# Solutions to Tutorial Questions

**Chapter 15 Energy and the Environment**

**15.1 Economists believe that energy plays three key roles in our lives. Explain.**

*First energy is a consumer good that we use to cook food, heat and cool our homes and power our cars. Second energy is a factor of production that combines with capital, labour and land as an essential input in nearly all goods and services. For instance, a farm requires fuel for cultivation and electricity to dry the crops. An office that sells insurance requires electricity for lighting and to power computers. Third as a strategic resource energy security is valuable to a nation as it ensures the availability of energy even during times of political unrest and war. The importance of energy is due to its key importance as a consumer good and factor of production. For this reason energy is often singled out for special treatment in terms of government policy and investment.*

**15.2 What are the steps in energy transition? Can countries ‘miss’ some of the steps as they develop?**

Energy transition is a change in the energy mix from burning biomass to electricity and the then to electricity from renewable resources. In developing countries the shift from biomass energy from burning wood to cook and kerosene lamps for lighting, can be by-passed by adopting small scale wind and solar electricity. There is no need to go up all the steps of the energy transition ladder.

**15.3 How do you expect the energy sector of a country like the UK to meet its greenhouse gas emission targets by 2030?**

The expansion of wind energy is proving to be the most important source of renewable energy in the electricity sector as coal-fired generation is phased out. In terms of fossil fuels natural gas will remain an important transition source of energy for domestic heating and electricity generation. Natural gas in the electricity sector has the capacity to provide base load. Gradually electric vehicles will become more important as a means of reducing emissions from the transport sector and as a means of reducing air pollution in urban areas.

**15.4 What is meant by the term ‘energy decoupling’?**

Decoupling occurs where per capita growth does not lead to a per capita increase in energy consumption.

**15.5 Why is energy poverty such a barrier to development in some countries?**

The lack of electricity in rural communities in developing countries affects every aspect of economic development. From reducing the potential efficiency of agriculture, to limiting opportunities to diversify into other industries that require electricity as an essential input and reducing access to mobile phones and computers.