

# Topic 5

Shuhan Ma

9201075497

Sustainability issue is one of the most important aspects I want to focus on in my future career of acting as an engineer, which issue I will even attach great importance to in my daily life as well. As an electrical engineer, I am constant focus on the sustainable utilization of power in my hometown, China. China has been the largest electricity consumer in the world since 2011. The production of electricity in China is 5.65 trillion kWh in 2014, which will keep growing according to the fast increasing of economy. [1] However, fossil fuels still hold a high percentage in the production of electricity. The electricity production from coal accounts for 75.9% in 2012 [2] and the carbon dioxide emissions from consumption of energy is 10 billion Mt in 2013, both of which are in the first place in the world. As a result, severe pollution is becoming a big problem for my country now. It does great damage on people's healthy especially in central cities, destroys the ecological environment and restricts economic sustainable development in the future. So more environmental-friendly power sources are urged to be utilized to solve these problems. What we should do is to make full use of the knowledge about sustainable electric power to reduce the use of fossil fuels

Nowadays, all kinds of renewable power sources are replacing the fossil fuels gradually, for example wind power, solar power, hydro power and CHP. In Sweden, hydroelectric power accounts over more than half of the whole energy production now. The share of renewable energy in Sweden is increasing sharply year by year. Until 2013, Sweden has been the second top country of wind power capacity per person in the world. [3] Compared to the information mentioned above, China has a long way to go. Although the hydropower capacity and the wind power capacity ranked No.1 in the world in 2013, they account for a small portion in the whole production of electric power. The knowledge I learn in KTH about renewable energy can help to solve the problems and influence the sustainability of the society. For example, I am learning the course Wind Power Systems (EG2340) during this semester. What I learn in this course can be applied to the construction of wind power system in China. Especially the problem of wind farms connecting to the grid can be helped to solve, which is one of the major problems engineers meet in China at present.

The course material we learned told us what is sustainable, why we should have sustainable lifestyle and how we can build a sustainable society. I think we human beings should produce and consume energy on the basis that not only fulfill the people's demand but also not do harm to nature. Only on that way can we acquire electric power sustainably. This material has many relationships with what I am learning in KTH. Also, KTH has done a lot of work to acknowledge us sustainability. The course Power Systems and Environment (EG2320) and Power Generation, Environment and Markets (EG2220), which I have learned both emphasize the importance of working with sustainability as an electric engineer.

## Reference

- [1] "Central intelligence agency," [Online]. Available: <https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html>. [Accessed 25 9 2015].
- [2] "The world bank," [Online]. Available: <http://data.worldbank.org/indicator/EG.ELC.COAL.ZS>. [Accessed 28 9 2015].
- [3] in *RENEWABLES 2014 GLOBAL STATUS REPORT*, p. 56.

