Strategic Approach

A global Strategic Approach to energy efficiency in the building sector

Wuppertal Institute
for Climate, Environment
and Energy

Christopher Moore | Hyères, 07.05.2013

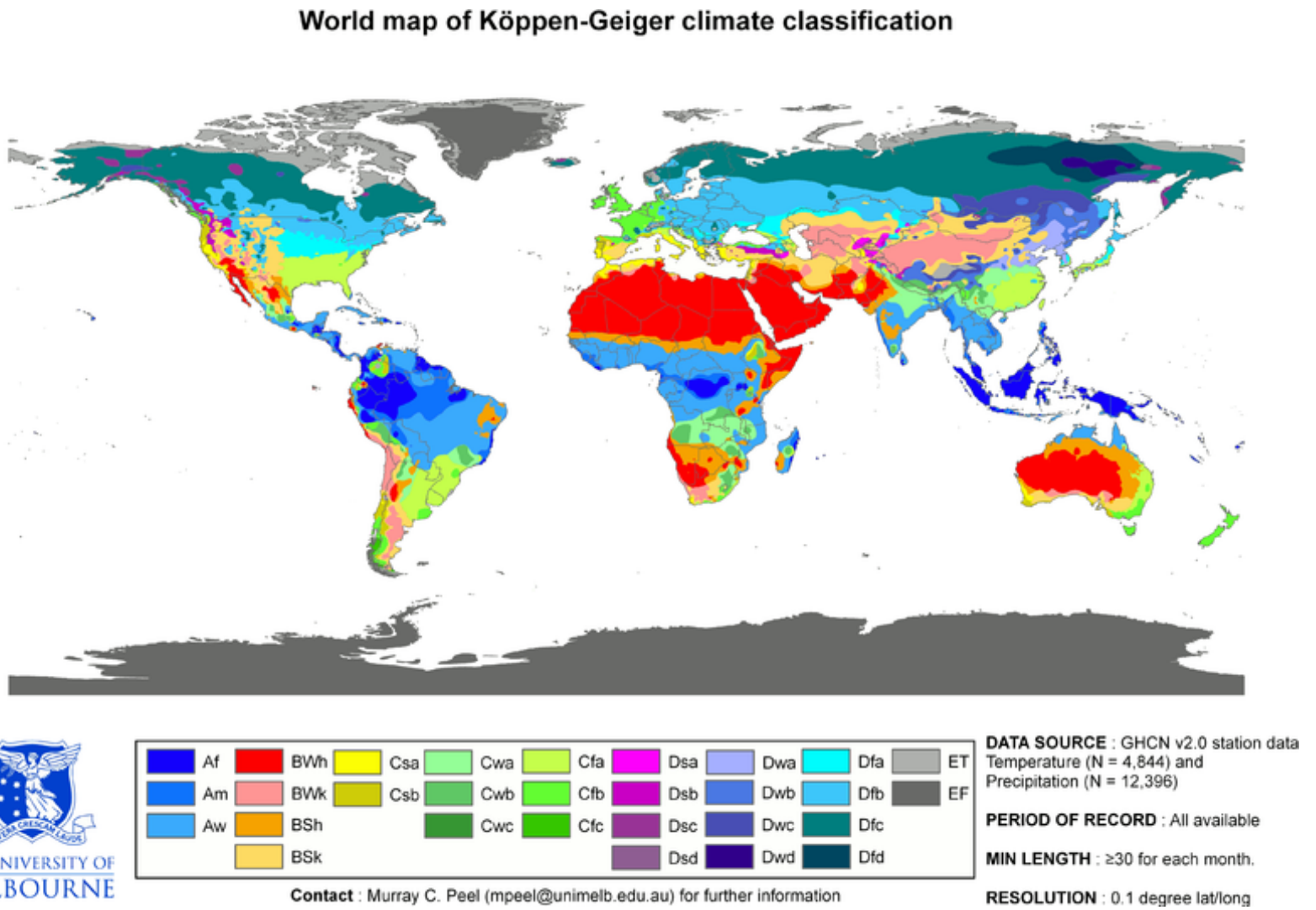
Status Quo

- Buildings account for almost 30% of global CO_2 emissions
- Large savings in energy use (75% or higher) are possible
- Conventional new buildings in OECD countries save 50 % energy compared to stock
- Improving buildings and appliance energy efficiency has up to 80% - 90 %saving potentials

Is a Strategic Approach needed?

