NATIONAL TRUST FOR HISTORIC PRESERVATION®

14th & P St NW , Washington DC

A District Energy Policy Framework for Existing Neighborhoods

February 4, 2011

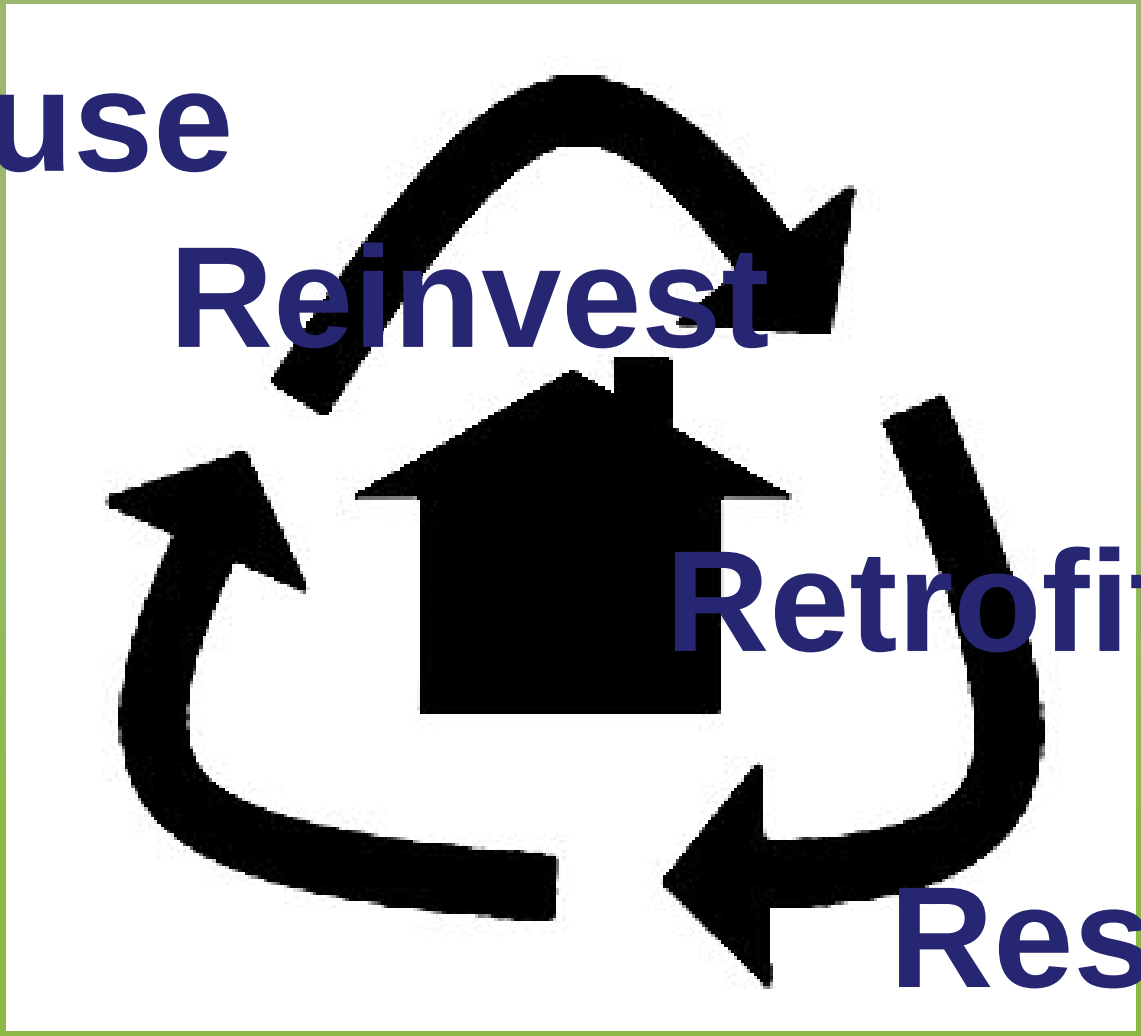
New Partners for Smart Growth Annual Conference

