

Models for Financing Step-by-step Retrofits

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**Building Research Establishment (BRE)
Adam Robinson**



- Analyse how a step-by-step retrofit affects financing arrangements
- Provide a lifecycle concept to assess long term strategies of retrofit
- Provide solutions to overcome existing market barriers
- Develop financial concepts for step-by-step energy efficient retrofits
- Develop effective incentive policies for high quality and energy efficient retrofits
- Develop one-stop-shop solutions which include attractive ready-to-use financial concepts
- Motivate financial institutions to provide innovative financing for step-by-step retrofit.



The Need for Retrofit

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- In the EU, buildings account for:
 - **40%** of energy consumption
 - **36%** of greenhouse gas emissions
- Average building lifespan is **50 years**
- Complete renewal of existing building stock would take **~100 years**
- **All buildings** need to be retrofitted by 2050 to meet EU targets
- Current retrofit rate is **~1%**, which needs to be **>2%**
- Estimated total investment need of **€600-1800 billion** until 2050



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The Benefits of Retrofit

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- Reduce greenhouse gas **emissions**
- Energy savings = reduced energy **bills**
- Retain existing structure/materials
- Improved **thermal comfort**
- Indoor **environmental quality**
- Improved **health** of building occupants
- Community-wide improvements
- Uncover/repair existing **damage**
- Improved building **appearance**/durability
- Extend the useful life of the building
- Higher **re-sale** value
- Increase rental **income**
- Generate **economic/job opportunities**



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- High up-front **costs**
- Lack of **customer awareness**; high perceived **risk**
- Lack of **financial institution awareness** on energy efficiency
- Lack of visibility and scale of **finance available**
- Difficulties in creating creditworthy **financing structures**
- Energy savings not recognised as **conventional revenues**
- Lack of reliable long-term **forecasting** on energy prices
- **Split incentive** between building owners and tenants



Legal Barriers to Retrofit

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- Rules of **public budgeting**
- **Local Authorities** may have to make investment from one budget, with savings credited to another budget
- **Joint home ownership** creates difficulties with the number of parties involved
- Uncertainties related to **owner-tenant issues** and building ownership
- Lack of consideration of **lifecycle costs** in procurement decisions



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Financing SBS Retrofits

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To improve energy efficiency of buildings we need to achieve a successful mix of:

- Regulatory policies
- Promotional schemes
- Market-based instruments



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Promoting Energy Efficiency

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What Banks Require

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Holistic approach

Consider the entire building and not just a part of it. What is my final objective in terms of energy consumption (kWh/m²/year)

Reliable calculation tools

For baseline as well as actual savings

Certification systems

To know whether particular efficiency targets have been reached (especially for step-by-step retrofit)



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Financial Soundness of a Project

- Basis for financial soundness is the cash flow.
- Economic benefits (externalities) are generally not considered.
- Cash flow from energy efficiency projects consists of:

In-flows	Out-flows
Savings from efficiency gains	Equity share at investment cost
Higher rents (owners)	Operational costs
Loan disbursements	Higher rents (tenants)
	Repayment/interest for loans

- Savings arrive as avoided outflows.
- Savings usually fluctuate, also depend on price developments.
- Savings do not always arrive at the same place as the outflows.



- **Recourse (or balance sheet finance):**

Finance is granted on the basis of the creditworthiness of the investor. Cash flow and Net Present Value (NPV) are (for the bank) of secondary importance.
- **Project finance:**

Finance is granted on the basis of the financial soundness (cash flow) of the project. The investor has to prove that the cash flow is sufficient to cover the repayment.
- **Recourse and project finance:**

Project finance for energy efficiency part; recourse finance for the incidental/modernisation part (no visible future financial benefits).



