

Doing My Bit

I was recently asked: do renewable power plants impact the environment? Quite obviously the questioner was seeking to justify pursuing the fossil-fuelled status quo by nit-picking faults in the case for clean energy. This led me to reflect on some environmental aspects of how we should live.

Everything impacts the environment. Being born, living and dying impacts the environment. Eating harms the environment. The point is that in our lives, with respect not only to the environment but also to people and society, we should:

- ◆ Leave the world better than we found it - or at least as good;
- ◆ Minimise the harm done;
- ◆ Maximise the good done.

Renewable plants minimise harm in generating electricity. Closing fossil fuelled power stations, and their supply chains, improves the environment. Done properly this doesn't harm jobs and lifestyles, just changing them. And done properly, that change is assisted by, for example, re-training and ongoing support while it's needed.

We wish to live a certain lifestyle, with a certain degree of civilisation. The question is: do we do so with great harm to the environment, or little? To do so with little requires some small changes in habits, behaviour and spending choices on our part - but these will benefit not only future generations but us too. I'm towards the tail end of my middle age; my life expectancy is another 24 years (without adjusting for risk factors; with adjustment it's 30), so statistically I will live until 2044 (or 2050). If we don't change our ways now, many of the dire planetary predictions will have come about in my own lifetime, never mind the lifetimes of my children and grandchildren. I can already see the heatwaves, increased frequency/intensity of storms, spreading wildfires, extinctions, growing deserts, mass migration, melting ice caps and disappearing winter snowfields now, and fear for how much more I'll see before I die - and fear for what I'll leave my descendants. So I have decided to do what I can, and hope you'll decide the same.

I don't go to extremes on anything, but recommend moderation in approach; bearing this in mind, I reflect on the different aspects of my life and lifestyle. For example,

- ◆ What job do I do?
- ◆ What car do I drive?
- ◆ How do I drive it?
- ◆ How do I travel for short journeys?
- ◆ How do I travel on business, if I have a choice?
- ◆ Where and how do I take my holidays and leisure activities?
- ◆ What diet do I eat?
- ◆ Whom do I try to influence, when and how?
- ◆ How do I invest my savings?

Grid-scale electricity storage using an innovative form of Compressed Air Energy Storage



Some say: what difference will it make, as others ignore the matter? Well, I do my bit and encourage others to do theirs. Beyond that, it's irrelevant. I don't give blood because I'll fill the blood bank: I give blood because it'll help and, if enough others do the same, the whole of society benefits. So it is with stopping and reversing climate change.

About Storelectric

Storelectric (www.storelectric.com) is developing truly grid-scale energy storage using an innovative form of Compressed Air Energy Storage (CAES). This uses existing, off-the-shelf equipment to create installations of 500MW, 2-21GWh with zero or low emissions, operating at 68-70% round trip efficiency, at a cost of £350m (€500m) (estimated for 3rd – 5th plant), and a levelised cost cheaper than that of gas-fired peaking plants (OCGT). Capex is one-third that of pumped hydro per MW and 1/75th per MWh; similar to 10-year target prices of batteries per MW and less than 1/1,000th per MWh. There is potential in the UK to store the entire continent's energy requirements for over a week; potential in mainland Europe and the USA is greater still, with global roll-out planned.

The next stage is to build a 40MW, 200MWh pilot plant with over 62% efficiency (grid-to-grid), using scale versions of the same technology, for which Storelectric is currently raising funds. Construction will take 2-3 years from funding, and the first full-scale plant a further 3-4 years. The consortium includes global multinationals who cover all the technologies involved, their installation, financial and legal aspects.

Storelectric has a second technology, CCGT CAES, which is the only CAES technology that is retro-fittable to a suitably located gas-fired power station (either CCGT or OCGT). As such it is a very good value technology that can almost halve emissions and add storage-related revenue streams, giving new life to stranded assets. It is an excellent transitional technology.

In the future, Storelectric will further develop both these and hybrid technologies, and other geologies for CAES.

About the Author

Mark Howitt is a founding director of Storelectric. He leads Storelectric's technical and operations, minimising technological risk, maximising efficiency and environmental friendliness, and speed to market. His degree was in Physics with Electronics. He has 12 years' management and innovation consultancy experience world-wide. In a rail multinational, Mark developed 3 profitable and successful businesses: in commercialising his technology, in logistics and in equipment overhaul. In electronics manufacturing, he developed and introduced to the markets 5 product ranges and helped 2 businesses grow strategically.

