

# Household investment in home energy retrofit – designing effective policy

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# Scotland and energy policy

*Scottish Energy Strategy (2017) and Climate Change Plan (2018)*

*Energy Efficient Scotland Route Map (May 2018)*

*Millions of homes already retrofit: cost-effective first, low hanging fruit*

*Ambition: 'By 2040 all Scottish homes to be EPC band C (where technically feasible and cost effective)*

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# What this report is about

Evidence review question –

***“How can public policy more effectively encourage private, ‘able to pay’ households to invest in energy efficient retrofit?”***





- *Private, ‘able to pay’ households investing in home energy retrofit*
- *Home owners – but with relevance to the private rental sector*
- *Required retrofit investment to achieve Energy Efficient Scotland ambitions*

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# Home Energy Retrofit

Retrofit options	
Insulation i.e. walls, loft, floor etc.	
Double/Triple glazing	
More efficient heating systems	
More efficient appliances	

# Reasons to retrofit

## Reasons to retrofit

- **Public policy targets** – carbon emission reduction, fuel poverty alleviation, supporting employment, energy security and more.
- **Private households** – lower energy bills, more comfortable homes, environmental concern and more

## Retrofit investment

- EESP ambition: more than **£10 billion** required investment in Scotland
- Public funds likely to be well below this – **less than £1 billion public funds** over the next 4 years for retrofit in Scotland

# Evidence review method

- Evidence reviews inspired by the **UK Energy Research Centre – Technology and Policy Function**, over 10 years of experience
- Systematic collection of evidence
- Considering over 1000 academic research articles
- Full reading of 100 academic articles, and ‘grey’, non-academic literature

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# Evidence review method

## Project advisory group

- Professor Paul Cairney, University of Stirling
- Dr Robert Gross, Imperial College, London
- Ragne Low, University of Strathclyde
- Dr Jan Rosenow, University of Sussex/Regulatory Assistance Project
- Professor Jan Webb, University of Edinburgh
- Dr Sam Gardner, WWF Scotland

## Topic specific expert group

- Alice Owen, University of Leeds
- Aaron Gillich, London South Bank University
- Nick Kelly, University of Strathclyde

**Scottish Government** – engagement throughout the process of evidence review

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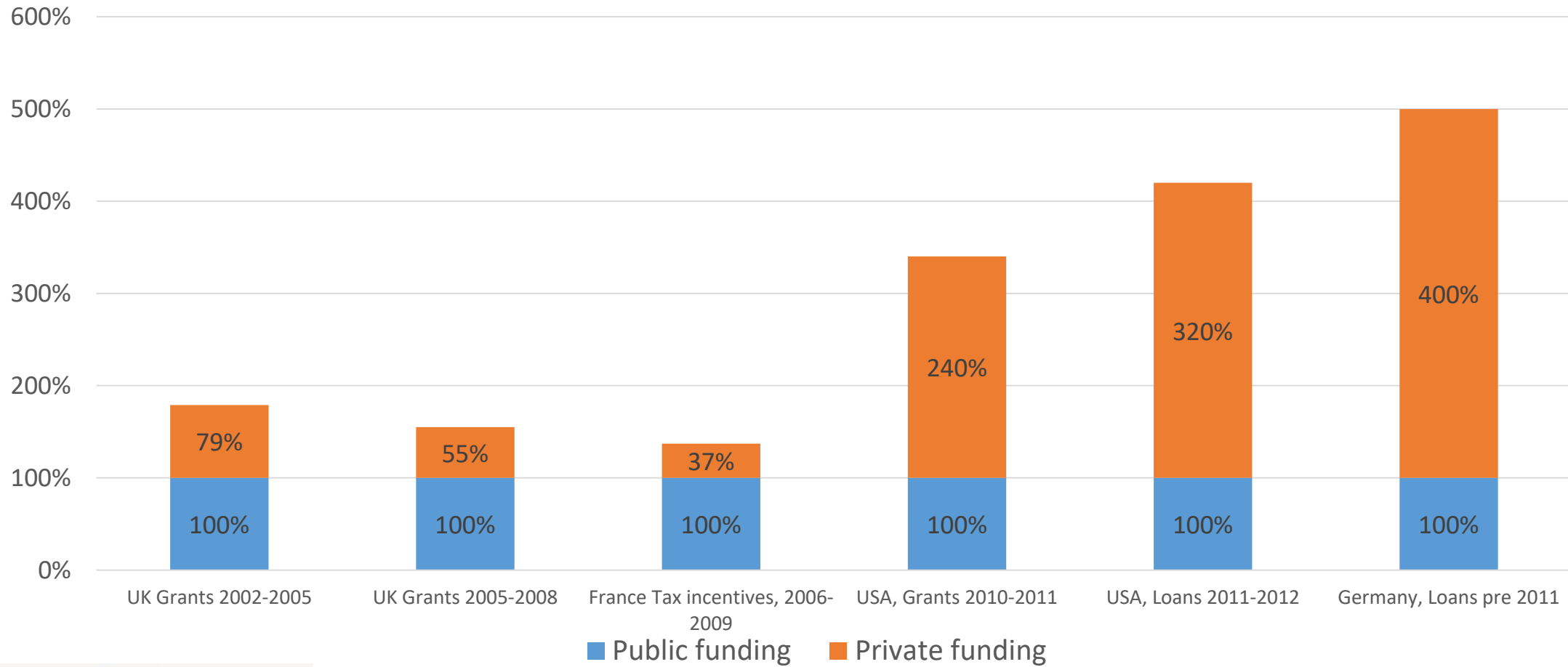