- **Debt financing, credit lines, revolving funds**
Conventional bank loan
- **ESCO (Energy Service Company) financing**
Natural or legal person who delivers energy services and/or energy efficiency improvement measures in a final customer's facility or premises
- **Forfeiting**
Selling a receivable for a discounted lump sum to a bank (forfeiter), normally on the basis of bills of exchange
- **Leasing**
Investment goods are only leased to the investor and will be taken back after an agreed time (with the option to buy them at an agreed residual value)



Public support can help to:

- **Shorten repayment periods** make a project financeable by market based instruments
- **Create trust** for a retrofit project in to find financing sources
- Improve the **cash flow** and the **net present value** of a project to find project sponsors
- **Compensate for external, but intangible benefits** (like CO2 reduction)
- **Improve the financing structure** in particular for communities and public institutions lacking financial sources

But they will always require additional market based financing



Types of Public Support

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- Grant programs
- Credit lines and guarantee schemes
- Redemption Grants
- EU Funding for Sustainable Energy in Buildings
 - Europe-wide funds
 - National and Regional schemes
 - National/Regional schemes
- European Development Financial Institutions
 - CEB/EIB/EBRD
 - National Development Institutions (like KfW)



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KfW, Germany

- KfW handles incentive programs on behalf of the Federal Ministry of Transport, Building and Urban Development.
- The programs for energy-efficient retrofit receive **favourable terms** through German federal budget funds, providing financial incentives for more energy efficiency in the housing sector.
- Recent studies show that energy efficient retrofit is a **win-win situation** for the home owners, environment, economy and federal budget.
- The current and previous evaluations (since 2006) and studies on the economic impacts are available on the KfW website.



Financing Retrofits – an example

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- In 2011, KfW committed loans and grants of **EUR 2.9 billion for housing retrofit**.
- This induced investments of **3.9 billion**, and secured employment for **52,000 people**.
- For each Euro spent, the Federal Government received at least **3 Euros in tax income and savings** (study by Forschungszentrum Jülich)
- Direct sales plus additional demand for wholesale service items, for 2011 alone, resulted in a total turnover volume of **EUR 27 billion for 262,000 homes** (181,000 retrofits and 81,000 new builds)
- In 2011, for energy efficiency investments in the building sector overall, **~251,000 jobs** were secured or created.



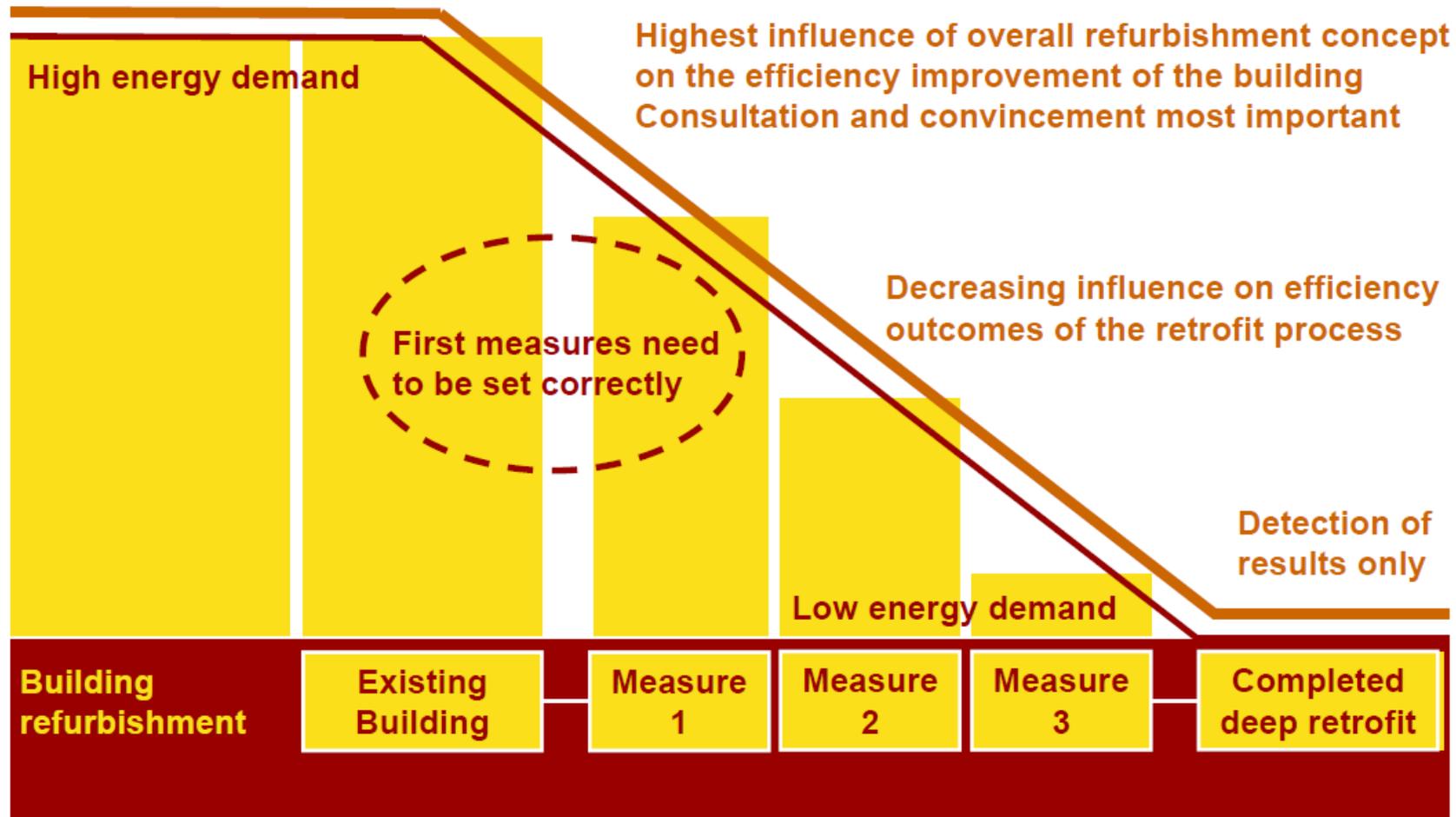
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Focus for SBS Financing

