THE STRETCH ENERGY CODE

Commercial Impacts

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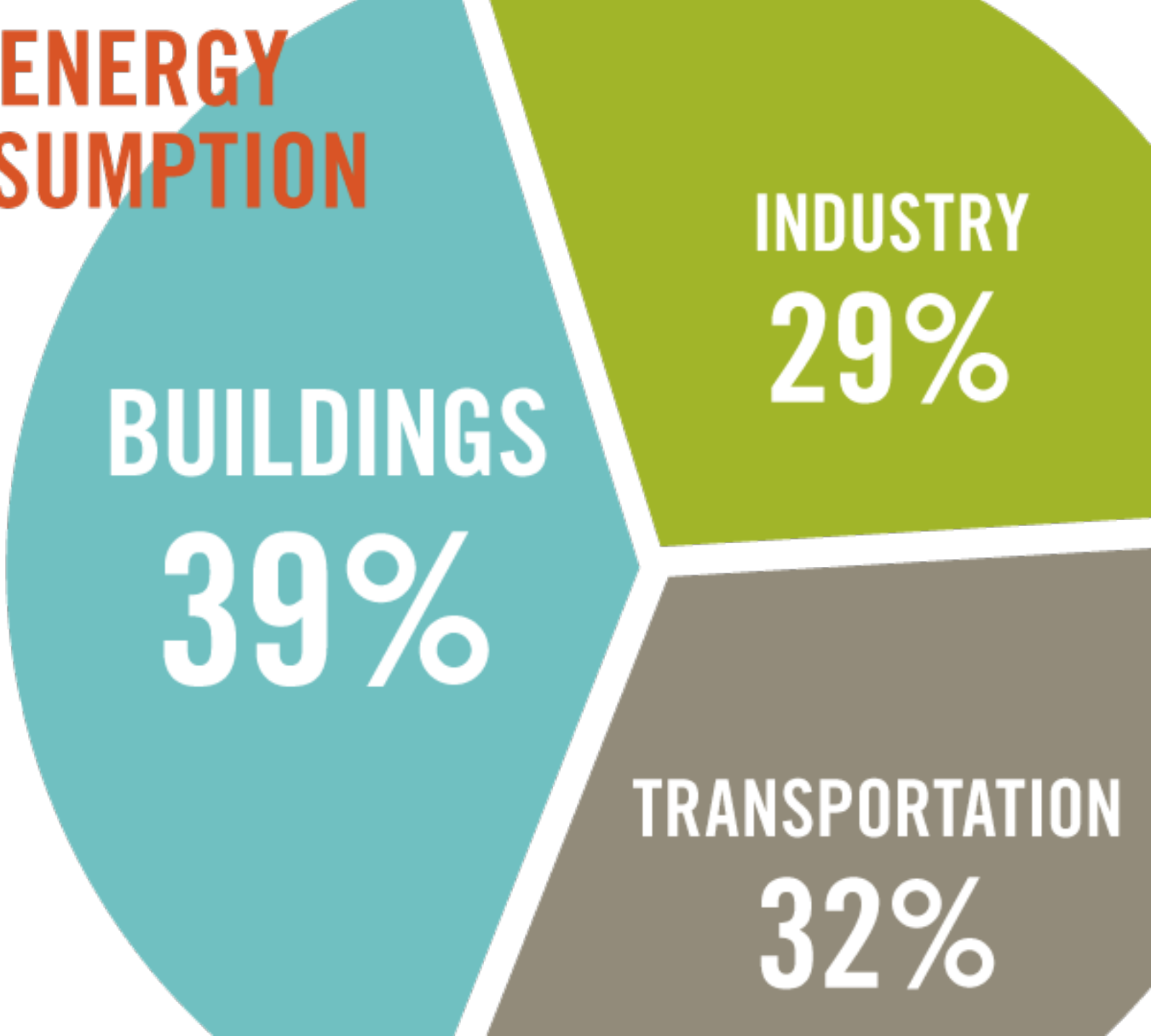
U.S. ENERGY CONSUMPTION