Patrice Frey, Director of Sustainability, NTHP

The Four "R"s

Reuse

Reinvest



Retrofit

Respect

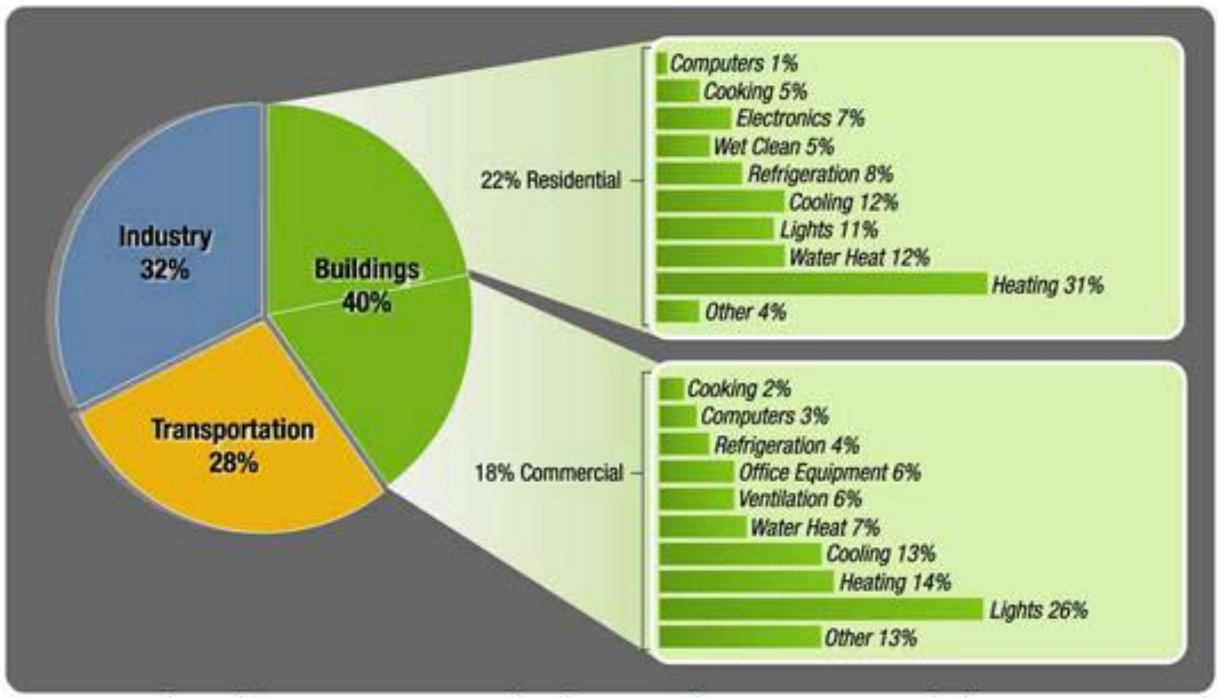
Image: Abby Martin

PRESERVATION GREEN LAB

NATIONAL
TRUST
FOR
HISTORIC
PRESERVATION®

Why reuse?

Buildings Greenhouse Gas Emissions



The Buildings Sector accounts for about 40% of U.S. Energy, 72% of Electricity, and 34% of Natural Gas use. Building energy costs totaled $390 billion in 2006.
Source: Buildings Energy Data Book, Sept. 2008, Tables 1.1.3 1.1.6, 3.1.1, 3.3.1, 4.1.5, 5.1.2, 5.3.1