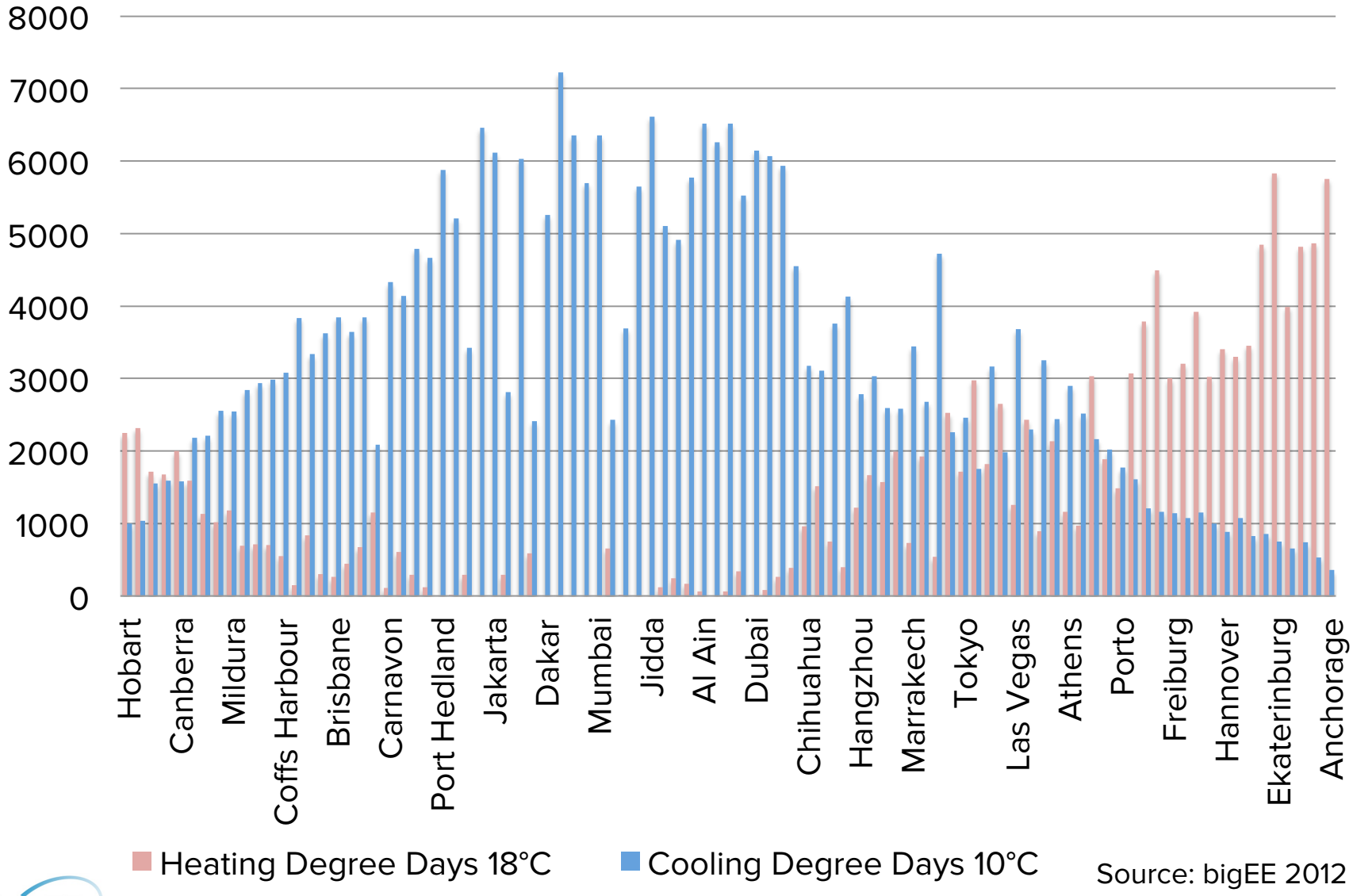
- No worldwide consistent standard for primary thermal energy consumption
  - A general definition for low-energy buildings does not exist
  - Numerous definitions of net or nearly Zero Energy Buildings
- No defintion that takes into account various levels of ambition
- Target definitions are often not clear

