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Cheap Energy

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At the beginning of this year, many Americans were surprised, yet welcoming of the significant decrease in oil prices. This development is not as unusual as people think it is. As the supply of natural gas increases, the prices of barrels of oil goes down. And global producers such as Saudi Arabia are not producing less to stabilize the prices. History and the nonrenewable nature of the fossil fuels mandates an eventual bust will follow the present boom. This persistence to resist change, keep prices cheap and commodities in demand, ignores energy inefficiency and limitations while it obstructs much-needed innovation in the nonrenewable energy sector. This trend will also create a more passive attitude towards the harmful sociopolitical and environmental repercussions of the extensive extraction of fossil fuels. This causes one to question what factors should be accounted for when terming a type of energy resource, especially fossil fuels, cheap.

In chemistry, energy is defined as the ability to do work and it is impossible, according to the Second Law of Thermodynamics, to extract a certain amount of heat and use it all to perform work. Moreover, the more mediums the energy or heat is transferred through, the more inefficient it is. In recent years, the EROI or Energy Return on Investment has become a more common and helpful tool to factor in hidden costs of using a certain resource that may seem cheap at the pump, but in truth is not. The EROI equation takes into account the whole process of extracting a resource, building the necessary facilities, transporting, and converting it into a product for consumption. The higher the EROI, the more energy there is available to use. In "The True Cost of Fossil Fuels" by Mason Inman, published in the *Scientific American*, the minimum EROI an energy source should have to meet the needs of an industrial society is 5-9. The highest EROI at the time the article was published, April 2013, belonged to hydroelectric power at over 40 followed by wind with 20 and coal with 18. Conventional oil had an EROI of 16 while natural gas had an EROI of 7 (58-61). So when a more complete look at the efficiency of traditional (cheap) energy sources is taken, they do not come out as the favorable source. Moreover, renewable sources whose energy can be more easily converted into electricity are competitive with fossil fuel sources.

Not only are they not cheap, they are not here to stay indefinitely. The global Hubbert curve, which approximates the production of all liquid fossil fuels over time, predicts that peak oil has already been reached and production will eventually go down. In a recent study, Ugo Bardi, a professor of Physical Chemistry at the University of Florence in Italy, challenged this idea of peak oil using a combination of assumptions to create multiple models. His results were more quantitatively inconclusive as he did not gain a concrete estimate of when the global peak oil was or will be reached; nonetheless, majority of his models are bell-shaped curves, representing the nonrenewable quality of fossil fuels. In his concluding remarks, he mentions that developing "better" technology to extract a greater variety of fossil fuels instead of innovating in the nonrenewable sector is nothing short of a mistake.

The hindering of innovation in alternative energy is nothing new for the fossil fuel industry. In the 1990s, American car company General Motors unveiled the EV1, a car running hundred percent on electricity after the state of California passed the Zero Emissions Law in 1990, mandating car companies to produce as certain (yet small) percentage of cars with qualifying technology. The state of California was eventually sued by major car companies in a court case where even the Bush Administration became involved by filing an amicus (friend of the court) brief in support of the plaintiffs. The law was amended and eventually repealed in April of 2003 as the court ruled that the state cannot mandate the production of battery-powered cars. GM began to recall the hundreds of cars it had leased out. Although many devoted drivers were willing to buy the car, the company went out of its way to hunt down all the cars and take most of them to the junkyard to be crushed. This tragic demise even lead to a grand funeral held by former drivers. The program itself was terminated ("Who Killed the Electric Car?"). The model had many problems like the weight of the battery and the price of the parts, but entire project should not have been shut down as it had potential. In truth, GM was under a lot of pressure from the oil industry who rightfully saw the growth of electric cars as a threat. When the cars went off the road, the oil industry stood content with hybrid cars.

The oil industry or the fossil fuel industry in general continues to be persistent and resilient against change and innovation with the help from governments controlled by the ominous "revolving door." Also, the endless electron contributions from "normal" citizens such as the Koch Brothers help continue this toxic trend. As a result, the United States' government offers more subsidies to the fossil fuel industry than to the nonrenewable sector as it is seen to be more profitable over the other (in the short-run) and already has a powerful and wealthy lobby at its disposal. Yet, a particular part of the political spectrum continues to ignores the fact that the fossil fuel industry gains more subsidies and has been since the time of J.D Rockefeller and attacks the nonrenewable sector as an industry too weak and unworthy to make it on its own. Recently, Maria van der Hoeven, the executive director of the International Energy Agency, stated, "Fossil fuel subsidies rig the game against renewables and act as a drag on the transition to a more sustainable energy system" (qtd. in Dattaro). Interestingly, with the decrease in oil prices, the global estimate of subsidies for the fossil fuels decreased $26.5 billion dollars in 2013 (Dattaro) as attitudes towards more stable, long-term energy option are starting to become more optimistic. Nevertheless, countries around the globe still pay an unnecessary sum of money to the fossil fuel industry which does not even take into account the more obscure costs related to the sociopolitical and environmental consequences of wanting, extracting, transporting, and using fossil fuels. These wide-ranging non-economic consequences have their on monetary costs associated with them.