# Policy challenges: leverage and additionality

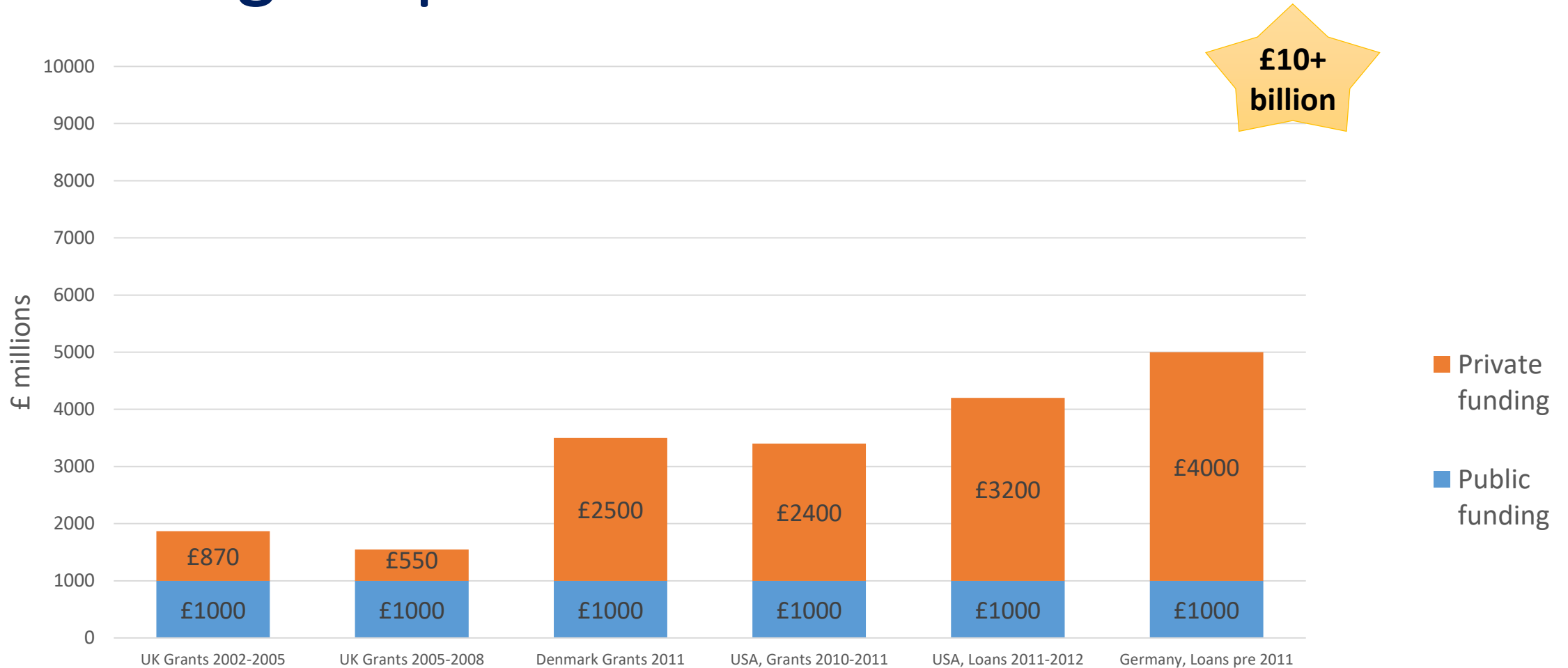
- **Leverage:** the ratio of private to public investment associated with retrofit policy
- **Additionality of policy:** the extent to which policy supports ‘additional’ retrofit or whether the households receiving support are ‘free-riding’