Source: USGBC

U.S. BUILDINGS IMPACTS ON RESOURCES

39% of total energy consumption

71% of electricity consumption

39% CO_2 emissions

30% of raw materials use

30% of waste output

12% of potable water consumption

Source: USGBC

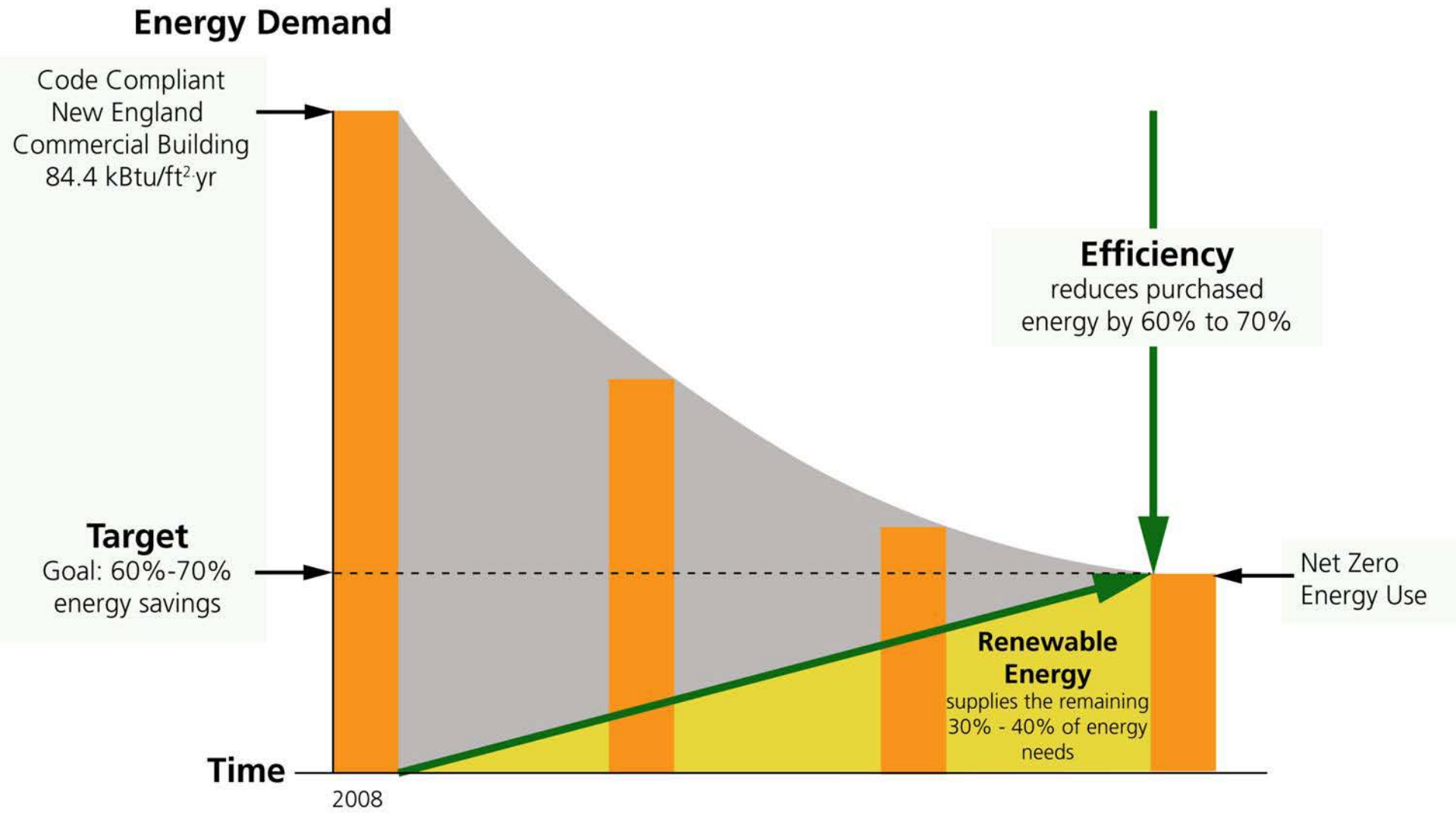
Reduce fossil fuel consumption compared to an average building by:

60% in 2010
70% in 2015
80% in 2020
90% in 2025

Carbon-neutral in 2030

(using no fossil fuel GHG emitting energy to operate)

For every new building renovate an existing building to the same standards



Source: Federal R&D Agenda for Zero-Net Energy high Performance Green Buildings, National Science and Technology Council, October 2008

COMMERCIAL BUILDINGS AFFECTED

5,000 – 40,000 SQFT

New buildings in this area category and additions to these buildings greater than or equal to 30% of the existing conditioned floor area with their own heating system must comply with Chapter 5 of the IECC 2009 energy code.

