

Emily Thompson

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### The Lack of Transmission Lines and Transformers

Over the past decade the use of solar and wind energy has increased tremendously. Unfortunately with the use of new resources, problems have risen on how to transfer this energy to different places for use.

There is a lack of transmission lines that deliver renewable energy from sources such as solar panels and windmills to population centers. The current system is based on by a state-by-state basis with neglect to isolated renewable resources. These interstate transmission lines need carefully planned coordination to ensure efficiency. The transmission systems that exist now were designed in order to connect large population hubs with close nonrenewable plants. A company called Clean Energy is developing new transmission lines that will bring renewable energy from the windiest parts of the United States to cities and heavy populated areas that are in need of clean energy sources. With the development of new lines, there will be an influx of construction and operation jobs, millions to even billion of dollars will be invested in renewable resources, increased rural economic development, motivation to build more wind turbines, and even a dramatic decrease in carbon pollution by millions of tons. Clean Energy can sell the use of these transmission lines for the purpose of transferring renewable energy to other companies.

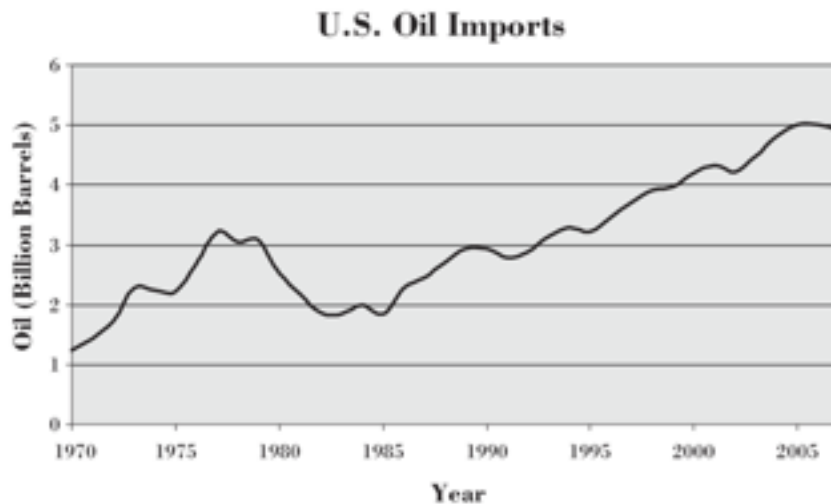
In order to successfully manufacture and distribute the use of new transmission lines, transmission planning must be done at a regional level. The six states in the southwest United States should coordinate their efforts and activities so that solar harnessing a development can

become more efficient and effective. In order to overcome the transmission barriers of solar energy, the planning for transmission lines should be executed on a very orderly and tight timeframe. As of July 2, 2015, the state of New York is not able to maximize their renewable energy output due to a lack of transmission lines. New York will need approximately fifteen thousand megawatts of renewable energy, such as wind and solar, in order to adhere to tough federal power plant regulations. The current system in New York has enough energy to power upstate but is not powerful enough to bring all that energy downstate, where more of the energy is needed. It will take ten years to actually license and construct new transmission lines so the Public Service Commission must determine if there is a need for transmission line upgrades. The New York Independent System Operator has stated that new transmission lines will have large ramifications including maintaining reliability and preventing future grid problems as well as saving money overall.

Unfortunately as new technology and sources of energy have been developed, so has the need to distribute energy effectively. Transformers take energy from high voltages and increase it to even higher voltages for transmission distribution centers. Then using another transformer, energy must be lowered to smaller voltages for distribution to homes and buildings. With the increasing need for transformers and the United States lack of manufacturing, more and more transformers are being imported from other countries. Roughly thirty-eight percent of the United States' transformers come from China, about thirteen percent come from Mexico, and another eight percent come from Japan. The United States leads in the percent of imported transformers compared to any other country with fourteen percent of all transformers being imported. However, this will hopefully be changing in the near future since

the Department of Energy has already granted one million three hundred thousand dollars to Cooper Power Systems in order to manufacture transformers in Texas and Wisconsin.

Unfortunately transformers are not the only energy supplies that have increased in importation. Oil imports have steadily increased over the past thirty years. The United States has gone from importing one billion barrels of oil in 1970 to importing about five billion barrels in 2005.



The United States is becoming dependent on foreign goods and it has energy-related impacts. Because the United States is importing so many foreign goods, jobs are decreasing and the manufacturing of many different industries has decreased including the automobile and textile industries. Along with cars, motors, wires, insulators, and other electric component that are essential for generation and transmission of electricity have dramatic decreased in production. Since the lack of transformers produced in the United States and large scale transformers take over a year to manufacture, transformer failures become much more disastrous because the United States has lost its ability to respond quickly.

The need for more transmission lines and transformer production in the United States is in high demand. Most supplies and even the products themselves come from other countries, particularly China. Hopefully in the near future, more transmission lines will be placed in the

rural areas that house solar panels and wind turbines so that the renewable energy produced will not go to waste and can be used efficiently.

## Works Cited

"Clean Line Energy Partners." *About Clean Line Energy*. N.p., n.d. Web. 24 July 2015.

<<http://www.cleanlineenergy.com/about>>.

"Grid Operator: State Needs More Transmission Lines." *Grid Operator: State Needs More Transmission Lines*. N.p., n.d. Web. 24 July 2015.

<<http://www.capitalnewyork.com/article/albany/2015/07/8571366/grid-operator-state-needs-more-transmission-lines>>.

"Spring Issue of the Bridge on the Electricity Grid." *News Rss*. N.p., n.d. Web. 24 July 2015.

<<https://www.nae.edu/Publications/Bridge/TheElectricityGrid/19189.aspx>>.

"Transmission." *SEIA*. N.p., n.d. Web. 24 July 2015.