

ENERGY SAVINGS COMPANY PROFILE

# SUSTAINABLE DEVELOPMENT



[www.barcodeenergy.com](http://www.barcodeenergy.com)

# COMPANY PROFILE



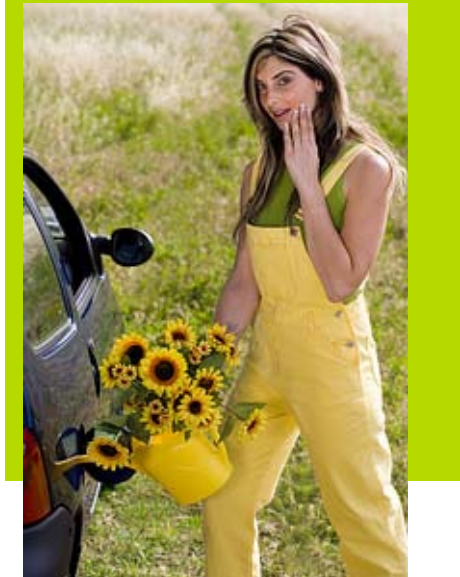
## Vision:

**B**arcode is committed to the growing concern that sustainable energy resources will be of paramount importance with the current energy resources being finite. We are investing in expert people and technology globally so that we can make a meaningful contribution to the world's sustainable energy needs.

## Why Renewable Energy ?

**W**ith this Vision in mind ,society and corporations need to look for alternative energy solutions and show a commitment to a cleaner environment. These energy solutions not only show this commitment but also contribute to the bottom line operating profits of these organisations ,when in the current economic climate all costs saving schemes are most beneficial to maintaining the competitive edge to be leaders in your market sectors.





## Our Mission Statement

Identification and Development of Products and Services that distinguish Barcode as a Premium Innovative Energy Service Provider to the Sustainable Energy Development Market through Smart Creative Business Partnerships with our Suppliers for the Cleaner World Environment .



# Sustainable Energy as a Resource in the MENA Region:

The UAE is particularly committed to this unique market of Alternative Energy Resourcing. Abu Dhabi has launched the Masdar Initiative and has invested USD\$ 22 Billion into this alternative energy resource.

And Dubai launched Green Dubai in 2008 when His Highness Shaikh Mohammad Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai made the declaration at the Green Dubai World Forum.

Many Hotel Groups and Corporations are initiating cost saving schemes which will be major contributors to reducing the Carbon Footprint of the UAE.

The proposed establishment of rebates and incentive schemes for the rapid installation of renewable energy solutions in the UAE will encourage Corporations and Developers to expedite a conscious implementation of these Alternative Energy Saving Solutions. (*Significant Cost Savings and Increased Profitability !*)

The Management Team at Barcode with our Head Office based in Dubai are perfectly positioned as leaders in the Alternative Energy Resource Contribution in the MENA Region.





## Products and Services

**RENEWABLE ENERGY** CONSULTANCY

**SOLAR POWER** - HOME OWNER

CORPORATE, **GOVERNMENT**

**WIND POWER**

ECOGREEN BUILDINGS (**HOTELS HOSPITALS**)

**ENVIRONMENTAL** INITIATIVES THROUGH EDUCATION

CURTAIN **WALLING** SYSTEMS

ENERGY EFFICIENT **LIGHTING SOLUTIONS**

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# SAVE OUR EARTH



As Global demand for energy rises at an ever increasing pace while the supply of oil and gas grows sparser, the use of alternative energy is becoming increasingly topical.

In some parts of the world, sources like water currents, geothermal resources, and nuclear energy may have already proved to be viable alternatives to conventional energy, but on a more widespread and accessible basis, their use has been limited by geographical restrictions, cost-efficiency issues and safety concerns.

Among the wide array of some of these rather costly alternatives, there are two types of renewable energy resources that stand out as plentiful, widely accessible, safe, environmentally clean, and most importantly -affordable: solar energy and wind power and we at Barcode offer these Products.





