



The Green Build Road Show

Europe: The Premier Export Market for American Green Building Firms

November 6, 2009



THE U.S. COMMERCIAL SERVICE

**We help American companies compete and win in the
international marketplace**

- An extensive network to identify markets and provide practical support overseas
 - highly skilled market specialists in more than 75 countries and 107 U.S. cities
 - Market briefs point to opportunities for your companies
- Assistance on national certifications and EU regulations
- Market entry strategies customized to your company
 - CS services such as the Gold Key
 - Trade Shows
 - Contacts and market intelligence
- Advocacy on behalf of U.S. clients with foreign governments



THE GREEN BUILD ROAD SHOW AIMS TO Inform and energize U.S. companies in Green Building

- Identify U.S. companies with products/services in sustainable construction
- Present opportunities from five major European markets
- Market briefs on dynamic smaller markets
- Brief companies on the regulatory environment, standards, certifications
- Urge them to include exports to Europe in their business strategies



GREEN TECH TRADE MISSION – APRIL 2010

- FedEx and the Commercial Service in Partnership
- Green Technologies Trade Mission to Europe in April 2010
 - High level briefings in Paris
 - Business to Business matchmaking in 2 major markets
 - Participation in Hannover trade fair and/or
 - Spin-offs to other markets with valuable sectors
 - Central and Eastern Europe – energy efficiency in buildings
 - Western Europe - similar to markets outlined above



EUROPE: The Premier Export Market for Green Building

- Europe has made ambitious commitments to reducing CO2 and saving energy
- Backed up by changes in building codes and regulations and public funding
- Certification, Standards require commitment of time and money, but
 - No barrier to entry
 - CS can advise at EU and national levels
- American companies find it relatively easy to do business in Europe
- Europe offers stable business climate with rule of law
 - Protection for Intellectual Property
 - Sanctity of Contracts
 - Highly developed banking system, transportation, communications



Summary

- Europe is a "must" for many American Green Build companies
- Europe offers outstanding opportunities in major markets and
 - Smaller markets offer terrific opportunities too – Central Eastern Europe
- Demand for green technologies will run for 10-20 years
 - Commitment of EU and National Governments: legislation, regulation, incentives
 - Strong public support for environmental conservation and awareness
 - Growing demand for goods that inflict minimal harm on the environment
- Global Market: European companies are coming to the USA



U.S. Commercial Service United Kingdom

Dorothy Lutter
Senior Commerce Officer



GREENBUILD UK BUILDING AND CONSTRUCTION MARKET

- UK Construction Market for 2008 estimated at \$204 billion:
 - Public and Private Housing \$82 billion
 - New home completions
 - 2005: 207,000
 - 2006: 215,000
 - 2007: 219,000
 - Public and Private Commercial Construction \$104 billion
 - Private Industrial (factories, warehouses) \$7 billion
 - Infrastructure (roads, railways) \$11 billion
- 8% of UK GDP
- 250,000 companies
- 420 million tons of building materials per year
- Sustainable segment estimated at 12% of total market (\$24 billion)



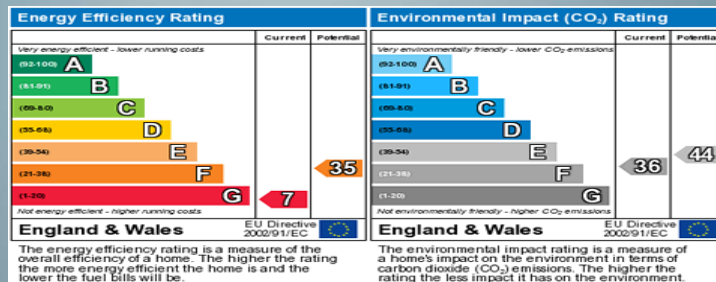
GREENBUILD UK ENERGY USE IN BUILDINGS

- Around 45% of the UK's carbon emissions comes from energy consumed in buildings.
- Nearly 75% of energy use in buildings comes from heating and hot water.
- The UK wastes an estimated \$13 billion a year through inefficient use of energy.
- Renewable sources currently account for less than 2% of demand.
- Incentives for micro-generation, including the Low Carbon Buildings Programme, are available.



GREENBUILD UK ENERGY USE IN BUILDINGS (2)

- ▶ Energy Performance Certificates are required for all residential buildings, either built, sold or rented.



- ▶ As of October 2008, Display Energy Certificates are now required for all large public buildings.
- ▶ All air conditioning systems over 12kW must be inspected by



GREENBUILD UK

UK GOVERNMENT LEGISLATION AND INITIATIVES CURRENT REGULATIONS (1)

- Climate Change Act 2008
- UK Building Regulations for Energy, Sanitation and Water Efficiency
- The Code for Sustainable Homes: All new homes are rated against nine categories, including Energy and CO₂ Emissions, Water Efficiency, Waste and Pollution.
- “Building a Greener Future: Towards Zero Carbon Development”: All new homes required to be zero carbon by 2016, and new commercial buildings, by 2019
- “Strategy for Sustainable Construction”: Public/private strategy to promote sustainable practices
- Government plans to provide for three million low-cost homes by 2020



