




EMBER STRATEGIES

START A NEW FIRE.

**THE EVOLUTION OF BENCHMARKING IN THE U.S. AND AUSTRALIA:
LOOKING BACK AND LOOKING FORWARD
EMANZ MAY 2015**

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INTRODUCTION TO EMBER STRATEGIES

Recent Clients and Projects:

- Natural Resources Defense Council
- U.S. Green Building Council
- Sierra Nevada Brewing Company
- City Energy Project
- Institute for Market Transformation

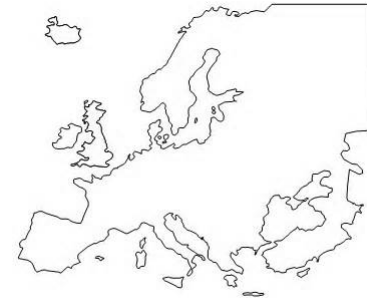
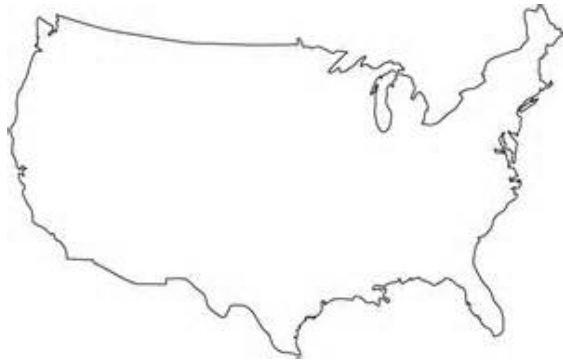


Lane Burt will be taking leaving from Ember Strategies to study the national building benchmarking and disclosure system in Australia as a result of being awarded the 2014 Fulbright Professional Scholar Grant in Climate Change and Clean Energy. Lane will be in Australia beginning Feb 2015.

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OUTLINE

- Key Distinctions
- Key Terminology
- Current Status
- Key Questions



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WHAT IS BENCHMARKING?

benchmark (bĕnch' märk,) ▶

- n.* A standard by which something can be measured or judged: *"Inflation . . . is a great distorter of seemingly fixed economic ideas and benchmarks"* (Benjamin M. Friedman). See Synonyms at [standard](#).
- n.* A surveyor's mark made on a stationary object of previously determined position and elevation and used as a reference point in tidal observations and surveys.
- v.* To measure (a rival's product) according to specified standards in order to compare it with and improve one's own product.



More at Wordnik | from The American Heritage® Dictionary of the English Language, 4th Edition

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WHY BENCHMARKING?

- How can cost-effective energy efficiency opportunities persist?

Lack of awareness? Too small? Other barriers?

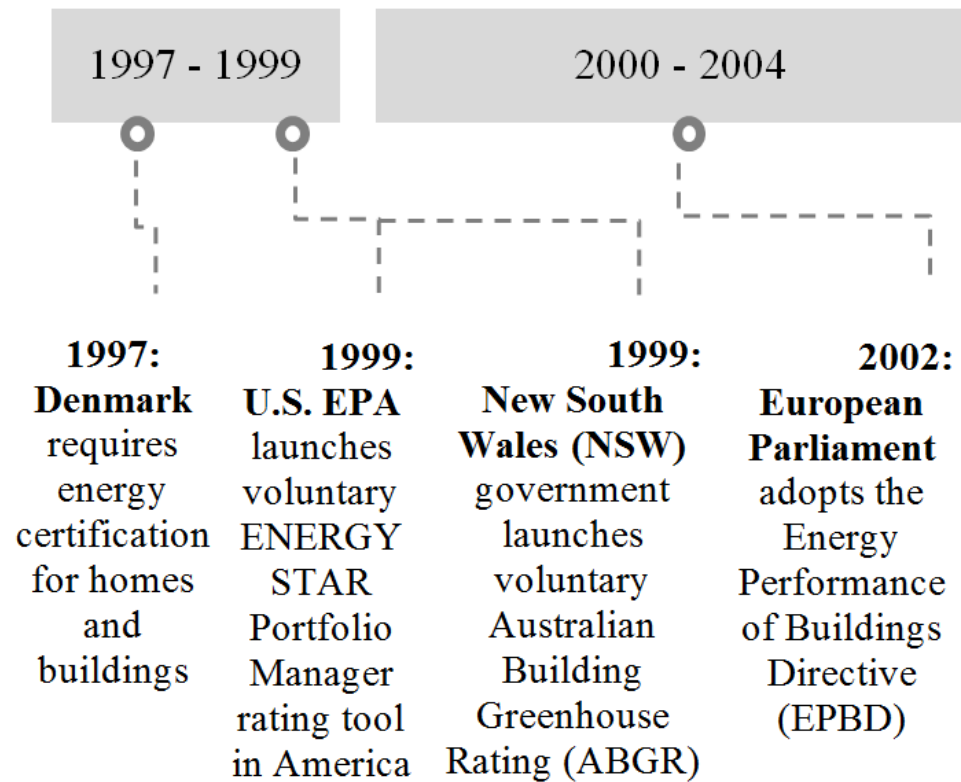
- How do building owners find out about energy waste?
- What will get their attention? (Money? Shame?)

