

DECISION-MAKING MATRIX							
OPTIONS	RELEVANT CONSEQUENCES						
	ABUNDANCE/ RENEWABILITY	ACCESSIBILITY	COST OF PRODUCTION	COST TO CONSUMERS	SAFETY	ENVIRONMENTAL IMPACT	EASE OF CONVERSION
NUCLEAR	Uranium in U.S. reserves will power existing reactors only 30 years, but breeder reactors produce more fuel than they use and can meet increased future demands. * +	One-fourth of world's uranium is in the United States in 300 mines. If demand increases, mining would remain a practical process. +	One pound of uranium fuel has 3 million times the energy of one pound of coal; refining uranium is very expensive, but smoothly running plants produce cheap energy. Future plants are likely to be more efficient. +	Energy produced from existing nuclear power plants is readily available, abundant, and affordable. Nuclear power plants can be built almost anywhere. * +	Radioactive material is extremely dangerous. At Three Mile Island and Chernobyl, serious accidents have occurred. More reactors mean more risk. -	Safe and long-term disposal of used reactor fuel is a big problem. Leaked radioactivity can sicken and kill people and cause long-term damage to the ecosystem. More reactors mean more risk. * -	Easy, although it is not feasible to power vehicles directly with nuclear energy. Nuclear power plants produce electricity that is used along the existing power distribution network. +
SOLAR	The sun potentially supplies 500 times more energy than we consume each year, more than we will likely ever need. Solar energy is a renewable resource. * +	The sun is the most accessible of all energy sources and will remain available regardless of future demand. Usable radiant energy also diffuses through clouds. +	Sunlight is expensive to harness. Home solar collectors can cost \$5,000. Photo-voltaic cells generate electricity only in small amounts. Increased demand would be expensive. -	Although solar panels are costly, once in place the energy produced is virtually free. For those who live in regions that get little sun, transportation costs for the energy make it more expensive. * - +	Sunlight is not ordinarily dangerous. It is not flammable and does not explode, leak, or create pollutants. Harnessing more solar energy poses no unusual risks or dangers. +	The sun is not only a part of nature, it is a requirement for the survival of life on Earth. Without the sun, the planet's temperature would plummet to 450°F below zero. * +	Using solar energy to heat bath water is one thing; using it to power industry and vehicles is another. It would be extremely difficult to convert major power utilities to solar energy. -
WIND	Areas of strong, prevailing continuous wind are not commonplace in the world. In most places, the amount of wind varies from night to day, season to season. * -	Most areas having prevailing winds that are usable for producing electricity by windmills, like open oceans or mountain ranges, are impractical to exploit. -	Windmill turbines are expensive to build and maintain; it takes hundreds to generate a small amount of electricity. Increased supply of windmill energy would be costly. -	In regions in which there is regular wind and windmills are in place, consumer costs are low. Costs are determined by maintenance and transportation. In low-wind areas, costs would be higher. * - +	Neither the wind nor the windmill poses any unusual danger to those maintaining or using them. +	Windmills don't produce toxic chemicals or endanger wildlife. Other than the property cleared for a windmill "farm," they are environmentally friendly. * +	Very difficult. It takes many windmills to generate a limited amount of power. It is unlikely that those areas with adequate wind would host the thousands of windmills necessary to produce significant power. -
HYDRO-ELECTRIC	Water is a renewable resource. However, availability of new construction sites for dams and hydroelectric plants is limited by environmental concerns. * -	You need a fast-flowing river, a dam site, and room for a plant. Many end users of electricity are too remote from dam-dable rivers to benefit from them. -	Enormous initial investment to build the dam and power plant. However, the water is free. But if demand increased, new dams would be built at great expense. -	Energy from hydroelectric plants is low cost once the dams and other technology are in place. However, because sites for dams are limited, the cost to transport the energy could be high. * - +	Modern dams rarely breach. The power is produced cleanly, and maintenance of water turbines is routine. There is little danger in operation. +	Hydroelectric plants produce clean energy and emit no pollutants into the air or water. However, they interrupt the natural flow of rivers, which threatens the habitat of some organisms. * +	Very difficult. A substantial increase in hydroelectric capacity would involve building hundreds of new dams, which would take years; the problem of auto and truck pollution would remain. -

Key * Important + Pro - Con

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