

CLEANTECH AFRICA MAGAZINE

Your Guide to Africa



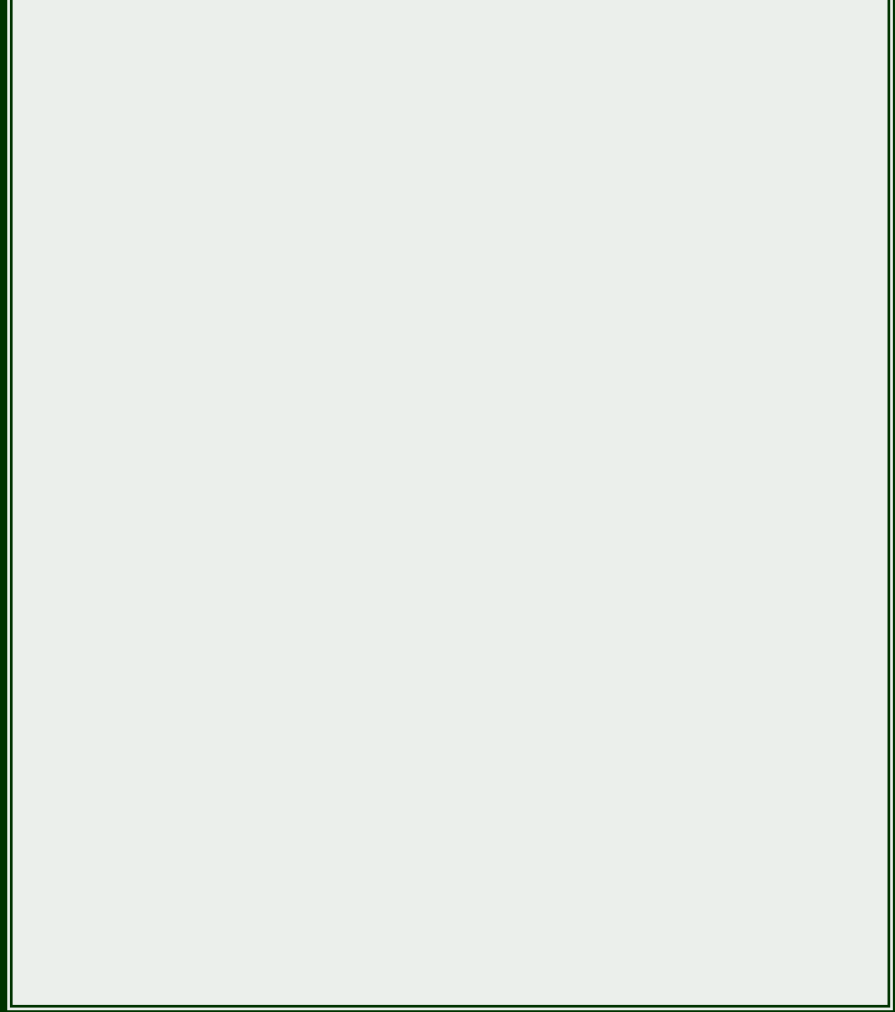
**Energy generation—Energy infrastructure--
Energy efficiency -Water and waste treatment
—Recycling and waste**



CLEANTECH AFRICA MAGAZINE



ISSUES IN THE MAGAZINE



September 2011

Mon	Tue	Wed	Thu	Fri	Sat	Sun
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

CLEANTECH

Cleantech Africa magazine is produced quarterly by Vaasa University of Applied Sciences in Finland and Atlas Energy Training Centre located in Accra-Ghana

Tel: +233 272330814

Email: ade@puv.fi , www.puv.fi

www.abesafrica.com/

<http://www.acic.fi>

Cleantech Africa- August 2011

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Welcome to the First Issue of Cleantech Africa

Your Guide to Africa– Editorial

Welcome to the first issue of Cleantech Africa Magazine. Cleantech Africa Magazine is registered as a non-governmental organization in Ghana. Cleantech Africa Magazine seeks mainly to educate the general public on issues relating to renewable energy and energy efficiency as to promote clean energy technologies on the African continent. It is also designed to encourage the development and implementation of clean energy technologies and educational programmes.