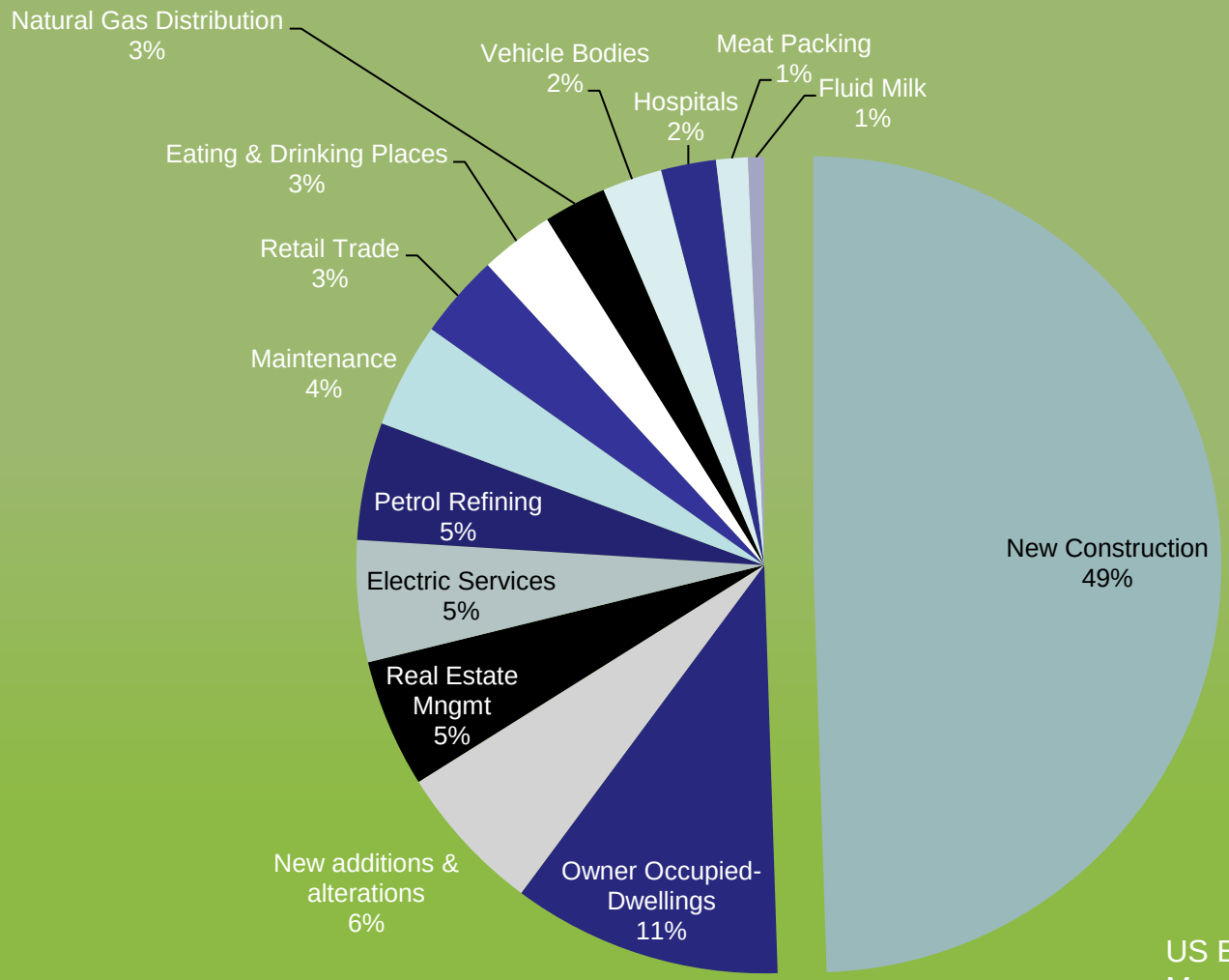
Source: The National Energy Technology Laboratory – netl.doe.gov

The Impact of Buildings: Macro View

Roughly 42% of U.S Greenhouse Gas Inventory Emissions are associated with materials extraction and harvesting, the production, transportation and disposal of goods in the U.S. – in part due to the energy needed for these processes.

Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practices – EPA September 2009

Resource Use – United States



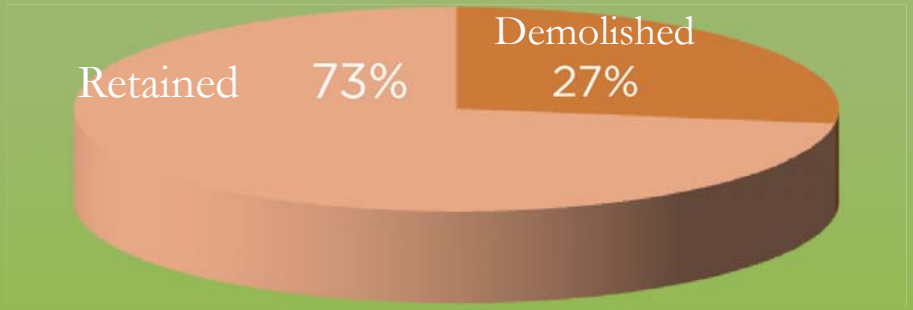
Materials, Products and Services by Resource Use

US EPA – Sustainable Materials Management: The Road Ahead (June 2009)

