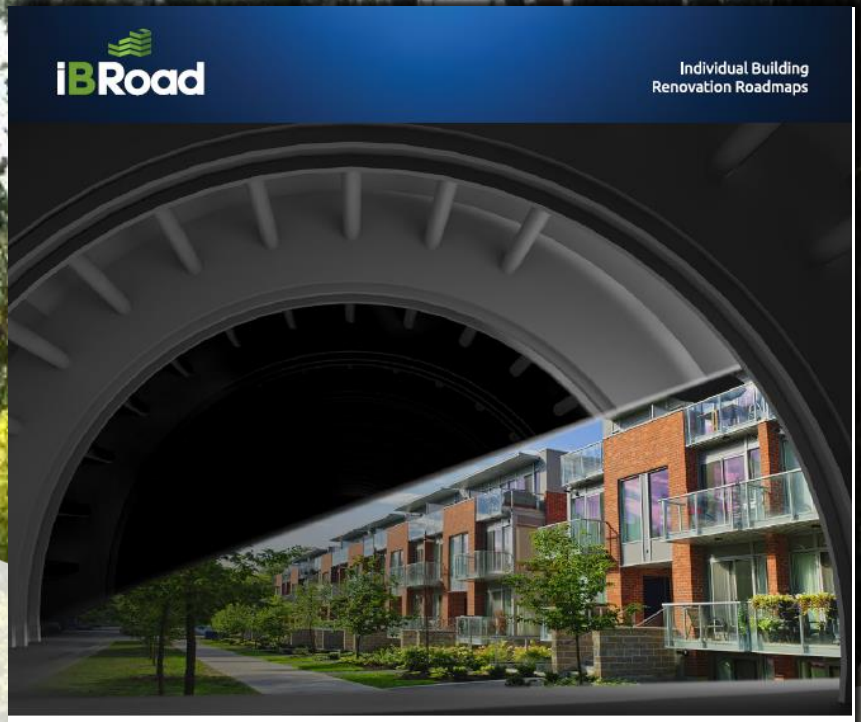
iBRoad

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°754045



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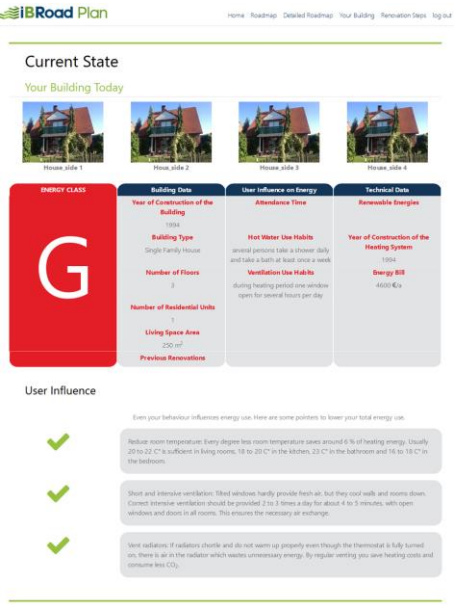
ifeu – Institut für Energie- und Umweltforschung