GREENBUILD UK

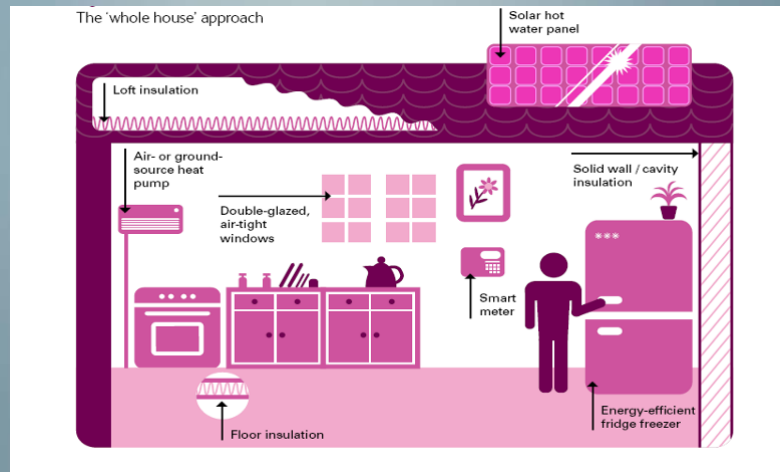
UK GOVERNMENT LEGISLATION AND INITIATIVES CURRENT REGULATIONS (2)

UK Low Carbon Transition Plan

- Obliges energy suppliers to invest \$5 billion by 2012 to help households reduce emissions and save energy
- Requires installation of smart meters in every home by 2020
- Encourages the provision of smart displays on existing meters
- Introduces trials/pilots to move from “up-front payment” to “pay-as-you-save” financing
- Encourages move to “whole-house” retrofitting of carbon reduction technologies



GREENBUILD UK UK GOVERNMENT LEGISLATION AND INITIATIVES CURRENT REGULATIONS (3)



GREENBUILD UK MARKET DRIVERS

- **Energy efficiency**
UK legislation will drive demand in this segment, increasing the need for related products.
- **Water efficiency**
Water usage is up 55% from 1980. Progressive tightening of UK building regulations and water efficiency standards is driving the market.
- **Waste reduction and management**
The construction industry generates more waste than any other sector. The UK sends more waste to landfill than any other European country.
- **Environmentally-friendly and recycled materials and products**
UK government is supportive of innovation and products in this sector.



GREENBUILD UK MARKET ISSUES (1)

Product Certification and Testing

- **CE Certification** (mandatory)
Products must meet performance requirements.
- **UK Government's Building Regulations** (mandatory)
Set standards for design and construction of buildings
- **"Certification" of UK Standards and Testing by Accredited Bodies (e.g. British Standards or British Board of Agrément)** (voluntary)
Demonstrates to local companies that a product is manufactured to current standards
- **BREEAM** (voluntary)
Building Research Establishment (BRE) Environment Assessment Method



GREENBUILD UK MARKET ISSUES (2)

Challenges

- ▶ **Confederation of British Industry (CBI)**
"Must make energy efficiency improvements in homes and offices more attractive through new loans and incentives"
- ▶ **New Homes**
Achieving "zero carbon" in the UK: Many new homes do not meet the current definition laid out in Code for Sustainable Homes regulations.

Work-in-Progress to find national energy efficiency standard for homes
- ▶ **Existing Building Stock**
Challenge of adapting existing building stock to low carbon and energy efficiencies

Need for incentives to encourage the adoption of retrofit technology and consumer accountability



GREENBUILD UK

TOP OPPORTUNITIES FOR U.S. EXPORTS

- » Energy efficient appliances, residential and commercial
- » Micro Generation, including wind and solar
- » Water efficient products and systems
- » Environmentally-friendly and recycled building materials
- » Green Design/Architecture
- » Waste management technologies
- » Construction techniques and materials that protect against extreme weather conditions
- » Insulation for walls and glass



GREENBUILD UK

MARKET ENTRY STRATEGY TRADE EVENTS

Ecobuild 2010

March 2-4, 2010, Earls Court, London www.ecobuild.co.uk

The UK's largest event for sustainable design, construction and the built environment.

Interbuild 2010

October 17-20, 2010, NEC, Birmingham www.interbuild.com

The UK's principal event for the building trade, including displays of sustainable technology.

FedEx Green Technologies Trade Mission

April 11-18, 2010, Commercial Service Europe

We look forward to seeing you in the UK!



U.S. Commercial Service France

Daniel Harris
Senior Commerce Officer



GREENBUILD France

BUILDING AND CONSTRUCTION MARKET

- French construction market for 2008 estimated at \$180 billion:
 - Public and Private Housing \$85 billion
 - New home completions (2000-2007)
 - 2 million individual private homes
 - 1.2 million apartment buildings
 - Public and Private Commercial Construction \$70 billion
 - Infrastructure (roads, railways) \$15 billion
 - Other \$10 billion
- French Building industry does 48% business within the EU and 52% internationally



GREENBUILD France

GOVERNMENT LEGISLATION AND INITIATIVES

- Grenelle Environmental Plan – October 2007
 - Phase 2 is in Parliament and will be voted in January 2010
- Long-term Government strategy to promote sustainable development
- Priority to reduce residential and commercial energy consumption
- Focus on energy efficiency “Green Building” and renewable energy



GREENBUILD France

GOVERNMENT LEGISLATION AND INITIATIVES CONT.