The Disposability of Buildings

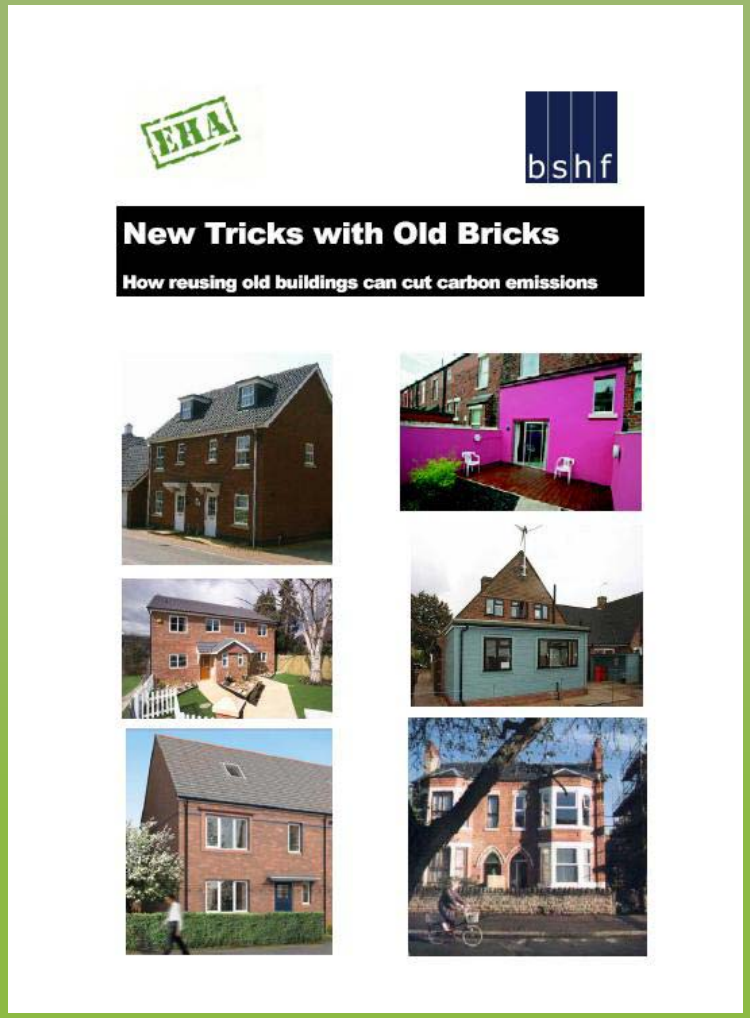
- *300 Billion* square feet of existing building space
- *82 Billion* will be demolished or replaced by 2030

