Zero Energy Building Definition

11/12/2015

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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

http://energy.gov/eere/buildings/commercial-buildings-integration
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

Conducted Research → SME Interviews → Stakeholder Workshop

SME & Stakeholder Feedback on Draft → Formal Public Comment Period → Analyze Comments and Review

Publish Final 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:

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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