However these buildings may also elect to comply with new construction requirements for buildings over 100,000 sqft.

Exceptions:

Buildings in this area category with the following uses
- **Supermarkets**
- **Warehouses**
- **Laboratories**
- **A building of specialized use by variance though appeal to the BBRS**

These buildings remain subject to IECC 2009 and ASHRAE 90.1 - 2007

COMMERCIAL BUILDINGS AFFECTED

40,000 – 100,000 SQFT

New buildings in this area category and additions to these buildings greater than or equal to 30% of the existing conditioned floor area with their own heating system must comply with Chapter 5 of the IECC 2009 energy code.

However these buildings may also elect to comply with new construction requirements for buildings over 100,000 sqft.

New buildings in this area category and additions to these buildings greater than or equal to 30% of the existing conditioned floor area with the following uses:

- **Supermarkets**
- **Warehouses**
- **Laboratories**

Must achieve energy use per square foot equal to at least 20% below the energy requirements of ASHRAE 90.1 – 2007, measured by industry standard modeling.

COMMERCIAL BUILDINGS AFFECTED

100,000 + SQFT

New buildings in this area category and additions to these buildings greater than or equal to 30% of the existing conditioned floor area with their own heating system must achieve energy use per square foot equal to at least 20% below the energy requirements of ASHRAE 90.1 – 2007, measured by industry standard modeling.

EXEMPTED BUILDINGS

Existing Buildings, except:

Those buildings undergoing a change in use or occupancy that would result in an increase in demand for either fossil fuel or electrical energy.

Any non-conditioned space that is altered to become a conditioned space.

Historic Buildings

- **Listed in the State or National Register of Historic Places**
- **Designated as a historic property under local or state designation law or survey**
- **Certified as a contributing resource with a National Register listed or locally designated historic district**
- **A building with an opinion or certification that the property is eligible to be listed on the national or State Registers of Historic Places either individually or as a contributing building to a Historic District**

GREATEST ENERGY USE

- **Building Envelope**
- **Heating and Cooling Systems**
- **Lighting**

HOW TO COMPLY

The *Commercial Building* project shall comply with the requirements in:

- **Section 502 – Building envelope**
- **Section 503 – Building Mechanical Systems**
- **Section 504 – Service Water heating**
- **Section 505 – Electrical Power and Lighting Systems**
- **Section 507 – Advanced Prescriptive Options – one of:**

  507.2.1 – Efficient Mechanical Systems
  507.2.2 – Reduced Lighting Power Density
  507.2.3 – On-Site Supply of Renewable Energy

HOW MUCH DOES IT COST?

