



Zero Energy Building Definition

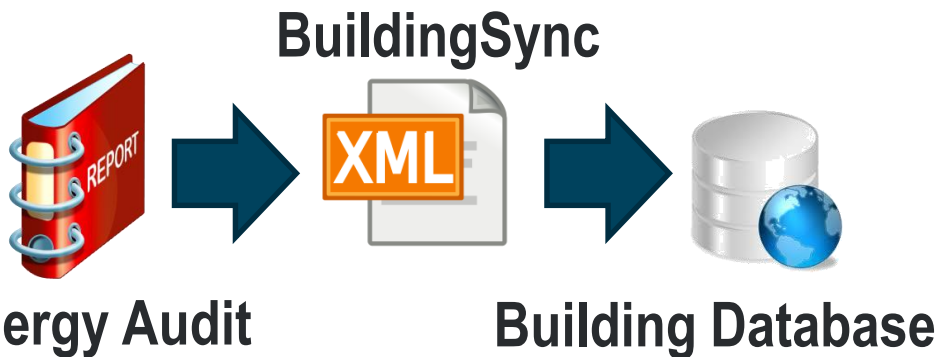
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Department of Energy
Building Technologies Office

DOE Commercial Buildings Integration

Supports technology demonstration and deployment, e.g. HPS to LED lighting upgrade



Supports tool development, e.g. the standardized BuildingSync data format for tracking energy audit data & streamlined reporting to CTS

Develops technical guidance e.g. purchasing specifications for advanced control retrofits to rooftop HVAC units



Project Goal

Converge on an industry-accepted national DOE definition for ZE that will support program and policy goals and encourage commercial new construction and major renovation projects to design, construct, and operate buildings that achieve a high level of energy efficiency.



Project Background

- Buildings identified as (Net) Zero Energy (Ready) are becoming more prevalent
- There is a growing number of local, regional, and other definitions
- This can lead to confusion and uncertainty in claims, which might hamper growth of ZEBs and rigor of voluntary and mandatory programs
- There is a federal role in initiating the development of a common, clear national definition

Why a commonly accepted Zero Energy Definition?