Mandatory benchmarking: Require that building owners be confronted with information about their energy performance, in context.



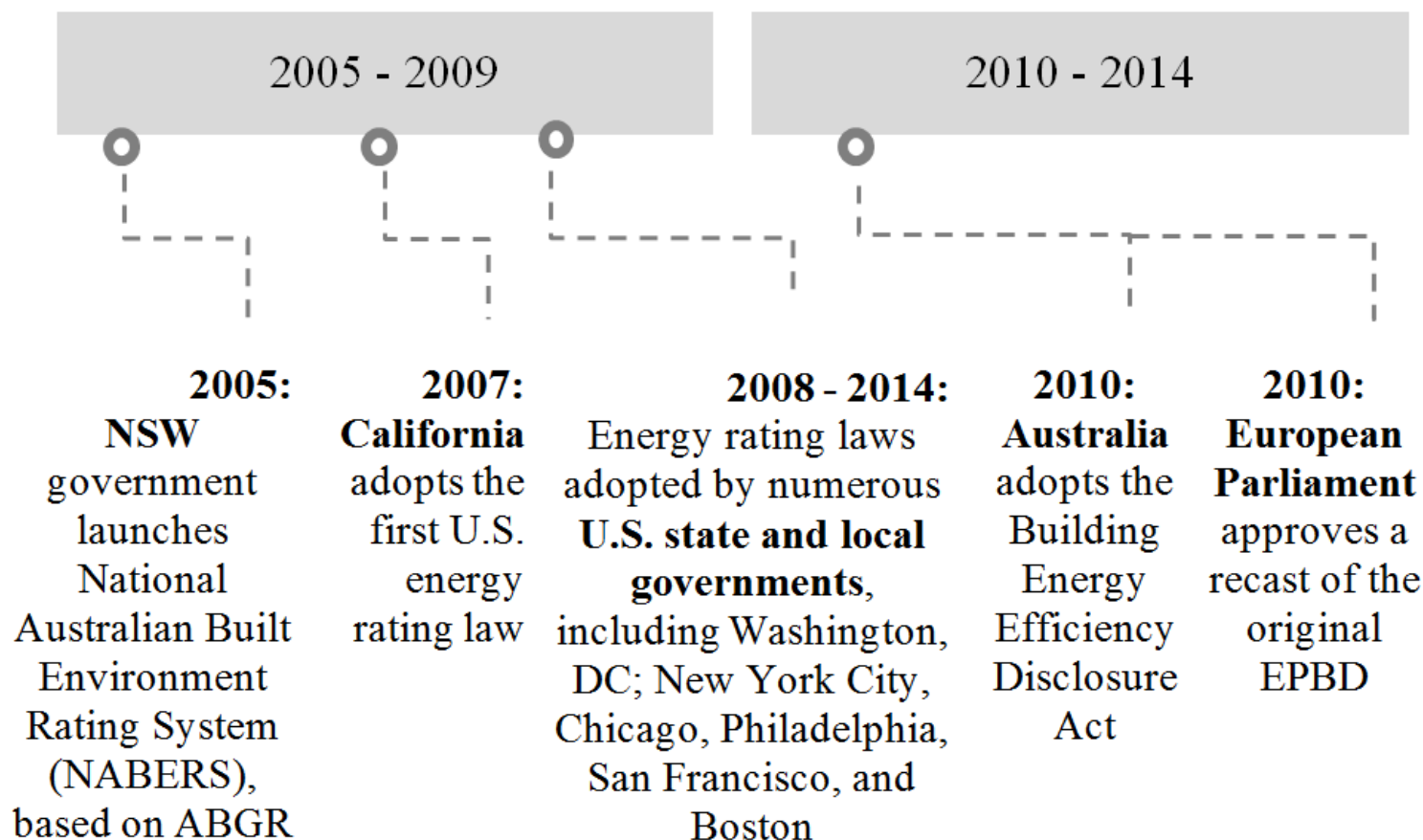
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WORLD-WIDE TIMELINE



