Top International Markets for Green Building Companies

Taking your green industry to the next level in the global market
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Introduction

Making the World a more Sustainable Place with Green Innovations Creates Promising Export Business Opportunities

In the last few years ‘Green Industries’ has taken a boom in the global market. Countries are becoming more aware and concerned about sustainability, and alternative means of living. These industries are developing a profitable market that is full of opportunities for U.S. products and services. Environmental concerns have pushed themselves to the surface and have grabbed the public’s attention as well. These concerns are then put on both government and private sector agendas. The prospects for export sales are becoming promising for renewable energy, environmental management, and green building services.

Both the private sectors and governments look to recent innovations to create a sustainable environment and less polluting energy sources to transform a polluted, industrialized world. This is why American companies must take this market by storm, and immerse themselves in this fast-growing and highly competitive industry.

This publication lists the top ten foreign country destinations of U.S products and services in the Green Building field, in the time frame included in the charts. It also lists other opportunities in emerging, fast growing countries that are rapidly developing infrastructure in a sustainable way. Of course, it is never certain that today’s market destinations will be certain in tomorrow’s top destinations. This is the reason why both the current and emerging markets are included.

The Green Building Guide has categorized the top ten countries for selling U.S. products and services in 2011. The subcategories included in the data are: insulation, fibrous materials, and energy efficiency lighting. The major source of the information is from export.gov and the others that are noted. The following list is of HS codes that were used to collect data according to industry:

1. Insulation: 6808
2. Fibrous Cellulosic Material: 4706(e.g: ceiling tiles made of natural cellulosic fibres include cotton, flax, hemp, jute, and ramie)
3. Vegetable textile fibers: 5311(e.g: Vegetable fibers are generally based on arrangements of cellulose, which can be made into building block, bricks, cement)
4. Fluorescent tubes:8539

For each of the countries presented, this guide provides an insight to the country’s green consciousness, a chart of the market size sum for these subcategories, best prospects and opportunities, and a summary of how to get into this country’s market. This information is what U.S. firms need when evaluating foreign market opportunities for their products and services.
Research data have been obtained from government sources, trade association publications, business journals, and company literature

Overview of Green Building Industry
The following information was acquired from a government website: export.gov “Green Building Opportunities: Global Demand”

Green building Business is growing nationally and internationally. There is a need for innovative designs to meet the challenges of creating sustainability in living for all communities. People around the globe are continuously looking and aspiring to find creative, practical and sustainable solutions for the world problems that we face today.

The need for innovations in building green are not only national but also increasingly more so international, which then provides the opportunities in creating jobs and increasing profitability in exporting Green Building designs. Global construction is valued at $5.8 trillion annually, but there still remain the growing pressures of lack of resources, material costs and climate change. These obstacles have triggered a widespread search and investment in green building designs and innovative construction methods.

Major markets that have adopted green building initiatives have been: China, India, U.S., Europe, and the Gulf States; the World Bank estimates that by 2015, half of the world’s building construction will take place in China. A priority for the Chinese Government is to encourage green building and reduce building-related energy consumption. China is investing hundreds of billions of dollars in energy efficiency projects, infrastructure construction and people’s livelihood improvement – a significant portion of which will be used in green building development.

The USA is the largest single-country construction market in the world, with an annual value of $1.5 trillion. According to a recent report by McGraw Hill Construction, by 2013 more than half of all building firms operating in North America (including Canada and Mexico) will be largely or fully dedicated to green building projects. The US Government has released a range of Economic Stimulus packages relating to green building in the US. Green building construction in the US is projected to increase to a $60B by 2010.

It is important that green building firms consider the following:

- Research the opportunities and potential competition in the particular export market
- Determine the purchasing process for your product or service
- Mitigate payment and foreign exchange risks
- Consider intellectual property protection as part of your market entry strategy, and
- Note that green building regulations and ratings systems can vary significantly from market to market. For example, China does not generally recognize international green building standards.

1 http://www.export.qld.gov.au/Pdfs/TR446_GreenBldg_MktProf_global_LR.pdf
Suppliers of building materials to China are required to meet both Chinese National and Regional building material standards. Importation of building materials generally involves some independent testing by Chinese authorities to determine compliance with relevant regulations.

A publication by Pike Research “Green Building Certification Programs: Global Certification Programs for New and Existing Buildings in the Commercial and Residential Sectors: Market Analysis and Forecasts” analyses the outlook on business and regulatory issues that will determine the number of buildings receiving green building certification in the coming years.