Demolition Projections: 2005-2030



Source: Brookings Institution

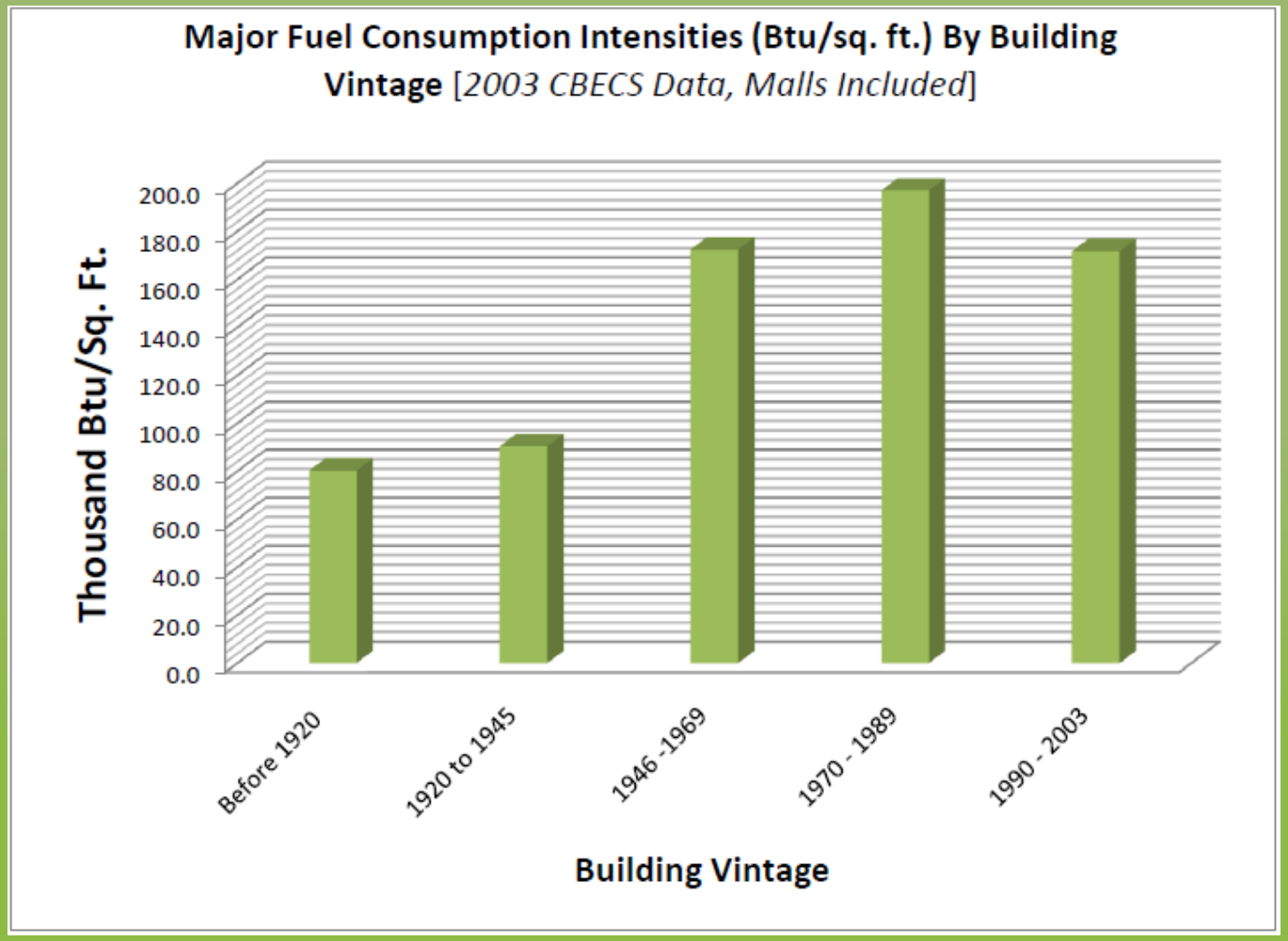
Embodied Energy/ Carbon



It takes between 35-50 years for a new, green Home to recover the carbon expended during the Construction process

-- Empty Homes Agency

Retrofit Green



NEW SOLUTIONS NEEDED FOR SMALLER, OLDER BUILDINGS

73% of our existing commercial buildings are less than 10,000 square feet

US Energy Information Agency, 2003

Small older buildings are uniquely challenged – both physically and financially - to meet aggressive carbon reduction goals