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WORLD-WIDE TIMELINE



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KEY TERMINOLOGY AROUND THE WORLD

	Australia	Canada	China	EU	US
Assessment system	Rating	Labeling; benchmarking	Rating	Certification	Benchmarking; Rating
Evaluation methodology	Rating	Rating	Rating	Rating	Rating; Rating
Results of evaluation	Rating; Score	Rating; Score	Rating	Class; Rating	Rating; Score
Physical product of assessment	Certificate	Label	Label	Label; Certificate	Label; Rating; Statement

Source: IPEEC 2014

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KEY DISTINCTIONS AROUND THE WORLD

Target Building	Requirement	Rating
Segment (residential, commercial)	Mandatory?	How determined? (asset, operational)
Whole building?	Timing	Performance scale
	Disclosure	Label

Source: IPEEC 2014



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HOW DO YOU BENCHMARK?

For an operational rating like Energy Star or NABERS:

- Enter your building info into a tool: Physical building characteristics and some info about use.
- Enter you energy (and water) consumption
 - Last 12 months of data (from bills usually)
- Provide some detail/clarification (clarifying metering and such)

Done! No cost (except in time spent to gather the information)



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AUSTRALIA: NABERS

NABERS



- Base building, tenant, or whole building ratings
- 12 months building energy use data
- Energy/GHG intensity normalized for weather and space use
- Compared to peer buildings to generate a star rating
- 0 to 6 stars, 7 coming.

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AUSTRALIA: THE CBD PROGRAM



- NABERS base building rating required at time of building sale or lease, for offices over 2000 square meters.
- Ratings included in advertising material and available online.
- First period reported: Nov 2010 to Nov 2011
- 4 years of data available, 1500+ buildings with multiple ratings