- All new building to consume less than 50kWh/m²/year by 2012
 - Current average energy consumption = 240 kWh per m²/year
- Goal of 20% reduction for existing commercial buildings and 12% reduction for residential by 2020
- \$550 million to finance new government sustainable construction
- Tax incentives (National, Regional, City) for energy efficiency



GREENBUILD France MARKET DRIVERS

- Public Support: 80% of households ready to invest in energy efficiency
- Building Construction: National and regional building codes and tax incentives driving new sustainable construction
- Energy efficiency
 - French legislation is driving this sector – increasing the need for energy efficient products and services
 - To meet new building codes – 31 million private home/apartments need to be renovated to improve energy and thermal efficiency. 75% of homes were built before 1975. Represents a \$950 billion market.



GREENBUILD France Product Certification and Testing

- CE Certification – Product has met performance requirements
 - May take from six-twelve months and \$15-20,000 for CE Certification
- Products may need EU mandatory harmonized standards or
 - Products may only need EU voluntary standards
- Energy performance calculations may be required for certain products
- Certification standards may vary from one country to another within the EU
- CSTB, the French standards and testing body, provides product testing and multiple country product certification



GREENBUILD France

TOP OPPORTUNITIES FOR U.S. EXPORTS

- Heating Ventilation and Air Conditioning (HVAC)
- Heating Pumps – the second largest in Europe
- Solar-thermal – the fastest growing in Europe
- Solar Photovoltaic (PV) – market with most potential

GREENBUILD France

TOP OPPORTUNITIES FOR U.S. EXPORTS Cont.

- Ventilation/Heat Exchangers
- Wood Energy Equipment
- Insulation Materials and Glass
- Energy Efficient Appliances
- HQE/LEEDs Architectural Services

TOP OPPORTUNITIES FOR U.S. EXPORTS CONT.

Specific Examples of best prospects:

- High performance HVAC systems such as roof tops,
- CO2 HVAC sensors to regulate indoor air quality
- Equipment to preserve existing calories and redistribute them into the HVAC system
- Roof reflective membranes to reduce air conditioning needs
- Software that modulates the electrical power or controls and monitors energy consumption
- Lighting with T5 electronic ballast neon.

USEFUL ASSOCIATIONS & ORGANIZATIONS

CSTB (Centre Scientifique et Technique du Bâtiment)

Center of Sciences and Techniques in Construction

international.development@cstb.fr

<http://international.cstb.fr>

Fédération Française du Bâtiment

French Building Federation

Tel: 331.40.69.51.00 **appointment asap for you to show me you intro and outline**

Fax: 331.45.53.58.77

<http://www.ffbatiment.fr/federation-francaise-du-batiment.htm>

CAPEB (Confédération de l'Artisanat et des Petites Entreprises du Bâtiment)

Confederation of Artisans and Small Building Companies

Tel: 331.53.60.50.00

Fax: 331.45.82.49.10

capeb@capeb.fr

<http://www.capeb.fr/INTERNETCAPEBWeb/National/Publication/accueil/accueil.jsp>

USEFUL ASSOCIATIONS & ORGANIZATIONS Cont.

Association HQE

The HQE label is the French equivalent of the American LEEDS certification.

Tel: 331.40.47.02.82

Fax: 331.40.47.04.88

a.hqe@assohqe.org

<http://www.assohqe.org>

ADEME (Agence de l'Environnement et de la Maîtrise de l'Energie)

National agency for the environment and the energy control

Tel: 331.46.45.52.36

Fax: 331.46.45.52.36 or 331.46.38.31.41

<http://www2.ademe.fr>

CONTACT CS FRANCE

Daniel Harris

Senior Commercial Officer

Daniel.Harris@Mail.Doc.Gov

Rose Marie Faria

Commercial Specialist - Construction

Rosemarie.Faria@Mail.Doc.Gov

Everett Wakai

Commercial Specialist - Environment

Everett.Wakai@Mail.Doc.Gov



U.S. Commercial Service Italy

Thomas Moore
Senior Commerce Officer



GREENBUILD Italy BUILDING AND CONSTRUCTION MARKET

Italian Construction market for 2008 estimated at \$228 billion, of which:

Residential	\$ 124 billion
new	\$ 58.7 billion
maintenance*	\$ 65.5 billion
Non residential	\$ 104 billion
private	\$ 61 billion
public works	\$42.8 billion

*works that preserve a building in good conditions through substitutions or modifications of parts of the building or through the installation of new systems, such as electrical or plumbing

- Sector accounts for approx. 11% of Italy GDP
- 9-year growth stopped in second semester of 2008 due to cyclical factors and to global economic uncertainty
- 2009: investment in construction is forecast to decrease by 10.9% (not considering "piano casa" effect)



GREENBUILD Italy

"PIANO CASA"

- "Piano Casa" ("house plan") is expected to improve the market
- One of the objectives of "Piano Casa" is to improve the energy efficiency of buildings
- Tax incentives (including those towards the use of energy efficient and renewable sources) will also sustain renovation efforts



GREENBUILD Italy

ENERGY USE IN BUILDINGS

- 93% of buildings erected before 1991 (low energy standards)
- Conservation state of 22.5% of buildings poor or very bad
- 55% of buildings are small (1 – 4 apartments)
- Energy certification of 100,000 existing buildings in Lombardy shows a great percentage in G class



