

Welcome

Clean Energy Workshop



Promoting
Positive
Change

What is clean energy?

- ▶ ‘Clean energy’ may have a specific definition in your mind — you may think it’s synonymous with ‘renewable energy’ (i.e. wind energy, solar energy, hydro energy, and geothermal energy). For the purposes of this workshop, we’ll say **clean energy = renewable energy**.

How do we make energy now?

- ▶ 1. Natural gas
- ▶ 2. Coal
- ▶ 3. Oil
- ▶ 4. Fracking
- ▶ 5. Nuclear
- ▶ 6. Wind
- ▶ 7. Solar PV & Thermal
- ▶ 8. Biomass
- ▶ 9. Water - tidal - hydro - wave
- ▶ 10. Anaerobic Digestion

Is 100% renewable energy desirable/achievable?

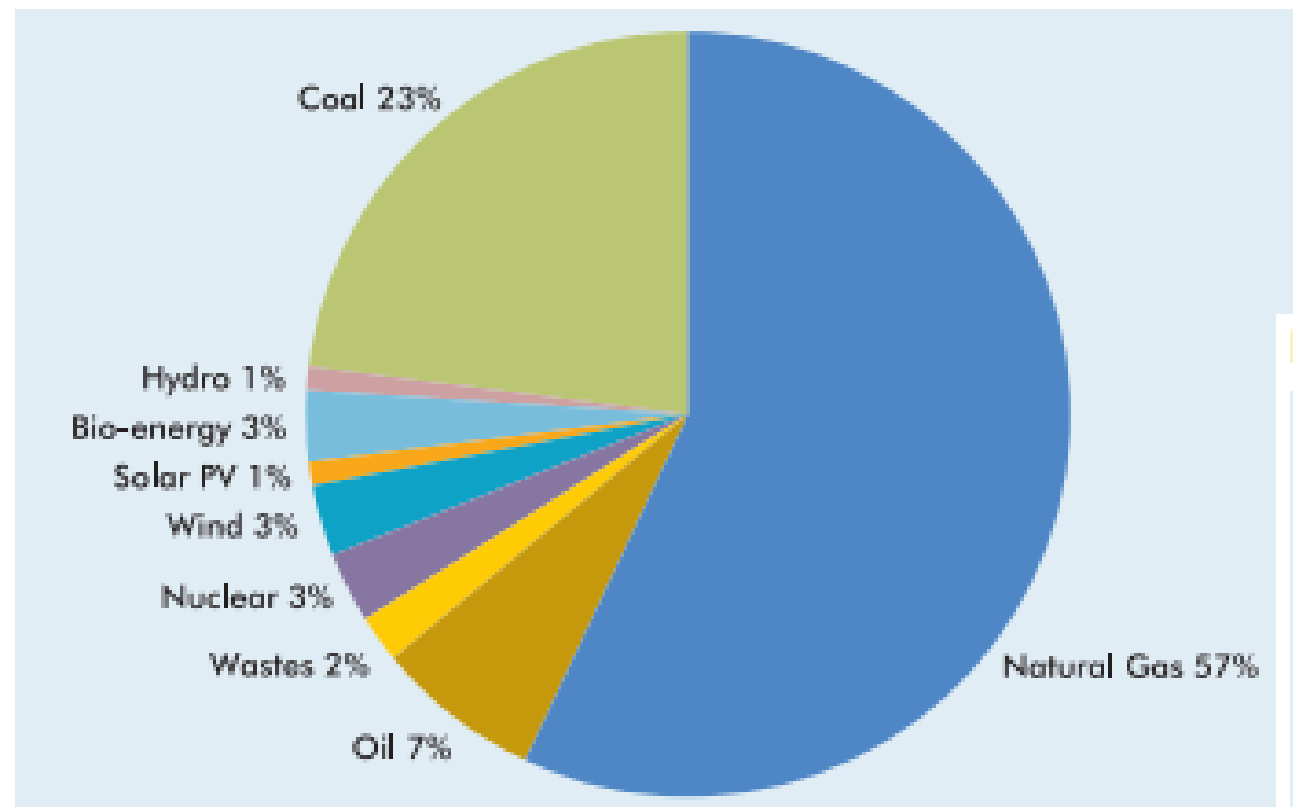
- ▶ Do we believe climate change is a major challenge that we are facing?
- ▶ If we do, how will 100% renewable energy be achievable?