Climate Zones



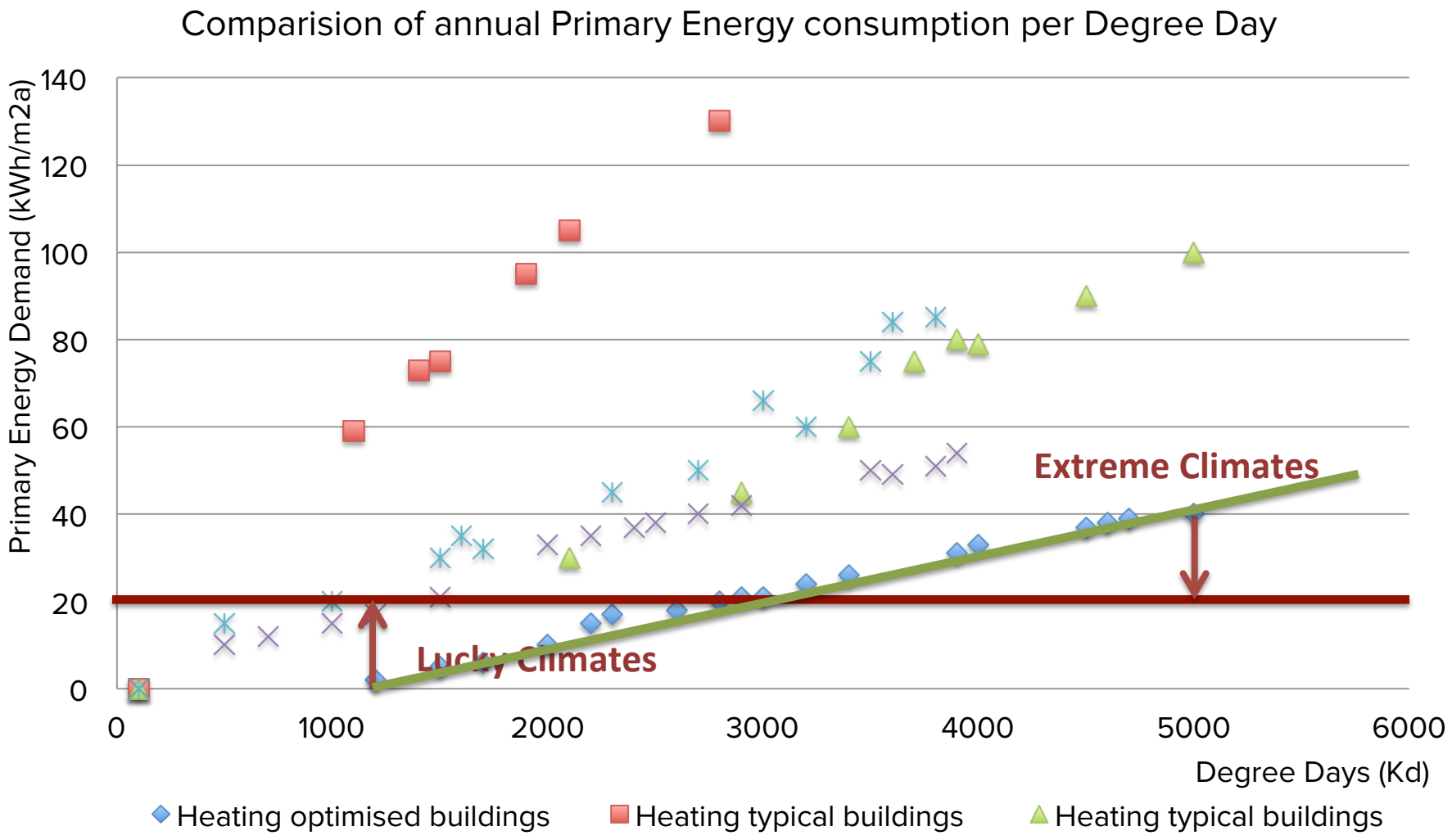
Source: University of Melbourne

Comparison of Degree Days



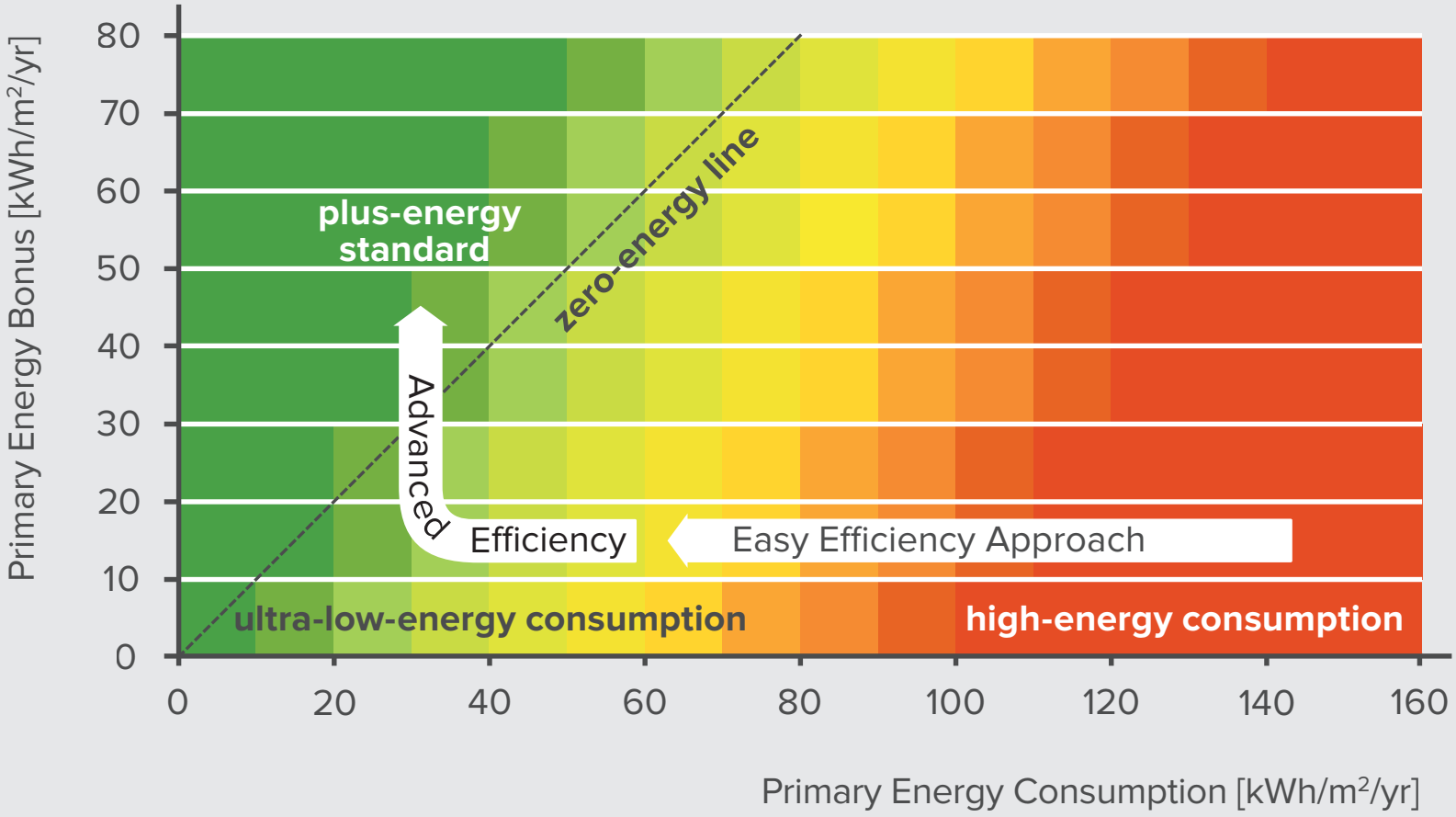
Source: bigEE 2012