GREENBUILD Italy

ITALIAN MARKET DRIVERS: GOVERNMENT LEGISLATION AND INITIATIVES

- Initially, municipal, provincial, and regional governments led the way.
- Law Decrees 192/05 and 311/06: Implement EU energy mandates
- National implementing guidelines: the “green report card”
 - Cases in which it is mandatory
 - Regional guidelines allowed but must be harmonized
 - Deregulation for roof-integrated ST and PV installation on existing buildings (ordinary maintenance vs. prior municipal permission)



GREENBUILD Italy

ITALIAN MARKET DRIVERS: GOVERNMENT LEGISLATION AND INITIATIVES – cont’d

- Incentives:
 - **Photovoltaic systems** – “conto energia”; grid parity
 - **Solar thermal panels** – 55% tax deduction
 - **Energy efficient renovation** – 55% tax deduction
 - Works on the “building envelope”
 - Substitution of winter air conditioning systems
 - **Home appliances** – 20% tax deduction
 - **Wind power and renewable sources** – special rate
 - **Regional incentives**



GREENBUILD Italy

ITALIAN MARKET DRIVERS: CERTIFICATION

- Certification of Building Products - **CE Mark** (mandatory)
- Certification of the Energy Efficiency of Buildings: the “**green report card**” (mandatory)
- Other types of certification (voluntary), e.g.:
 - **LEED**
 - **Casaclima**
 - “**SB 100**”
 - “**Marchio Bioarchitettura di Qualità energetico ambientale**”:
 - “**Sistema edificio**”



GREENBUILD Italy

ITALIAN MARKET DRIVERS: ASSOCIATIONS AND GREEN BUILDING CLUSTERS

- **ANAB** – National Association of Bioecologic
 - Architecture – www.anab.it
- **INBAR** - National Institute of Bioarchitecture
 - www.bioarchitettura.org
- **Green Building Council of Italy**
 - www.gbccitalia.org www.gbccitaly-boston.com
- **Habitech** – “energy-environment cluster”
- **Angeli Di Rosora** – zero emissions community



GREENBUILD Italy

BEST PROSPECTS / GREENBUILD

- **Photovoltaic panels**
 - Italy ranks 5th in world in installed capacity (3rd in Europe)
 - 300 MW expected to be installed in 2010
 - Examples of best prospects:
 - Thin film strips for commercial roofing
 - Semitransparent thin film modules
 - "Architectural" modules (CIS, GICS, CdTe)
 - Novel PV technologies
- **Solar thermal panels** for building heating and hot water production – 280 MWth installed in 2008



GREENBUILD Italy

BEST PROSPECTS / GREEN BUILD

- cont'd

- **Insulation products**
 - annual growth exceeding 5 percent
 - interest in new technologies, e.g. reflective coatings for roofs, green roofing & terraced gardens systems, etc.
- **Wood construction**
 - positive , countercyclical trend for wood structures
 - North American hardwoods preferred for appearance
- **Geothermal heat pumps**
 - the use of GHPs alone could bring Italy to meet its renewable energy obligations by 2020



GREENBUILD Italy

Virtual Green Trade Mission to Italy

- A low-cost opportunity to promote your products or services in the Italian market and to identify potential agents, distributors, partners, pre-screened by the Commercial Service - \$350
- Registration now open
- www.buyusa.gov/italy/en



GREENBUILD Italy

ITALY – GREEN BUILD EVENTS

- **MADE Expo** – Comprehensive construction & materials show incl. Greenbuilding
 - Milan – February 3-6, 2010
- **Mostra Convegno** – heating, cooling, energy & water efficiency; HVAC
 - Milan - March 23-27, 2010 – Commerce Certified Show
- **SolarExpo/Greenbuild**
 - Verona – May 5-7, 2010 – U.S. Pavilion



GREENBUILD Italy

Contact CS Italy's GREEN TEAM

Tom Moore, Senior Commercial Officer

thomas.moore@mail.doc.gov

Federico Bevini, construction sector specialist

federico.bevini@mail.doc.gov

Cristiano Sartorio, energy sector specialist

cristiano.sartorio@mail.doc.gov

Maria Calabria, HVAC sector specialist

maria.calabria@mail.doc.gov

Nicoletta Postiglione, water & environmental specialist

nicoletta.postiglione@mail.doc.gov



U.S. Commercial Service Nordics

Frank Carrico

Senior Commerce Officer

Embassies Stockholm and Copenhagen





GREENBUILD SWEDEN

BUILDING AND CONSTRUCTION MARKET

- Swedish construction market for 2008 estimated at \$55 billion:
 - Private Housing \$18 billion
 - Commercial Construction \$27 billion
 - Infrastructure (roads, rails, commlinks) \$10 billion
- 8% of Swedish GDP
- 60,000 ACE, real estate, and consulting companies - sector employs 500,000
- Also contributes to exports of city-wide infrastructure technologies (Symbio City)
- Building boom - sustainable sector still growing
- Skanska interested in adopting LEED certification model for Nordics
 - Concentration of Nordic-wide construction companies with offices in Stockholm

