



Strategic policy packages to deliver energy efficiency in buildings – their international evidence



bigEE: Objectives

Raise greater awareness and attention for the variety of benefits of increased energy efficiency in new and existing buildings.

Close the gaps of scattered information and material on energy efficiency by providing latest know-how in a target group oriented, consistent, comprehensive, easily accessible, and transparent way.

Manage and communicate available knowledge especially for emerging economies



bigEE: Target Groups

Decision-makers:

- Investors
- Policy-Makers
- Staff involved in policy implementation

... worldwide

... and in 5 emerging economies, with partners

=> Internet platform bigee.net

- Buildings Guide
Guide



- Policy Guide

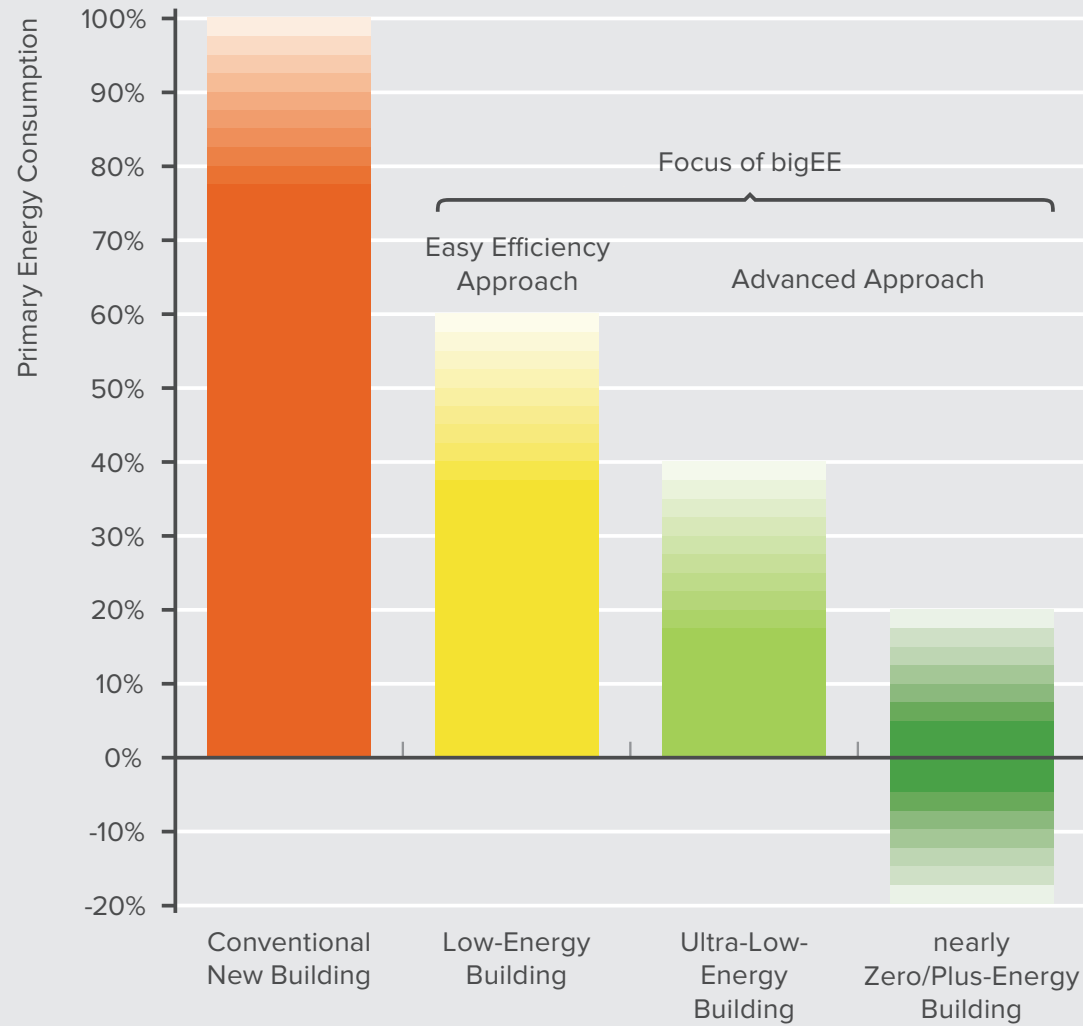


Your guide to energy efficiency in buildings

App  ces

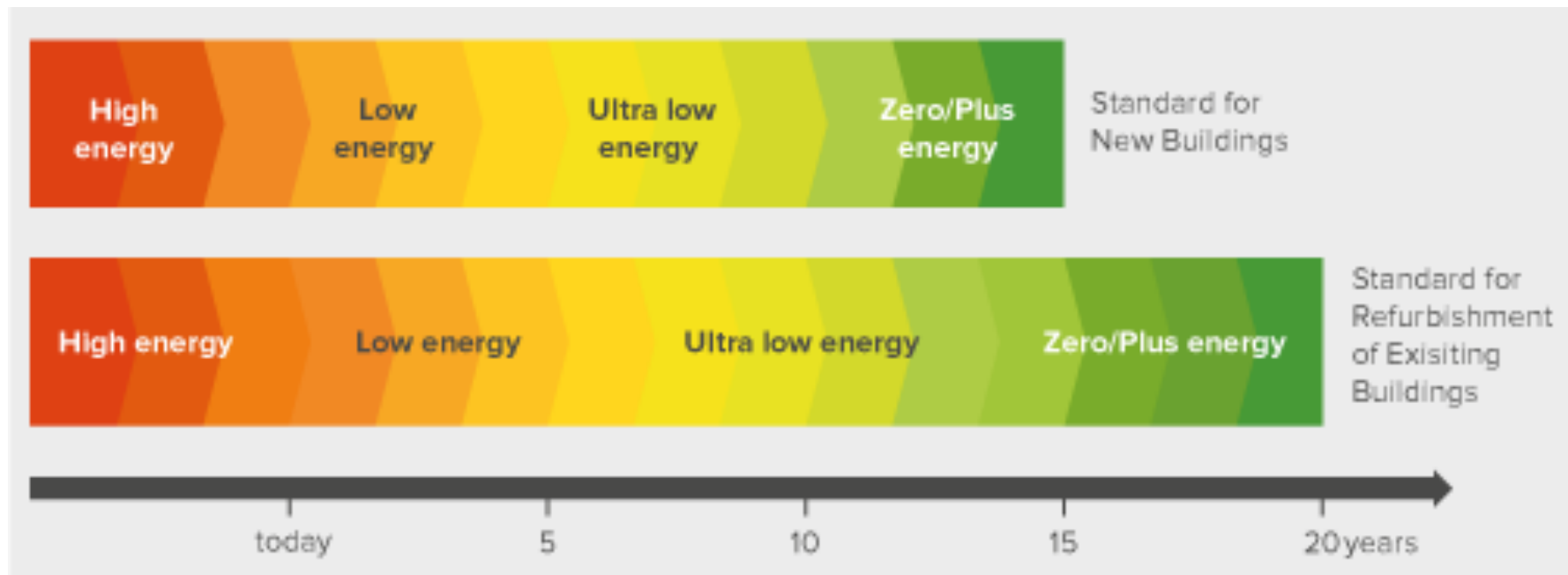


The steps to energy efficiency





Policy roadmap to energy efficiency





Policy Guide

- Recommended policy packages for new buildings and renovation, appliances
- Detailed information on issues of implementation for the types of policies and measures in the package
- Good practice examples for both packages and single policies and measures



Policy Packages - Methodology

The actor-oriented theoretical analysis

Step 1.1

Analysis of actor-specific **barriers and incentives**



Step 1.2

Developing **implementation strategies** to address the barriers and incentives



Step 1.3

- a) From implementation strategies to **policies and measures**
- b) Integration to **strategic policy packages**

The empirical proof

Step 2

Validate the resulting **'recommended policy package'** through **empirical evidence** of which instruments advanced countries have packaged together

PLUS: The multi-criteria assessment scheme to evaluate single policies: are they 'good practice'?
POSTER: Tholen et al.