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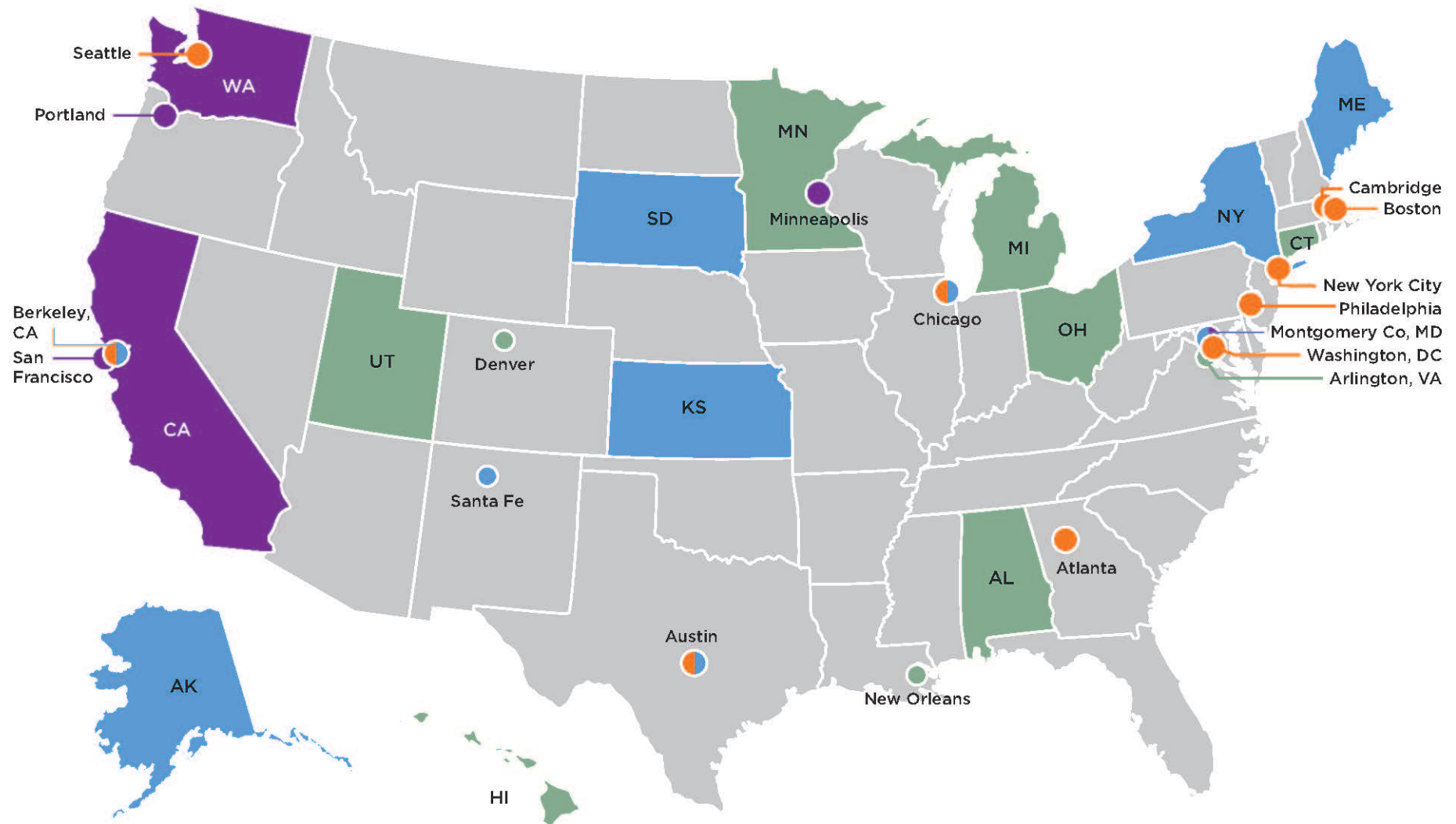
UNITED STATES



- 12 mo WHOLE building energy data
- Energy intensity normalized for weather and space use
- Compared to peer buildings
- 0 to 100 rating issued
- Energy Star for 75 or above