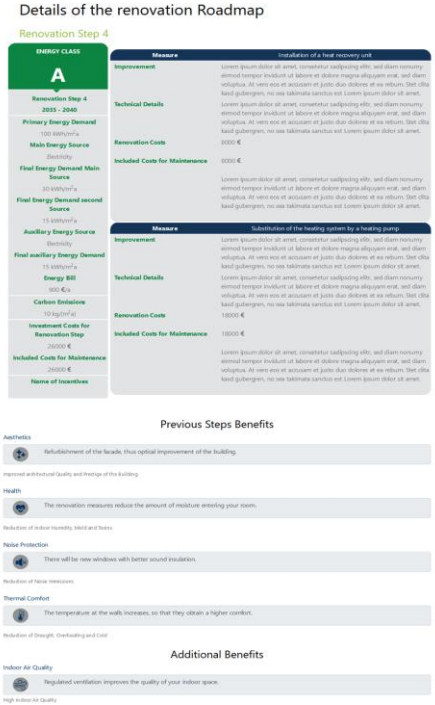
Feb 19th 2020

Pages of the Renovation Roadmap

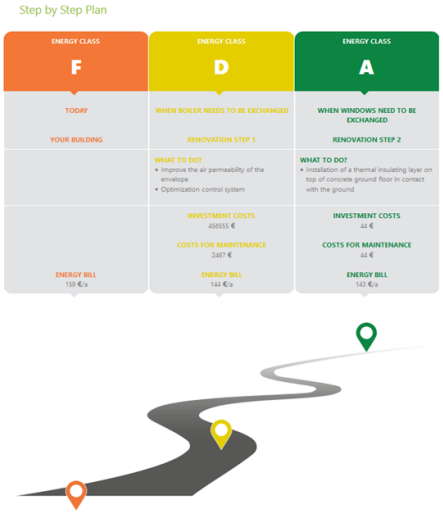
Current building state



Detailed renovation step



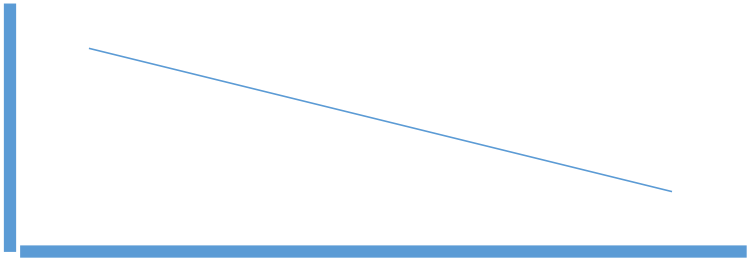
Roadmap overview



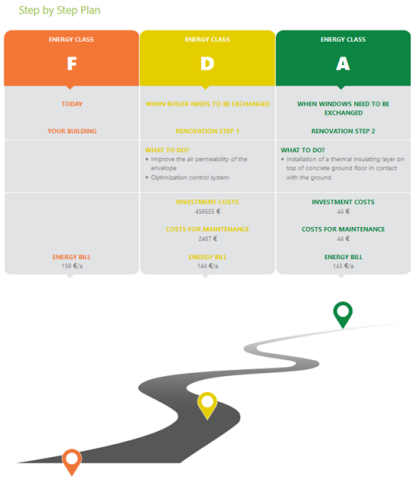
Detailed Roadmap

iBRoad Renovation Roadmap – Why?

1. Building components have long life cycles – from today, each renovation must contribute to the climate target



2. Most owners renovate step by step. But also stepwise renovations have to be deep and avoid lock-ins.



Renovation Roadmap – Why?

3

It takes an overarching plan to combine single renovation steps to a deep renovation

4

A long-term plan can consider the occations („trigger points“) in the homeowners´ lives

Prerequisites for roadmap

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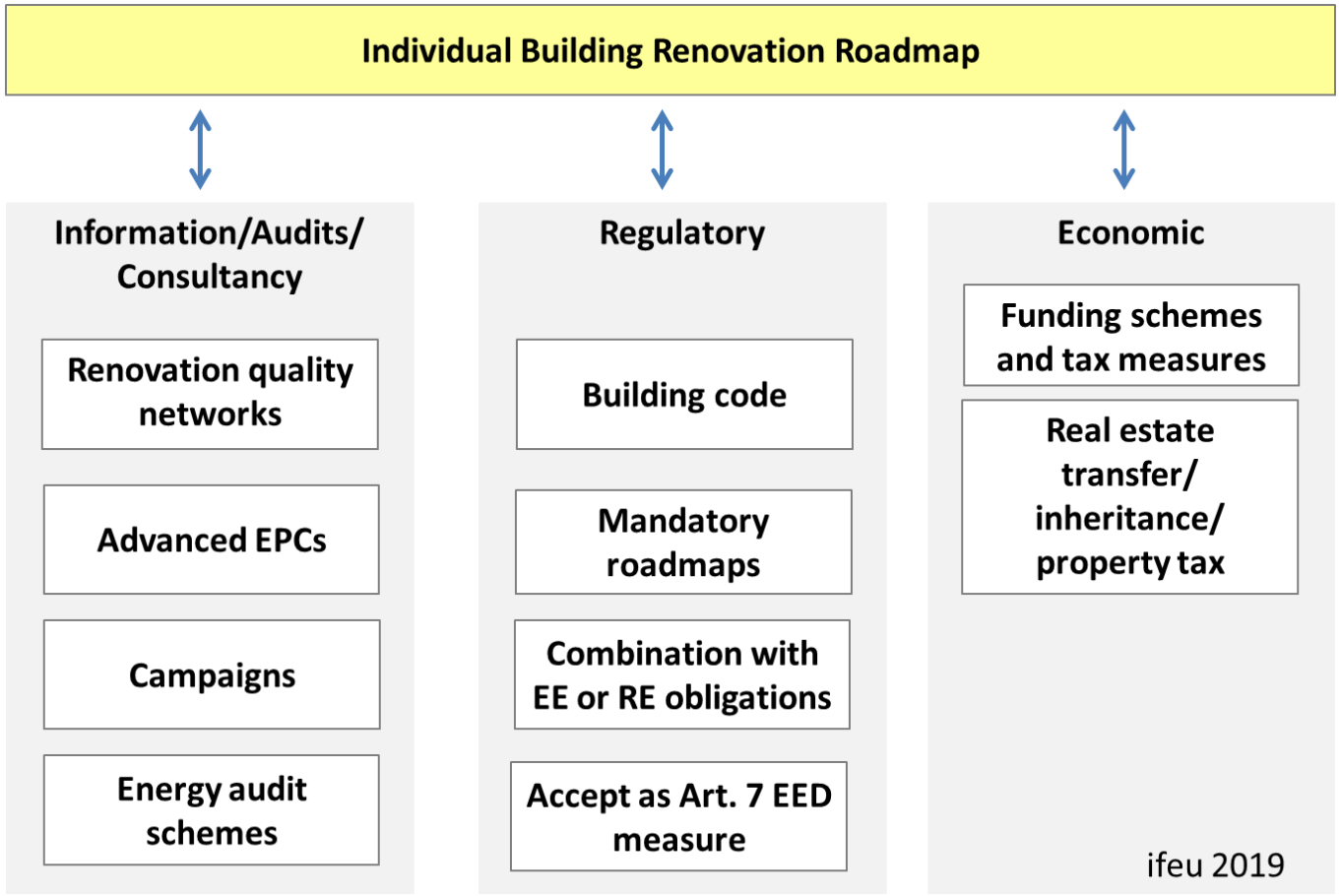
- Software tool to calculate the building energy demand (today and after the renovation steps), ideally including renovation costs
  - *If not: additional cost tools are available.*
- Trusted and trained energy auditors / renovation experts
- Authorities (e. g. energy agencies) to administer a roadmap programme including auditor training
- Ideally: an already existing programme for building energy audits/consultancies
  - *If not: use roadmap to kick off such a programme.*

