Electricity Grid in Puerto Rico

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Puerto Rico has a poor service on electricity, Hurricane Maria once struck Puerto Rico and caused huge damage, and they may suffer an outage of electricity for eight months to a year. This poor service can be attributed to several reasons. People in Puerto Rico pay high price in electricity while possessing a low income with 40 percent of population below the poverty line. The mountainous island geology is one of the reasons, which make it difficult to construct the power line. Also, the increasing cost of fossil fuels is a crucial factor. In addition, the local government owns old and outdated equipment with high operating fees, but they have no fund to rebuilt. From this phenomenon, I can deduce two economic issues. Firstly, which factors influence its electricity rates. And secondly, how will the structural change in electricity system transform the current situation?

We all know that the price can be affected by many factors, in general is the supply and demand. In the supply side, the cost of the fossil fuels increases, which means the cost of input (raw materials) increases. In addition, the mountainous geology also increases the difficulty in constructing the power lines, moreover, because of the “continued intensive cropping of soils dedicated to vegetables in Puerto Rico, soil pH and electrical conductivity were significantly influenced by compost addition” (Sotomayor-Ramirez, Roman-Paoli & Rivera, 2000).

These factors push the supply curve to the left. In the demand side, in order to maintain the living in daily life, the demand for electricity will not reduce, especially in the summer, almost all people

use the air conditioning, as mentioned in article, people with special disease should use it to relieve the symptoms. As a result, the price of electricity is high due to the low supply and high demand.

However, the local government (AEE) owns a batch of old machines, which cannot provide sufficient electricity and cause a high outage rate more than 9.6 hours per customer. Although they do not have enough time and fund currently, but the redesign and rebuilt for is electricity system is necessary. The article says “it’s expensive to be poor” indicates a situation that the distribution of labor and capital is not allocatively efficient. According to the law of diminishing marginal product, the cost of the variable factors (labor) will increase successively in the short run. In order to achieve allocative efficiency, they should move to the long run production, the ratio of the marginal product of each factor to its price should be equal for all factors. Therefore, the outdated facilities undoubtedly rise the cost, and need to be completely changed. It can be done “by setting up a one-stop shop, making procedures simpler or faster by introducing technology and reducing or eliminating minimum capital requirements” (World Bank Group, 2015). In addition, “the USA has endorsed the use of shredded (TDF: Tire Derived Fuel) or whole ST as alternate resource to produce electricity” (Laboy-Nieves, 2014).

After such improvement, the economy can move from short run to very long run, all factors can change and substitute, and it is also a technology change, which shift the whole long-run average cost curve downward.

In conclusion, Puerto Rico need a total change in electricity system.

References

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