The Gross Domestic Product, GDP, or the Gross National Product are staples in studies researching the costs associated with more expensive renewable energy sources. Numbers are great indicators but they still overlook the more human and environmental costs accompanying the extraction or harnessing of energy resources. In April of 2013, the Deepwater Horizon Oil Spill damaged the Gulf ecosystem to an extent from where it will never recover from. This oil spill, the most recent, widely publicized disaster of its kind, is one of many. The Navajo Nation continues to suffer from the abusive policies of coal companies. Their already decreasing population has suffered from multiple diseases related to mining such as black lung, asthma, and cancer. Moreover, their land especially their aquifers continue be contaminated, forcing many to travel to far away wells to attain clean, usable water *(Cursed by Coal: Mining the Navajo Nation*). Majority of environmentally unjust policies target disenfranchised populations, many of which are indigenous peoples, around the world. Currently, in the lush central forests of India in Chhattisgarh, the poorest of the poor, Naxalite guerillas, much of whom are Adivasis, indigenous peoples of the subcontinent, are fighting Indian paramilitary troops to keep control of their land and prevent the extraction of precious minerals and energy resources such as coal. A significant portion of the Naxalites are poor farmers who have lost their livelihoods due to neoliberal economic and energy policies (Loyd 82-83). This tragic trend is in no way limited to fossil fuels or nonrenewable resources. For instance, the building of hydroelectric dams displaces many populations. The construction of the Three Gorges Dam in China, displaced over a million people and destroyed many ancient and culturally-important locations. These social consequences factored in with the environmental consequences such air pollution, water contamination, deforestation, erosion, etc. creates a juggernaut of complex problems and costs that the Earth and all its inhabitants will have to pay if the issue of sustainable energy is left to something as insubstantial as face-value economic costs.

Recently, many researchers have begun to create more comprehensive models that take into account various indicators of sustainability to analyze different energy resources. When looking through multiple case studies, I saw that each had different results. Due to a more thorough and complex approach, the answers are different and nuanced. There are no entitled, dogmatic claims that “cheap” energy from fossil fuels is better because it increases the GDP or that solar should be the leading global energy source. The answer is always different according to materialistic reality of a country, state, or even a town. The answer to sustainability lies in a mixture of energy sources depending on multiple (cultural/social, geographical, environmental, and economic) factors, which is why it is called a solution.

Works Cited

Bardi, Ugo. “The Mineral Economy: A Model for the Shape of Production Curves.” Energy Policy 33.1 (2005): 53-61. Web.

Cursed by Coal: Mining the Navajo Nation. Perf. Neha Shastry. Vice News, 2015. Film.

Dattaro, Laura. “Oil Prices Are Plummeting and Nations Are Cutting Subsidies for Fossil Fuels.” Vice News. Vice, 30 Jan. 2015. Web. 23 Apr. 2015. <https://news.vice.com/article/oil-prices-are-plummeting-and-nations-are-cutting-subsidies-for-fossil-fuels>.

Hadian, Saeed, and Kaveh Madani. “A System of Systems Approach to Energy Sustainability Assessment: Are all Renewable Green?” Ecological Indicators 52 (2015): 194-206. Web.

Inman, Mason. “The True Cost of Fossil Fuels.” Scientific American 308.4 (2013): 58-61. Print.

Loyd, Anthony. “How Coal Fuels India’s Insurgency.” National Geographic 1 Apr. 2015: 76-95. Print.

Proedrou, Filippos. “The Quest for Sustainability: Energy, Trade, and the Economy.” Academia.edu. Web. 20 Apr. 2015. <http://www.academia.edu/12052601/The_quest_for_sustainability_Energy_trade_and_the_economy.>

“The Perils of Cheap Energy.” New Statesman 132.4627 (2003): 6. Academic Search Complete. Web. 20 Apr. 2015.

“Who Killed the Electric Car?” PBS. PBS. Web. 20 Apr. 2015. <http://www.pbs.org/now/shows/223/index.html.>