Stockholm Royal sea port - environmental urban district



10 000 dwellings

Jobs for 20-30 000 people

Improved port operations to the ferry and cruise business

Continued energy and industrial related activities in some parts

New infrastructure for road and track

Proximity to recreation and sports areas

Improved service for resident and workers





GREENBUILD Sweden

GOVERNMENT INITIATIVES AND REGULATIONS

- National Program for Energy Efficiency and Energy-Smart Construction
 - Early Adopter of Energy, Water, and Waste reduction technologies
 - Energy efficient public procurement (Hammarby & Royal Seaport)
 - Funding for energy-smart construction data and research (DOE & SEA)
 - Incentives for sustainable construction and passive housing
- Strong Public-Private Cooperation for Sustainable Cities
 - Manages government programs for the development of sustainable cities
 - Promotes integrated planning and international cooperation (SymbioCity)
- Current building regulations limit annual use of energy in new houses to:
 - 110 kWh per m² and only 50% of the energy should be used for electricity
- Government mandate to reduce building energy use by 20% by 2020
- 50% proposed by 2050 (ref. year 1995)
- Lower than EU-levels targeted during Swedish EU Presidency



GREENBUILD Sweden

TOP OPPORTUNITIES FOR US EXPORTERS

- ICT for Utilities and Consumers
 - Low energy lighting systems
 - Low waste water and recycling
- 
- Low energy construction principles and technologies
 - Recycled building materials
 - Heating/cooling systems with alternative energy (solar, geothermal, small-scale wind)
 - COP-15/BrightGreen in Copenhagen, December, 2009

GREENBUILD Sweden

Green McDonald's Restaurant, U.S.A.

Skanska USA guided construction of McDonald's restaurant in North Carolina for greenbuild LEED (Leadership in Energy and Environmental Design) for Retail certification pilot project.



Skanska LEED Overview

GREENBUILD Sweden

Boston Logan International Airport Terminal "A"



- First LEED Certified Terminal in the US
- Recycled materials
- Energy conservation plan
- Natural lighting
- Alternative fuel sources

Green Facts

Logan International Airport's Terminal "A"
Boston, MA

LEED-NC rating out of	69
Certified	26
Sustainable Site	9
Water Efficiency	3
Energy & Atmosphere	2
Materials & Resources	3
Indoor Environmental Quality	5
Innovation & Design	4

USGBC, LEED v2009, © 2009



GREENBUILD Norway

Construction Market Overview

- From 2006 -2007, construction industry revenue increase was 21 %, reaching USD 49 billion
- Norway has about 4 million buildings, of which 1.5 million are residential buildings.
- 1.2 million buildings are detached houses. Homeownership is about 80% and there are almost 418,000 holiday second homes in Norway.
- More than 80% of households use clean and affordable hydro-based electricity for heating.
- Norway produces more CO2 neutral hydropower electricity than country uses- net exporter
- Incentives to invest in energy efficiency products such as solar panels have been low
- 90,000 dwellings needed in Oslo alone to meet demand over the next ten years
- Best prospects in building materials:
 - quality insulation materials
 - new and efficient windows
 - efficient low maintenance heat exchangers
 - various types of heat pumps
 - efficient burning furnaces
- Use of district heating has increased every year since 1983, from 193 GWh to 3,038 GWh

GREENBUILD Norway

UN House, Norway

The UN House in Arendal, Norway, has been rebuilt into an energy efficient, carbon neutral building with a double box facade, and sources renewable energy from a solar water heating system and geothermal energy from the sea.

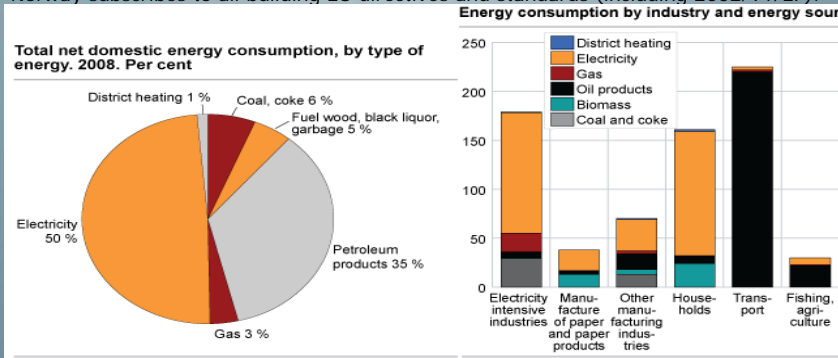




GREENBUILD Norway

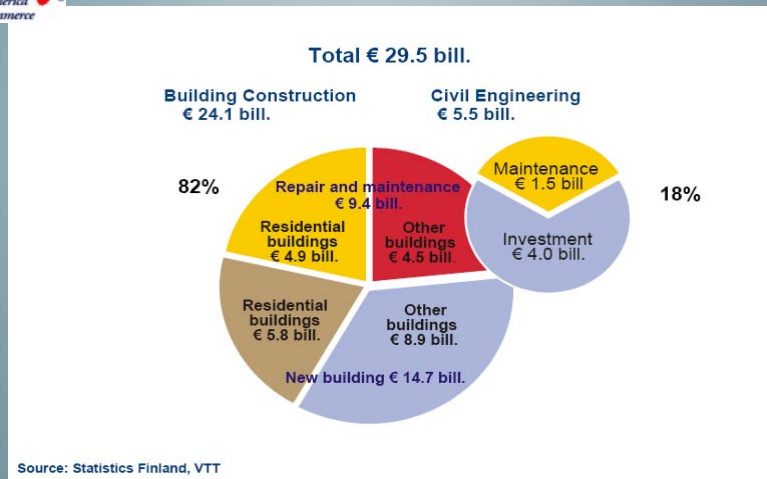
Low Energy Buildings

- GoN Enova SF funds investments in renewable energy as well as energy efficiency.
- Some 10-15 house builders offer some type of low energy houses in the residential sector, particularly with thicker insulation, windows with low U-value, and heat exchangers
- From January 2010, an energy certificate will be compulsory when renting or selling private homes or office buildings in Norway. This certificate builds on an EU Directive in 2006
- Norway subscribes to all building EU directives and standards (including 2002/91/EF).