Buildings in Denver's Historic District. Image Credit: Wally Gobetz

NEW SOLUTIONS NEEDED FOR SMALLER, OLDER BUILDINGS

Architectural character = economic value

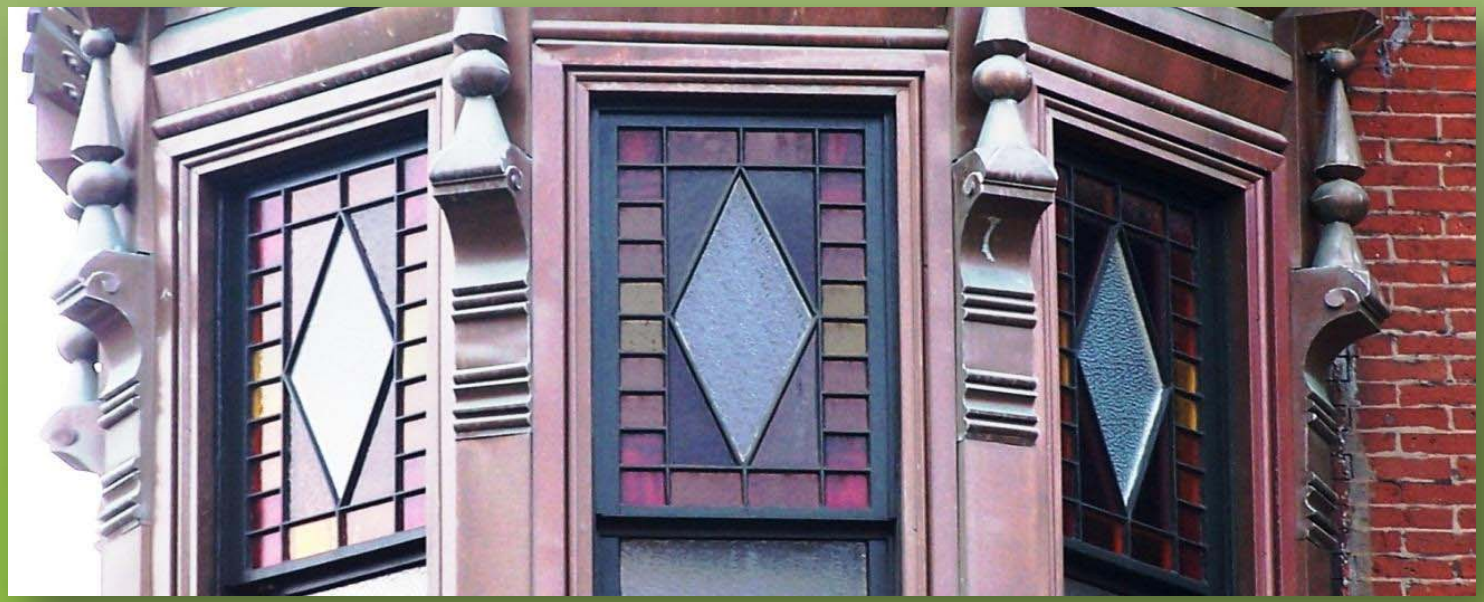


Image Credit: needed

ECO-DISTRICT INITIATIVES IN EXISTING NEIGHBORHOODS

14th and U Street, NW – Washington DC

DISTRICT ENERGY

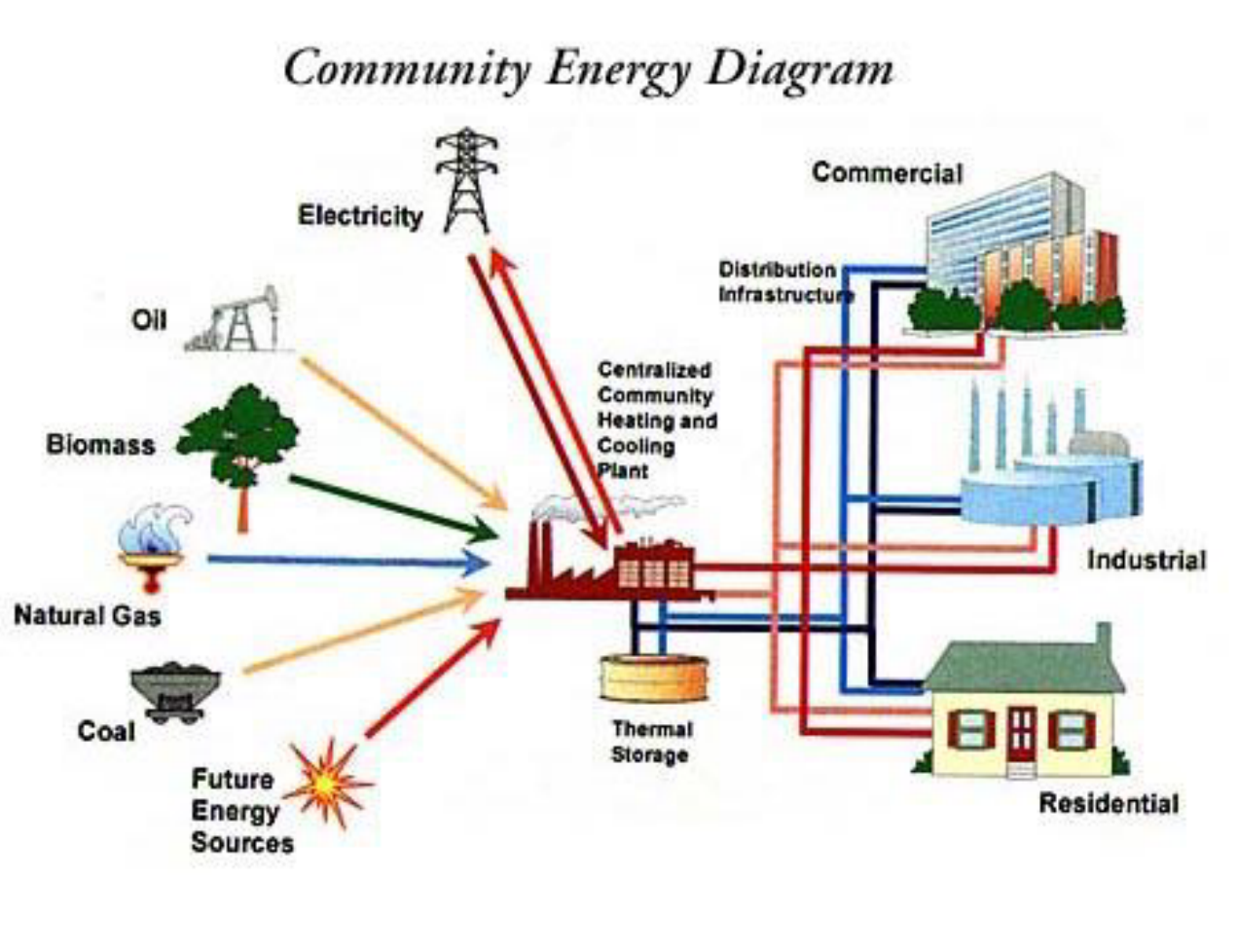


Image: District Energy St. Paul

STATE OF IOWA

Dubuque Millwork District. Image Credit: City of Dubuque

WEST UNION, IOWA

The Role of District Energy in Greening Existing Neighborhoods

A PRIMER FOR POLICY MAKERS AND LOCAL GOVERNMENT OFFICIALS

Preservation Green Lab, National Trust for Historic Preservation
Center for Sustainable Business Practices, University of Oregon