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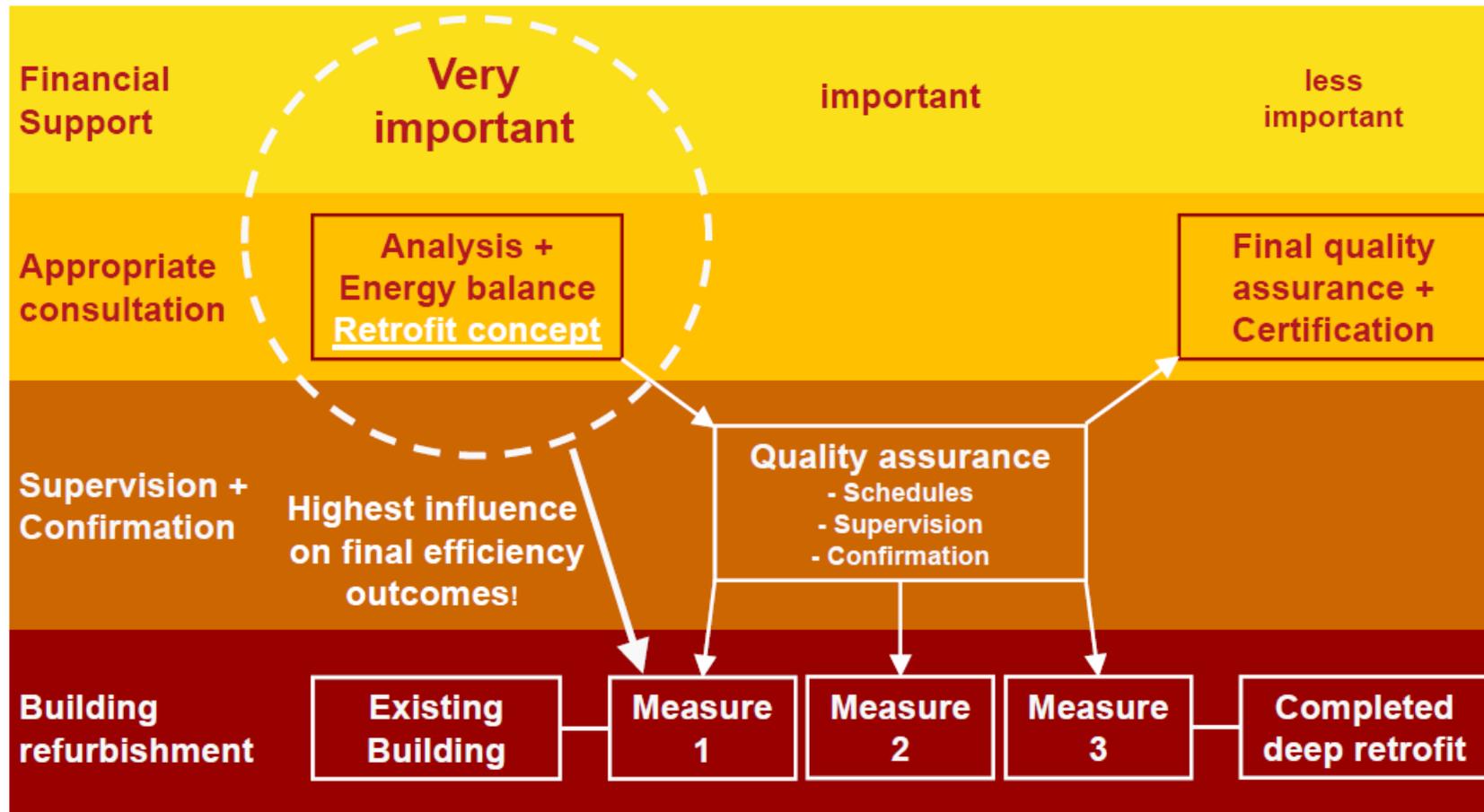
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Focus on Initial Consultation