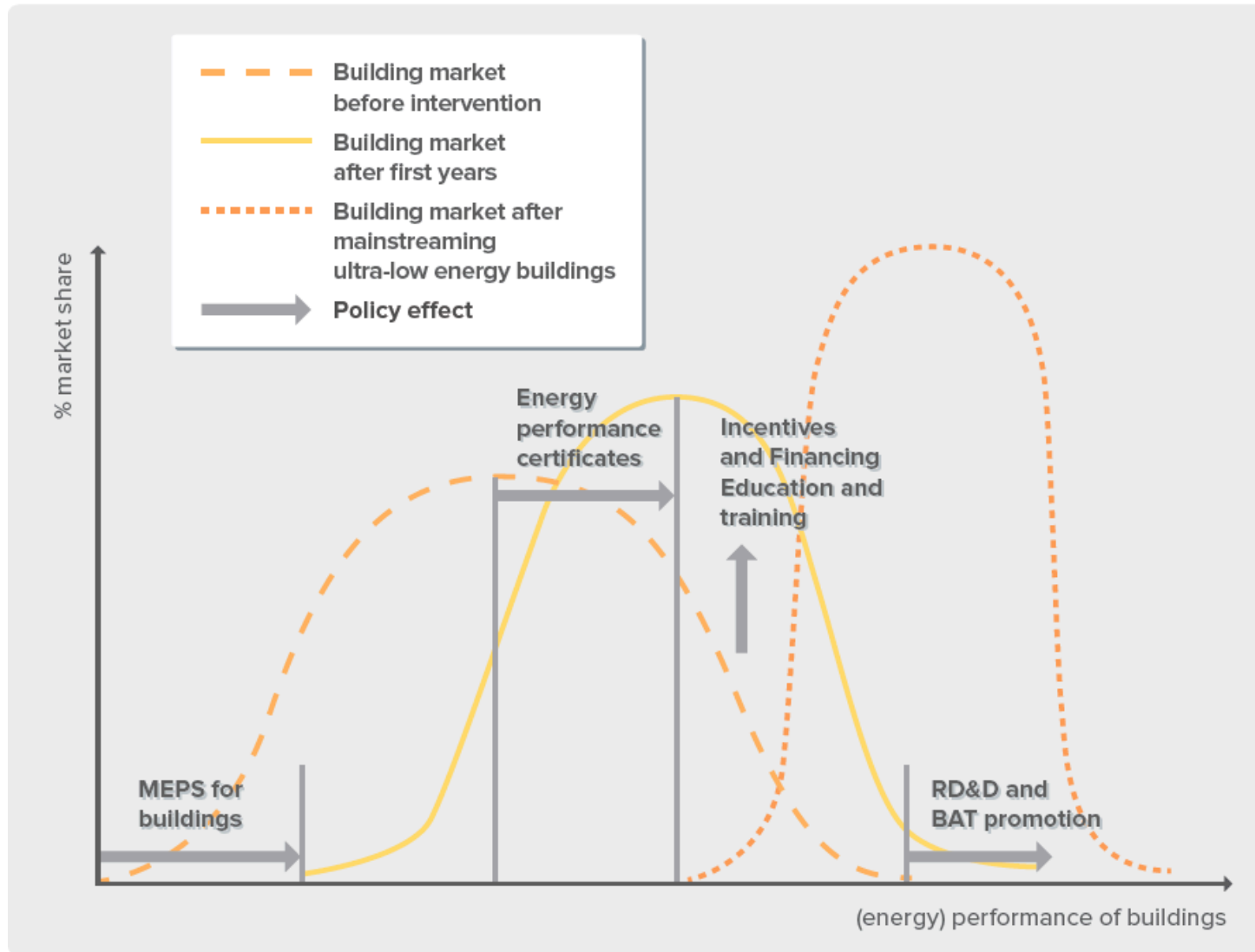


Policy package: governance framework

- **Policy Roadmap with a clear timetable** and targets
 - For new buildings lay out the road for mainstreaming ultra low energy buildings (ULEB)
 - For renovation and operation of existing buildings pave the way for high energy savings in each retrofit and in operation, and for increased rates of energy-efficient retrofit
- **Administrative infrastructure and funding** for the other policy elements: Energy Agency, EE Funds or obligations
- **Removing energy subsidies; creating energy or CO₂ taxes** and or an ETS