The demand for energy is expected to rise most rapidly in Africa as in several developing regions across the world as economic growth and social progress receive a major boost. Most African countries have not been able to match the increasing demand for energy. It is not surprising therefore that the term “energy crisis” has become a key word in most development policy documents on the continent. Without convenient and affordable alternatives, these countries are likely to follow the fossil fuel pathway, similar to that of the developed world. But, emissions from fossil fuels result in global warming and declining air quality.

Most developing countries however have abundant renewable energy resources, including solar, wind, geothermal, hydro and bioenergy, as well as the ability to manufacture the relatively labour-intensive systems that harness these. By developing such energy sources, developing countries can reduce their dependence on fossil fuel, creating energy portfolios that are less vulnerable to price rises.

Most of these resources however remain untapped. This is partly due to limited information on what these resources can do and where they can easily be obtained. It is in

this regard that Cleantech Africa Magazine seeks to provide extensive industry information in an easy to digest form, to get many more people to become aware of the limitless opportunities nature provides in dealing with our energy needs. Among others, the magazine will address misconceptions about renewable energy and address commonly asked questions about that energy source.

Cleantech Africa seeks to promote knowledge-sharing among local industry players and their foreign counterparts. The magazine will as well give attention to innovations in various fields of technology considered appropriate for the African terrain, to make its reading more interesting and its impact far-reaching. It will also address issues of environmental concerns and encourage the use of best practices in the technology sector to mitigate and adapt to climate change, contribute to sustainable development and the reduction of poverty on the continent.

The publication will incorporate Ucode technology as a way of bringing digital images to life. Ucode is a mobile software application that enables you to capture additional information embedded in a two dimensional code.

Authors are invited to submit paper from the following areas:

Energy generation including

- wind
- solar
- biofuel
- hydro,

geothermal

Energy infrastructure



Dr. Adebayo Agbejule

Editor-In-Chief

- management
- transport

Energy efficiency

- lighting
- building

Water and waste treatment

- water treatment
- water conservation
- waste water treatment

Editorial Committee

Dr. Adebayo Agbejule, Editor-In-Chief, Vaasa UAS, Finland

Emmanuel Ndzibah, PhD researcher, Vaasa University, Finland

Mahama Kappiah, Cape Verde

Thierno Tall, CDM Expert, Togo

Editorial Assistant

Kodjovi Lotchi (Technical Editor), Vaasa University of Applied Sciences, Finland

B.Eng Eric Buah, Jyväskylä University, Finland

Editorial Office:

Editor, Adebayo Agbejule

Vaasa University of Applied Sciences
Wolffintie 30 65200 Vaasa Finland
Email: ade@puv.fi, www.puv.fi /
www.abesafrica.com

Journal Office

Africa Clean Tech Magazine
P.O.Box GP. 3539 Accra-Ghana



For more Information contact

The African Biofuel and Renewable Energy Company Ltd
128, bd. du 13 janvier,
B.P. 2704 Lomé Togo
Tél. (228) 221 68 64
Fax. (228) 221 86 84 / 222 81 51
Email: infos@faber-abref.org
<http://www.faber-abref.org/>

