

Are Electric cars green?

The American car industry has made some bad growth decisions over the past decade which has recently cost tax payers billions of dollars in bail-out money, proof that buying American really does matter. Congress and President Obama have stated this money will be used to research and develop the cars of the future. Although I am not quite convinced all the bail-out money will go towards new green transportation some of it has been promised to be used for developing a car that runs on a 100% rechargeable battery system.

Does this technology make sense for America or is simply a political move to attract support from the government and environmental conscientious consumers. A rechargeable car means that we will need to produce more electricity to feed the demand, 25 percent more to be exact. America currently consumes 1.4 trillion KWH of electricity a year. This is a staggering number that simply needs to be reduced before we can gauge required demand for the future. With 97 percent of it coming from nonrenewable resources and 47 percent of it non Eco-friendly it is not exactly the Green solution electric car companies have been trying to sell us. In order to make electric cars green our electricity needs to be produced from 100% renewable resources. Is it even possible to produce all of our energy from a renewable resources and how much and how fast is feasible?

The 2009 federal government stimulus package has arrived just in time and along with it has come 80 billion dollars of funding to promote green energy efficiency. This gives final confirmation that an Eco friendly life style is here to stay by using it to leverage the future growth of our country. The majority of the money, around 30 percent, will go towards improving energy efficiency. This will be accomplished by retrofitting government buildings and low-income family homes with low-E windows and proper insulation. In addition, all home owners will receive a 30 percent tax credit for replacing any item in their home that improves on energy efficiency. On average most homes can reduce their heating cost by 40% simply by taking full advantage of this tax credit.

Around 20 billion dollars will go towards producing renewable energy for our future. With such a small amount to spend it's important that we select the right renewable resources to invest in. Currently renewable resources include Solar, wind, geothermal, and hydropower, with hydropower the lead contender contributing 12% of America's electricity needs.

The remainder of the money will go towards improving mass transit. Although the federal government in the past has favored highways over mass transit reducing greenhouse gas emissions has been effective in causing a paradigm shift. The money will be used to create new bus routes and train lines thereby reducing our consumption and the need to produce more power.

Also included is money to finance research and development of green technologies. If electric cars are the wave of the future longer lasting batteries will be necessary to drive more miles between charges. For example an electric car can currently drive, on average, 100 miles. After this point it will take eight hours to fully recharge the battery. How much further can we extend battery range and how much faster can we recharge the batteries? There is a company that claims they can increase the amperage and recharge the battery in 10 minutes. This single technology has the potential to change the entire game by making it practical to recharge your battery at a drive up station, thereby reducing the required battery range capability. In addition batteries will also become essential to storing power generated from windmills and solar panels, so capacity still remains important. Without new innovations in battery technology green power resources will fall short of their promised potential.

The US currently generates 47 percent of its electricity from coal. Coal has been the energy source of choice because it is cheap and plentiful. However, what was once economical has now become one of the primary blames for global warming. Coal emits large amount of carbon, which when burned for fuel contributes to the warming of our planet. According to US coal industry they are working on methods to eliminate the carbon with its most promising resolution being storing it under ground. Does it make sense to hide the problem or is there another viable power supply that can replace coal? The short answer is yes. Of the four green energy sources, Wind, solar, geothermal and hydropower two of them can produce continuous around the clock power but only one of them has a cheaper operating and construction cost over coal. Hydropower is that power source. Hydropower is currently responsible for generating 12 percent of America's electricity needs and has the potential to quadruple its current capacity. In short hydropower has the potential to replace coal and petroleum and emerge as our primary power source. However the 20 billion set aside for renewable energy won't get us there. The estimated project cost to build the necessary dams to produce enough electrical power is 16 trillion dollars. Unfortunately 100 percent of the allocated money won't be used to promote just hydropower. Despite costing much more to operate and build geo-thermal, wind, and solar are still credible renewable resources that the federal government will want to influence and are necessary to expand if we ever wish to some day generate 100% clean renewable power.

Natural gas and nuclear produce the remainder of our energy demands and despite not being renewable they are both considered clean. These type of plants will need to remain operational for years to come in order to fulfill our energy demands. Eventually we will run out of these energy sources but hopefully not before we have built up the capacity of our renewable options.

The second most practical choice to generate commercial power is the wind turbine. This would also include wave and tidal turbines. Although slightly more expensive than coal to operate it has the second lowest build cost of 1600 dollars per kilowatt power. As an added bonus it also requires the least amount of dedicated land out of all power sources. Unfortunately its kilowatts per day can not be guaranteed since the wind is not always blowing but we can strategically place them on flatter plains where the wind is more predominant. In addition wind and tidal turbine can be placed at sea where we have unlimited space.

How about the additional 25 percent to run our electrical car economy? Although producing more clean energy is an option the best and fastest way, is to reduce our demand. If Americans learn to be more conservative, by taking advantage of more green products we could cut our demand in half. In general these items are more expensive especially solar cells and geothermal installation, but as part of the stimulus package we are allowed to claim up to 30% of the cost off our taxes. As these new technologies start to develop the cost will come down and make less efficient products obsolete.

Solar and Geo thermal are wonderful sources of renewable, clean power but it does not make sense to produce farms for large commercial use. If you include both operating and build cost geothermal is 120 times more expensive than hydropower and solar is 214 times.

It only makes sense to maximize hydropower before we start investing loads of money into underdeveloped renewable technologies. In the meantime a 30% tax credit now exist to allow home owners to get credit for choosing to apply green power sources to their homes. In some cases consumers have been successful in producing 100% of their power from renewable resources, and are classified as off the grid. As the price of solar panels and batteries come down due to developing technology more people will choose to utilize clean, green energy choices.

While nuclear power has the highest building cost and the 3rd highest operating cost it is 3 million times more efficient than coal. If the ultimate goal is to eliminate coal powered plants then nuclear will need to still remain a part of the solution for years to come. However careful consideration must be made before new plants are produced. In addition since nuclear is a short term solution, plants should operate under a not for profit organization or otherwise be controlled by the federal government.

Beyond the cost to build and operate renewable resources are the hidden cost to build power lines to carry the electrical energy to transmission stations. For every plant that goes offline it only makes sense to replace with a renewable power source that can take advantage of the existing transmission grids. The added cost to construct new lines should always be avoided if possible.

In closing while a 100 percent renewable economy is possible it will be some time before we have the capability of a 100% renewable power source. In addition to renewable electricity there exist many other technologies that can alleviate the burden of atmospheric carbon, overseas dependence, and sustainability. Hydrogen power offers much promise and can also be used to power cars and homes directly. A cell is used to separate a water molecule so the hydrogen atom can be used as energy and oxygen gets omitted as clean emissions. In addition alternative fuels such as ethanol and algae can be utilized to continue powering combustion engines, only with zero pollutant. With so many wonderful viable options it is only a matter of time before we succeed in changing our world forever.

About the Author

The author is deeply concerned about the sustainability of our planet, and the efforts needed to reverse the damage we have caused. With so many companies trying to generate financial gains from the green movement it is important we consider the complete life cycle effects before carrying forward with any green solution. Author holds a BS in Mechanical Engineering and a Masters in Business Administration.

Source: <http://www.thinkgreenarticles.com>