Achievability example: Frankfurt

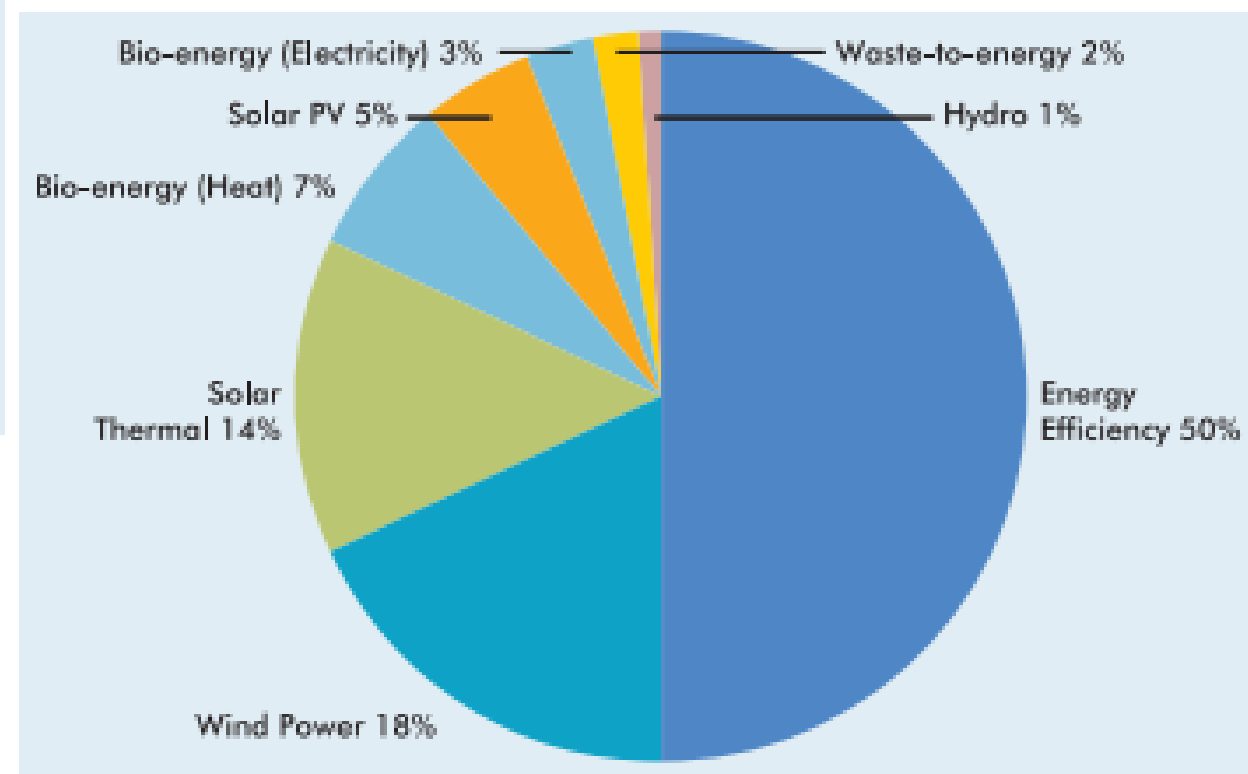
- ▶ Frankfurt's Master Plan includes a dynamic array of projects and initiatives designed to increase the adoption of renewable energy and energy efficiency technologies. The key elements are:
 - Increasing energy efficiency by 50 %
 - Expanding combined heat and power (CHP)
 - Increasing the role of solar (both thermal and PV), wind, and the use of local organic wastes for both heating and power generation

Frankfurt's Electricity Supply Mix (2010)