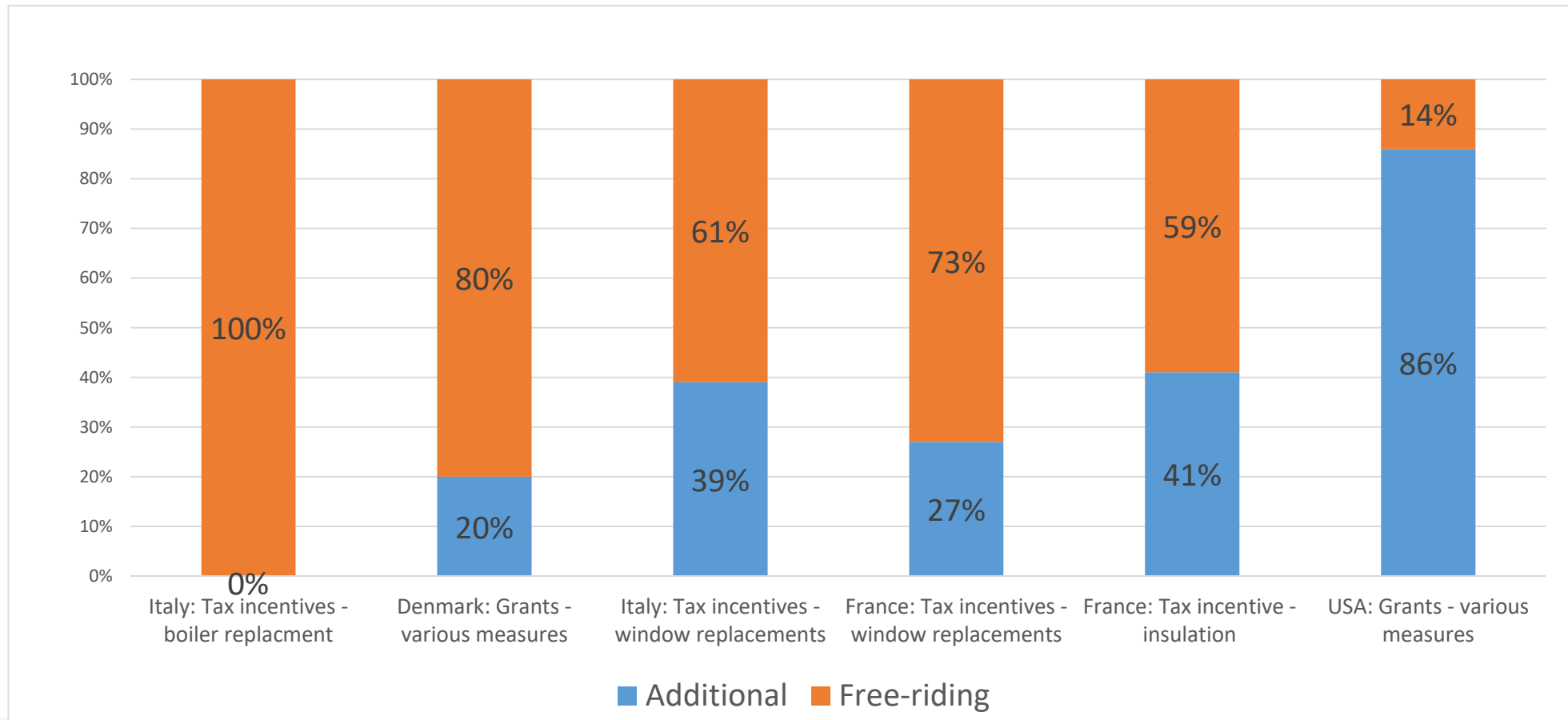
# Leverage of private household investment



# Leverage of private household investment



# Additionality of policy



# Additionality of retrofit policy

- a. Not all retrofit that receives a subsidy will be **'additional'**, 'new' retrofit
- b. However, it is very **difficult to know how much** retrofit is actually additional.
- c. The additionality of policy is likely to be **different for different retrofit measures**
- d. There are equally intangible **positive spillover and market effects from policy**, a policy's 'additionality' is not the only consideration

# Demand for retrofit: the financial carrots

## Grants or Tax incentives

- Most common financial incentives
- Attractive to households

## Low interest loans

- Less common and less attractive to households
- Higher private to public investment ratio

*Policy effectiveness vs Policy efficiency?*



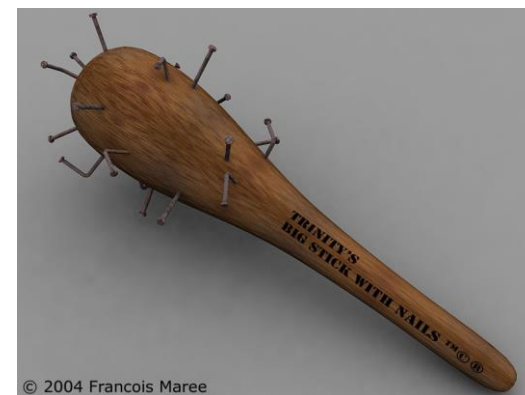
# Demand for retrofit: the sermon and the stick

## Information based policy

- Energy performance certificates and face-to-face energy assessments

## Regulations

- Minimum standards for replacement
- Retrofit when extending a home
- Retrofit when renovating existing areas



# Supply-side of retrofit

- Actors involved with **installing, designing, advising or selling** home energy retrofit
- **General home refurbishment:** a much larger market than energy retrofit
- **Trigger points:** moving house and other renovations
- **Whole house plans:** whole house projects beneficial but often impractical



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# Overall policy package

## Policy stability

- Churn in policy design creates uncertainty for the demand and supply side
- Dedicated funds and long-term political commitment

## Policy simplicity:

- Simplicity in application for funds and understanding policy

## Policy flexibility

- Regional flexibility and in reacting to policy evaluation

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# Summary

- **Large opportunity** for private household investment in retrofit
- **Leverage and additionality:** policy design considerations
- **Financial incentives:** loans offer higher leverage but are less attractive to households
- **Supply alongside demand policy:** thinking holistically about policy offering a push and pull from demand and supply