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Solar Energy

How does it work?

Passive solar heating system:

* Absorbs and stores heat from sun directly in insulated structure
* Doesn’t need pumps or fans to distribute heat
* Releases through say and night

Active solar heating system:

* Absorbs energy from sun by pumping heat-absorbant fluid through collectors on roofs
* Can be used directly
* The rest of it is stored in a container filled with gravel, water, clay, or chemicals
* Heat stored in container can be released when needed

Statistics:

* Households in countries like Japan, Austria, Germany, Greece, etc.
* Solar cells helps developing countries provide electricity
* Electricity from solar cells in China provide electricity for 29,000 rural cities
* Less than 0.2% of the worlds energy is solar energy now
* Predicted that by 2040 it will go up to about 16%

Advantages: Solar Cells:

* Works on cloudy days
* Quick installation
* Easily moved
* Low CO2 emissions
* Low environmental impact
* Low land use
* Lasts 20-40 years
* Reduces need for fossil fuels

Disadvantages: Solar Cells:

* Needs access to sun
* Low efficiency
* Need electricity backup
* High cost
* Could disrupt desert areas (power plants)

Advantages: Solar energy for high temperature, heat, and electricity:

* Moderate net energy
* Moderate environmental impact
* No CO2 emissions
* Fast construction
* Costs reduced with natural gas backup

Disadvantages: Solar energy for high temperature, heat, and electricity:

* Low Efficiency
* High costs
* Needs backup system
* Needs access to sun most of the time
* May disturb desert areas

Advantages: Passive/Active Solar heating:

* Energy is free
* Quick installation
* No CO2 emissions
* Very low air and water pollution
* Low land disturbance
* Passive has moderate cost

Disadvantages: Passive/Active Solar heating:

* Needs access to sun 60% of the time
* Sun can be blocked
* High cost for active
* Need heat storage system
* Active needs maintenance and repair
* Active collector is unattractive