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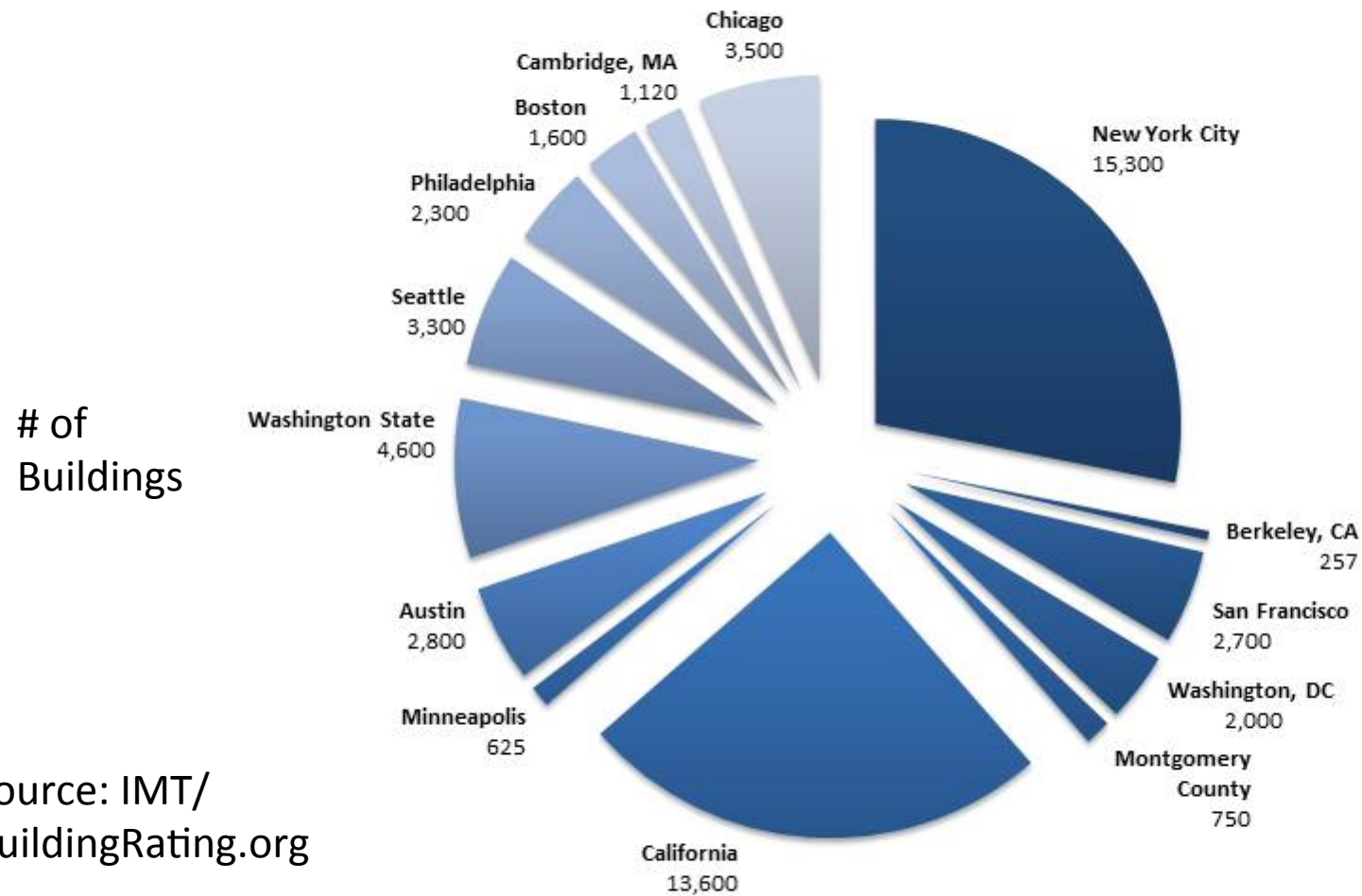
U.S. Building Benchmarking and Transparency Policies



Source: IMT, May 2015

- Commercial policy adopted
- Commercial & multifamily policy adopted
- Public buildings benchmarked
- Single-family transparency adopted

NOTABLE JURISDICTIONS



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EUROPE

Article 7, EPBD 2002:

- Energy performance certification (EPC) be made available to an owner, buyer, or tenant when a building is constructed, sold, or rented.
- These requirements apply to residential and commercial buildings.
- Member states were required to introduce a certification scheme by the beginning of 2009.
- By 2010, 20 of 28 member states were in compliance with the original 2002 EPBD requirements.



EUROPE

The EPBD was recast in 2010 to more specifically define effective implementation of energy performance certification schemes, adding requirements for quality assurance.

The recast EPBD also included:

- Requirements for the public display of EPCs in the building and in advertisement media.
- EPCs must be provided to buyers and tenants, NOT just made available.
- Central registries NOT required, but are occurring in 24 member states and Norway.



EUROPE

Member state compliance with the EPBD and implementation of Energy Performance Certificates varies (BPIE 2014):

- Certifiers are required to pass a competency exam: 20 out of 28.
 - Mandatory training for certifiers: 14 of 28.
 - Independent control systems for EPCs: all 28.
 - Quality control for the input data: 11 of 28.
 - Quality control for input parameters: 19 of 28s.
-
- Penalties are in place in “nearly all” member states with varying formats and enforcement rates.
 - 12 member states allow public access to central registries containing EPCs, while 9 do not.



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KEY QUESTIONS: TRIGGERS AND SCOPE

Key Question: Will annual reporting of benchmarks provide benefits to justify the additional effort in the United States?

Key Question: Will the more ambitious requirements in the EU eventually lead to a more effective regulatory scheme than the piecemeal approach in the United States and Australia?



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KEY QUESTIONS: TENANT USABILITY

Key Question: Does having separate information on landlord vs tenant usage provide additional benefit?

Key Question: Do base building regulations lead to building sector-wide energy reductions?

Key Question: Are there opportunities for gaming or unintended policy consequences between tenant and base building ratings?



