

"Kilowatt
Ours" Opinion
Paper

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“Kilowatt Ours” is an eye-opening documentary that points out how wasteful our country’s current energy use is and then gives suggestions for a more environmentally friendly future. I would recommend the film to as many people as I can because only if a large number of people change their energy consumption habits will their a big enough effect to save our future.

Jeff Barrie, the director of “Kilowatt Ours”, starts the documentary by illustrating all the negative aspects of our current energy use and power generation systems. He states that the United States’ energy needs are primarily met by aging power plants that burn coal. He begins by showing us strip-mining in Appalachia where coal mining companies actually level the mountains in order to extract the large deposits of coal. To further prove his point Barrie keys in on America’s wasteful practices, such as using electronic devices for everything, including ridiculous items such as hand lotion warmers. Finally he ends the first segment of his documentary by highlighting future calamities that could occur if we continue our wasteful energy production methods, for example kids developing asthma at early ages from coal dust, as well as flooding and droughts from deforestation.

Barrie then shifts the focus of the documentary by showing us alternative power sources that are being used today and ways everyone can help reduce and conserve energy use. He shows us people and companies who already practice good energy use. Some practical suggestions that can be put into practice quickly and easily include swapping incandescent bulbs for compact fluorescent bulbs and buying “Energy Star”

rated appliances. Barrie concludes the film by challenging us to use more green power energy sources which include solar, wind, geothermal, and actual sunlight to not only help our current situation but provide a good foundation for future generations.

Barrie and his wife go through their efforts to make their home more energy efficient and green to illustrate just how easy it can be. One thing that they did with the saving realized on their energy bill was to request that green energy be used for their energy. They could “purchase” units of energy which their electric utility would use to develop green sources of energy. These types of programs are excellent in showing the utility company how committed people are—the more they sign up for, the more money the utility has for investment in alternative energy, the greater the impact for future generations.

Power plants built in the early 1900’s used the technology that was available at the time, they ran on coal. In that era, coal was very abundant and therefore cheap. It was efficient and the negative environmental aspects were not known. These power plants have not been properly upgraded, yet we still use them even though they are no longer practical for our future. One pound of coal produces about one kilowatt hour of electricity, yet in the United States the average household uses 900 kilowatt hours per month. Coal is a nonrenewable resource, but our country relies on it for 52 percent of its current energy production. Clearly this cannot be sustained. In addition burning coal produces greenhouse gas emissions destroying the ozone layer, pollution and related

negative health consequences on humans, acid rain, and the destruction of natural environments such as forests.

There are many alternative sources of energy to coal and other fossil fuels, but they are not necessarily “clean”. In Crissy Trask’s *It’s Easy Being Green, A Handbook for Earth-Friendly Living*, she makes the following observation: “Clean energy sources include the sun, wind, water, heat from the earth, and hydrogen...Clean energy only describes technologies that produce low emissions-it does not reveal ancillary environmental impacts.”³

In selecting the form of alternative energy I feel is most practical, I rejected nuclear power because it is not “clean”, it produces nuclear waste that creates radioactivity that is not easily disposed of. Wind power does not function well because not all of the United States has a sufficient amount of wind current to produce enough power. And geothermal would not work well due to the fact that in some areas the water table is too high or the ground is too hard for installation of the necessary equipment.

Out of all of the green power energy sources, I would have to choose solar energy as the most promising for the United States. One of the reasons I selected solar power is because the United States enjoys ample sunlight in a majority of areas. In addition, its growing acceptance is bringing down the price to install solar systems. According to Rik DeGunther, the author of *Solar Power Your Home For Dummies*, “solar power has historically been more expensive than other energy options, but that’s changing fast

because of government investments in [solar] technologies....”¹ The fact that solar power is more economical than in the past has led to individuals converting their homes, more demand for solar panels and related products, and growing economies of scale.

Americans have realized that they not only save on their monthly energy bills but converting their homes to solar power can raise the value of their homes. Also, in some areas the local electric company will actually buy back extra energy left over that the house did not need to use.

Let’s examine exactly how solar energy is created into usable forms. Solar panels create energy by converting the sun’s light energy into electrical energy. Solar panels are made of silicon wafers. The energy in sunlight is absorbed by photons and when the photons hit a certain frequency they are absorbed by the silicon. This “knocks” some of the silicon atoms loose and the movement of the electrons creates an electric field. A large number of solar cells link together can then create voltage to be used as power or stored in batteries. The fact that a large surface area is needed to create a usable amount of energy is why you often see a whole rooftop or other special area devoted to solar panels: the larger the surface area the more solar cells available to collect sunlight. For example eBay recently converted its San Jose Campus to solar power. “The campus has 3,248 solar panels covering 60,000 square feet – more than a football field – of roof supplying 18 percent of the campus’s power with a 650 kW system. With the largest commercial solar installation that is operational in San Jose, and because of its proximity

to public transportation, eBay's new building and campus reflect the close collaboration between the city and eBay to reduce its environmental footprint.”

One hurdle preventing more widespread use of solar power has been that there is no good way to store the extra energy for long periods of time. A new form of solar power called solar-thermal focuses “the sun's rays on liquids to make steam that powers turbines.”⁶ Ausra, a company developing this technology, claims it has the potential to replace 90 percent of the current United States electric grid with enough left over power to service plug-in electric cars, this would eliminate 40 percent of the United States' greenhouse gas emissions, “reducing the ecological footprint by 9,600 square miles.”⁶ The building of a test plant in Bakersfield, California to test and develop this technology is in the works right now.

Solar energy does not only include energy created by solar cells or solar-thermal systems, it also refers to passive use of sunlight. This is harnessed by strategically placing windows facing the sun to receive its direct sunlight. In the film *Barrie* shows a school that was constructed to have windows on the ceiling in order to passively heat classrooms and provide light for the teachers and students. He also showed a home that was built with one whole side of the house facing the sun for the same purposes: heat and light.

“Kilowatt Ours” as well as other documentaries such as Al Gore's “An Inconvenient Truth” have had a great impact on public opinion. As can be seen by the

presidential debates this year the time has come for America and the rest of the world to embrace the uncomfortable idea of change. They must face the fact that it does not come cheap and will require and investment in our future. Governments must make policies that encourage development and use of clean energy sources, facilitate recycling, and embark on public projects that will provide future benefits. Individuals must also do their part for the community and to help themselves. “Kilowatt Ours” indicates that “The average home can save 9,103 pounds of coal and save \$1000 dollars on energy per year”⁴ just by making minor changes including replacing light bulbs, drying clothes naturally, adjusting the thermostat, and sealing leaks around the house.

As early as 1903, C.H. Pope recognized that “Sun power is a gain to humanity. It subtracts nothing; the world will not be in the least impoverished tomorrow by the fullest use of ‘visible solar heat’ today.”² While “Kilowatt Ours” is an excellent way to educate people, especially the next generation who will start to feel the ill effects of current abuses, the biggest emphasis must be on research and development. Education is the first step and we as a nation, are still in kindergarten.

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