GREENBUILD Finland

Finnish Construction Market



Source: Statistics Finland, VTT



GREENBUILD Finland

Finnish Construction Market and Energy Use

- Building construction market estimated at over \$35 billion in 2008
- New building sector at \$22 billion and repair and maintenance at \$13 billion
- Building boom has subsided; only building repair and maintenance growing
- Every fifth worker employed by construction industry and related industries
- the BIG 5: YIT Group, Lemminkainen Group, NCC, Skanska, SRV Group

Energy sources for heating residential, commercial and public buildings:

- District heating 27,520 GWh
- Electric heating 8,980

Fuels:

- Small scale combustion of wood 12,083
- Light fuel oil 9,864
- Heat pumps, etc. 2,769
- Heavy fuel oil 1,000
- Natural gas 761
- Peat 153
- Coal -

GREENBUILD Finland

EKO –Viikki, Finland

Eko-Viikki is an ecological suburb in Helsinki, Finland, which has pioneered sustainable construction techniques to minimize the overall impact of residential buildings throughout their lifespan and to promote more sustainable living.





GREENBUILD Finland

Current Regulations and Government Programs

- Finland has set minimum requirements for thermal insulation and ventilation
- The latest raise the level of the energy efficiency requirements by 25-30%
- EPBD (EU's Energy Performance of Buildings Directive) Implementation:
 - Energy certificate required for new buildings as of January 2008
 - New energy requirement calculations for all new buildings
- The new National Building Code will come into effect beginning of 2010 with new energy reduction requirements (further energy reduction of 30-40%)
- The Minister of Housing will introduce regulations on energy and energy source
 - Energy consumption will be reduced by 5 TWh by 2020 using stricter energy regulations for new building projects and for renovation
 - Speeding up renovation construction with targeted financial incentives



GREENBUILD FINLAND

Opportunities for US Exporters

- Effective insulation materials
- HRV-systems
- Heating and cooling pumps
- Pellet furnaces
- Low energy construction building concepts
- Recycled building materials
- Heating/cooling from alternative energy -solar, geothermal, small-scale wind
- Jätkäsaari Energy and Innovation City Block project –major project. The city block to be an example of construction of passive and plus energy buildings
 - <http://www.sitra.fi/en/Programmes/energy/Projects/jatkasaari/jatkasaari.htm>
 - - Sitra's Energy Program is a project developer together with its partners.



GREENBUILD DENMARK

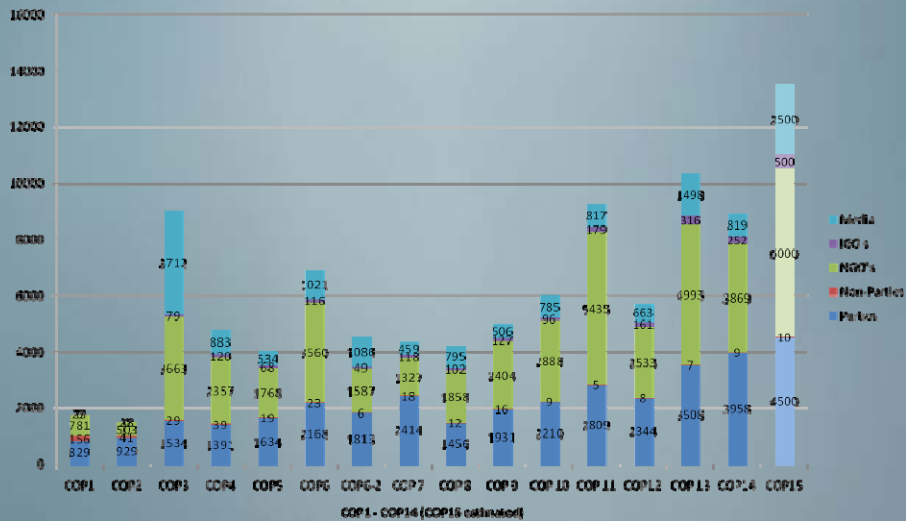
Building and Construction Market

- Danish building and construction represent close to 6.5% of GDP.
- The sector is comprised of about 11,000 different companies.
- The sector is employing about 160,000 people
- According to plans, energy usage in building should be lowered by:
 - 25% by 2010 and 75% by 2020.
- Good prospects for US exports to the Danish construction sector, especially low-energy housing.
- Good prospects for building materials, particularly:
 - Energy efficient windows and doors
 - Insulation materials
 - Heat recovery ventilation systems



GREENBUILD DENMARK

Visitors - COP by COP





GREENBUILD DENMARK



GREENBUILD NORDICS

DOE awarded 16 Indefinite Delivery Indefinite Quantity Energy Savings Performance Contracts (ESPCs) that could result in up to \$80 billion in energy efficiency, renewable energy, and water conservation projects at federally-owned buildings and facilities, including our embassies.