Financing Renewable Energy Projects in Africa

Bionergy has recently been developing rapidly and now presents great opportunities for sustainable development and climate change mitigation mechanism in Africa. Despite these opportunities, developing countries still face difficulties in financing bioenergy projects and programmes. This has become a major impediment to develop the biofuels sectors in Africa and the sub-region. The reason for this difficulty is that, African continent has rich supplies of natural resources and high potential for biofuels in renewable energy but less than 2% of Clean Development Mechanism (CDM) projects currently originate from the African continent due to higher perceived risks by investors. However, African Biofuels and Renewable Energies Fund (ABREF) emerged to bridge the barriers. ABREF was set up to help overcome barriers and facilitate greater flows of investment into African biofuel and renewable energy projects in such a manner which promotes sustainable development while at the same time contributing towards the reduction of greenhouse gas emissions in the atmosphere. The African Biofuel and Renewable Energy Fund Project (ABREF) was initiated in 2007 by the ECOWAS Bank for Investment and Development (EBID), the African Financial Institutions and the Member States of ECOWAS. The Project, which has attracted the support of the African Development Bank (ADB) and the World Bank, covers all the five (5) regions of Africa with the cooperation of the Central African States Development Bank (BDEAC), the PTA Bank and the Development Bank of Southern Africa (DBSA). The ECOWAS and UEMOA Commissions have signed a memorandum of understanding to support the initiative.

The fund contributes to the development of the biofuel and renewable energy industry in the African region, with a particular focus on West African countries. In doing so, the fund aim to provide investors with superior returns through investments in biofuels and renewable energy projects which will generate Certified Emission Reductions (CERs). Investors in the fund will receive CERs as part of their investment in the fund.

The fund is targeted on all Africa countries but in the first phase in 2008, it was emphasized on

the ECOWAS counties: : Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

The fund considered any projects which have an ability to generate Certified Emission Reductions (CERs) through the Clean Development Mechanism of the Kyoto Protocol. In

particular, the fund focuses on investing in and procuring CERs from the following project types:

- Biofuels
- Fuel-Switching to Biomass Energy
- Hydro power
- Wind
- Methane leakage avoidance from gas lines
- Methane capture from landfills



OZONE CLEANING AND DISINFECTING SYSTEM

Environmentally friendly and hygiene solution for garment

eLozo

Ozone cleaning and disinfecting system



Ozone cabinet in Vaasa City theatre

For more information contact

Elozo Oy

Loukontie 8 ,66440
Tervajoki

Finland

Tel:+358 40 513 4372

Email:

kari.valkama@elozo.fi

<http://www.elozo.fi/>

Ozone cleaning system, also known as ozone cabinet is an innovative product produced by Elozo Oy, a Finnish based company. Elozo Oy is a member of the Cleantech Finland and specializes in developing innovative and environmentally friendly hygiene solutions for textiles. Ozone cleaning system efficiently reduces microscopic impurities such as various microorganisms (bacteria, fungus, protozoa etc.) .The system is designed to reduce microorganisms from clothes, shoes and other items that may easily become contaminated. The efficiency of ozone gas as a disinfectant has been well proven. The VTT Technical Research Centre of Finland is currently testing Elozo's ozone technology. The tests conducted so far have generated positive performance results in reducing bacteria, which can cause food poisonings and are therefore a problem for food industry. These bacteria include: *Listeria monocytogenes* ,*Bacillus cereus* ,*Salmonella enterica* and *Klebsiella / Enterobacter*

The effectiveness of ozone as a disinfectant is based on its high oxidation potential. Ozone kills microorganisms by oxidizing their cells.

Some of the benefits of the Elozo system include:

- Efficient reduction of microorganisms
- As a gas, ozone efficiently reaches pores and holes in rugged surfaces which may be difficult to clean with conventional methods
- Enables decontamination in situations when there is no possibility to wash the contaminated items or washing is not efficient enough
- Enables cleaning of sensitive items which must not be exposed to water and cleaning solvents without risking damage
- Applying ozone as a cleaning method is environmentally friendly, as water and cleaning solvents etc. are not required
- As ozone is created on the location of its application, there is no need to transport or store the gas
- No residual presence of potentially dangerous by-products, as ozone breaks down quickly into oxygen and possible break down by-products from reactions with organic compounds are not dangerous to health

The system is easy to use. Clothes are placed with stainless steel or plastic hangers inside the ozone chamber like into a normal clothes closet. Removable racks can be inserted into the chamber for smaller items such as shoes. The ozone level inside the chamber and the duration of the treatment can be adjusted from the control unit. The required ozone level and the duration of the treatment vary depending on the qualities of the treated items and the nature of the smells

Product potential for Africa

As a disinfectant ,Elozo's products can help prevent spreading of diseases in Africa.It can be use at work places, hospitals, hotels ,theaters ,airports, schools and all public gathering places where the spread of diseases are very high.This will help promote odour free environment in Africa and its environs.