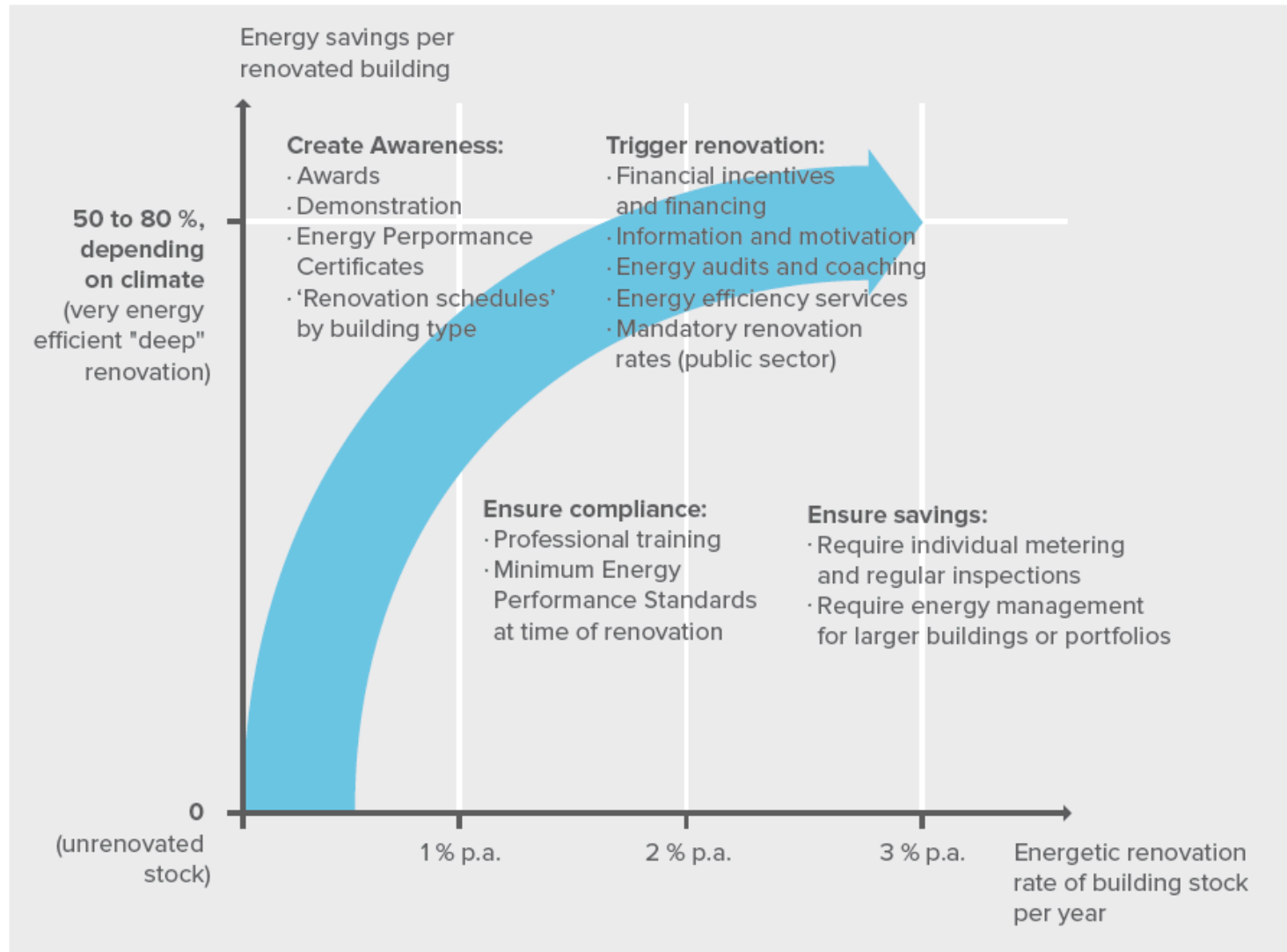


Policy package for new buildings





Policy package for renovation





Step 2: Validate the recommended policy package through empirical evidence

- As advanced countries show, the policy package that we derived from our actor-centred analysis **comes close** to what countries have introduced to approach very high levels of energy efficiency

Policy	California	China	Denmark	Germany	Tunisia
Targets	x	x	x	x	x
Energy Agency	(x)	(x)	x	x	x
Funds or DSM	x DSM	(x)	x DSM	(x)	x Funds
MEPS	x	x	x	x	x
EP Certificates	(x) volunt.	(x) vol.	x	x	x
Advice/audits	x	x	x	x	x
Grants	x	(x)	x	(x)	(x)
Soft loans/PAYS	x			x	x
Training	x	x	x	x	x



A closer look: peculiarities

- **Policy Roadmap** and targets:
 - California, Denmark, Germany aim for net or nearly zero energy buildings by 2020
 - Germany wants to cut primary energy use in stock 80% by 2050
- **Energy audits:** only in Tunisia mandatory, although only for large buildings
- **Legal EE requirements/MEPS for existing buildings:**
 - (Almost) Only in case of renovation in Denmark, Germany, Tunisia
 - China introduces trading system on overall energy performance of existing larger public and commercial buildings, called the Energy consumption quota management



