



Green energy is energy, which comes from **renewable** resources including solar, wind, water and bio-energy. Buying green energy is a good way of helping to fight climate change. What's more, the more renewable energy we use the cheaper it will become. The Green Energy Outlook 2001 report by Reuters Business Insight, forecasts a green certificate market of over 20 to 30 billion Euros in 2010, largely driven by environmental policy and the increasing viability of green technologies.

Renewable resources clean and don't pollute the atmosphere. Unlike nuclear energy, they are safe and won't run out as will oil, gas and coal. Renewable resources present a vast resource, which remains largely untapped. Conventional energy supply systems use fossil energy to heat and cool, yet alternative sources of heat and cold to supply the demand for energy, are in natural abundance around us.

The sun is an inexhaustible source of energy. Passive solar energy for instance is captured when constructional measures use sunlight for heating rooms, whilst active solar energy (photovoltaic power -PV) converts sunlight into electricity. Solar heaters convert sunlight into heat in order to warm water and room temperature (thermal solar energy).

Wind energy is the fastest growing source of energy in the world and can contribute substantially to the worldwide goals for carbon-dioxide emission reduction. Worldwide there is enough potential for wind farms to generate more than twice the forecasted energy demand in 2020. Parallel to the fast growth of wind energy production, technological developments, such as small-scale urban wind turbines are emerging.

Bio-energy is a cost-effective renewable energy source with a large economic potential, producing various energy carriers, such as electricity, heat, and liquid and gaseous fuels. Bio-energy is a carbon dioxide-neutral energy source since the amount of carbon dioxide that is captured during the growth of biomass is equal to the emission of carbon dioxide during the conversion process. Bio-energy can be produced with specially grown crops, but in the short term, organic residues (those of forestry, agriculture and the food industry) are the most cost-effective biomass sources.

Hydrogen is expected to be one of the most significant energy carriers to store and distribute renewable energy to end-users. Closely related to this topic is the development of fuel cell technology, which is used to convert hydrogen to electricity. These developments force manufacturing companies, the automotive industry, energy companies and authorities to review and adjust their policies and strategies with regards to a sustainable energy supply. Fuels cells convert hydrogen into electricity, without harmful emissions, without any noise and more efficiently compared to conventional conversion methods. A big advantage of hydrogen as an energy carrier is that it can be obtained both from fossil and renewable energy sources. Hydrogen as a secondary energy source therefore results in a high security of supply. A good

example of the hydrogen economy is the 'Formula Zero' concept which is developing an alternative to Formula 1 racing, involving fuel cell powered racing without any harmful emissions.

Most of the earth's surface is covered by water. There are several forms of harnessing energy from water, such as hydropower, wave energy, tidal energy and osmosis energy.

Locally, the Gaia foundation, set up in 1994 to protect Malta's environment and promote sustainable living, is working on endorsing renewable energy technologies. The foundation which has its own waste separating programme, runs an organic farm, indigenous nursery and tree-planting and coastal management projects, plans to run its own headquarters situated at the Elysium Nursery at Ghajn Tuffieha on [renewable energy](#), thus providing members of the public with a working model, giving them a practical and workable option for their own needs. Project Helios takes its name from Greek Mythology reflecting the essence of its outreach. *Helios* in Greek myth is the personification of the sun, which gives light and energy. Some of the most serious environmental problems, such as global warming and air pollution, are due to the burning of fossil fuels like oil and gas to provide for our energy needs.

"It is very strange how in Malta, people are still very much in the dark about how feasible some renewable energy technologies really are," says Dr Rudolf Ragonesi, director and the driving force behind Gaia. " They haven't cottoned onto the idea of solar energy for example, unlike other Mediterranean countries such as Israel, Cyprus and Greece where solar water heating is widespread. Water heating is one of the main guzzlers and solar water heating greatly reduces heating bills. Young couples should include solar heating in their budget before moving into a new home. In the long term they will surely get their money back", Rudolf attests.

The Bajada group of companies are committed to increasing awareness about solar energy in Malta and import solar water heaters, solar pool heaters, solar air conditioning, wind turbines and solar photovoltaic electricity, with a view to manufacturing them in the near future. Solar water heater systems don't use a normal water heating element but rely on solar panels to heat up water. Stainless steel heaters such as the 316L type marine grade are suitable for use in Malta due to the build up of scale and rust resulting from our hard water. The advantages of using solar energy are many. Solar water heaters can withstand high pressures and waterpumps, contain large volumes of water, are long lasting and are assembled in a centralized system on rooftops. Besides saving up to Lm 150 annually on your water and electricity bills, Enemalta waves the Lm 70 application fee for electricity metres on new 1-phase services installations and since January of this year the Department of Finance is offering a Lm 50 credit on people who install water heaters in their house. "How's that for encouragement!" says Roderck Farrugia of the Bajada group.

All of the Gaia foundation vehicles and power tools work on biodiesel.