For more Information contact

Atlas Business Energy System
 Po Box: GP. 3548
 Accra-Ghana
 Tel: +233 272330814
 +233 244044508
 Email: info@abesafrica.com
 Internet: <http://www.abesafrica.com/>

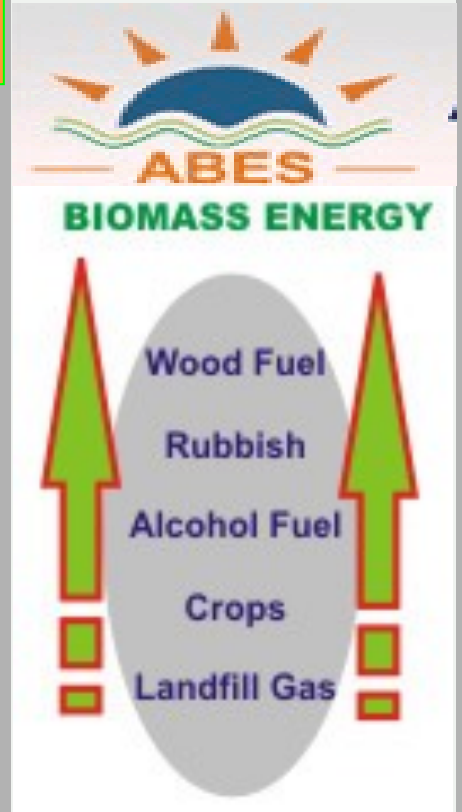
Atlas Business Energy Systems-leading Africa to sustainable society

scientific and technological innovation has been the underpinnings of all advanced economies. Africa with 365 days of sun as a source of energy stand to benefit, if its entrepreneurs took up the challenge to be innovative and work out technological solutions that suit their own environment. Atlas Business Energy System (ABES), a leading solutions provider for renewable energy took up the challenge in 2008 to improve Africa's energy situation in the sustainable way. The company through Finnish collaboration was the first to design, manufacture and assemble solar modules and charge controllers in sub-Saharan Africa at its Sowutuom plant in Accra Ghana. Apart from the company's aim to help the African continent in meeting its increasing energy demands, ABES also seeks to make the best of technology transfer, by constantly upgrading the competence of its Ghanaian engineers to enable them produce several other renewable energy facilities locally.

As a key competence of the company, ABES provide supply chain management solutions for various applications in renewable energy such as solar, wind, and biomass. The company provides the following services: consulting, design, installation, construction, engineering, project development services, education and training services, research services, and architectural design services