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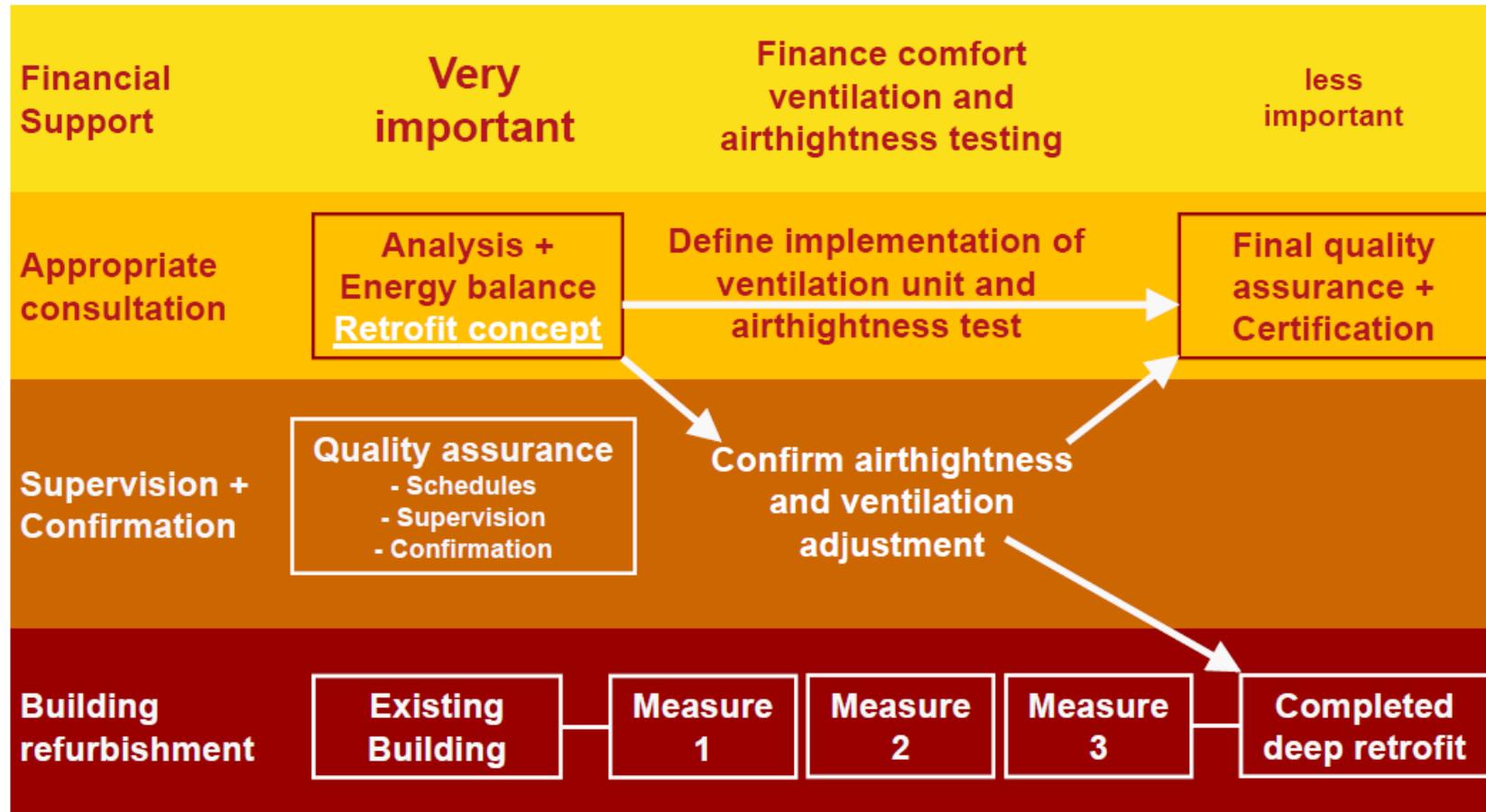
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Supporting less popular measures