Primary Energy per Degree Day



Source: CEPE

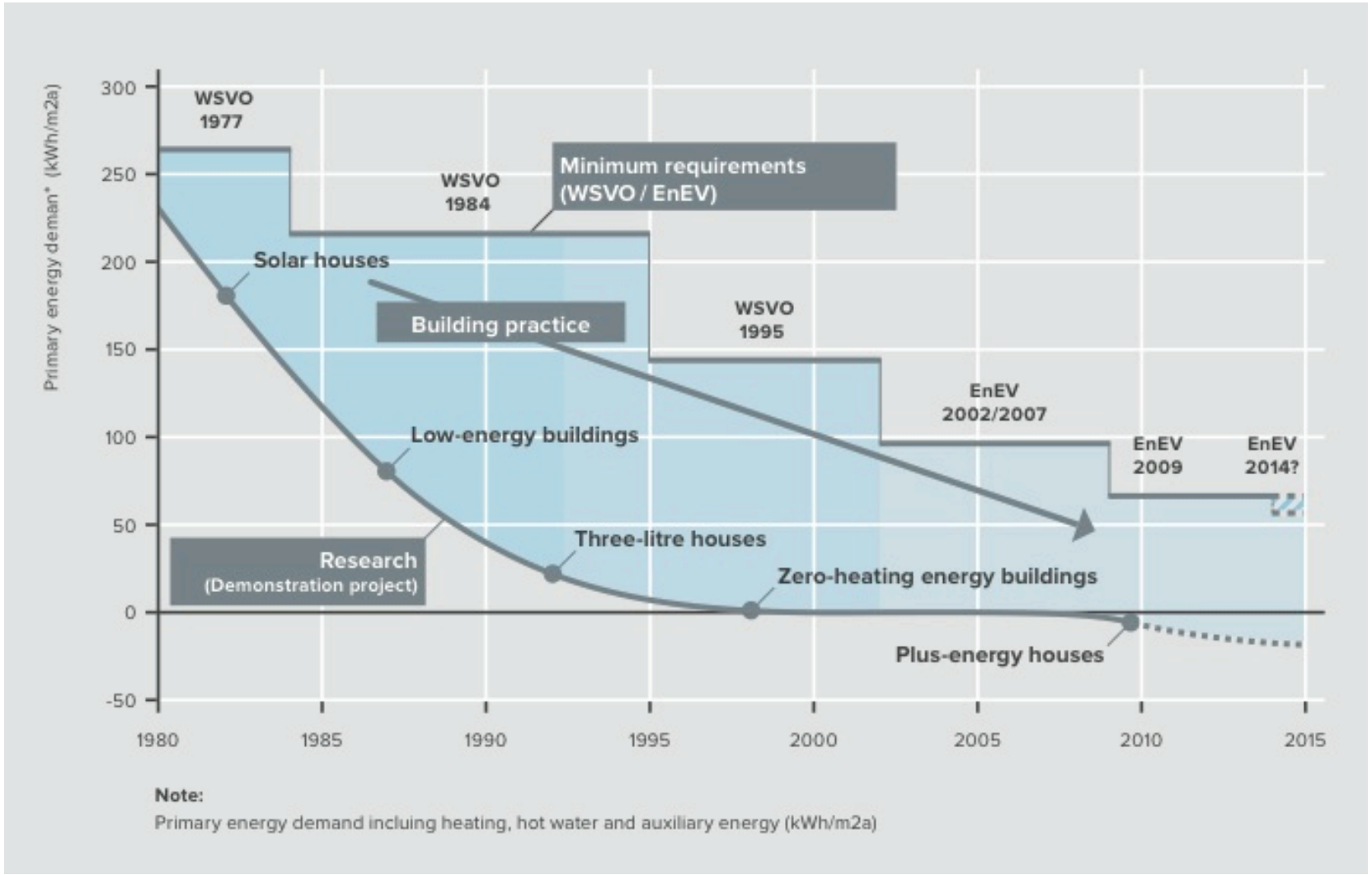
The path to energy efficiency



Source: bigEE 2012

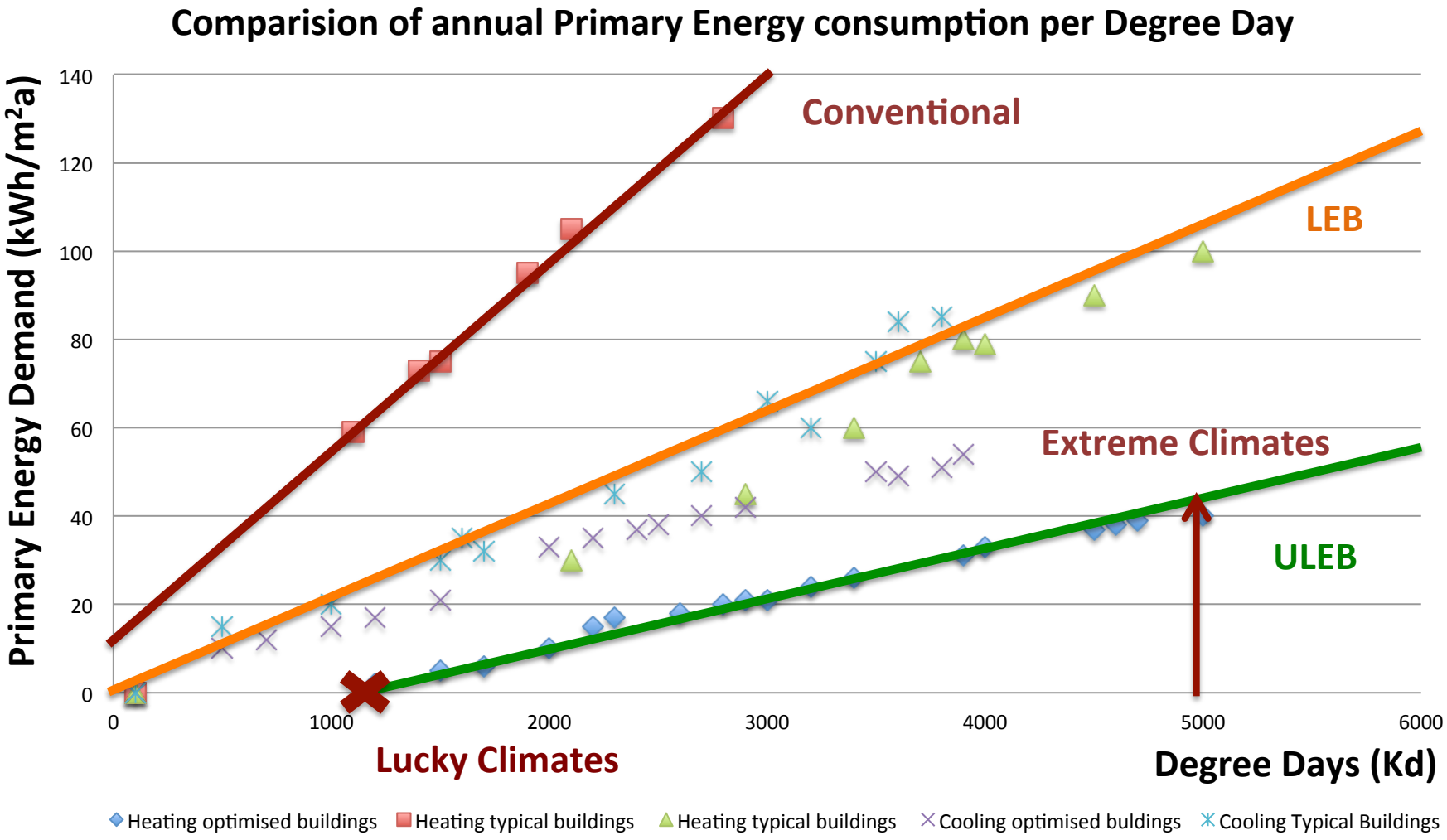