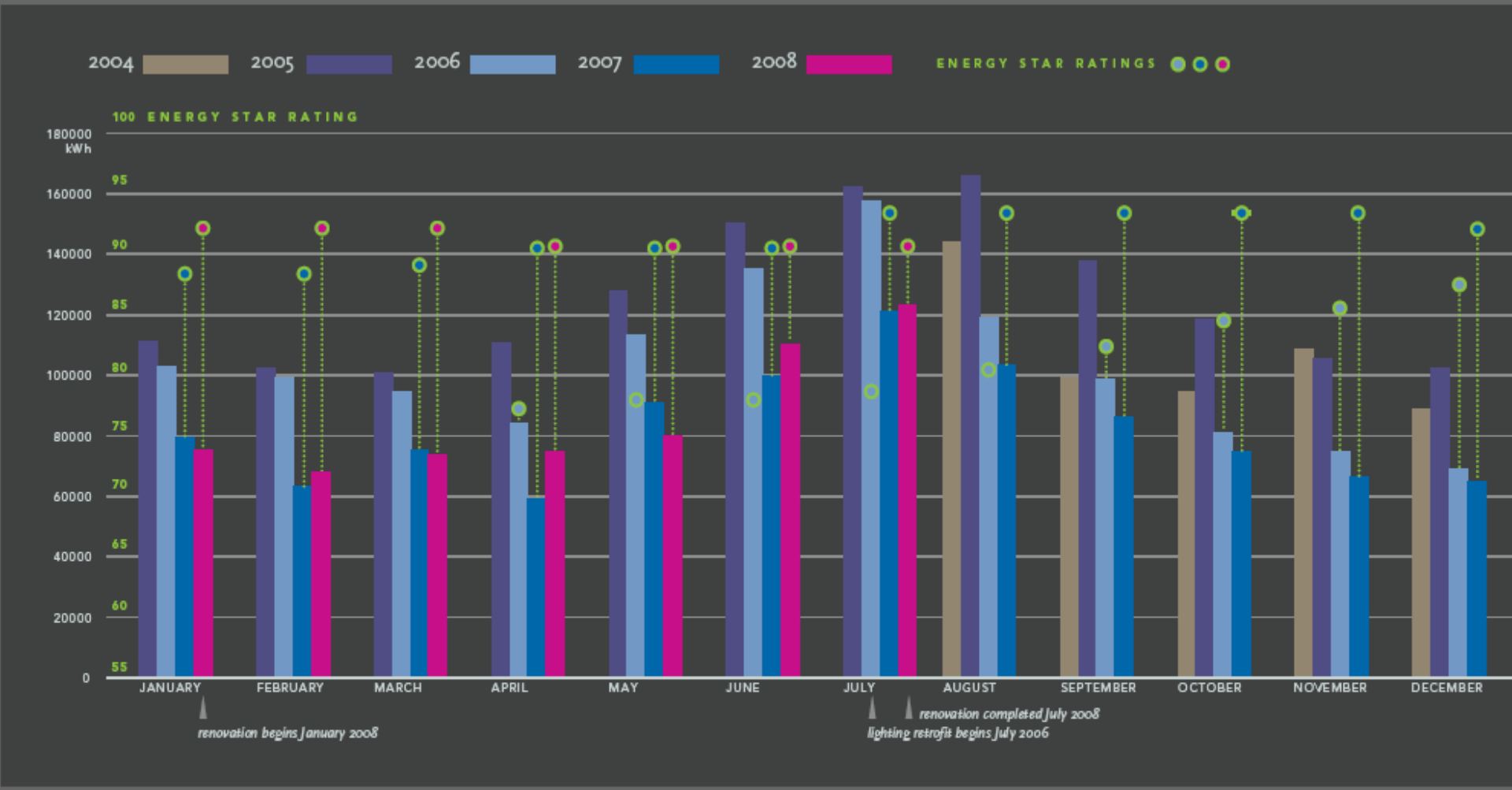
FOR COMMERCIAL BUILDINGS - 1 – 3%

Through the LEED framework, Federal and State strategies and increasing energy costs, the construction industry has changed dramatically.

"Going Green" is no longer seen as an "alternative" design process but has, in many instances become the "mainstream"

Return on Investment for energy efficiency strategies has come down to as low as 1 year for much of the "low hanging fruit".

SASAKI ELECTRICITY USE AND ENERGY STAR RATING



34%

AVERAGE ELECTRICITY SAVINGS

All task lighting fixtures now contain compact fluorescent bulbs, and all kitchen, bathroom, and conference room lights have occupancy sensors.

Vermont Law School, Oakes Hall
Royalston, VT
1998

Total annual energy use: 27.2 Kbtu/sq ft
68% below average commercial building

Woods Hole Research Center
Woods Hole, MA
2003

Total annual energy use: 16.0 + 5.4 Kbtu/sq ft
75% below average commercial building

Brooks School, Science Building
North Andover, MA
2008

Total annual energy use: 32 Kbtu/sq ft
62% below average commercial building

INCENTIVES

NSTAR Electric

You must consult with NSTAR before the project begins and get approval from NSTAR before the project begins.

Projects can receive:

- **Up to 90% of the incremental cost differential for comprehensive design**
- **Up to 75% of the incremental cost differential between standard base line and high-efficiency equipment**
- **Cost sharing for engineering services**
- **Commissioning services**

INCENTIVES

National Grid

Design 2000 plus program

Targets time-dependent opportunities for the installation of energy-efficient equipment in new construction, renovation, remodeling, and failed equipment replacement.

Projects can receive:

• Between 60 and 90% of the incremental cost differential between standard base line and high-efficiency equipment

OR

• Decrease the incremental cost to the customer to a 1.5 year payback, whichever is less.

Go Green!