Results show that the Green building market worldwide is expected to grow 780% by 2020. Cumulative green building certified space will grow from about 0.6 billion square meters in 2010 to about 5.3 billion square meters worldwide in 2020. Taking market conditions and regulatory changes into account, commercial buildings will likely represent about 80% of space certified under green building programs in 2020. While LEED and the U.K.-based Building Research Establishment Environmental Assessment Method (BREEAM) will continue to dominate the North American and European green building markets, respectively, newly developed programs in China and India are likely to represent about 30% of all certified green new construction by 2020. The world wide analysis also shows that, to date, most green-certified space has been in the commercial building sector. In many markets, such as Class A office space, green building certification is the standard rather than the exception. Demand is growing, particularly in cities looking to attract multinational corporations. On the demand side, many corporations and government agencies are beginning to establish policies that they will only own and occupy spaces that have received green building certification.

Within commercial building green building certifications, existing buildings are the greatest portion of the market. Approximately 60% of total net green building space is in existing buildings. However, the majority of commercial buildings certified under the two major international programs, LEED and BREEAM are new buildings. In general, certifications for new buildings have received the most attention in the market.

In the US

According to a report by McGraw-Hill Construction that tracks the building industry, the value of green construction started to climb from $42 billion in 2008 to $71 billion in 2010. Even with the recession in the U.S, the green building market has dramatically expanded, and is expected to double in size by 2015. Their report Green Outlook 2011 shows that this growth represented 25% of new building activities, and the market is expected to reach nearly $135 billion by 2015.

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2 http://www.colliers-sustainability.com/resources-market-research/green-building-market-worldwide/
3 http://www.colliers-sustainability.com/resources-market-research/green-building-market-worldwide/
4 http://www.colliers-sustainability.com/resources-market-research/green-building-market-worldwide/
Particular areas of growth have been in the commercial sector, and a third of the new projects are being built to green standards. Several building owners have been surveyed and said that their green projects reduce the operating cost, increase the building value, and ultimately give a higher return in their investments.

In a tough economy, green building seems to have become a bright spot. The non-residential building sectors shows remarkable growth, demonstrating that the green building market is higher than the overall market itself. In 2010, there was an expected growth in health care construction, and its green share was to grow as much as 40%. In Education there was a value of $13 -$16 billion in 2010, and $7-8 million in office green construction\(^6\). McGraw-hill Construction attributes green building’s rapid growth to the owners that wish for a differentiation in the market, higher public awareness, and an increase to local and federal regulations.

A survey done in August(2010) by the National Association of Home Builders Research Center, found that many consumers prefer for green homes, and believe that they are affordable to live in; even if the expenses to build and buy are a bit higher. The survey also produced that two-thirds of both high or upper middle class income respondents saw that green homes as an affordable maintenance, as did 59% of middle-and 48% of low-income participants. Although only the high-income participants agreed that a green home would be affordable to purchase, 64% of the participants indicated that green homes were worth the added cost\(^7\).

Building Certification Tools around the Globe

\(^6\) http://www.construction.com/AboutUs/2010/1112pr.asp
<table>
<thead>
<tr>
<th>U.K. and Europe</th>
<th>Americas</th>
<th>Rest of the World</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREEAM (inc Eco-homes)</td>
<td>LEED (U.S. &amp; Canada)</td>
<td>Green Star (Australia)</td>
</tr>
<tr>
<td>Office Scorer</td>
<td>WBDG (Whole Building Design Guide) (U.S.)</td>
<td>LEED (China and India)</td>
</tr>
<tr>
<td>Sustainability Checklists (e.g.:SEEDA)</td>
<td>HOK Sustainable Design Guide (U.S.)</td>
<td>Greenmark(Singapore)</td>
</tr>
<tr>
<td>Environmental Impact Assessment (EIA)</td>
<td>BREEAM Canada (Canada)</td>
<td>GBTool (South Africa)</td>
</tr>
<tr>
<td>Strategic Environmental Assessment (SEA)</td>
<td>Green Globes (U.S. &amp; Canada)</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The sources are RICS (2007) and Green Globes (2009).*

**Established and Emerging Rating Tools in the World**

**Figure 1:** Dark areas are the countries that already have established rating tools for green building standards. The grey countries are those may have emerging tools to rate green buildings.
Figure 2: The dots on the map demonstrate countries that have an interest in establishing Green Building rating tools.
**Figure 3:** Demonstrates the countries that have established rating tools that are accepted by the World Green Building Council in 2009.