Minimum Energy Performance Standards

Case study: new buildings in Germany



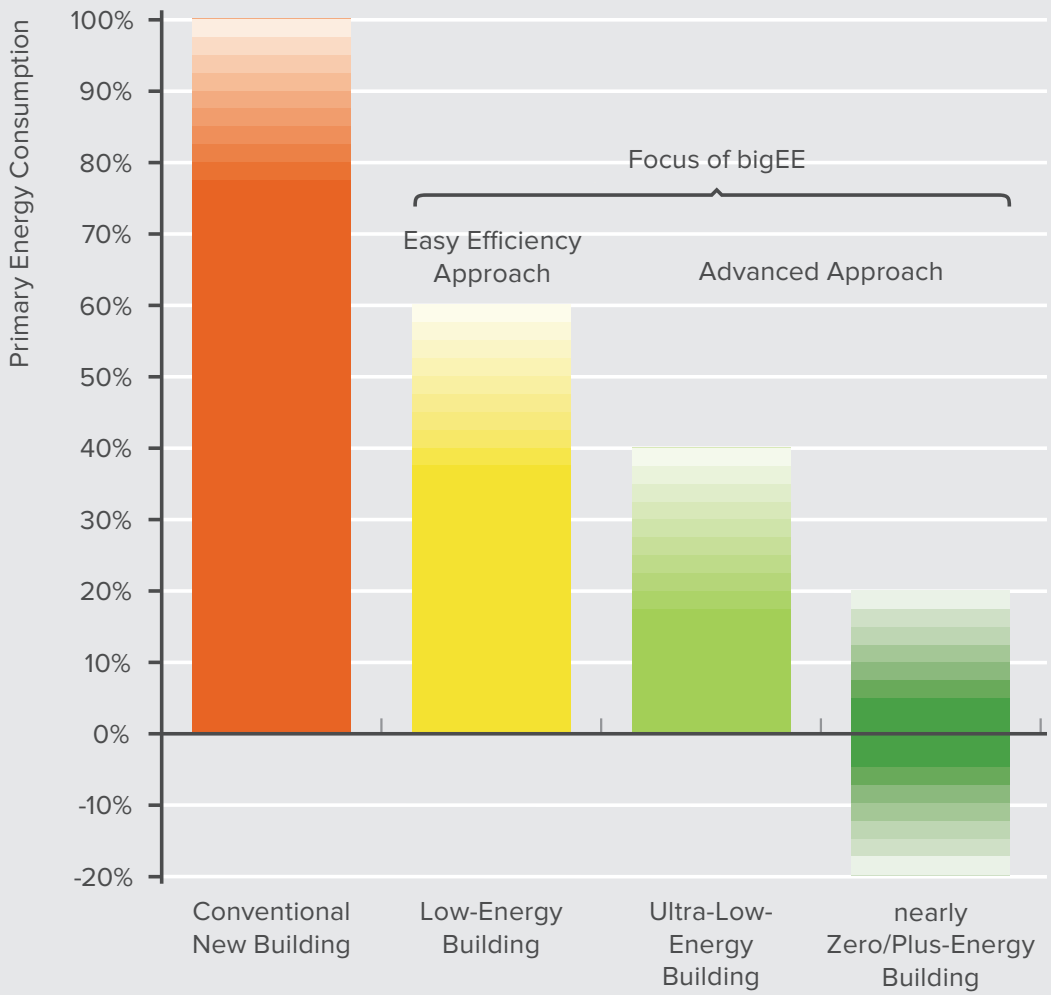
Source: Fraunhofer IBP 2012

Primary Energy per Degree Day