EXECUTIVE SUMMARY | SEPTEMBER 2010

AS CITIES LOOK FOR INNOVATIVE MEANS of reducing ca
emissions from the operation of their existing buildings, it
ingly clear that the most effective way to achieve high leve
energy performance rests with district-level approaches to
environment. This paper explores the vital role that low-ca
district energy systems (i.e., neighborhood-scale utilities th
thermal energy for heating, cooling, and hot water) can pla
enabling existing buildings and established urban neighbo
to meet aggressive emission reduction targets in a cost-eff
way. It also highlights the essential role local governments
in supporting the development of district energy systems,
intended as a primer for communities that are beginning to
district energy as a possible strategy for reducing their em
and dependence on non-renewable energy sources. Many
ties face common barriers, capacity constraints, and learni
and this publication identifies the policies and programs ne
foster district energy system development.

Preservation Green Lab
NATIONAL TRUST FOR HISTORIC PRESERVATION

West Union, Iowa

Image Credit: West Union, Iowa Chamber of Commerce

MONTPELIER, VERMONT

Images: Vermont Perspectives – Linda Baird-White

ECO-DISTRICT INITIATIVES IN EXISTING NEIGHBORHOODS

LCB Denver. Image Credit: Living City Block

Oberlin Arts District. Photo Credit: BNIM

SEATTLE, WA

Retooling existing downtown steam system; exploring expansion into adjacent existing and historic neighborhoods

Smith Tower, Seattle

AUSTIN, TEXAS

Austin Energy
(district cooling)

Image Credits: Andy, ATMTX

For more information…

www.preservationnation.org/green

http://blogs.nationaltrust.org/preservationnation/

Patrice Frey

Director, Sustainability Program

patrice_frey@nthp.org

The Four “R”s

Image: [illegible]

