bricks @ ZAR 2.5 ea**
- **1 Ton CO_2 = 10,000 Dbl Bricks = ZAR 25,000**

Definitions

Annex 1 - Countries in transition to a market economy which comprise the signatory parties to the Kyoto Protocol who are subject to caps on their emissions of greenhouse gases and committed to reducing targets.

Biofuel - A solid, liquid or gas fuel consisting of or created from biomass. It may be regarded as a viable alternative to fossil fuels and as a way of reducing greenhouse gases.

Biodiesel - An organically-derived processed fuel that can be used in unmodified diesel engines. It is also known as Biomass to Liquid (BtL) diesel.

Biogas - The general term for the gas emitted during the degradation of organic matter in the absence of oxygen. Once cleaned off it is a source of renewable energy having similar properties to natural gas.

Biomass - Organic matter that can be used as fuel in industrial applications. For example, wood chips in boilers or animal waste.

Cap and Trade - The most common type of emissions trading scheme where total emissions are strictly limited or capped. Permits are issued up to the cap and a market allows those emitting less than their quota to sell their excess permits to emitters needing to buy extra permits to meet their quote.

Carbon Offsetting – the purchase and cancellation of emission reduction credits generated by projects and activities that reduce carbon emissions.

Carbon Credits – the tradable equivalent of emission reductions generated by the three mechanisms introduced under the Kyoto Protocol (emissions trading, the Clean Development Mechanism, Joint Implementation) to facilitate the achievement of GHG emission reduction targets.

Carbon Dioxide (CO2) – A greenhouse gas occurring naturally in the Earth's atmosphere but also as a by-product of the combustion of fossil fuels. Carbon dioxide is the base unit for measuring Certified Emission Reductions and has a global warming potential of '1'.

Carbon Dioxide Equivalent (tCO2e) – the metric unit for greenhouse gas emissions. The global warming potential of all greenhouse gases is measured in terms of equivalency to the impact of carbon dioxide (CO2) which is the base unit set at '1'.

Carbon Offset – is a financial instrument representing a reduction in GHG emissions. The Conference of parties has decided that the use of the Kyoto Protocol's flexibility mechanisms including CDM must be supported by domestic action to reduce emissions.

Offset Provider – a company that sells offsets to the public or to other organisations to allow their consumers to offset.

Carbon Trading – this is the trading of carbon credits. It is one of the ways countries can meet their obligations under the Kyoto Protocol to reduce carbon emissions.

CDM (Clean Development Mechanism) - one of the three mechanisms of the Kyoto Protocol which allows industrialised 'Annex 1' countries to invest in projects that reduce emissions in developing 'non-Annex 1' countries. These projects qualify for Certified Emission Reduction (CER) credits.

CDM EB (Clean Development Mechanism Executive Board) - the CDM is supervised under the Executive Board which also approves projects for registration.

CERs (Certified Emission Reductions) – tradable units generated by projects in developing countries under the Clean Development Mechanism (CDM). They can be counted by Annex 1 countries towards compliance with their reduction commitment and are equal to the reduction of one tonne of carbon dioxide equivalent emitted.

CH4 (Methane) – A greenhouse gas and the principal component of natural gas. It is emitted from landfills and degrading organic matter for example. It is 23 times more harmful than CO2 as a greenhouse gas.

Coal Bed Methane – Methane that occurs naturally in coal bed reservoirs, and collected and utilised in mining operations toprevent it emitting into the atmosphere.

Conference of Parties (COP) – This is the governing body of the UNFCCC. It advances implementation of the Convention through decisions it takes at meetings.

Cogeneration – the use of a fuel to provide both heat energy and electricity to be sold to the national grid. Bagasse, a waste product from sugarcane milling, is often used in cogeneration for example.

Designated Operational Entity (DOE) – An independent third party organisation approved by the Executive Board to ensure project submissions meet the relevant criteria in validation and projects emissions are verified.

ERUs (Emission Reduction Units) – tradable units generated by projects in develop countries under the Joint Implementation mechanism.

EUA (European Union Emissions Allowance) – tradable permits allocated to energy intensive industries in Europe under the European Emission Trading System mechanism.

EU ETS – is the trading market for major gas emitting industries set up by the European Union in 2005. The five main sectors covered by the EU ETS are power and heat generation, iron and steel, mineral oil refineries, mineral industry (cement, gas, ceramics), and the pulp and paper sectors.

Fossil fuels – a 'traditional' fuel such as coal or petroleum that when combusted emits greenhouse gases.

GHG (Greenhouse gases) – these gases promote the warming of the Earth's atmosphere. There are six gases recognised under the Kyoto Protocol: Carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulphur hexafluoride (SF6).

Global Warming Potential (GWP) – is the measure of the potency of greenhouse gases to warm up the atmosphere. All measures of GWP are given relative to carbon dioxide which has a GWP of 1.

JI (Joint Implementation) - a Kyoto mechanism for the transfer of emissions permits between developed 'Annex 1' countries. These projects qualify for Emission Reduction Units.

Kyoto Protocol – Established in 1997, the Kyoto Protocol is a protocol to the United Nations Framework Convention on Climate Change, assigning legally-binding emission limitations for the reduction of greenhouse gas emissions by member nations. The agreement came into force in 2005 following ratification by Russia.

Kyoto Compliance Credits – the collective descriptor for a range of tradable credits used by Annex 1 countries towards compliance with their emissions target and are all equal to one tonne of carbon dioxide equivalent e.g. CERs.

Landfill – commonly known as a dump, a landfill is a site dedicated to the disposal of waste materials in the ground.

NOx (Nitrous oxide) - A greenhouse gas emitted in a range of applications from combustion of fossil fuels in transport to the production of fertiliser.

Phase I ESA (Environmental Site Assessment) – a report prepared for real estate holding which identifies the likelihood of site contamination.

Phase II ESA (Environmental Site Assessment) – an investigation that collects original samples of soil, groundwater or building materials to analyse the contaminants. It is normally undertaken after Phase I.

Project Design Document (PDDs) – An official document completed by the project applicant for project approval under the UNFCCC framework.

Regulated Market – the carbon market for demonstrating compliance with the Kyoto Protocol or the EU Emissions Trading Scheme and includes the use of Kyoto compliance credits. It is sometimes known as the Compliance Market.

Sulphur Hexafluoride (SF6) - is a greenhouse gas primarily emitted by the electrical industry, but also in the casting of magnesium.

UNFCCC (United Nations Framework Convention on Climate Change) – An international treaty produced at the 1992 United Nations Conference on Environment and Development (or Earth Summit). It is aimed at reducing emissions of greenhouse gases in order to combat global warming.

Verified Emissions Reduction Credits (VERs) – are voluntary carbon credits that are not compliant with the Kyoto Protocol but are available for sale to corporations and individuals who want to offset their emissions for non-regulatory purposes.