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KEY QUESTIONS: OTHER POLICIES

Key Questions: Will the European and Australian advertising requirements further impact the real estate market?

Key Questions: What effect will the efficiency ranges in real estate classification definitions have in Australia?

Key Question: What effect does the green property index in Australia have on the market? (And similar efforts like GRESB?)



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BOTTOM LINE

- Requiring benchmarking seems to be working to save energy and improve operations in buildings, especially in buildings that have not been involved in the program previously.
- It is unclear if base building versus whole building is a better approach.
- It is unclear if annual versus transactional is a better approach.
- Is there a tipping point? The spread of benchmarking policies around the world has impact for international property owners, and for investors in large property owners.



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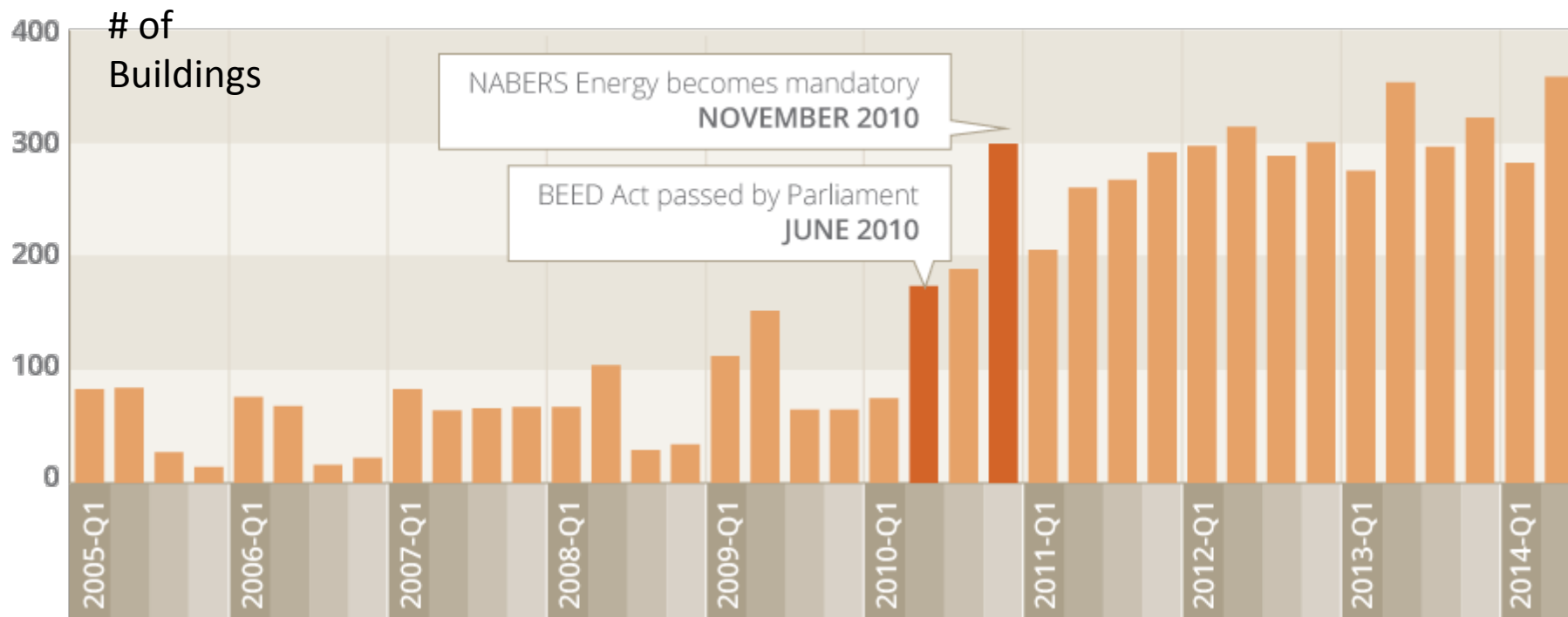
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THANK YOU!

