

CREDP-GIZ promotes only “off-the-shelf” technologies for the Caribbean market. Prototype technologies require additional funding and expose the the economy of Caribbean developing island states at the same time to additional risk. Off-the-shelf technologies provide a high degree of technical and economic security through their tested technologies that give financing institutes confidence in providing the required loans.

CREDP-GIZ promotes the following Renewable Energy Technologies:

Wind Power

Wind Power is the conversion of the energy stored in wind into electrical energy by means of wind energy converters that are called wind turbines.

All Eastern Caribbean Islands and most other Caribbean countries have significant wind power potential. The Lesser Antilles are commonly called the “Windward Islands” which implies a significant wind potential. For example, measurements on the east coast of St. Lucia have shown an annual average wind speed of more than 7.5 m/s (measured in 10 m height over ground), St. Vincent has revealed a wind speed of more than 8.0 m/s (in 10 m over ground) on its east cost. For comparison, in Germany a wind power site becomes economically interesting at an average annual wind speed of some 5.5 to 6.0 m/s.

For more information: http://en.wikipedia.org/wiki/Wind_power (External Link)

Hydro Power

Hydro Power uses the energy stored in water to generate electricity or move devices such as mill stones directly. This more than thousand year old technology experienced a renaissance with the invention of modern hydro turbines around 1850. Ever since hydro power is known to be the most efficient, flexible and reliable form of renewable energy. In the Caribbean several countries already generate electricity with hydro power plants, such as Dominica, St. Vincent and the Grenadines, Jamaica, Suriname and others. The potential for hydro power varies from country to country depending on their topography and hydrology. Identification of hydro power potential is one of the tasks of CREDP.

For more information: <http://en.wikipedia.org/wiki/Hydropower> (External Link)

Solar Power – Photovoltaic

Photovoltaic cells generate an electric current through direct conversion of sun energy. They are made of silicium, a material that is obtained from ordinary quartz sand and thus is available in big quantities. Photovoltaic (PV) systems have the huge benefit not to use movable parts that need maintenance and potentially could fail. Prices of PV systems have significantly come down in the last couple of years which made photovoltaic a viable option for electricity generation with renewable energy. The Caribbean has huge solar potentials that literally only wait to be harvested.

For more information: <http://en.wikipedia.org/wiki/Photovoltaic> (External Link)

Solar Power – Solar Water Heater

Most of all used in Barbados but also in other Caribbean countries, Solar Water Heaters (SWH) use the sun energy to heat water instead of using electrical energy or fossil fuels. Most popular are the simple but efficient thermosiphon systems that have their water tank above the solar collector. Due to aesthetic reasons more and more active systems are being employed where the tank is covered under the roof and a small photovoltaic cell delivers the power to run a circulation pump. Due to the proximity to the equator the potential for SWH in the Caribbean is very extensive. Many home owners include SWH already in their building design when planning the property.

For more information: http://en.wikipedia.org/wiki/Solar_water_heating (External Link)

Solar Power – Solar Cooling

Solar cooling uses the sun's energy to power air conditioning systems, process cooling systems and even industrial freezers. Recent development produced technologies such as desiccant cooling with Silica Gel or Zeolite, photovoltaic powered conventional air condition systems, adsorption and absorption systems and others. The most obvious advantage of solar cooling is that the biggest need for cooling occurs when the sun supplies the most energy. Solar cooling systems are already successfully installed in Singapore, China, USA and other places in the world.

For more information: http://en.wikipedia.org/wiki/Solar_cooling (External Link)

Biofuels

Biofuels are solid, liquid or gasified fuels derived from any kind of biomass. The most known biofuels are wood, wood pellets, charcoal, bioethanol, bio diesel and bio gas. Although most Caribbean islands have a lush green vegetation each biofuel plant needs to prove its viability. Realized projects use bergasse from sugarcane, animal waste and other organic matters to produce bio gas and bio ethanol. Recent development uses also algae for biofuel production. The implementation of biofuel projects needs to be done carefully in order not to create competition with food production.

For more information: <http://en.wikipedia.org/wiki/Biofuel> (External Link)

Geothermal Power

Geothermal power is generated by radioactive decay of minerals in the inner of the earth. The decay process is heavily exothermic and energy is released in the form of heat which, once transported to the surface, can be used to generate electricity or to supply heat for other applications. Most eastern and northern Caribbean islands are located along a tectonic fault zone between the Caribbean plate and the North American plate. Consequently many islands have volcanic activities (such as fumaroles in St. Vincent, St. Lucia and Dominica, amongst others) and even active volcanoes (e.g. in Monserrat). The conclusion is obvious that these islands have geothermal potential and many islands such as Nevis, Dominica, Guadeloupe, St. Vincent etc. are keen on

exploring their geothermal resources.

For more information: http://en.wikipedia.org/wiki/Geothermal_power (External Link)