To: University’s students, staff and faculty

From:

Date: July 5, 2020

Subject: Integrating Renewable Resources

**Purpose:**

The purpose of this memo is to discuss the issues regarding cleaning renewable energy. The memo will further focus on the benefits of renewable energy and some of the challenges related to it.

**Summary:**

Firstly, the memo will discuss the problems that renewable energy is facing. Secondly, the memo will present the benefits of using renewable energy and the disadvantage of it. Lastly, solutions will be presented several alternatives to help integrate renewable energy onto the electric grid. Such as pumped hydro, one of many solutions to help store renewable energy. Renewable energy is used to pump water from low to high potential. Energy can be stored in the form of gravitational potential energy of water. When there is a high demand on electricity, the stored water is released to generate power. This method can help maintain the electricity demand and reduce fossil fuel use in every household.

**Discussion:**

One of the problems that causes greenhouse gases emissions to continue to rise is due to the high demand on fossil fuels. In order to stop the nations from relying on fossil fuels, it is essential that we begin to integrate renewable energy. Using renewable energy over fossil fuels has several advantages. For instance, renewable energy brings benefits to the environment and health, while we can save money and not worry about it running out. Renewable energy technologies use resources from the environment to generate power. These energy sources include sunshine, wind, water and so on. Unlike renewable resources, fossil fuel is likely to difficult to obtain, and it is driving up both environmental impact and the cost. In most cases, renewable energy requires less maintenance than generators that use for fuel resources. This is because solar panels and wind turbines do not rely on combustible fuel or burning fuel to operate. Therefore, using renewable energy saves more time and save money for a long term. Not only do we save thousands of dollars on maintenance costs, electric bills and operating costs as well. Furthermore, renewable energy emits little to no greenhouse gases into the air. This means less carbon footprint into the air and bring positive impact to the environment. As a result, the less fossil fuel emits into the air, the less we expose to health and respiratory issues.

It is true that renewable energy has many benefits, though it is not always reliable. Solar and wind energy are very unpredictable due to various weather conditions. Even though renewable energy resources are available around the nations, many of these resources are not available all day. Some days may be windier than others, sometimes there is no sun, and there is a possibility of droughts that might occur. Distance is another issue in our country. Many power plants are in the East and West coast, while the best solar resource is in the Midwest. The best resources energy is too far away from us. Because of the limit of renewable energy sources, there is a need to store energy.

There is a way to store energy like converting wind power and solar power into gravitational potential energy. So that the unused renewable energy from the day can be stored to use at nighttime. During the times with low electricity usage, the excessive energy from solar and wind power can be used to pump water in the reservoir to generate electricity. With the hydroelectric plants being able to store a large amount of water, we will be able to generate a tremendous amount of energy during the high demand.

**Recommendations:**

With the benefit to stored energy from hydroelectric plants and converting wind and solar power into gravitational potential energy, we can replace conventional fossil fuel energy. Everyone will benefit from the free sources of energy. As a result, we can limit the use of fossil fuels, reduce carbon dioxide emission and maintain a healthy environment.

**Reference**

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