Malta's accession to the European Union requires the nation to replace 2% of its fossil diesel fuel with some type of biofuel. Furthermore, with several hundred restaurants and hotels that serve a burgeoning tourist industry, Malta needs a viable solution to the frequent practice of throwing waste oils and grease down drains or into the landfill. Currently, one company, Edible Oil Refining Company Ltd. is Malta's sole producer of biodiesel, a cleaner burning diesel fuel that contains no petroleum. However, it can be blended with any quantity of petroleum diesel (fossil diesel). It is renewable, biodegradable, non-toxic, and essentially free of sulfur and aromatic compounds. Moreover, biodiesel often can be used in compression ignition (diesel) engines with no major modifications to the engine.

Biodiesel is produced from vegetable oils, animal fats, or recycled cooking oil. By reducing the amount of carbon dioxide by 78% and methane by 3%, the use of biodiesel as opposed to fossil diesel creates fewer greenhouse gas emissions, thereby reducing the greenhouse effect. Due to

the use of waste vegetable oil as a fuel source, the carbon released when burning the fuel is “recent carbon” as opposed to ancient fossil carbon. The CO₂ released by burning the fuel is reabsorbed by the plants for use in photosynthesis and growth. Biodiesel’s virtual elimination of sulfur oxides in combustion also decreases the likelihood of acid rain, erosion, and respiratory problems. According to the National Biodiesel Board, the “ozone forming potential of the speciated hydrocarbon emissions was 67% less than that measured for diesel fuel.” This signifies that the overall ozone-forming potential (smog) of biodiesel is notably less than that of fossil diesel fuel helping to alleviate the suffering of asthmatics and people with allergies is return reducing costs to the medical infrastructure.

For those who wish to learn more about solar energy and the benefits of bio-diesel, this June the Gaia Foundation will be launching Gaiafest, a celebration of holistic living at the Elysium centre in Ghajn Tuffieha. Besides outdoor activities including live dance and music, stalls selling organic food, fair-trade goods, natural products and services, several workshops and talks are planned in the centre’s conference hall which seats up to 70 persons. The topics cover diverse themes such as: complementary therapies, creativity, psychotherapy, ecology, philanthropy, nutrition and diet, feng-shui, martial arts, animal welfare, the environment and respect for life.

“The festival,” Rudolph says is about becoming aware of how our bodies, the products we buy and use, our collective inner journeying, and the environment we live in are interrelated, about living lives which are not disjointed, fostering greater

respect for natural well-being, natural resources, and all life-forms.”

Green-energy tips:

Save energy and save your pocket by adopting these energy efficient measures in your household:

- Restricted Flow Taps: A simple and inexpensive aerator tap or shower head can reduce water use by more than 60 per cent.
- Skylights: A properly designed skylight reduces the need for artificial light and saves on lighting costs.
- Energy-efficient Appliances: Energy-efficient dishwashers, washers and dryers, refrigerators and freezers can cut energy consumption by at least 15 per cent. Some models can reduce energy use by nearly 50 per cent. Replace and recycle your old refrigerator and air-conditioner and purchase energy-efficient models. Units only 10 years can use twice as much as electricity as a new ENERGY STAR® labelled model
- Use compact fluorescent lamps. You can lower your lighting bill by converting to energy-efficient low-wattage compact fluorescent lighting and fixtures.
- Install shades, awnings or sunscreens on windows facing south and/or west to block summer light. In winter, open shades on sunny days to help warm rooms.
- Turn off lights when you leave the room
- Caulk windows, doors and anywhere air leaks in or out. Do not caulk around water heater and furnace exhaust pipes.

- Weatherstrip around windows and door.
- Wrap heating and cooling ducts with duct wrap, or use mastic sealant.

- Clean or replace furnace and air-conditioner filters regularly, following manufacturer’s instructions.

- Use a plug in the sink
- Always wash a full load in your washing machine and use the low temperature programme, bearing in mind that modern washing powders will be just as effective at lower temperatures

- Wring out or spin-drying really wet clothes before putting them into a tumble dryer
- Don't leave your T.V, video or cordless phones on standby
- Set the water heater thermostat at 140 degrees or "normal." If you have a dishwasher. Otherwise, set it at 120 degrees or "low." Check your dishwasher to see if you can use 120-degree water. Follow the manufacturer's direction on yearly maintenance to extend the life of your unit.
- Fix defective plumbing or dripping taps. A single dripping hot water tap can waste 212 gallons of water a month. That not only increases water bills, but also increases the gas or electric bill for heating the water.
- Wash only full loads in a dishwasher and use the shortest cycle that will get your dishes clean. If operating instructions allow, turn off the dishwasher before the drying cycle, open the door and let the dishes dry naturally.
- Defrost refrigerators and freezers before ice build-up becomes 1/4-inch thick.
- Don't overfill your kettle before you boil it

Gaiafest will be held on the long weekend in June, from Friday the 3rd to Tuesday the 7th, which is a public holiday. Doors open at 18.00hrs. Entrance fee 75c. For those wishing to take part in this festival or for a comprehensive programme of events please contact the Gaia foundation at admin@projectgaia.org Tel: 21584473/4, website:www.projectgaia.org.