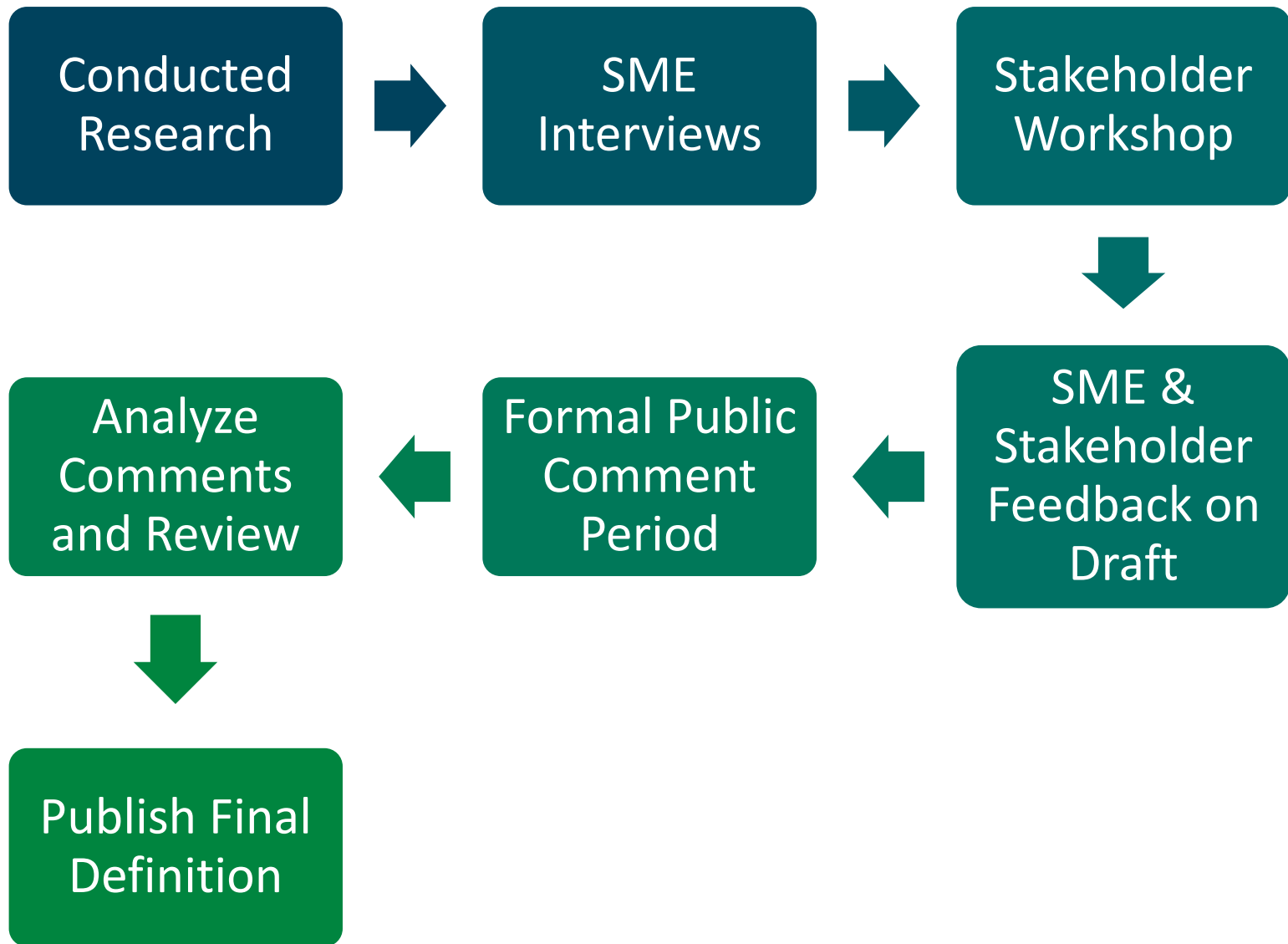
For the building industry

- Focus on delivering great buildings (not definitional issues)
- Facilitate consistency and market branding
- Increase industry confidence

For states

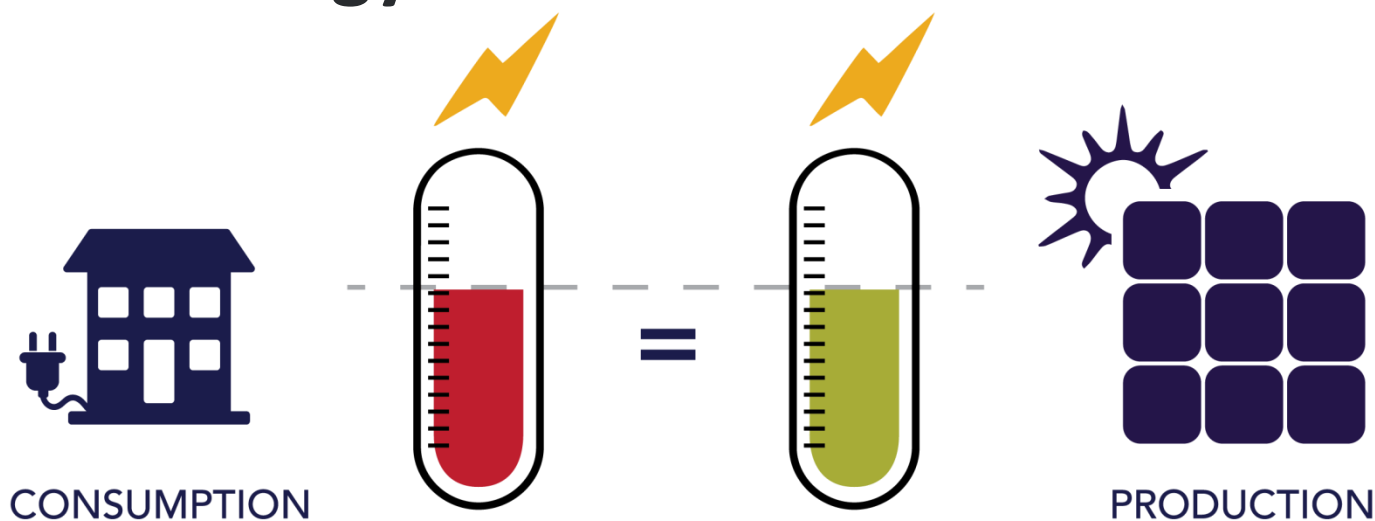
- Alleviate market confusion
- Provides clarity leading to consumer confidence
- Consistent basis for incentive programs
- Align programs
- Consistency across state boundaries

Process



Zero Energy Building (ZEB) Definition

An energy-efficient **building***, where on a **source energy** basis, the actual **annual delivered energy** is less than or equal to the on-site renewable **exported energy**.