Training materials in iBROAD

Training and technology, software, communication

Embedding iBRoad into policy landscape



iBRoad in awareness and information campaigns

- Make the instrument known, create a „brand“, create clear contact points („Where do I get a roadmap, who helps me, what happens next…“)
- Target oriented campaigns:
  - e. g. for elderly people or people who have to exchange their old boiler
- Integrate into existing EPC (Energy performance certificate) schemes
  - e. g. EPC plus

Example:
German campaign
„Germany efficient“

Financial Support for iBroad

Approach 1: Support roadmap and energy audit financially

- Increases uptake and market diffusion
- Can be combined with a campaign („Get a clear picture for your building“…)

Example:
Financial support from BAFA

Federal Office for Economic Affairs and Export Control (BAFA) supports each roadmap with 80 % of the costs for the roadmap (max. 1,300 € for one-family and 1,700 € for larger buildings).

Approach 2: Better support for implemented measures when they are recommended by a roadmap, e. g. by combining with existing support schemes

- Improves quality of implemented measures
- Makes the roadmap (and thus a systematic approach to a building) more attractive

Example:
City of Tübingen bonus for measures

Lump-sum bonus of 500 EUR if a recommended measure referred to in the roadmap is implemented

Approach 3: Roadmap as prequisite for funding

- Ensures that no lock-in effects or not useful measures will be funded
- However, make sure that this does not cause an extra barrier to applying for the funding.

Example:
EFRE Funding

Prerequisite for receiving soft credits for renovation of single-family buildings by the Fund for Urban Development under Operational Programme "Regions in Growth". The same approach is suggested for the implementation of the SMARTER Finance for Families project, applying the Green Mortgage scheme in deep energy retrofit scenarios:

Approach 4: Funding for deep-renovation compatible measures

- Better funding for those measures that lead to deep renovation (as suggested by the roadmap) or
- Better funding for packages of renovation measures,
  e. g. when you insulate the house and exchange the windows simulatenously

Example: **Incentives for enhanced renovation qualities in the Vorarlberg "Wohnhaussanierungsrichtlinie"**

Basic subsidy will be increased if the refurbishment is particularly energy-efficient and a few minimum ecological requirements must be met when selecting materials

Funding level	Roof		Top floor ceiling		Outer walls		Other floors and walls		Windows (glass & frame)	
	U-value	Funding (EUR/m²)	U-value	Funding (EUR/m²)	U-value	Funding (EUR/m²)	U-value	Funding (EUR/m²)	U-value	Funding (EUR/m²)
1	≤ 0.16	120 EUR	≤ 0.16	20 EUR	≤ 0.20	80 EUR	≤ 0.30	35 EUR	≤ 1.00	300 – 550 EUR (depending on the material)
2	≤ 0.13	180 EUR	≤ 0.13	35 EUR	≤ 0.15	120 EUR	≤ 0.23	45 EUR	≤ 0,85	450 – 700 EUR (depending on the material)