## **Solar Power** **(Stand Alone -Residential/Commercial)**

**S**imilar technology is already being used for water heating, street and billboards lighting reaping the benefits of cost saving without compromising on quality. With the available technology, installing just one modern solar cell can satisfy energy needs of an entire household making you forget about costly electricity bills.

**I**n some countries, including Spain, the installation costs can be easily recovered by selling surplus electricity to the State. And no less important, it will significantly reduce your carbon print and make your household greener and environmentally friendlier.

**V**acuum tube solar heaters :are becoming increasingly popular as they represent the most efficient, reliable and cost effective solution available today for heating water for both commercial and household use.



The newest type of panel is based on amorphous-silicon. The production methods are quite different -instead of growing crystals, the silicon is deposited in a very thin layer. While they are cheaper to produce, the disadvantage of amorphous panels is that they are not as efficient per unit area as monocrystalline panels (5-6%) and their life span is shorter.

With the expansion of the solar energy market, our company is committed to quality, reliability and total customer satisfaction. Our extensive hands on experience in real world applications allows us to create scalable and cost effective energy solution- and makes us one of the leading companies on the market. Our professionally trained staff provide customized and integrated solutions for your energy needs using top of the line products of different specifications. Currently, we offer you monocrystal-line based modules ranging from 10W to 210W

### **The systems can be installed in various modes:**

Grid-connected (combined with the existing power grid)

Off-Grid Stand Alone Systems (autonomous system, usually used where there is no existing grid)

Backup



# Vacuum Solar Collector

**V**acuum solar collectors system is an advanced method used to heat water using solar energy. Heated water can be than used for central heating, hot water supply and swimming pools.

**T**he system consists of a row of specially designed solar tubes that are paired and fused together in the same way as in a glass lined thermos flask whereby the space between the two glass layers forms a vacuum. Vacuum makes for a great heat insulator so that when the tubes absorb the heat from the sun, it helps to keep it inside. In addition, due to the cylindrical absorber area, which passively tracks the sun throughout the day, this type of collectors have a stable solar conversion, making them perform considerably better than conventional flat plate type collectors in cold and cloudy conditions, because of their unique shape, vacuum tube collectors attract sunlight even from the most difficult angles and as a result produce almost twice as much heat per square meter of absorption area as flat-plate collectors. There are several types of solar tubes in use in the solar industry: We Offer All



# The Solar Photovoltaic System

The Solar photovoltaic system consists of solar panels installed on your rooftop, charging controller, battery pack and an inverter. The panels catch the solar energy the required amount of which is fed by the charging controller into the battery pack where the energy is stored, while the inverter takes and converts low voltage power (DC) from the battery into higher voltage (AC) suitable for household use.

The type of solar panels largely determines the output of your system. There are three main types of solar panels in commercial production, all three are based on silicon semiconductors -the difference is the form that the silicon is in.

Monocrystalline solar cells are made from thin wafers of silicon, sliced from large crystals that have been grown under carefully controlled conditions. Relative to the other types they have higher efficiency (around 15-18%) as well as longer life span.

Silicon wafers can be also produced in polycrystalline form. In this form a number of interlocking silicon crystals grow together and the production conditions can be less tightly controlled. Panels based on these cells are cheaper per unit area than monocrystalline panels -but they are also less efficient at 10-12% output.



# Autonomous Photovoltaic Systems

Stand alone or autonomous photovoltaic systems are not connected to an electric utility. Such systems are usually used in places where no conventional power lines are found. Being entirely autonomous, they install easily for all types of standard or remote power needs and use a rechargeable battery backup for uninterrupted power supply. Depending on its size, one system can provide enough power for basic household appliances, lighting, refrigerator, and even a water pump. A basic stand alone system consists of solar panels and their supporting structures, a battery bank, an inverter, a charge controller that manages battery charging, and a generator.

1. Photovoltaic solar modules
2. Charge controller
3. Rechargeable battery
4. Electrical load



# Grid connected Photovoltaic Systems

**W**here conventional utility power is available, consumers can benefit from a grid-connected photovoltaic system for a fair share of the required power supply. Using grid-connected photovoltaic power can have economic as well as environmental advantages. Such systems usually contain one or more photovoltaic panels; supporting structure and an inverter that converts the DC power from the panels into AC power suitable for your appliances.

