SCIENCE POLICY RESEARCH UNIT

Reorienting Investment towards Energy Efficiency

Dr Noam Bergman Prof Tim Foxon







The project: reorienting investments and divesting from fossil fuel assets

WP1 Reorienting Finance towards Energy Efficiency

WP2 Divestment from Fossil Fuels

WP3 Transition to a Low Carbon Economy How could investment be reoriented towards largescale energy efficiency improvement and energy demand reduction?

- Roles of policy and finance;
- Challenges and risks involved;
- New financial & business models.

Case study: domestic energy efficiency in the UK Interviews with investment community, researchers, NGOs, local government, policy actors

> Centre on Innovation and Energy Demand



Finance & Climate Change

Reorienting the finance system: social case for fighting climate change doesn't translate into a financial case, partly due to 'short-termism' in financial world.

Degree of change needed is debated. Decarbonising the economy as an opportunity for economic growth or... Change the real economy to allow inclusive, green growth; markets on their own cannot deliver prosperity.

There is an increased interest over the past several years of the need to tackle demand, rather than decarbonise an "ever-increasing energy supply".

If mainstream finance is to be harnessed, new methods and models are needed to tackle the risk and uncertainty around low-carbon investments.

Some in the finance world are interested in including 'ESG' in funds.



UK domestic energy efficiency

UK houses poor on energy efficiency, especially older houses. ~25% of emissions come from domestic sector, challenge to retrofit.

Green Deal launched in 2013. Encouraged financially able households to invest in retrofits. The '**pay-as-you-save**' mechanism aimed to deliver large scale retrofits without public subsidies.

Failure: intentions of refurbishing millions of homes by 2020; only ~20,000 funded between 2013-2015. **Discontinued**.

The Green Investment Bank: investments used to lower the cost of capital for green projects. Sale agreed to Macquarie; concerns have been raised that its fundamental role of providing 'patient capital' will be lost.

Austerity policies; government seeking private capital over public investment. UK has a **large finance sector** based in the City of London.





Where are we now?

- Post Green Deal: A gap in policy; we might have a new GD of some sort. But there is **low confidence** in industry and a drop in refurbishment activity.
- Finance **not the only barrier**. You can't invest in something if it isn't there.
- Lack of interest from households, we're still at the 'early adopters' stage.
- 2000-2010 were the 'golden years' of EE improvements, regulation driven; now technologies like electric vehicles currently more trendy.
- UK on track for emissions targets though 2022: reduced manufacturing and lower GDP than expected in 2008. **Government see no need to focus**.
- **Finance** Investing in EE mostly off the radar. Lack of long term clear policy reduces confidence. Investors see risk in household investments.

Centre on Innovation and Energy Demand

• Accounting rules: whose balance sheet, who owns it, who will pay?



Aggregation (1): Energy efficiency as infrastructure

- Broad definition of infrastructure: capital investments in physical structures; input to the production of goods and services (by freeing up capacity)
- Calculations show similar performance to other infrastructure investments.
- Requires government intervention: maximise social good of investments

Some thoughts from interviewees:

- With an infrastructure project you know you'll own a piece of railway; with energy efficiency owning a promise to pay the difference in energy bills..
- Returns not high enough for private capital investment; energy is too cheap.
- Not viable without government subsidy.
- Possible: pension fund investments in aggregated solar panels on houses.
- Financially sound and low income households in the same mechanism?





Aggregation (2): Revolving funds





Revolving funds



- aggregation offers a scale attractive to investors
- economies of scale to reduce costs
- good for economically attractive measures; enough for climate change?
- has been used for supply projects, CHP and district heating, not homes.
- uncertainty around installations and their quality and whether people would in fact pay back – problem for investors: government to underwrite loans





thoughts 1: policy and regulation

The role of government is central, in policy & regulation and leadership. UK government policy highlights the role of markets, suggesting the private sector must be the driving force behind the low carbon economy.

Mazzucato: transforming to a greener economy is an innovation challenge; public policy can affect the *direction* of change, including shaping and creating markets, socialising both risk and rewards. Tilted playing field, not a level field.

Subsidies, grants, low interest loans, and government underwriting of loans could play a key part in mitigating the risk for investment in energy efficiency.

Lack of leadership? Ambition backed up by (threat of) regulation.



thoughts 2: finance

There are financial and business models that could prove viable for investment in aggregated energy efficiency measures.

While there is no major shift, there is more awareness of climate issues. There are funds and investors who would be interested. However this requires:

- a stable policy environment and clear signals from government
- building up a market to invest in; building up skilled retrofitters
- Successfully aggregating retrofits to numbers that interest investors.

Mainstream finance could be harnessed to energy efficiency with new financial and business models, with programmes that engage with households, alongside leadership and regulation.



Centre on Innovation and Energy Demand