Reuse

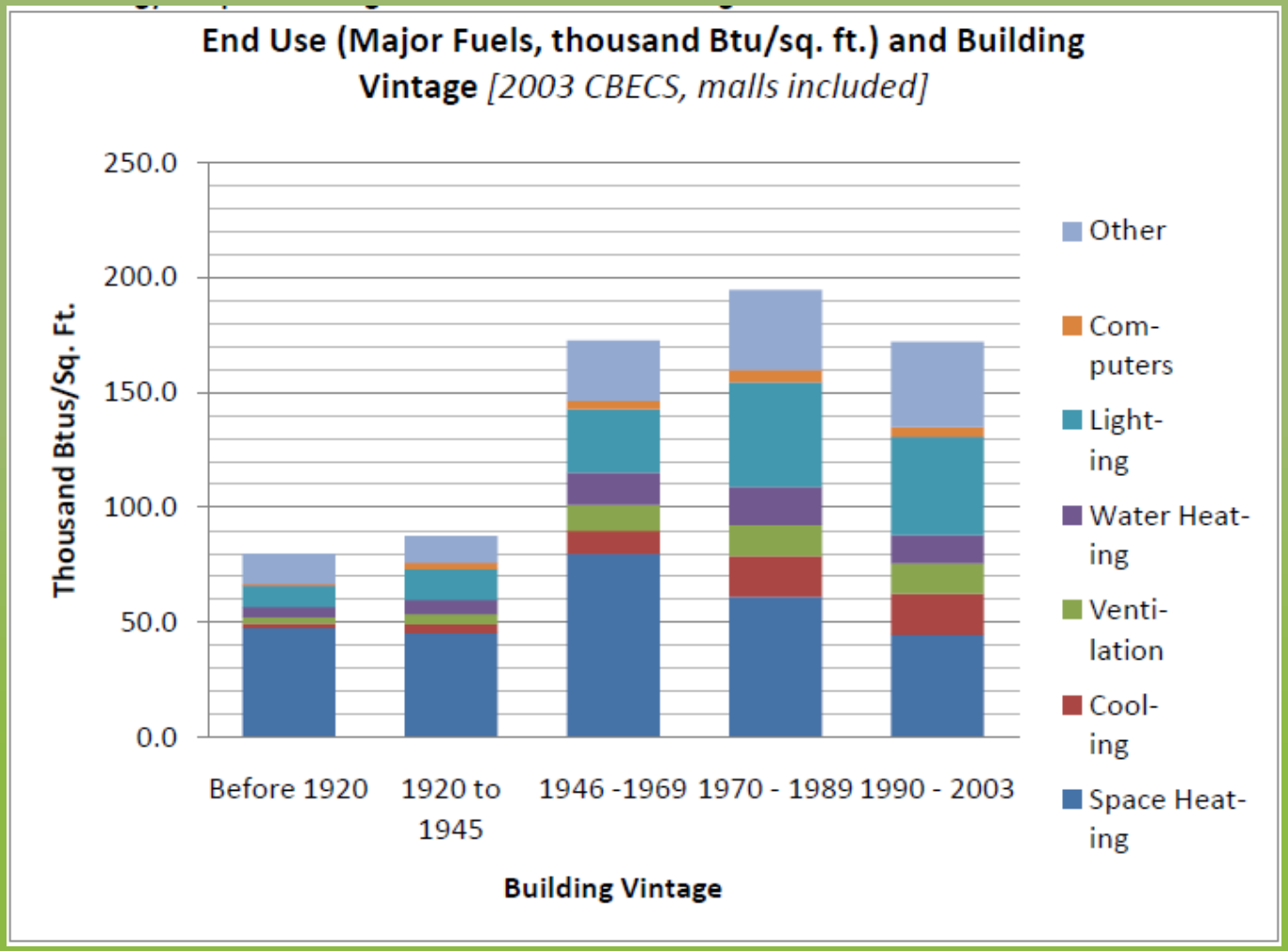
Reinvest

Retrofit

Respect

\+ Adapt!

Retrofit Green



ECO-DISTRICT INITIATIVES IN EXISTING NEIGHBORHOODS

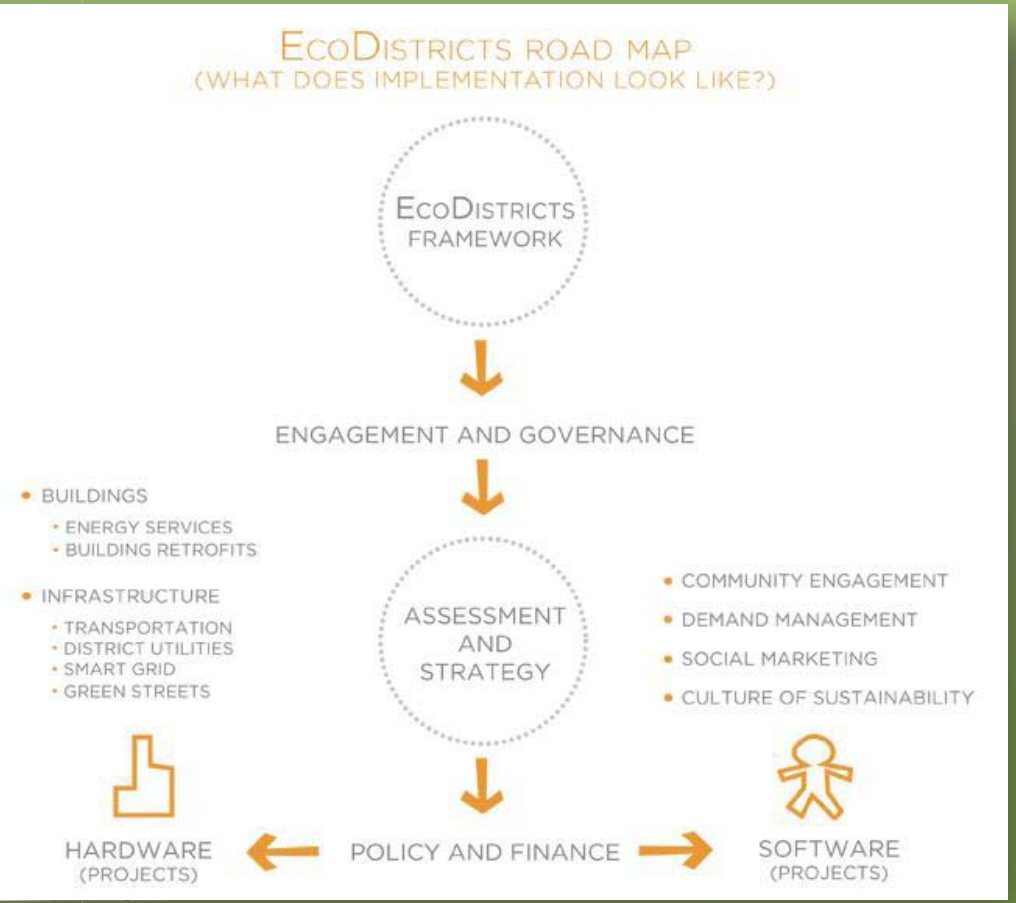


Image Credit: PoSI

RETROFIT GREEN