Amoroso, Inc.
Chevron Energy Solutions
Clark Realty Builders
Consolidated Edison Solutions, Inc.
Constellation Energy Projects and Services Group, Inc.
FPL Energy Service, Inc.
Honeywell International, Inc.
Johnson Controls Government Systems, LLC
Lockheed Martin Services, Inc.
McKinstry Essention, Inc.
NORESKO, LLC
Pepco Energy Services
Siemens Government Services, Inc.
TAC Energy Solutions
The Benham Companies, LLC
Trane U.S., Inc.

GREENBUILD NORDICS

The largest parallel event at the COP15



Bella Center
7 - 18 December 2009



Forum
12 - 13 December 2009



Contact Commercial Specialist Tuula.Javanainen@mail.doc.gov



U.S. Commercial Service Germany

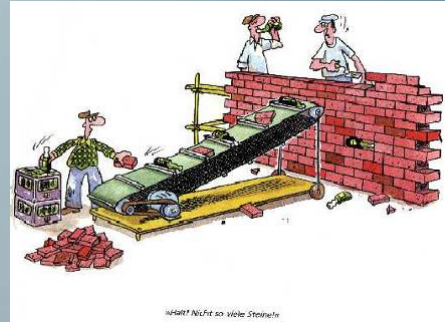
George Ruffner
Senior Commerce Officer





GREENBUILD Germany Construction Market

- German construction market valued at \$ 308 billion in 2008
- (+ 2.1% compared to 2007)
- 17.3 million residential buildings in Germany
- 1.5 million non-residential buildings (40,000 schools)



GREENBUILD Germany Residential Construction Market

- $\frac{3}{4}$ of residential buildings built before 1979 have an energy saving potential of up to 80%
- Construction trends:
 - Smaller housing units due to demographic changes (more senior citizens and singles)
 - Increased energy efficiency
- New housing units by 2010: estimated 280,000 per year





GREENBUILD Germany Market Facts General

- Forecast: More than **\$ 250 billion per year** expected investments for building and refurbishment for the near future
- Construction regulations (and investment incentives) will lead to a massive improvement in energy efficiency
- Strongest investment incentives for improved heating technologies, use of renewable energies, and insulation



GREENBUILD Germany Market Facts: Energy Prices

Private

- Average retail price for a average three-person household
- use of 3.500kWh/year)
- 0.32 \$ per kWh

Comparison: U.S. average retail price/kWh: 0.09 \$

Commercial

- Average energy price for industrial users
- use of 100kW/1,600h to 4,000kW/5,000h)
 - 0.19 \$ per kWh

Comparison: U.S. average industry price/kWh: 0.064 \$

Prices are approx. 3 times as high as in the U.S.!



GREENBUILD Germany

Market Facts: Climate Change Program

- Energy consumption in buildings makes up 40% of total energy consumption in Germany
- Target: Reduction of Germany's GHG-emissions by 21% until 2012 compared to 1990 (Kyoto)
- Government provides low-interest loans and direct subsidies for private house builders and re-furbishers and financially supports renewable energy R&D



GREENBUILD Germany

Market Facts: Climate Change Program cont.

- Target: Increase of renewable energy in the energy mix from 6% today to 14 % in 2020
- Mandatory use of renewable energy for new houses starting in 2009
- Governmental subsidies in 2009:
 - \$ 733 million (2008: \$ 513 million)



For further reference:

<http://www.bmu.de/english/aktuell/4152.php>

http://www.bmu.de/english/current_press_releases/pm/42126.php



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Market Facts: Loans and Subsidies

- Climate change program implementation is supported by governmental institutions:
- - KfW Förderbank (Development Loan Corporation):
- Programs: CO2 Building Restructuring Program, Build Ecologically Program, Housing Modernization Program
- - Federal Environmental Ministry: www.bmu.de
- - Federal Ministry of Economics and Technology www.bmwi.de
- - German Energy Agency (dena): www.dena.de



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Market Facts: Legislation

Energy Performance Certificate (Energiepass)

- lists energy requirements for buildings, stipulations on insulation of walls and windows
- mandatory for residential and public buildings when sold or rented (*with few exceptions for e.g., historical, or agricultural buildings*)
- incentives for zero-energy houses (passive houses)





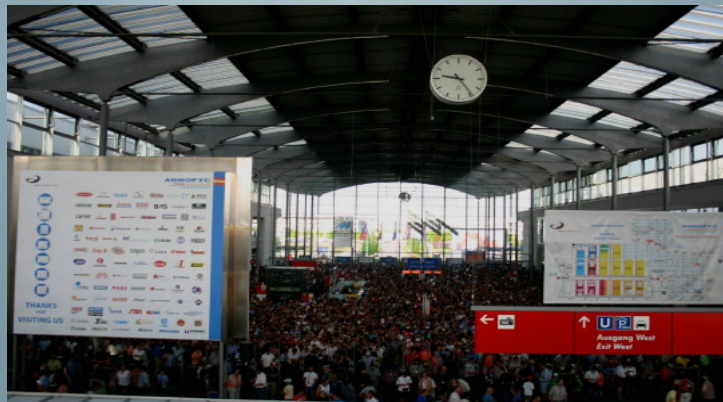
GREENBUILD Germany Market Entry Strategy

- Highly competitive commercial environment, but sophisticated, high-tech U.S. goods and services are well received
- **Trade shows:**
- Germany hosts the world's leading international trade fairs



GREENBUILD Germany Market Entry Strategy

- Few formal barriers to U.S. trade or investment
- Local partner/localization of products advisable





GREENBUILD Germany

Opportunities for U.S. Exporters

- Advanced high-tech **insulation materials**
- **Building control systems** for commercial buildings, offices and industrial premises (controlling and adjusting heat, lighting, humidity, fresh air etc.)
 - **Glass and Window Construction:**
Three-glass-windows, windows with low U-values;
73% of German homes were built before 1979 and are environmentally inefficient.
- Energy efficient **a/c** and **heat exchanging technologies**



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Opportunities for U.S. Exporters cont.