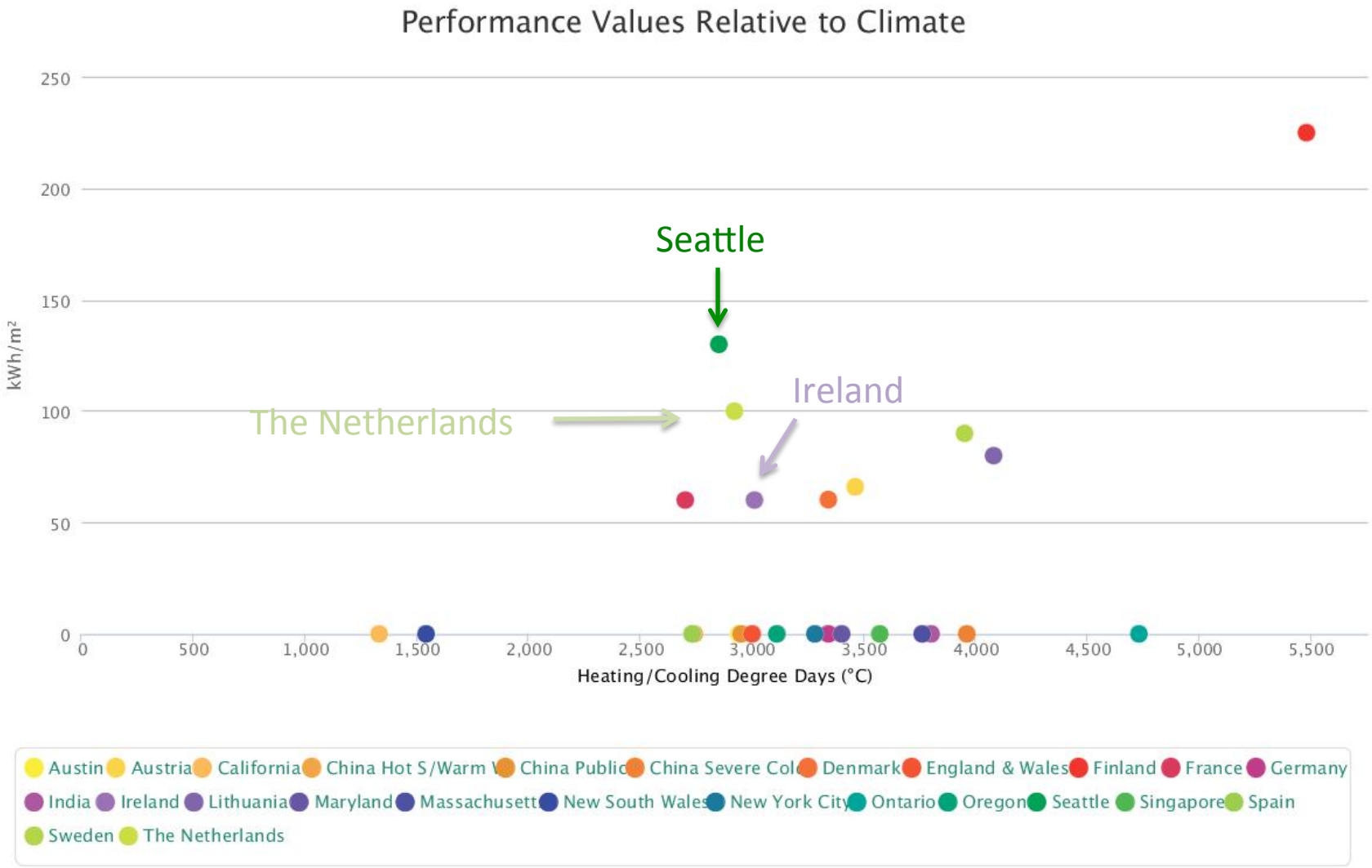
Source: CEPE

The steps to energy efficiency



Source: bigEE 2012

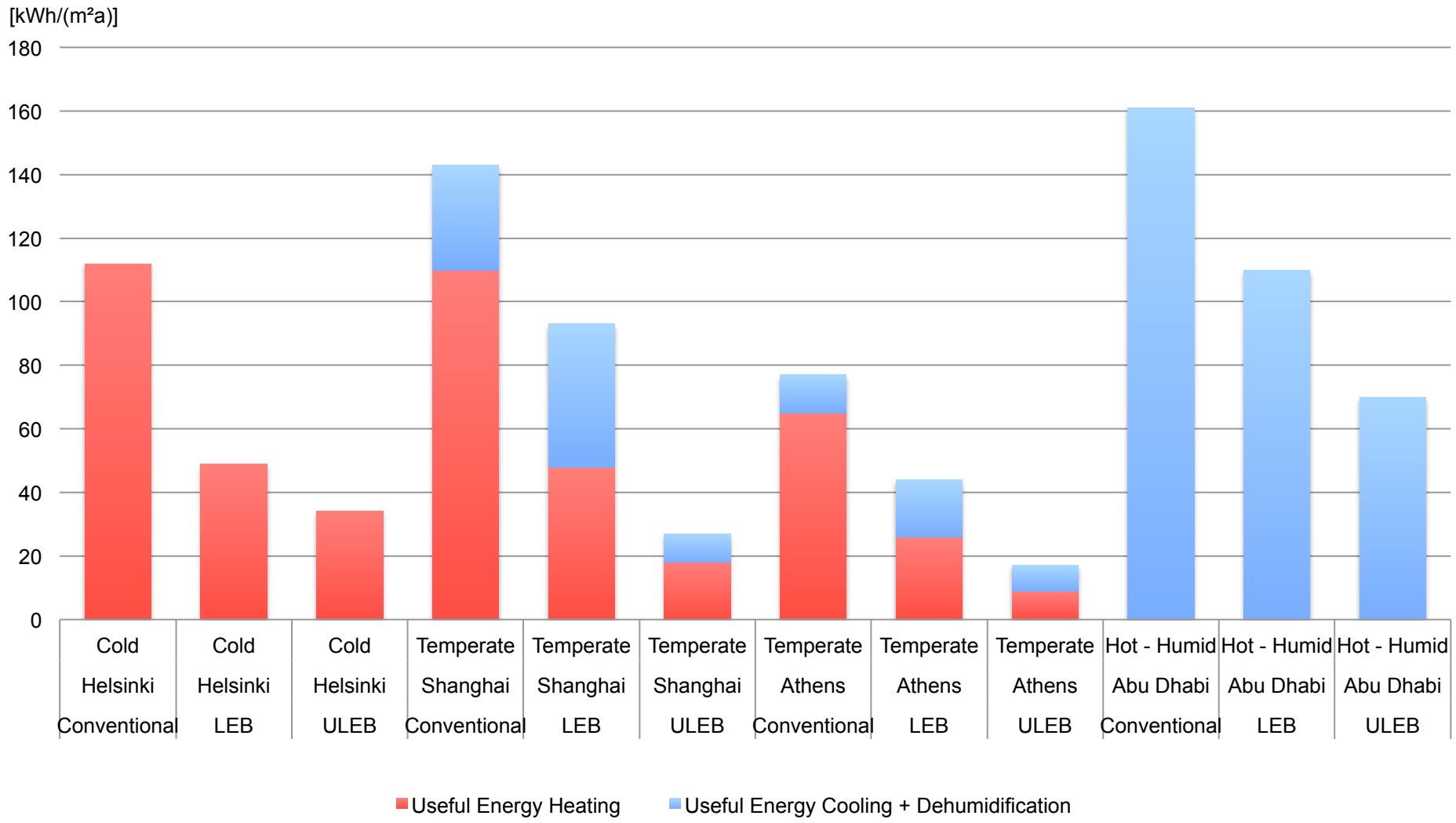
