

Energy and the Environment

Introduction

The comfort, security and progress which we in the rich world enjoy have been underpinned for years by the ready availability of cheap energy. It is only in recent years that we have started to try and react to the negative externalities which are an inherent feature of many forms of energy provision. Pope Francis made this very point when, in his 2015 encyclical *Laudato Si*, he criticised those who expect, “*the invisible forces of the market to regulate the economy, and consider their impact on society and nature as collateral damage*”.

As in many other countries, we in the UK face many difficult challenges when trying to meet our own energy needs whilst fulfilling our moral obligations to the environment, our own people and those in other countries. These are complex technical, economic and ethical questions and it is important to understand that there are no simple answers. However, any Christian consideration of this question must always start from the position that we must strive to do the most possible good whilst causing the least possible harm.

The Trilemma

Much as the Trinity is central to Catholic faith, the energy industry is governed by a more profane rule of three, popularly known as the ‘Trilemma’. The Trilemma is the idea that any action taken to facilitate energy supply must balance three difficult to reconcile objectives, namely that the energy we need should:

1. be procured with minimal damage to the environment and to human health;
2. be available, secure and reliable; and,
3. be affordable.

Each of these objectives has a moral aspect and difficult decisions are required on the part of those engaged in the energy business, policy makers and by the consumers themselves.

Whilst Pope Francis condemned excessive anthropocentrism, he was careful to warn against the trap, which can be a tendency of some forms of environmentalism, of seeing no special value in human

UK primary energy sources (2015 data from Department of Energy and Climate Change)

- Natural Gas (34.9%): Largely used for domestic heating, but also a significant component of power generation. It is a carbon emitter, but is less so than coal or petroleum. Its proponents see it as a ‘bridge’ to a renewable future. However, as the UK is now a net importer, its use raises concerns about security of supply. Moves to allow ‘fracking’ for gas in the UK are often opposed, especially by those living close to the drilling sites.
- Petroleum (34.2%): Mostly used in transport and, to a lesser extent, heat and some small, specialist, power generation. It is a significant carbon emitter and there are moves to replace its use in transport with alternatives, such as electricity or hydrogen.
- Coal (12.9%): Mostly used in power generation. A major carbon emitter, its use has been drastically curbed in recent years. Its use will continue to fall in the UK, unless carbon capture and storage becomes viable.
- Nuclear (7.9%): Electricity provider which does not produce carbon at the point of generation. No new UK nuclear power stations have been built since the 1980s. Its long planned renaissance is controversial due to costs, safety fears and the environmental implications of procuring fuel and dealing with waste.
- Bioenergy and waste (6.8%): Catch-all category for a wide range of power generation and heating solutions based on energy crops and waste. Nominally non-carbon emitting, bioenergy use can still draw opposition due to its demand on land use.
- Renewables, including wind, hydro and solar (2.4%): Rapidly growing carbon-free electricity generation sector. State support for wind and solar has, nevertheless, caused concern about costs and impact on security of supply.
- Net electricity imports (0.9%): Mostly from France, which makes most of its electricity from nuclear. Imports are likely to increase in coming years as more interconnectors are built and local generation capacity falls.

beings. As Catholics, we have a duty to work to help raise the most indigent out of their grinding poverty. We in the richer world have little moral authority to grudge those immensely poorer than ourselves their aspirations to the comforts which we take for granted. Whilst care for God's creation is a sacred duty, this duty cannot be executed at the expense of actions which could alleviate the sufferings of others.

The Environment

In *Laudato Si*, Pope Francis made many references to the duty of Christians towards nature and its Creator, whilst maintaining solidarity with those whose situation is less comfortable than our own. He was unequivocal about the ecological dangers facing the planet. He drew particular attention to the way in which environmental degradation has disproportionately affected the poorer parts of the world. Whilst tighter regulations in richer countries have reduced the local effects of environmental damage, some of its catastrophic impacts have effectively been outsourced to the developing world.

There are alternatives to the current methods of supplying energy which are less damaging to the environment, such as wind and solar. However, these have tended to be more expensive and less dependable than fossil fuels. They also tend to create special technical challenges to the electricity networks. As a result, they necessitate subsidies and additional network investments in order to make them economically and technically viable.

Availability and Security of Supply

In 1935 a group farmers in a poor, rural area of the US state of Tennessee was asked to speak at their local church about their experiences of finally having been connected to the electricity network. One speaker is alleged to have said, "*the greatest thing is to have the love of God in your heart, and the next greatest thing is to have electricity in your home.*" The story may be apophrycal, but it is descriptive of a fundamental truth: access to reliable energy makes peoples' lives much better. This is true in rich countries, but particularly so for the poorest. Reliable electricity supplies negate the need for the burning of health-damaging charcoal, oil or wood in order to provide heat, light and cooking. Access to lighting greatly increases opportunities for education and economic self-improvement. Provision of electricity or gas can liberate home-keepers, who are mainly female, from the dirty, dangerous and uncertain business of procuring and using solid fuels.

Affordability

Poor people spend a far greater proportion of their disposable income on energy than the rich. As a result, the poor suffer disproportionately from increases in the cost of energy. The problem of fuel poverty, which is defined in terms of household income and cost of heating-energy needed, is increasingly recognised in developed countries. It is important to remember that financial subsidies to low-carbon energy industries are largely being supplied by those in greatest need. In less developed countries, this situation can be even more extreme. Even in warmer countries, where there is less of a need for heating, people living in poor and remote areas can spend up to half of their income on fuel for cooking and lighting. This is a severe burden on people often close to the limits of economic survival.

The Future

This paper is not intended as a jeremiad. There are a number of encouraging developments which can help to reconcile the conflicting challenges of the Trilemma. There are many opportunities to apply lessons learned in the richer world in developing countries. Although energy consumption in emerging economies is still growing, in the developed world it has been gradually falling for the last 10 years. At the same time, the proportion of supply from carbon-free sources has risen.

A new generation of high-efficiency appliances and building methods is gradually replacing the older, energy hungry counterparts. The cost of renewable energy has also fallen such that, in many markets, it is competitive with fossil fuels. Cheap energy storage will offset the inherent lack of reliability of intermittent sources such as wind and solar. All of this creates opportunities for low impact development. For many households in developing countries, their first appliances will be energy efficient ones. Solar energy is increasingly a viable option in remote regions of countries which lack established energy distribution networks.

In both the developed and developing world, there is increasing scope for local small-scale projects based on a communal ownership of the means of generation and supply, often making use of renewable energy. Such community schemes may need to overcome lack of capital and technical know-how in order to become viable. However the most important component is a sense of community trust and cohesion.

As members of a community which spans the Earth, Catholics are well placed to play a prominent role in the immense global effort to halt and heal the damage still being caused to our common home. At the same time, we must see it as our duty to use our God-given abilities to constantly search for equitable solutions which will allow all humans a life of reasonable comfort, health, safety and dignity.

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