Many of these tools measure sustainability of the built environment and have been developed to determine if any capacity exists for further development, or whether a development is sustainable, or whether progress is being made towards sustainable development.  
Export Opportunities for Green Building Firms

Throughout the research in Green Building, there were a few sub categories, such as: insulation, fibrous materials, and energy efficiency lighting. The following chart depicts the ranking for the top ten countries in the total market size of U.S exports to these countries for 2011.

<table>
<thead>
<tr>
<th>#</th>
<th>Country</th>
<th>Market Size Total '11</th>
<th>2009-2011 % growth</th>
<th>2006-2011 % growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Canada</td>
<td>$282,777,105</td>
<td>-2%</td>
<td>-36%</td>
</tr>
<tr>
<td>#2</td>
<td>Mexico</td>
<td>$206,082,725</td>
<td>17%</td>
<td>3%</td>
</tr>
<tr>
<td>#3</td>
<td>Germany</td>
<td>$92,218,886</td>
<td>47%</td>
<td>41%</td>
</tr>
<tr>
<td>#4</td>
<td>Japan</td>
<td>$74,646,828</td>
<td>48%</td>
<td>3%</td>
</tr>
<tr>
<td>#5</td>
<td>China</td>
<td>$59,939,418</td>
<td>23%</td>
<td>78%</td>
</tr>
<tr>
<td>#6</td>
<td>S. Korea</td>
<td>$39,597,128</td>
<td>73%</td>
<td>69%</td>
</tr>
<tr>
<td>#7</td>
<td>Brazil</td>
<td>$28,478,518</td>
<td>54%</td>
<td>49%</td>
</tr>
<tr>
<td>#8</td>
<td>UK</td>
<td>$22,655,421</td>
<td>-6%</td>
<td>-9%</td>
</tr>
<tr>
<td>#9</td>
<td>Singapore</td>
<td>$20,763,216</td>
<td>29%</td>
<td>-23%</td>
</tr>
<tr>
<td>#10</td>
<td>Australia</td>
<td>$7,998,296</td>
<td>35%</td>
<td>15%</td>
</tr>
</tbody>
</table>
#1 Canada

**Green Consciousness Overview**
*This information was acquired from the government website: [www.worldgbc.org](http://www.worldgbc.org)*

Canada’s Green Building Council’s Mission: is to lead a transformation in building environmentally responsible buildings and communities, which can be profitable, healthy places to live, work and play. It also will progress to engage and enable industries, government, and organizations to accelerate sustainable building and development in Canada. Their goals in the short-term are to reduce GHG emissions from buildings by 50 megatons by 2015, a figure that represents a third of Canada’s federal government GHG reduction 2020 goal. In the long-term, the goal is to achieve zero impact from buildings and communities by 2030. The following chart depicts U. S export sales in these subcategories.

<table>
<thead>
<tr>
<th>Products by Categories:</th>
<th>Canada 2001</th>
<th>Canada 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INSULATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency in buildings</td>
<td>$1,636,831</td>
<td>$2,980,859</td>
</tr>
<tr>
<td><strong>FIBROUS MATERIALS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cellulosic material</td>
<td>$23,805,003</td>
<td>$19,503,166</td>
</tr>
<tr>
<td>vegetable textile fibers</td>
<td>$216,900</td>
<td>$2,883,163</td>
</tr>
<tr>
<td><strong>ENERGY EFFICIENCY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$257,671,280</td>
<td>$257,409,917</td>
</tr>
<tr>
<td><strong>Market Sales Sum</strong></td>
<td>$283,330,014</td>
<td>$282,777,105</td>
</tr>
</tbody>
</table>

*Source: data was calculated from the acquired information given on the government website: tse.export.gov, by using HS codes*

*This information was acquired from a government website: [www.greenbuildingforum.eu](http://www.greenbuildingforum.eu)*

As home to the World Green Building Council, Canada is leading the way in the design, construction and operation of green buildings. Canadian firms have garnered a worldwide reputation for innovation and excellence in this high growth sector. The 2,400 members of Canada’s Green Building Council continuously improve sustainable practices in the sector through energy efficiency, indoor air quality, water and resource efficiency, and sustainable construction processes. Canada was at the forefront of the green building sector with over 1,000 buildings registered as LEED certified in 2009, and continuously updating to date.