1. Photovoltaic solar modules
2. Inverter
3. Public electricity grid
4. Electrical load



# Backup Photovoltaic Systems

Backup systems are used where utility supply is unstable, during power shortages and blackouts. Depending on its size, one backup system can provide a reliable backup for your basic household appliances, communication devices, computers, lighting, refrigerators. The more unstable your conventional grid, the more powerful solar backup is required.

1. Photovoltaic solar modules
2. Inverter
3. Rechargeable battery
4. Public electricity grid
5. Electrical load



## Sun Tracker

It can be installed with all types of photovoltaic systems.

1. Photovoltaic solar modules
2. Inverter
3. Public electricity grid
4. Electrical load
5. Sun tracker





Every day, enough solar energy reaches the earth to supply its energy needs for a whole year. With the invent of a solar cell, capturing sunlight and putting it to work became economically feasible for businesses and households alike. First tested in space, solar cells have proved to be extremely efficient method to generate power at no extra cost while incurring almost zero maintenance.

Once installed, the Sun really does the rest. And despite the common misconception, constant exposure to the Sun is not required either; modern technologies allow collection and storage of solar energy by only a limited exposure to the Sun hence producing electricity even during cloudy weather and at night.





## Wind Powered Energy (Commercial & Residential)

Power generated by wind turbines can be a cost-saving alternative for homes and businesses. A wind turbine has to be installed either on a roof of a high rising building or at a windy and relatively open space, of which the MENA Region has plenty, especially given its proximity to the sea.

To generate enough power, only a slight breeze would suffice, and with basic maintenance, a small wind turbine can serve for many years and produce abundant, free and environmentally friendly energy.



Until recently, the above technologies were largely inaccessible to consumers. Today, not only are they available, but also becoming increasingly affordable. Our company provides full assessment of your energy needs and offers you top-of-the-range solar and wind products, individually suited for your demands with full installation and maintenance.

Wind power is the conversion of wind energy into a useful form, such as electricity, using wind turbines. Wind energy has historically been used directly to propel sailing ships, pump water or grind grain.

While the main application of wind power today is the generation of electricity, its operating principles remained the same throughout the centuries -the kinetic energy in wind powers a rotating mechanism in a wind turbine which converts it into mechanical energy.

### Wind turbines can be installed.

**On land** (onshore wind farms) where they take up negligible areas of land therefore causing no real damage to land use.

**Over open water** (offshore wind farms), usually in stormy areas with extended shallow continental shelves where they benefit from considerably higher average wind speeds.





**On land wind turbines come in different sizes: industrial turbines and small wind turbines.**

**Industrial turbines** are connected to the existing power grid.

**Small wind turbines** for private homes, farms, remote rural areas and light Commercial/Industrial Facilities.

Our wind generators are equipped with latest technological

Our wind generators are equipped with latest technological advancements that allow maximum efficiency and safety.

**Blade angle controller.**

\* Anemometer and rotation speed controller (for optimal rotation rate depending on the speed of the wind).

\* Electronic wind direction indicator.

\* On board computer.

For protection, all electronic parts are enclosed within a metal Housing.

**Wind turbines can produce power from winds as light as 2.5 m/sec for small wind systems, and 5 m/sec. for industrial generators. During strong winds, generators automatically switch off when winds reach 25 m/sec and can sustain winds as strong as 50 m/sec.**



**W**ind farms require very little maintenance -twice a year for an exploitation period of at least 20 years

**T**he investment cost per kW of an industrial wind farm averages around €2,000 per kW installed, whereas wind-generated electricity cost as little as 3.5-4.0 eurocents per kW/h.

*Smaller wind systems that supply enough energy for a single family home, a farm, or a small business will vary much more and can range anywhere from €3,000 to €6,000 per kW, depending upon the generator chosen, the type of tower and other components in your system such as batteries for storage of energy and power electronic converters and controllers. Despite the initial investment, wind generators incur almost zero maintenance cost and are very efficient/ especially in remote locations, where hybrid systems that include solar panels and a wind generator are used to ensure a "round-the-clock" electricity supply.*



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