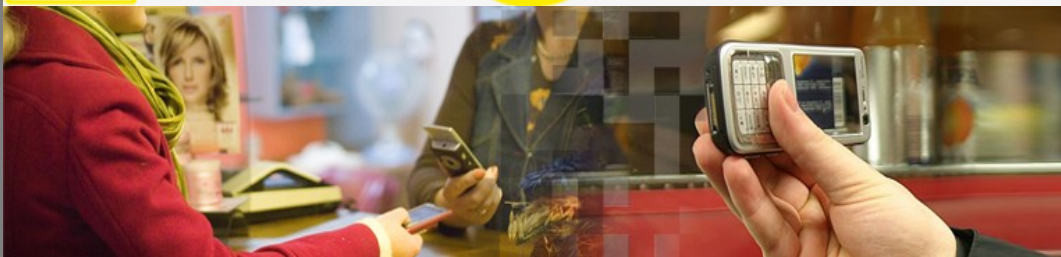
Product Potential for Africa

Because ABES product is specially design to meet African environmental conditions, ABES Solar models and panels are ideal for individual and companies looking for affordable and quality back up renewable energy supply to compenstae the frequent power interruptions. It is a potential and reliable product for residential areas, and rural and urban electrification .Districts assemblies can capitalize on ABES innovation to provide rural electrification for those off the grid system in their communities to meet their rural electrification vision. NGO's can rely on ABES for their social mission of providing cleaner electricity to rural and less endown communities in Africa in their quest of promoting renewable energy consumption.Universities and Polytechnics, students and unemployed youth looking for a hand on energy entrepreneurship career path can enrol in ABES training school to learn how to manufacture solar panels and contribute their skills in creating enterprises in the solar business whilst reducing the unemployment rate.Companies in the solar industries in African can rely on ABES for charge controlers





UPCODE Ltd.



Upcode Ltd Advanced Mobile Solution for eGovernance and ID-card security

UpCode is a Finnish based company headquartered in Vaasa, Finland. UpCode™ includes an optical reader that uses mobile phones/devices to add any electronic information or system to printed products and to electronic information on screens. With the application it is possible to integrate all businesses and all forms of eCommerce, with print and screen media. The code (2D data matrix, QR-code, 1D barcode or color code) or other type of tag (picture, OCR) gives mobile phone users multiple access and interaction, for an example but not only to internet content simply by pointing their phone at a code. Complete integration of localization, personalization, objects and other data.

UpCode Ltd has a complete in-house R&D of optical/NFC reading and mobile functions. Additionally they have in-house R&D of all offered information systems and are thus independent and reliable in implementations, maintenance and HelpDesk issues. The last years UpCode has developed a unique "Local expertise worldwide" concept. People from all continents has been trained in their training Centre to understand optical reading – mobile functions and information systems. They are able to provide local expertise in any language and culture. UpCode is the reliable strategic partner for professionals.

UpCode is easy and fast to integrate into already existing marketing systems and contents.

UpCode is also working on a larger concept:

Cognitive Information & Technology (CIT), where knowledge in cognitive brain functions (conscious and unconscious) is part of optimization and efficiency of the solution (typically needed in i.e. neuromarketing and one-to-one marketing).

Product Potential for Africa

Upcode product can be use in wide range of application in Africa. This includes but not limited to Logistics, asset management, anti-counterfeit, money transactions, ID-card security, eLearning, eGovernment, tourism, CRM marketing, crossmedia solutions and entertainment. Upcode solution can be use in voting process where people, diplomats or parliamentarians can vote with their mobile phone wherever they are in the world. If an African country resort to employ upcode technology in voting or in eGovernment system, it is impossible to vote twice and any attempt to do so would expose your dishonesty.

With upcode security of Universities, Professional institutions, Professional bodies who issue recognised professional certificates to their members, are assured Vehicle and Lincencing authorities, Accreditation authorities, and Passport office authorities can equally benefit from ensuring security and authentication of their products.

UpCode is easy and fast to integrate into already existing marketing systems and contents.

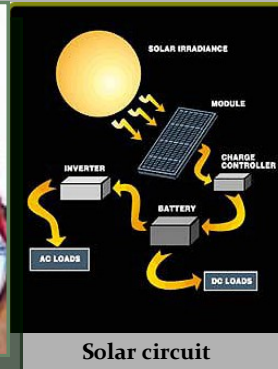
For more Information contact

UPC Consulting Ltd./UpCode Ltd.
Gerbyntie 18
65230 Vaasa, Finland
info@upcode.fi
Tel: +358 6 3218000
<http://www.upc.fi>