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AUSTRALIA



Source: NABERS.gov.au

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Environmental
performance
improvements

8.6%

average
reduction
in building
energy use

11.5%

average
reduction
in carbon
emissions

Big savers

657

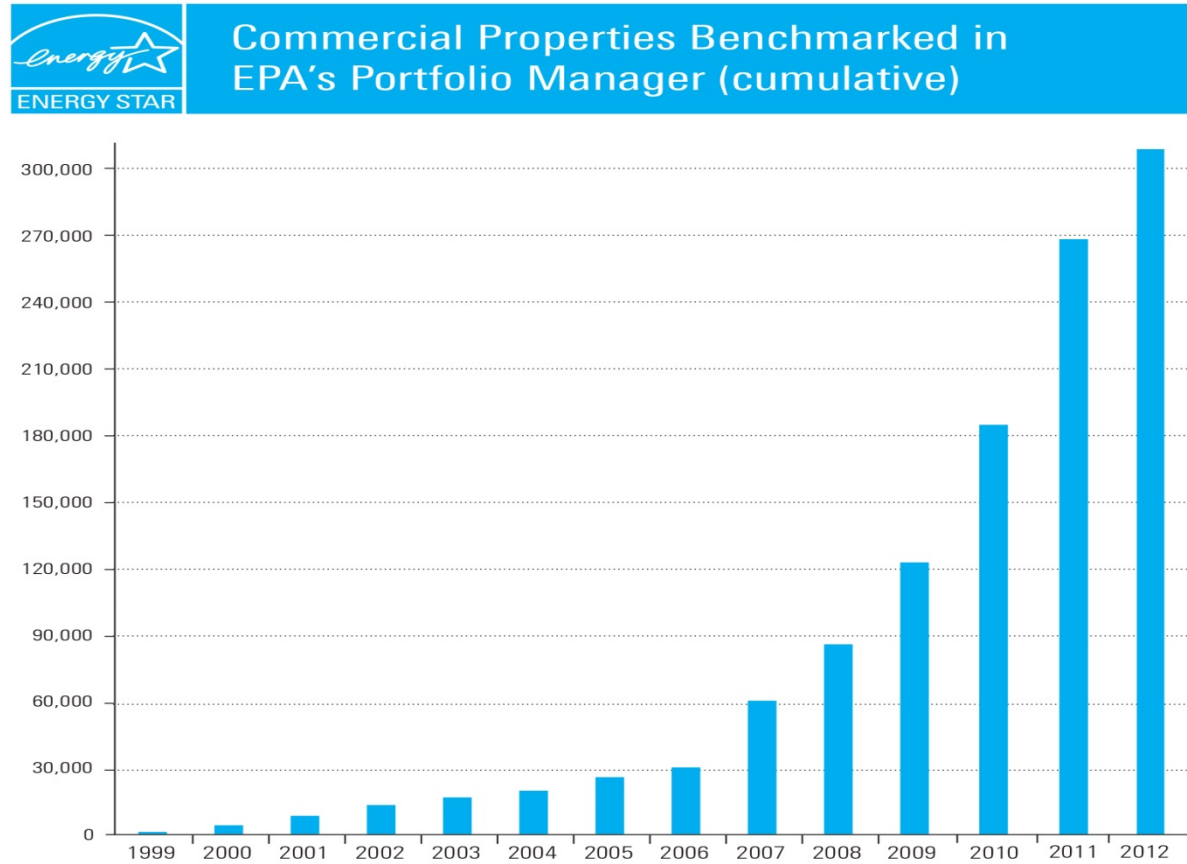
buildings
reduced their
energy use by
10% or more

