Generating power through hydroelectrics: benefits and drawbacks

Environment, Ecology

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1. Courtesy of the USGS Water School \n \t
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The looming question of our times is one concerning energy. With widespread pollution already pervading many societies and countries, depletion of natural resources becoming the norm in many areas, and economic and political turmoil arising from the nature of our dependency on traditional energy sources, it is only rational to seek an alternative. One such alternative that appears to be very promising is hydroelectric power. Hydroelectric power, in many regards, and in the eyes of some, carries the promise of creating an unimaginable amount of energy with far less potential for pollution, but this alternative source of energy does have some drawbacks.

To begin with, what precisely is hydroelectric power? Well, hydroelectric power is generated, usually, through the use of dams. Water is held behind the dam, and then released, in a controlled and limited manner, through what is called a penstock until it reaches the turbines. The movement of the water, brought about by a difference in elevation, moves and turns the turbines, which then creates electricity via the generators. The water is flushed out and the electricity moved somewhere for consumption and/or for storage (Power-eng).

Courtesy of the USGS Water School

Now, one of the big advantages of hydroelectric power is the fact that no massive burning of fuels is necessary for the production of energy, as with coal and fossil fuels. This saves the environment from enormous, perhaps immeasurable, pollution. Also, and perhaps even better, the economic savings are, in the long run, enormous. While it may take a lot of money to initially construct and build a dam and turbines and generators, the upkeep is simply normal maintenance. This is possible because all that is needed for the production of electricity is water and a height difference (USGS). The height difference is carved into the landscape and the water is a result of rain and other natural phenomena. This is as opposed to having to dig out, pump out, or frak out, natural resources from miles beneath the ground.

There are, however, some drawbacks. Hydroelectric power, as opposed to fossil fuel extraction, is very expensive to set up. Also, it may not be suitable in areas or countries with few large rivers, such as largely barren and dry countries (AltEnergy).

That being said, the facts show that Hydroelectric power has some key advantages over traditional energy sources. At least focusing on the US, with an abundant supply of rivers and areas suitable for dams, hydroelectric power could significantly reduce our dependence on foreign oil. Moreover, it could boost the economy by producing electricity locally and facilitating the use of electric cars, by making electricity cheaper and more readily available for more purposes (ProCon).

Also, it looks pretty:

Courtesy of Power-Eng

Traditional energy sources aren’t pretty. This is pretty. And effective! One of the largest hydroelectric dams we currently have, the Hoover Dam, makes a significant portion of the electricity for the entire Southwestern United States of America. Granted, not every dam will be that size, or produce as much energy, but the point stands that dams can create incredibly large quantites of energy for little cost and therefore worth much of the drawbacks that they have and the initial investments required.