Approach 1: Connect roadmap to EPC

- Supplement the EPCs by additional taylored information in the form of a roadmap
- Can build on existing infrastructure for issuing EPCs

Example:

Portuguese Energy Performance Certificate

Certificar é Valorizar

Certificado Energético

Edifício de Habitação

SCE1234567890

C

PROPOSTAS DE MEDIDAS DE MELHORIA

As medidas propostas foram identificadas pelo Perito Qualificado e têm como objectivo a melhoria do desempenho energético do edifício. A implementação destas medidas, para além de reduzir a fatura energética anual, poderá contribuir para uma melhoria na classificação energética.

Nº da Medida	Aplicação	Descrição da Medida de Melhoria Proposta	Custo Estimado do Investimento	Redução Anual Estimada da Fatura Energética	Classe Energética (após medida)
1		Isolamento térmico em paredes exteriores – aplicação pelo exterior com revestimento aplicado sobre o isolante	3.500€	até 150€	B⁻
2		Substituição de vãos envidraçados existentes por novos vãos envidraçados de classe energética A (classificação CLASSE+)	1.800€	até 200€	B
3		Instalação de sistema solar térmico individual – sistema de circulação forçada	2.500€	até 300€	B
4		Efetuar manutenção do equipamento de produção de águas quentes sanitárias	150€	até 0€	C
5		Isolamento térmico de cobertura plana - aplicação sobre a laje	4.500€	até 300€	B

Saiba mais sobre as medidas de melhoria nas restantes páginas do certificado.

Incentivos financeiros - Saiba mais em www.adene.pt/sce/incentivos

CONJUNTO DE MEDIDAS DE MELHORIA

1 + 2 + 3 + 5

Representa o impacto a nível financeiro e do desempenho energético na habitação, que este conjunto de medidas de melhoria terá, se for implementado.

12.300€ — CUSTO TOTAL ESTIMADO DO INVESTIMENTO

até 800€ — REDUÇÃO ANUAL ESTIMADA DA FATURA

A+ — CLASSE ENERGÉTICA APÓS MEDIDA

RECOMENDAÇÕES SOBRE SISTEMAS TÉCNICOS

Os sistemas técnicos dos edifícios de habitação, com especial relevância para os equipamentos responsáveis pela produção de águas quentes sanitárias, aquecimento e arrefecimento são determinantes no consumo de energia. Face a essa importância é essencial que sejam promovidas, com regularidade, ações que assegurem o correto funcionamento desses equipamentos, especialmente em sistemas com caldeiras que produzam água quente sanitária e/ou aquecimento, bem como sistemas de ar condicionado. Neste sentido, é recomendável que sejam realizadas ações de manutenção e inspeção regulares a esses sistemas, por técnicos qualificados. Estas ações contribuem para manter os sistemas regulados de acordo com as suas especificações, garantir a segurança e o funcionamento otimizado do ponto de vista energético e ambiental.

Nas situações de aquisição de novos equipamentos ou de substituição dos atuais, deverá obter, através de um técnico qualificado, informação sobre o dimensionamento e características adequadas em função das necessidades. A escolha correta de um equipamento permitirá otimizar os custos energéticos e de manutenção durante a vida útil do mesmo.

Estas recomendações foram produzidas pela ADENE - Agência para a energia. Caso necessite de obter mais informações sobre como melhorar o desempenho dos seus equipamentos, contacte esta agência ou um técnico qualificado.

Entidade Gestora — adene, Agência para a Energia

Entidade Fiscalizadora — Direção Geral de Energia e Geologia

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Approach 2: Making roadmaps mandatory

- Given certain trigger points, such as changes in property ownership, a roadmap could be made mandatory
- Advantage: high number of roadmaps required
- Disadvantages
  - Acceptance for obligations often low
  - A „relationship of trust" between the energy auditor and the home owner is affected

Example:

Austin Energy Conservation Audit and Disclosure Ordinance

The Energy Conservation Audit and Disclosure Ordinance (ECAD) requires energy audits and disclosures for all buildings which are served by Austin Energy and located within Austin city limits prior to a sale if the building is ten years or older

Regulatory measures

Approach 3: Combining iBRoad with efficiency or renewable heating obligations

- Advantage: Triggers additional audits
- Disadvantage: A certain share of those roadmaps will be produced with minimum effort just to fulfill the law.