Performance relative to climate



Source: GBPN 2013

Simulation results of buildings

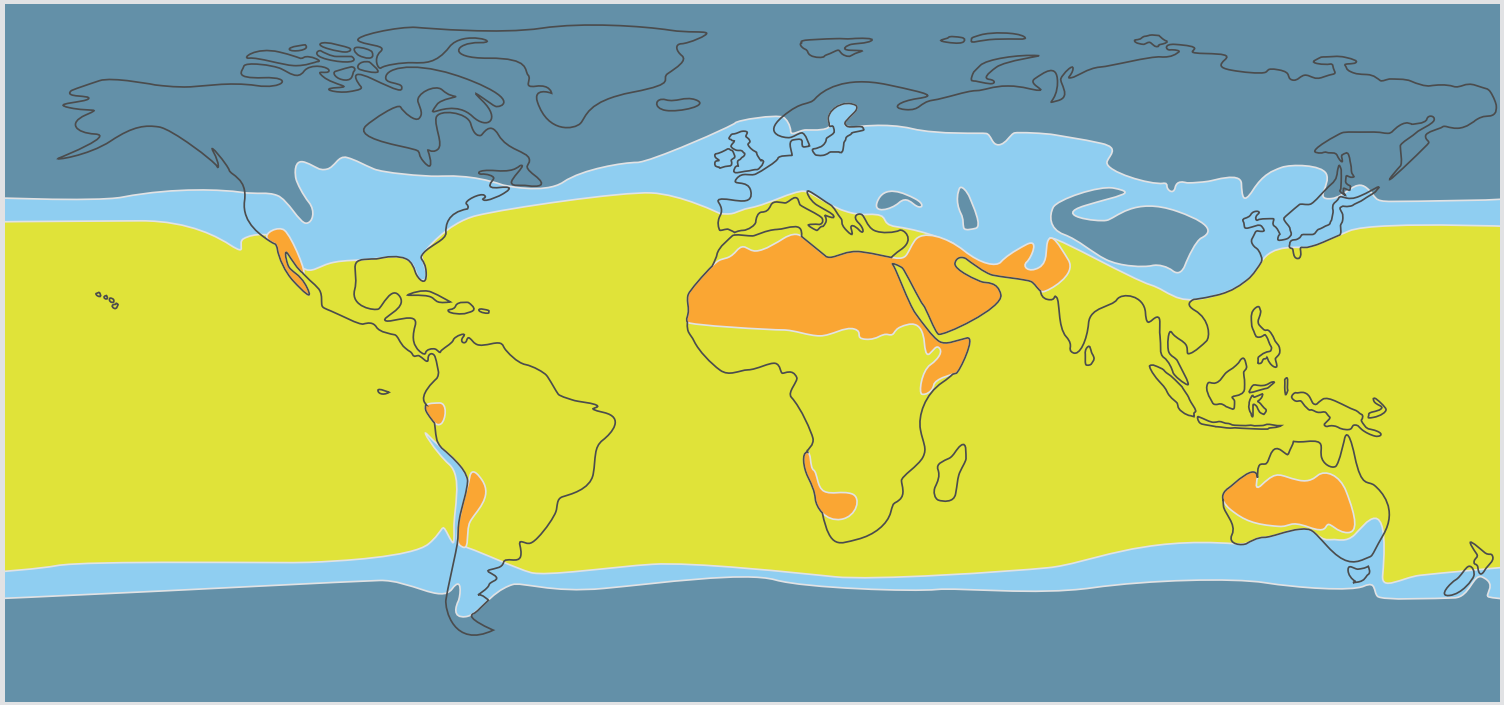
(useful energy; simulations by ECOFYS and Wuppertal Institute)