Source: NABERS.gov.au

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UNITED STATES

of
Buildings



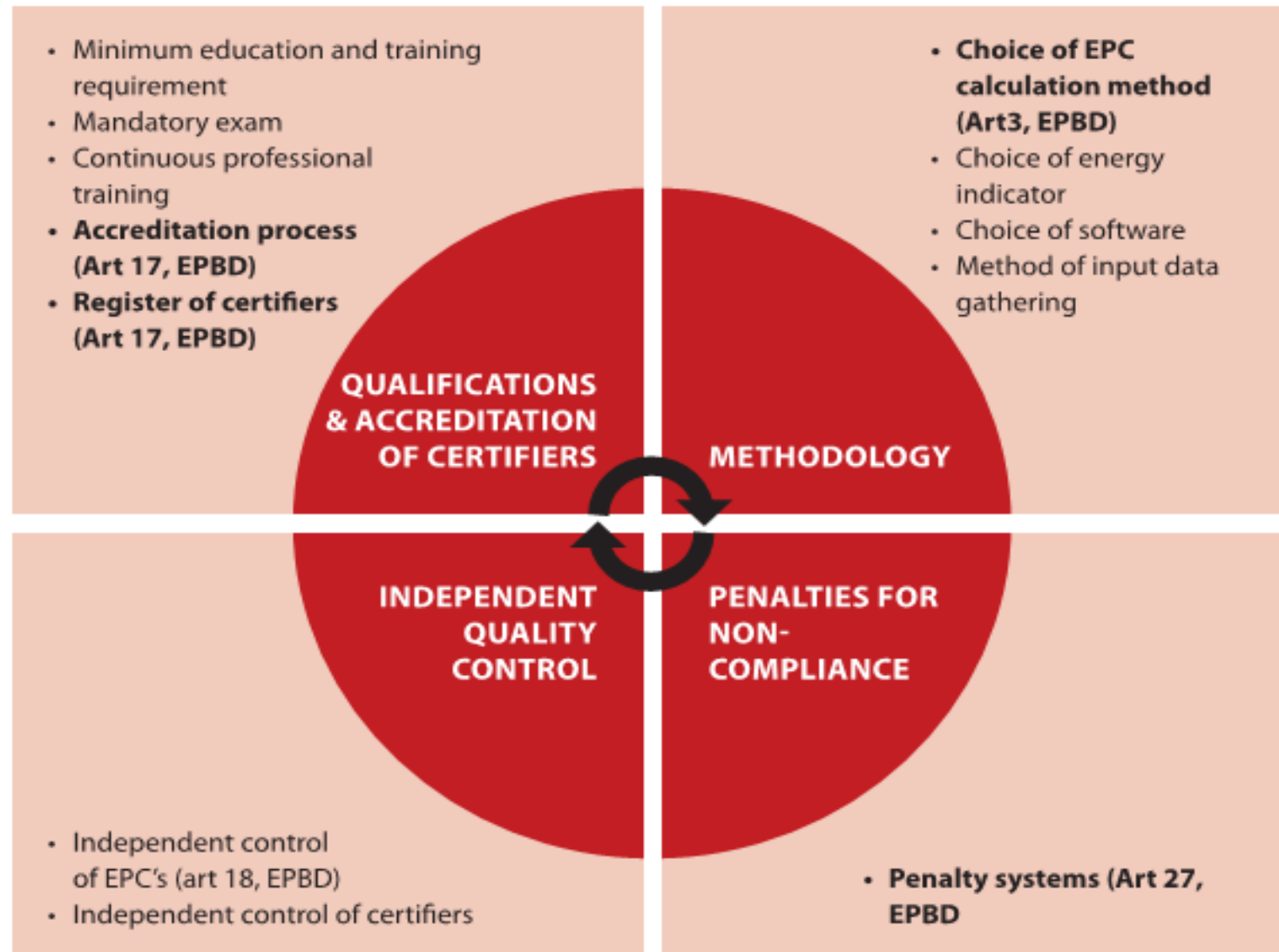
Source:
EPA

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Jurisdiction	Adopted	Trigger	Minimum Size (Commercial)	Minimum Size (MultiFamily)
California	2007	Transaction	5,000 SF (460 m ²)	N/A
Austin, TX	2008	Annual	10,000 SF (920 m ²)	5 units
Washington, DC	2008	Annual	50,000 SF (4600 m ²)	50,000 SF
Washington State	2009	Transaction	10,000 SF	N/A
New York City, NY	2009	Annual	50,000 SF	50,000 SF
Seattle, WA	2010	Annual	20,000 SF (1,840 m ²)	20,000 SF
San Francisco, CA	2011	Annual	10,000 SF	N/A
Philadelphia, PA	2012	Annual	10,000 SF	N/A
Minneapolis, MN	2013	Annual	50,000 SF	N/A
Boston, MA	2013	Annual	35,000 SF	35 units
Chicago, IL	2013	Annual	50,000 SF	50,000 SF
Montgomery Co., MD	2014	Annual	50,000 SF	N/A
Cambridge, MA	2014	Annual	25,000 SF	50 units

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EUROPE: EPBD



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Source: BPIE 2014