*or campus, community, or portfolio

- Site boundary
- End-uses included
- On site renewables included
- Source energy calculations
- Export of renewable energy



What Else?

- Efficiency first:
 - “ZEBs use all cost-effective measures to reduce energy usage through energy efficiency and include renewable energy systems that produce enough energy to meet remaining energy needs.”
- RECS – separately addressed buildings that base some part of their claim on RECS
- Vehicles – a building can export power to vehicles (may be helpful for economics of ZEB)

Using “Zero Energy Building” Term

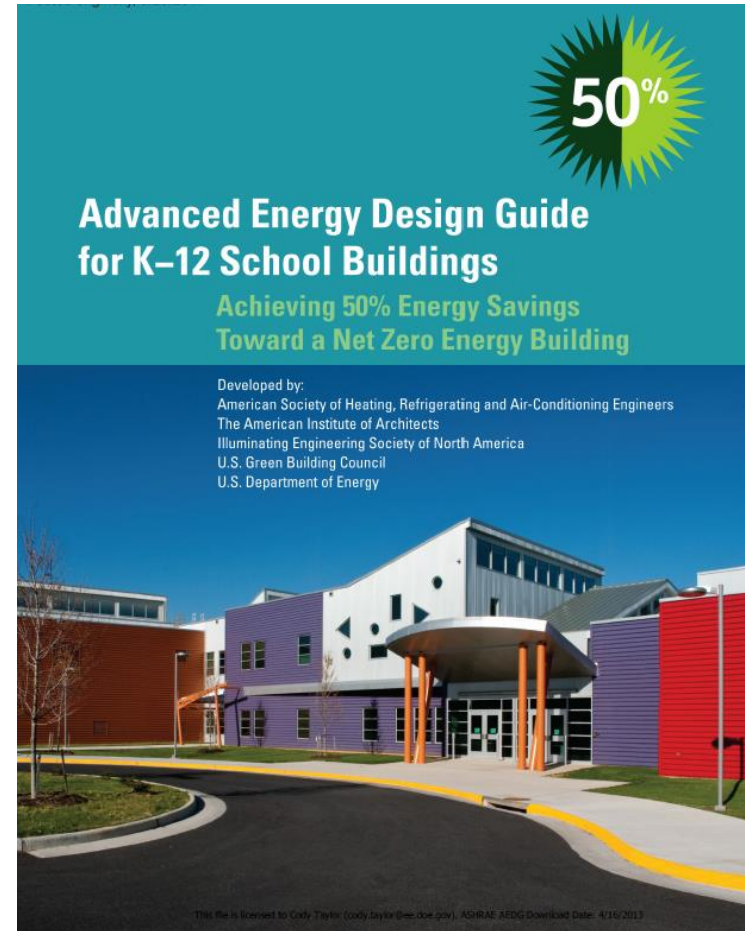
- Only buildings that have demonstrated through actual annual measurements that the on-site renewable exported energy is greater than or equal to delivered energy.
- Buildings designed to be zero energy, but have not yet had a full year of operation are encouraged to identify their *intent* to be a *Zero Energy Building*.
- Definition Document:
<http://energy.gov/eere/buildings/downloads/common-definition-zero-energy-buildings>



Possible Upcoming ZEB Activities

Encourage Market Growth of ZEB:

- Develop design & operation guidance
- Highlight case studies
- Grow use of energy targets in design-build contracts
- Catalog successful business processes for delivering ZEB
- Develop a recognition program





"We need to innovate! Buck the status quo! Blaze a new trail! Here's how everyone else is doing it..."

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