Source: bigEE 2012

bigEE

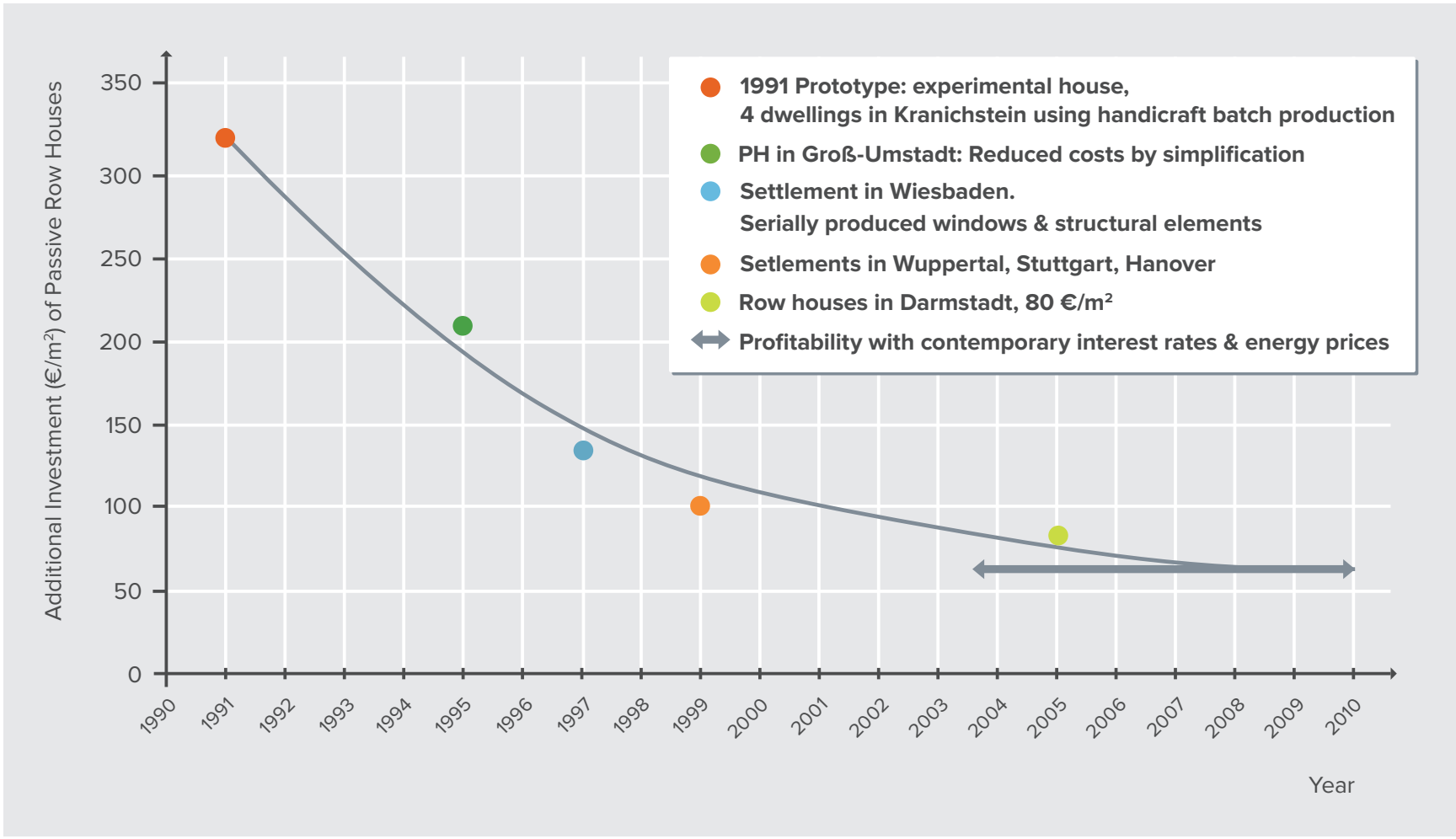
bigEE Climate Zones



Climate	LEB	ULEB	nZEB	PEB
Cold	80-40 kWh/m^2_{TFA}yr	40-20 kWh/m^2_{TFA}yr	20-0 kWh/m^2_{TFA}yr	++
Temperate	80-40 kWh/m^2_{TFA}yr	40-20 kWh/m^2_{TFA}yr	20-0 kWh/m^2_{TFA}yr	++
Hot and Humid	150-100 kWh/m^2_{TFA}yr	100-50 kWh/m^2_{TFA}yr	50-0 kWh/m^2_{TFA}yr	++
Hot and Arid	100-50 kWh/m^2_{TFA}yr	50-25 kWh/m^2_{TFA}yr	25-0 kWh/m^2_{TFA}yr	++

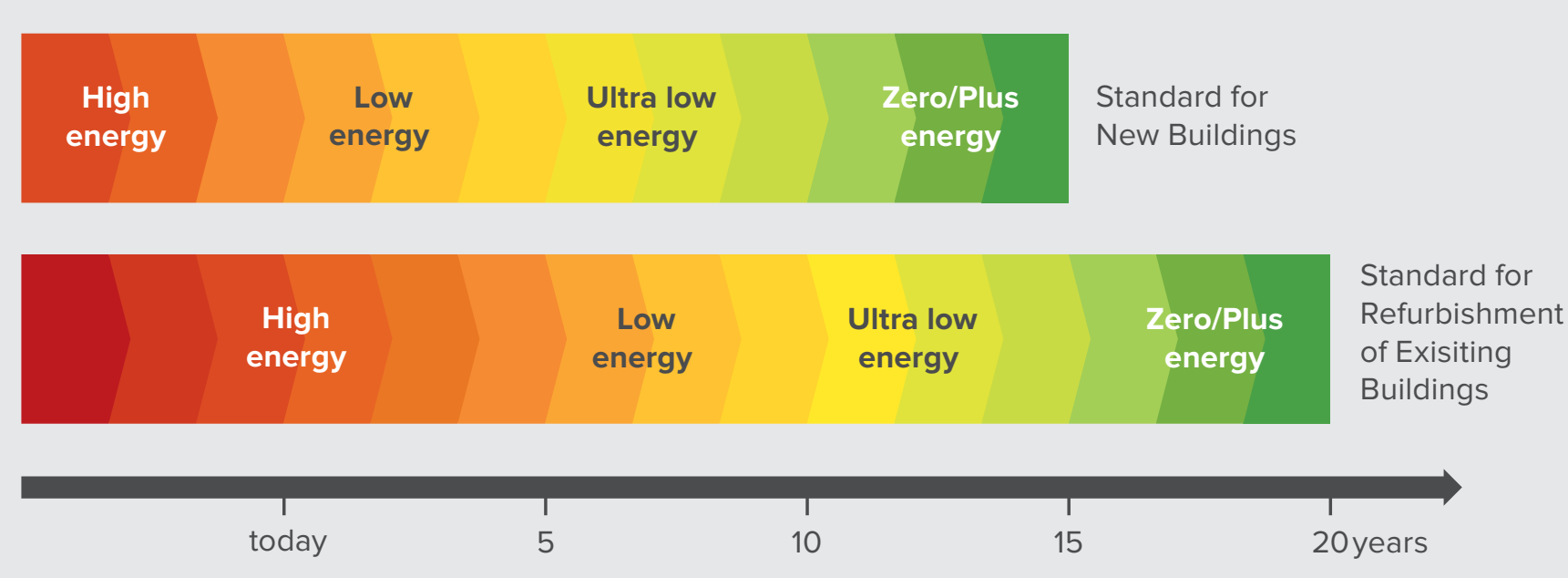
Source: bigEE 2012

Cost and Cost-effectiveness



Source: Feist

Timeline for Standards



Source: bigEE 2012

The Strategic Approach

First worldwide consistent approach to defining Low-Energy and Ultra-Low-Energy Buildings in different climate zones

- Easy to Define
- Absolute Target Values
- Covering 4 Climate Zones (more to come)
- 4 different types of conditioning
- Numerous Types of Buildings

bigEE

Your guide to energy efficiency in buildings.

Start now

bigee.net

Wuppertal Institute
for Climate, Environment
and Energy