- **Smart metering** devices
- **Renewable Energy Equipment:**
 - Because of current and anticipated future tax credits continued strong growth.
 - Heat pumps, solar thermal panels, wood pellet/wood chip boilers



GREENBUILD Germany Trade Events

- **Zukunft Haus Kongress** (annual event):
Strategies for Energy Efficiency
November 24 - 25, 2009, Berlin
<http://www.zukunft-haus.info/de/service/veranstaltungen/zukunft-haus-kongress-2009.html>

- **Hannover Fairs Industry** (annual event):
April, 19 – 23, 2010, Hannover
http://www.hannovermesse.de/homepage_e

- **BAUMA 2010** (triennial event):
Largest Construction Machinery Event
April 19 - 25, 2010, Munich
<http://www.bau-muenchen.com/>




GREENBUILD Germany Trade Events Cont.

- **International Conference on Passive Houses** (annual event):
28.5.-29.5.2010, Dresden
<http://www.passivhaustagung.de>

- **Consense** (annual event):
22.6. - 23.6.2010, Stuttgart
International congress and trade fair for sustainable building
<http://www.messe-stuttgart.de>
- **BAU 2011** (biennial event):
Largest European building industry event
17.1.2011-22.1.2011, Munich
<http://www.bau-muenchen.com/>

- **Various "dena"-dialogue regional forums:**
<http://www.dena.de>




GREENBUILD Germany CS Green Building Contacts

George Ruffner

U.S. Commercial Service Berlin
Clayallee 170
14195 Berlin

george.ruffner@mail.doc.gov
Phone: +49-30-8305-1940
Fax: +49-30-8305-1949
www.buyusa.de

Bettina Kutsche

U.S. Commercial Service Munich
Koeniginstr. 5
80539 Munich

bettina.kutsche@mail.doc.gov
Phone: +49-89-288-8751
Fax: +49-89-285261
www.buyusa.de



The U.S. Commercial Service at the U.S. Mission to EU

An Introduction to EU Green Build Standards and Certification

November 2009

Sylvia Mohr
Standards Specialist





Overview

- The genesis of EU green technology and regulations
- Assume that your product is regulated
- The importance of EU-wide standards
- Green technologies: an opportunity for U.S. exporters
- Recap





The genesis of EU green technology and regulations



- Why? Climate change, concern about security of energy supply, fluctuating prices
- Commission goal: 20-20-2020
- Various EU regulatory initiatives
 - Energy efficiency labeling for consumer goods (1992)
 - Energy performance of buildings directive (2002), already in force
 - Framework directive (2005) and implementing measures about ecodesign and energy use of energy related products, to be implemented in the coming years
- Different regulatory approaches in U.S. and EU
- No equivalency



**Assume that your product
is covered ... by EU
regulation!**

Insulation

- Construction product
- CE marking
- Flammability, energy performance
- Conformity assessment linked to class: from self certification to factory production control by accredited test laboratory
- Several EN standards and ETAs



Window with glass



- Construction product
- CE marking
- Energy performance
- Basic: initial type testing
- High: factory production control
- Standard: EN 14351-1:2006
Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics



Solar systems



- Construction product? Not yet
- Standard CPD under consideration: EN 12975-2:2006 Thermal solar systems and components - Solar collectors - Part 2: Test methods
- Low voltage/EMC and CE marking? Yes
- Standard: No officially recognized EN standard yet even though EN/IEC 61215 exists and is used



Airconditioning unit



- Low voltage, EMC: CE marking
- Energy related requirements in the future
- Self-certification
- Standards: EN 61000 (harmonics), EN 55014 (emission and immunity) among others
- Other requirements: WEEE and RoHS (depends on use)



Faucet



- General product safety directive
- No mandatory EU wide marking
- Energy related (eco design) requirements in the future
- Self-certification
- Standard: no EN, only some national standards



The importance of EU-wide standards



- Mandated by the Commission
- Developed by CEN, CENELEC, ETSI or EOTA
- Use gives presumption of conformity
- Product standards, calculation methods, test methods
- Conformity assessment with/without services of accredited test laboratory



An opportunity for U.S. Exporters

- The EU's 27 member states have begun implementing green building targets
- Residential and commercial buildings will have to meet these targets
- A fair percentage of the nearly 500 million consumers will be renovating their homes and upgrading their energy using equipment in the coming years



Recap

- Comply with minimum **safety**/performance requirements
- Determine minimum **energy** performance requirements
- Remember: different energy performance requirements and certification by region/country!
- Bottom line: it can be done



CSEU services

- Counseling
- Advocacy
- Procurement/grants/loans
- Market Access and Compliance

- www.buyusa.gov/europeanunion

- (sylvia.mohr@mail.doc.gov)

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