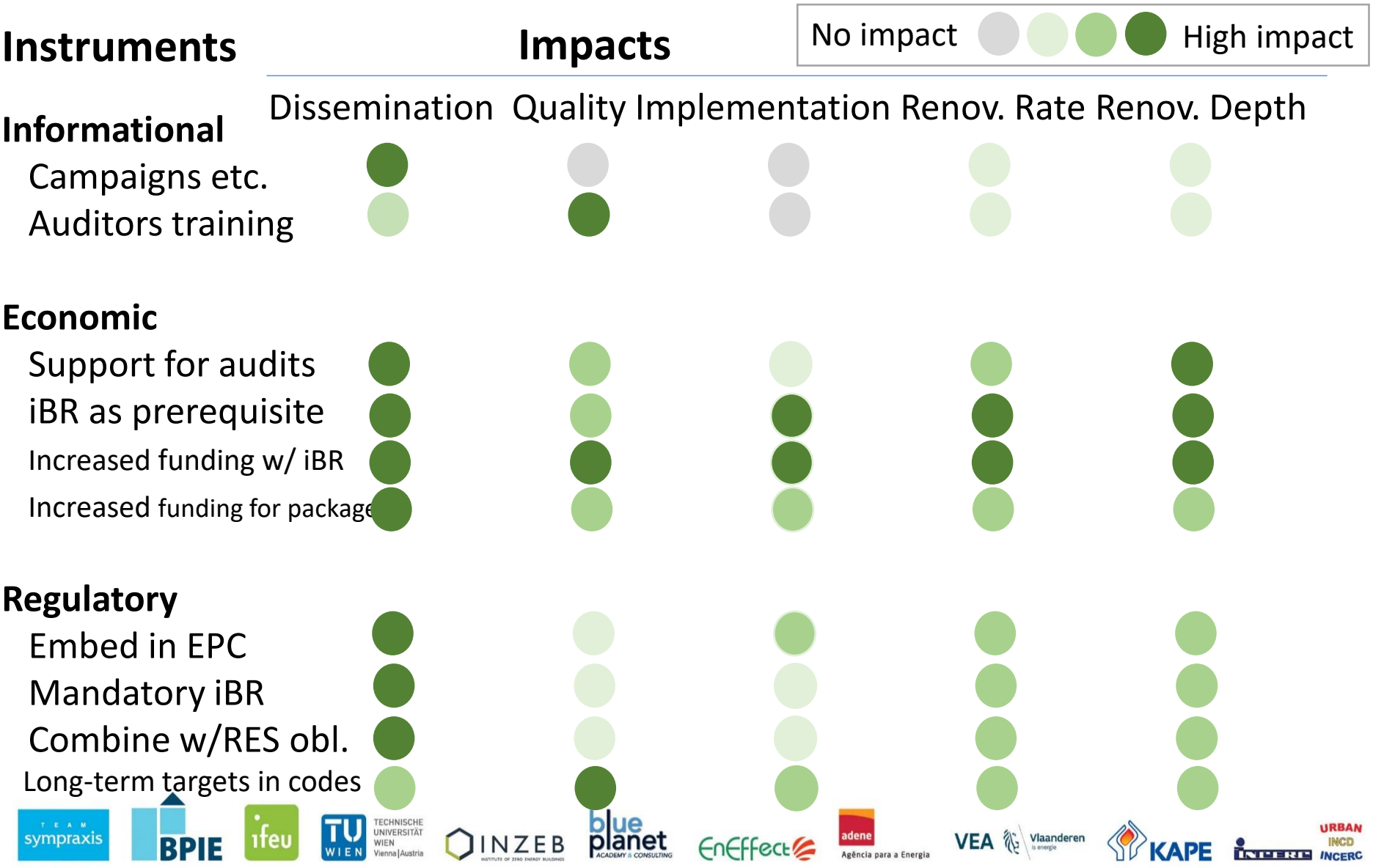
Example:

Renewable-Energies-Heat-Act in the State of Baden-Württemberg

Owners of a heating system need to employ a minimum share of renewable energy. A part of the obligation (in residential buildings one third) can be fulfilled by carrying out an energy audit of the building based on an individual building renovation roadmap.

Since then, the number of energy audits per person in Baden-Württemberg is more than twofold that of most other States.

Overall recommendations



Conclusions

Without „surrounding policies“, the roadmap will be an interesting energy audit/consultancy approach, but unfold only limited quantitative impact on renovation rate and depth.

Information campaigns and training increases awareness and quality of the roadmap.
Economic measures foster the impact and implementation („from paper to practice“).
Regulatory measures improve the diffusion of the roadmap, but should be synchronised with the national policy mix.

Take action, develop “your” roadmap approach!

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°754045

Thank you!

www.ibroad-project.eu

Martin Pehnt

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