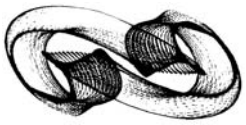

Alternative Energy Systems

Topics for Sustainable Energy Conference

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[The following are my lecture notes for hosting a 3-day seminar on the wide range of Alternative Energy Systems that are available today, which can be combined into larger, integrated systems that can easily surpass the energy-density and convenience of Crude Oil.]

Peak Oil Commentary

-Plastics
-E-Waste; Disposable Consumer Electronics
-Military Usage

Nuclear Commentary

-Hidden Inefficiencies for Just Boiling Water
-Limited Lifetime for a Never-Ending Source
-Clean-Up & Maintenance Costs
-Transportation Costs
-Storage Costs; Yucca Mtn.
-Public Health Hazards
-Public Stigmas; "Not-in-my-backyard!"

Discussion on each Alternative Technology Base will include these aspects:
-Visibility vs. Popularity
-Drawbacks
-Hidden Advantages
-Large Scale Infrastructure vs. Home-Based Systems
-Relative Infrastructure Replacement Costs

Weather Based Systems

1.) Solar
-Passive
-Active
-Solar Cells vs. Mirrors

2.) Wind:
-Driven Prop vs. Driving Prop Designs; Aurica Labs
-Wind Speed Curves; 2 to 20 mph vs. 25 to 50 mph
-Vertical Axis Increases Efficiency and Reliability

3.) Hydro-Systems:
-Rain Run-off Systems
-High Pressure Turbines

-High Volume Water Wheels
-Tidal and Wave Systems

Natural/Renewable Fuels

4.) Bio-Fuels:
-Ethanol from Grains, Revive Small Farms
-Methanol from Saw Mill & Paper Wastes
-Methane from Feed Yards and Sewage Treatment
-Grain/Nut/Legume Oils and Plastics
-Dispose Genetically Modified Grains; Aurica Labs

5.) Hydrogen Fuel Cells:
-Solar H Generation;
-Break-Even Energy Curves
-6000psi Hydraulic Connectors

5.a) Rare-Earth Recovery Systems; Aurica Labs
-Recovery Rare-Earth Elements from E-wastes
-H from Post-Consumer Plastics
-O2 from CO2 & Toxics Wastes
-Carbon for water filters, tires, composites, diamond abrasives, graphene, etc
-Rare Earth Elements sold back to Semi-Conductor Manufacturing

6.) Thermal Systems:
-Thermopiles
-Peltier Stacks; Recover Waste Heat from Power Plants & Foundries; Aurica Labs
-Ground Sourcing
-Geo-Solar, Passive
-Hydro-Solar, Oceanic

7.) Steam Turbines:
-Solar Mirrors
-Porous, High Pressure Fuel Cells; Aurica Labs
-Geo-Thermal Drilling; Aurica Labs

8.) Storage
-Thermal/Solar
-Chemical/Batteries
-Momentum/Flywheel
-Potential/Height

9.) Conclusions
-Integration of Multiple Systems matches the "Convenience-Density" of Oil
-Large Scale Infrastructures vs. Home-Based Retro-Kits
-Government Support, Tax Incentives, Subsidies
-Industry Support, Invest in New Infrastructure, Manufacture Home-Based Systems