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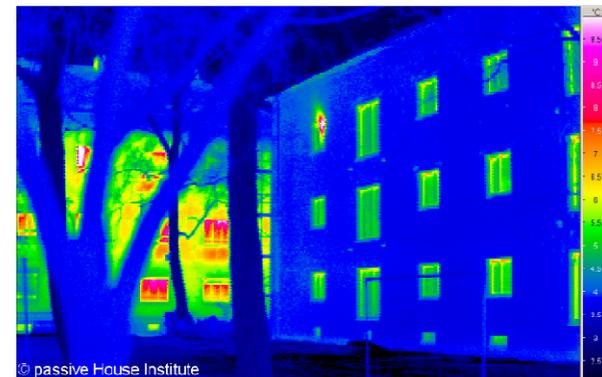
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- Contribute on our Forum
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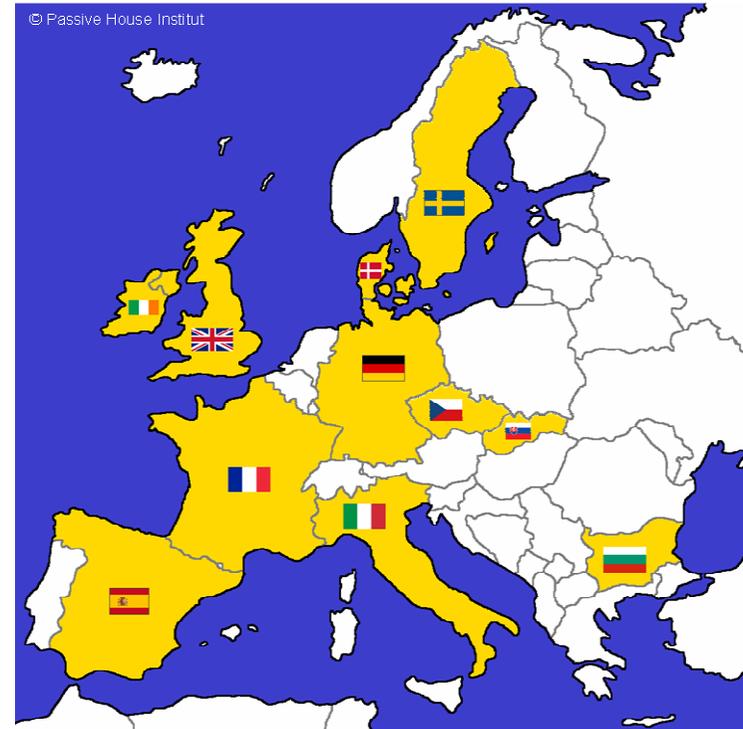
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