000432





Eric Buah, Jyväskylä University, Finland

Cleantech Education Column for African students

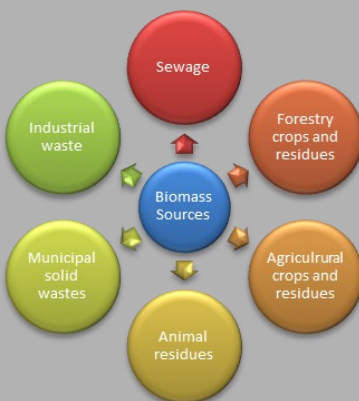
Hello My Fellow Students,

Welcome to Cleantech Education Column. This column is intended to educate African students on renewable energy and its opportunities for Africa. Today's edition will introduce you to the following topics:

- ◆ What is renewable energy?
- ◆ Why renewable energy is called clean energy?
- ◆ What are the types of renewable energy?
- ◆ What makes renewable energy the best option for Africa?

Let start by defining the terms to the basic understanding of the ordinary person.

Renewable energy is the electricity that is generated using easily available, naturally occurring fuel sources such as biomass (waste), solar, wind, tidal, wave, and hydroelectric power, that is not derived from fossil or nuclear fuel. Example of biomass sources are shown in the picture below.



Biomass sources

Why is renewable energy called clean energy?

Renewable energy is called clean energy or green energy because of how environmentally friendly it is. The reason is that, renewable energy does not produce toxins that are harmful to the environment or pollute the environment in the same manner as non-renewable energy such as fossil fuel. Because of the environmentally friendly nature of renewable energy, the world today is encouraging every country to add renewable energy into their national energy mix to provide electricity or heat to homes, restaurants, and other businesses in order to operate or function in an environmentally friendly manner.

What are the types of Renewable Energy?

The most commonly used types of renewable energy today are wind power, solar power, and hydroelectric power and biomass energy.

Wind energy is the process of converting wind to generate mechanical power or electricity. This electricity is generated by blades turning turbines which run a generator. Though not a reliable resource for every household and business, it is a viable option, depending on your location. To make wind energy easily assessable, reliable and affordable to developing nations, the recent innovation in wind energy technology is the Windbelt. The inventor of Windbelt is a 26 year old Shawn Frayne. The motive behind his invention is to provide cheap small scale wind energy to small villages in developing countries. Shawn saw the plight of developing countries and recognized that instead of kerosene lamps, white light-emitting diode (LEDs) powered by a very inexpensive wind generator might be able to get better light homes and schools.

What makes renewable energy best option for Africa?

What makes renewable energy the best option for Africa is that, the charcoal, firewood and oil used in Africa today pollute the environment. In my opinion this might also be a factor of our shorter life expectancy. Burning of charcoal and firewood emit greenhouse gases into the atmosphere. These gases cause changes in climate which affect agricultural yield and our health. But Agriculture is one important commodity in Africa. This means that low yield can lead to poverty.

In conclusion Africa has a potential for renewable energy and what is left for policy makers is to create the enabling environment and the right policies to attract developed partners. An individual too has a significant role to play. One of such roles is for the individuals to learn how to manage their household waste. When this is done and good government policies exist, Africa can realize its energy dream and achieve its Millennium Development Goal.

Credit: Atoms for Peace Energy Conference

This column is open to teachers and individuals who have interest in renewable energy education in Africa. Send your column to the Editor in Chief at ade@puv.fi



This magazine was proudly sponsored by Upcode Ltd. Leaders of digital printing & anti-counterfeit Solutions



VAASAN AMMATTIKORKEAKOULU
VASA YRKESHÖGSKOLA
UNIVERSITY OF APPLIED SCIENCES



CLEANTECH AFRICA MAGAZINE OFFICES

Head office :Vaasa University of Applied Sciences
Wolffintie 30
FIN-65200 VAASA
FINLAND

Ghana Office :
Atlas Energy Training Centre
P.O.Box GP. 3548
ACCRA-GHANA
<http://www.abesafrica.com/>