Total = 5,702 GWh



Breakdown of Contributions to Frankfurt's 100% Plan: 2050

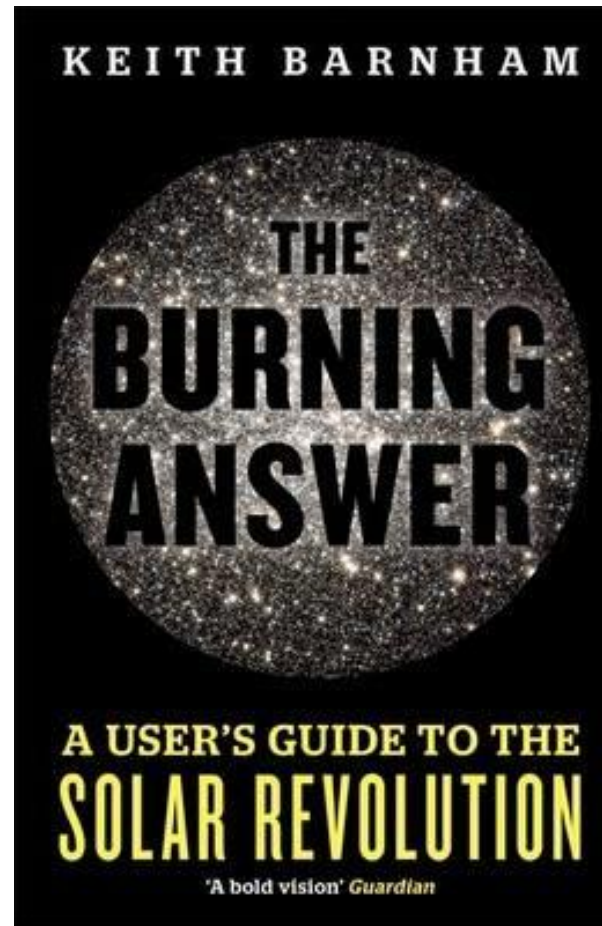


Annual Electricity Demand: 5,702 GWh (2010)

Electricity Access Rate: 100 %

Peak Demand (MW): –

Keith Barnham, Emeritus Professor of Physics, Imperial College London




- ▶ Please follow this link to Keith's video about renewable energy:
- ▶ <http://urbane-co.co.uk/site/renewable-energy-video-by-keith-barnham/>

What is being done in the UK at present and what is confirmed as going ahead?

- ▶ **Committee on Climate Change report to Parliament-**
Within the UK there has been progress in reducing emissions. In 2015, emissions fell by 3% and they are now 38% below 1990 levels. Much of the progress, however, has been in the power sector - as a result of reduced use of coal and increased generation of electricity from renewables. To meet emission reduction targets going forward, reductions will need to be broadly based, across all sectors of the economy.

- ▶ The recent vote to leave the European Union does not change the UK's requirement to reduce emissions nor the required levels of reduction, which were legislated by the UK Parliament. However, it could have an impact on how the UK carbon budgets are met.

- 
- There has been almost no progress in reducing emissions apart from in the power sector. In the rest of the economy, emissions have fallen less than 1% a year since 2012 on a temperature-adjusted basis. That is because there has been slow uptake of low-carbon technologies and behaviours in the buildings sector (i.e. low rates of insulation improvement, low take-up of low-carbon heat) and improved vehicle efficiency has been offset by increased demand for travel as the economy has grown and fuel prices have fallen. There is also minimal evidence of progress in the industrial and agriculture sectors.

Energy efficiency in building stock

- ▶ Heat in buildings – Progress improving the energy efficiency of buildings has stalled since 2012: annual rates of cavity wall and loft insulation in 2013-2015 were 60% down and 90% down respectively on annual rates in 2008-2012. Take-up of heat pumps and low-carbon district heating remains minimal: less than 0.5% of heat demand in 2015.
- ▶ The current government pulled funding for the Green Deal Home Improvement Fund in November 2015

Who will drive the agenda forward?

- ▶ Politicians?
- ▶ Companies?
- ▶ Co-ops?
- ▶ Charities?
- ▶ Individuals?

Bristol Energy Cooperative

- Raise money in bond/share offers to complete ambitious community solar PV projects.



Conclusion?

- ▶ Education - 100% renewables is possible and achievable in a relatively short time
- ▶ Taking ownership and control of energy creation in communities
- ▶ Lobbying MPs and councils
- ▶ Social network
- ▶ Grassroots campaign “Get it from the Sun!”
- ▶ Sign up to clean energy provider
- ▶ ... Your thoughts?