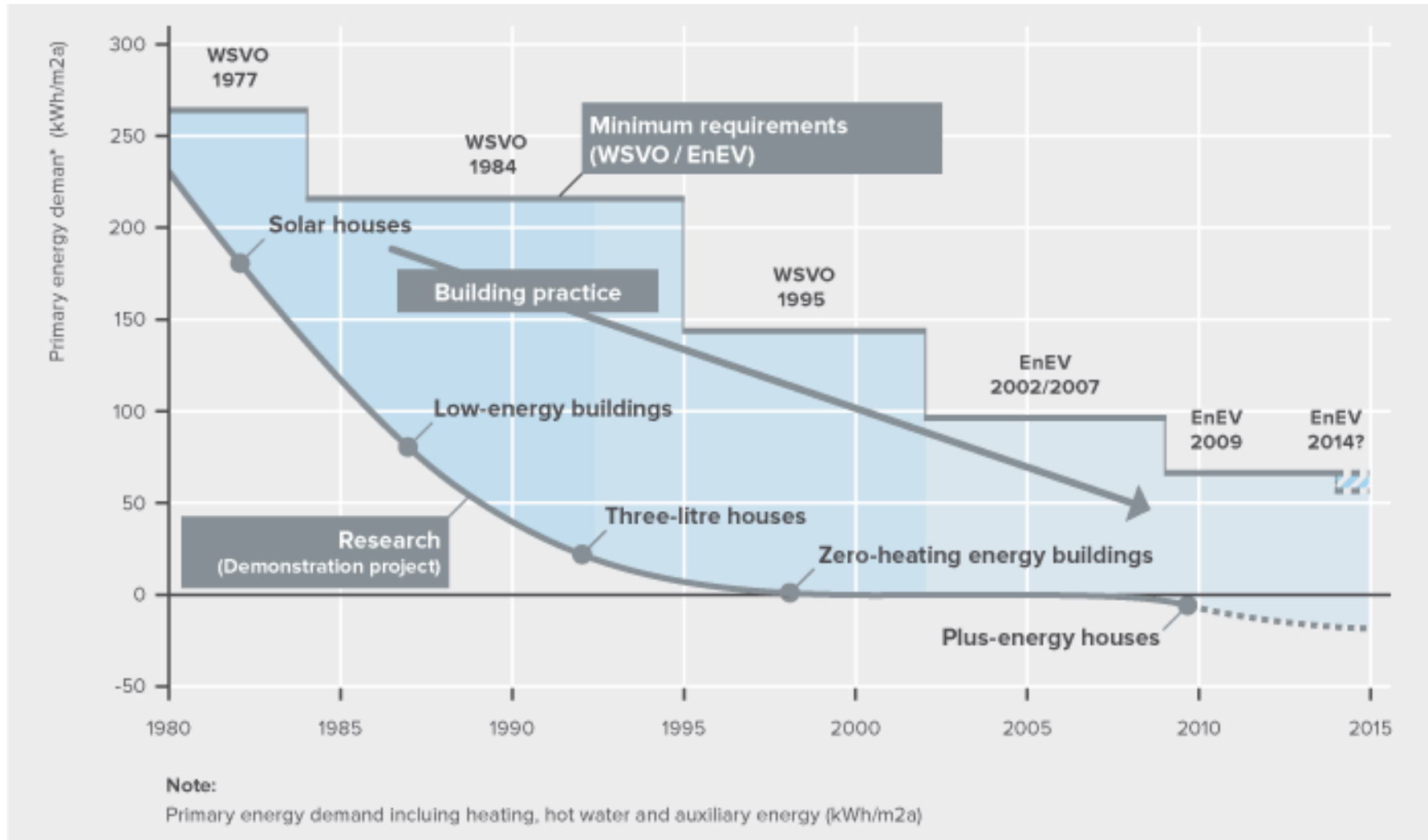
But what have they achieved?

- **Difficult to compare for lack of data:**
 - California kept electricity consumption stable over last 30 years, whereas 30 % increase in rest of USA (energy in buildings mostly electricity)
 - China: calculated new building energy demand in cities 50 to 65 % below 1980ies; while advanced countries such as Denmark and Germany reduced it by 75 %, compliance control is good in China
 - In Denmark, energy efficiency of households was improved between 1990 and 2008 by almost 16%
 - In Germany, renovations supported by government save 31 % on average but demonstrations have shown 76 % actual savings possible
 - In Tunisia, between 2007 and 2011, PROSOL programme contributed to total size of solar water heaters increasing by 500,000 m²
- **Good progress but all have quite a way to go!**



Minimum Energy Performance Standards

Case study: new buildings in Germany





The next steps

- Current project phase to continue to mid 2014
- Adding Strategic Approach for renovation of existing residential buildings
- Then offices, retail, schools, possibly other types of service sector buildings
- Adaptation to partner countries (China, South Africa; Mexico?)
- Adding Policy detail for renovation of existing buildings
- We will be happy to receive your comments!

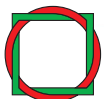


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