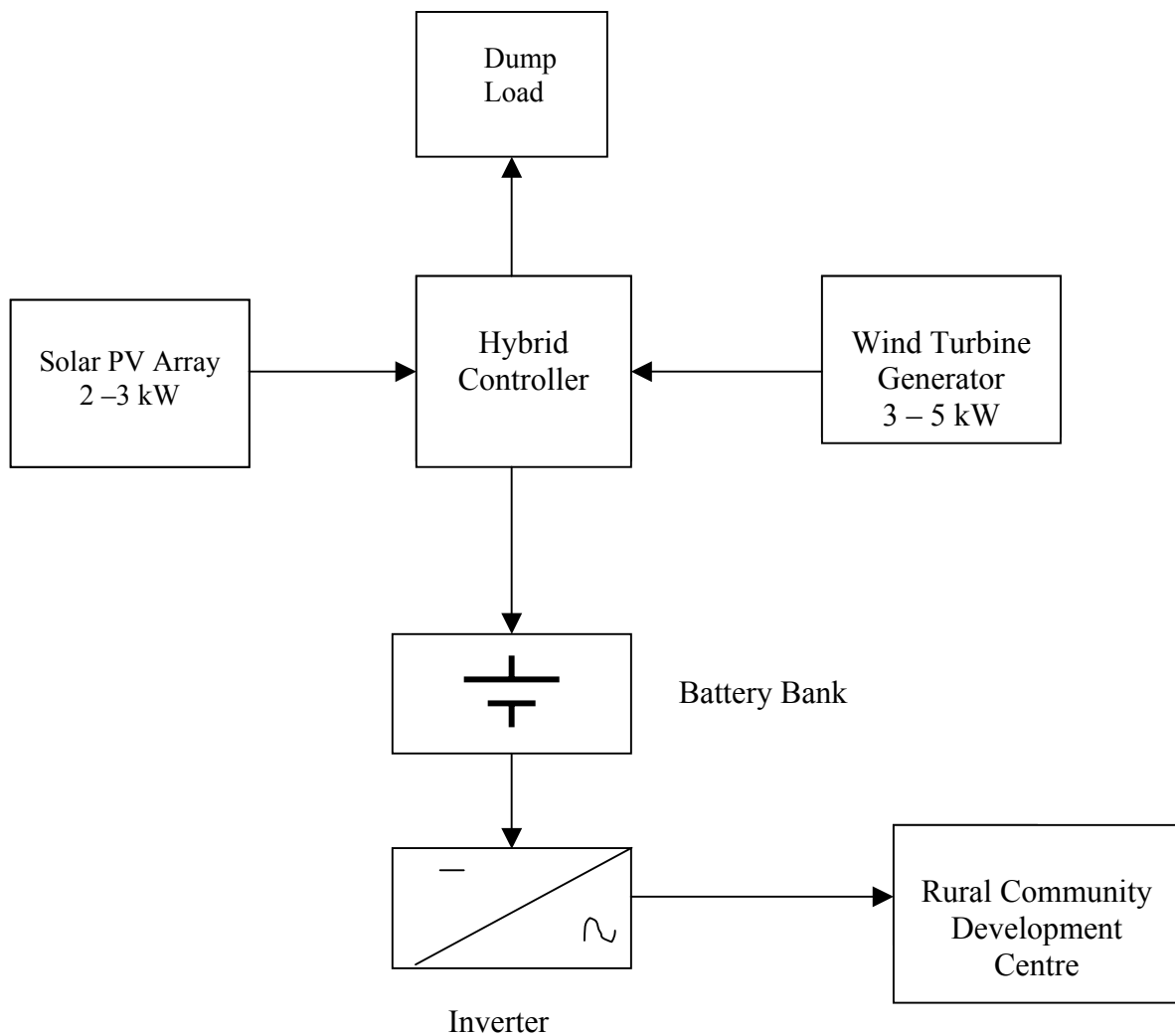


Annex 1.
Schema and Specifications (Part I & II) for Project in
Maldives

Part I - Solar PV-Wind Hybrid Power Generation System
to power rural community development centres for two
remote island atolls of Maldives



Working Procedure

During day time, DC Power generated by the Solar PV array is stored in the Battery Bank through a Hybrid Controller, which maximizes charging current and prevents excessive discharge/overcharge. Wind turbine generator starts generating power when wind speed exceeds cut-in speed of the Mini Wind Turbine (above 2.7 m/s). Output from the Wind Battery Charger is also stored in the Battery Bank through Hybrid Controller. During windy periods excess energy generated by the Wind Battery Charger is dissipated through a progressive heater (Dump Load). The wind turbine is

self-regulated type with protection for Overspeed. Energy stored in the battery is drawn by electricals loads through the inverter, which converts DC power into AC power. The inverter has in-built protection for Short-Circuit, Reverse Polarity, Low Battery Voltage and Over Load. The Battery Bank is designed to feed the loads up to two days, during Non-Sun/Wind days.

SOLAR PV - WIND HYBRID POWER SPECIFICATIONS of 5 –10 kW

1)	PV Array Power =	2100 to 3600 watts
2)	Micro Wind turbine/generator =	3.5 to 6.5 kW
3)	System Voltage =	48
4)	Battery Bank Capacity, Ah(@C10)	Industry Standard
5)	Solar PV Module, Model –	Industry standard
6)	No.of Solar PV Modules	Industry standard
7)	Inverter Rating (VA)	5000
8)	Output AC Wave form	Sine-wave
9)	Output AC Voltage (Vnom), +/-10% =	230 V/AC
10)	Output AC Frequency, Hertz, +/-0.5 % =	50 Hz.

Additional specs for lamination and mounting of solar panels.

Single crystalline solar cells, which is the industry standard. Solar cells to be laminated between high transmittivity, impact-resistant glass using ultra violet resistant polymer to provide environmental protection, reliability and ruggedness. Anodized aluminium frame to facilitate mounting and installation.

Part II - Solar Energy Based Solar Stills for Water Purification of Brackish or Sea water for two remote island atolls of Maldives

Specifications for Solar Still based on the UNDP/GEF project “Solar Powered Water Desalination” in Mauritius.

Standard dimensions : 1 metre x 1 metre per still.

Brackish Water Container Basin : Fibre Glass (Fibre reinforced plastic) or ABS (acrylonitrile butadiene styrene which is a lamination of cross-linked vinyl).

Bottom of the basin painted black to absorb sun's heat.

Top of basin is covered to be covered with 6mm glass.

Positioning of glass – tilted at an angle to allow maximum transmission of solar radiation and enable condensed vapor to trickle down into troughs.

Channels inside basins for facilitating water flow.

Basin to be made airtight when glass placed on top of the basin.

Entire assembly to be placed on a stand structure made up of MS. angles.

Pure water outlet to be connected to a storage container through a pipe.

Provision to be made for changing water in the stills.

Air tight window to be provided in the basin to clean the still basin from inside without removing glass

Output requirements: 10 - 20 litres of pure water per still per day.

Can be locally fabricated at about \$250 - \$300 per still. Commercial suppliers of solar stills are available.

Solar Stills for Water Purification of Brackish or Sea water

