SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

Accredited by NBA-AICTE and Accredited by NAAC – UGC with A+ Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME: 19EEO305 /Renewable Energy Generation Technology

III YEAR / VI SEMESTER

UNIT 2- SOLAR ENERGY

Topic 5 – Solar pumping

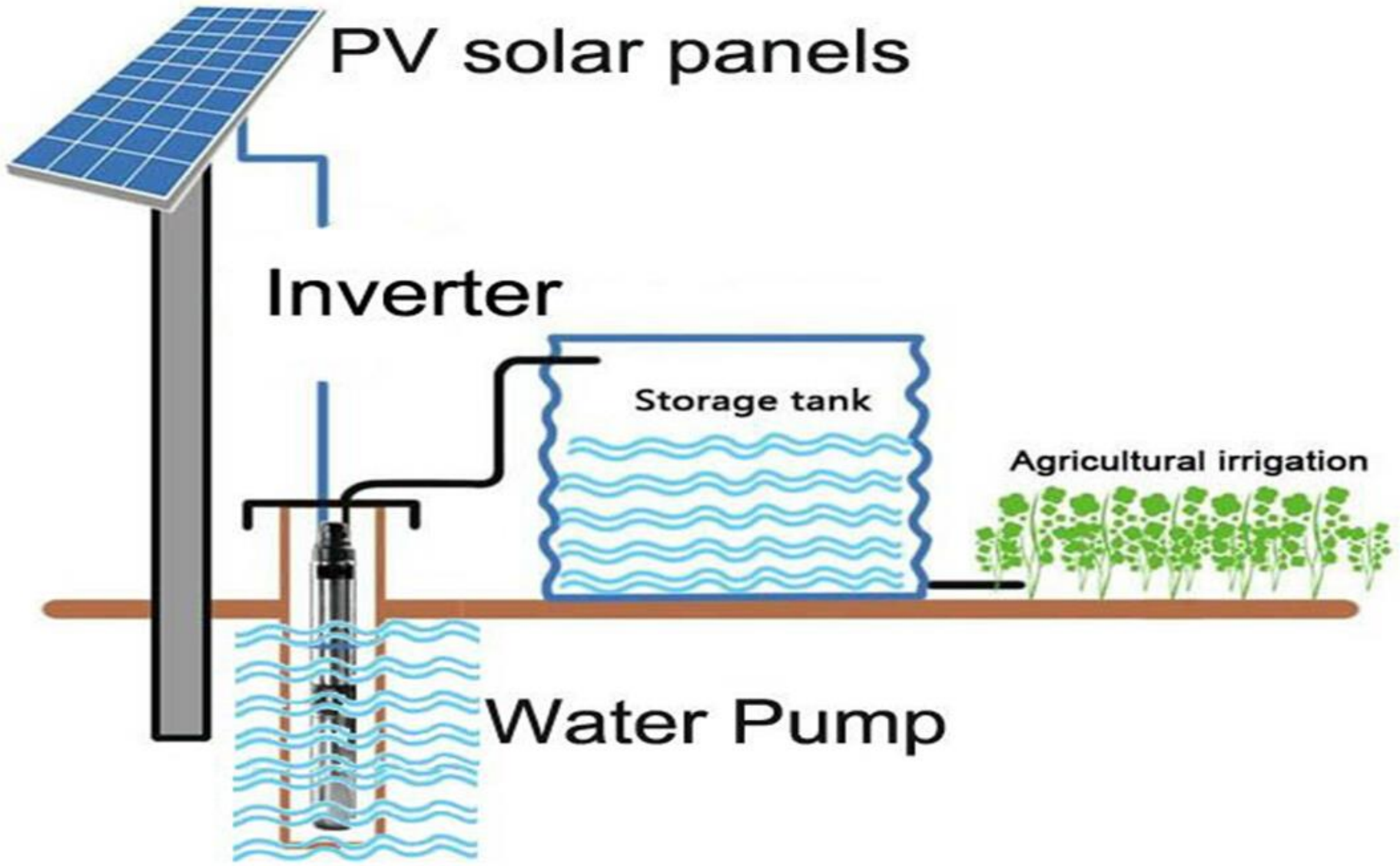
SUCCESSFUL STUDENT

Positive Attitude

Professionally Groomed

Socially Interactive

Technically Skillful


PV solar panels
Inverter
Storage tank
Agricultural irrigation
Water Pump

Introduction to Solar Water Pumping

- *Solar Basics:*

A solar powered water pumping system is made up of two components,

1)Solar panels:

-Photovoltaic module

2)Pumps:

-Centrifugal

-Submersible

Solar module

- The power supply consists of PV panels,
  -PV panel produce Direct Current(DC) and are made up of many cells wired in series.

Fig1.Solar panel

- The smallest element of a PV panel is the solar cell.
  -Each solar cell has two or more specially prepared layers of semiconductors material that produce DC electricity when exposed to light.

Fig2.Solar cell

- One or more solar panels installed together is called a solar array.

Fig3.Solar array

Series and Parallel configuration

- *Individual PV panels can be wired in series or parallel to obtain the required voltage or current needed to run the pump.*

- *The voltage and current output from panels wired in parallel is the exact opposite of series wired panels.*

- *Panels wired in parallel, the current (amps) output is the sum of all the currents (amps) from the panels and the voltage is equal to the voltage output from an individual panel.*

Types of Solar Powered Water Pumping System

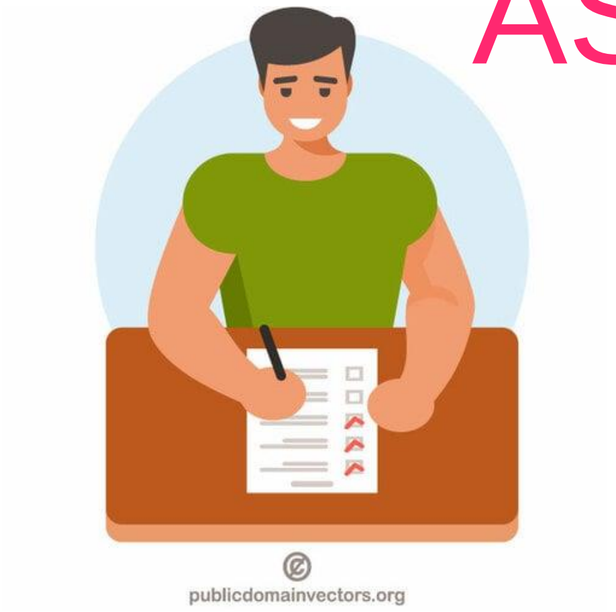
- *There are two basic types of solar powered water pumping systems,*

  1)Battery based

  2)Solar direct

- *A variety of factors must be considered in determining the optimum system for a particular application.*

ASSESSMENT



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2. G.N. Tiwari, ‘Solar Energy – Fundamentals Design, Modelling and applications’, Narosa Publishing House, New Delhi, 2002. (UNIT II)

3. S.M. Muyeen,” Wind Energy Conversion Systems: Technology and Trends”, Springer 2012. [UNIT III]

Text Book:

1. G.D. Rai, ‘Non Conventional Energy Sources’, Khanna Publishers, New Delhi, 2006. (UNIT I - V)

2. D.P.Kothari, K.C.Singal and Rakesh Ranjan,”Renewable energy sources and Emerging Technologies”, PHI Pvt. Ltd., 2009. (UNIT I-V)

THANK YOU!!