Some of Canada’s technology and service strengths include:

- Intelligent building control systems
- Design, engineering, construction and installation of heat pump systems for homes, buildings and communities

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9 [http://www.trademissioner.gc.ca/eng/home.jsp](http://www.trademissioner.gc.ca/eng/home.jsp)
• Water efficiency technologies, including grey water reuse/recycling
• Engineered wood products, including structural components such as roof and floor trusses, prefabricated-joists and various open web joists
• Innovative concrete applications
• Early adoption and extensive experience in application of LEED-based construction practices

Best Prospects & Opportunities

Canadian is home to established and emerging leaders in the global green building industry. Those featured here represent just a small sample of Canada’s green building success stories.

• **Canam Murox:** Murox® designs, manufactures and installs high-performance building systems for the commercial, industrial and institutional construction markets. Murox®’s high performance and very efficient building system is a unique technology of shop-assembled, load bearing wall panels.\(^\text{10}\)

• **SOFAME:** SOFAME Technologies Inc. manufactures unique, high-efficiency direct contact heat recovery and hot water heating systems. Sofame’s products extract up to 99% of heat from flue gases depending on the application, and also from wastewater, and return the energy in the form of high temperature hot water or pre-heated make-up air - all while reducing greenhouse gas emissions.\(^\text{11}\)

• **Groupe Enerstat:** Groupe Enerstat develops and manufactures high performance thermal systems integrating energy storage and recovery. The company specializes in energy storage and heat transfer systems for buildings and road transportation.\(^\text{12}\)

• **Power Measurement:** Power Measurement Ltd. designs systems consisting of advanced software and energy meters that help commercial and industrial energy consumers improve energy efficiency and reduce emissions. Their “enterprise energy management” platform provides accurate, real-time data on the consumption of electricity and piped utilities as well as outflow monitoring for SO2, NOx and waste water.

• **EnerWorks:** Enerworks develops and manufactures proprietary renewable energy appliances for residential, commercial and industrial markets. Their residential appliances are fully certified, ENERGY STAR® qualified, and the first system to meet CSA international standards.\(^\text{13}\)

11 http://www.acec.ca/en/
12 http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home
13 http://www.raic.org/index_e.htm
**Getting into the market**

This information was acquired from the government website: export.gov

- For many companies (particularly in the manufacturing and construction sectors), frequent visits and establishing a local presence will be crucial to long-term market success. For many U.S. companies, joining in a U.S. delegation to a Canadian trade show can be the best first step.

- For U.S. companies with limited budgets and marketing staff, we recommend:
  - a pilot program called Client Finder which uses advanced database tools to help identify potential Canadian clients and partners, and working with the Commercial Service to seek potential sales to Canadian government entities.

- U.S. companies new to the Canadian market should contact a CS Canada Commercial Service Officer to obtain information about resources and value added assistance.

- For further information: work with Duquesne University SBDC Global Business Program([www.duq.edu/SBDC](http://www.duq.edu/SBDC)), Pennsylvania DCED’s Center for trade Development, and the U.S. Department of Commerce, Pittsburgh office ([export.gov/pa/Pittsburgh](http://export.gov/pa/Pittsburgh))
#2 Mexico

**Green Consciousness Overview**
*This information was acquired from the market research done by: [www.globaltrade.net](http://www.globaltrade.net)*

There are many emerging green economies; the construction industry has embraced the green building innovation movement. Mexico has joined the World Green Building Council (WGBC). Green building there is also known as green construction and sustainable building; the practice is creating structures and using processes that are environmentally conscious and resourceful. The design in Mexico is to expand sustainability and complement classic building design concerns of economy, utility, durability and comfort. The following chart depicts U. S export sales in these subcategories.

<table>
<thead>
<tr>
<th>Products by Categories:</th>
<th>Mexico 2001</th>
<th>Mexico 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In USD: Thousands</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSULATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency in buildings</td>
<td>$2,049,874</td>
<td>$5,893,792</td>
</tr>
<tr>
<td>FIBROUS MATERIALS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cellulosic material</td>
<td>$2,944,670</td>
<td>$10,688,035</td>
</tr>
<tr>
<td>vegetable textile fibers</td>
<td>$2,454,654</td>
<td>$148,891</td>
</tr>
<tr>
<td>ENERGY EFFICIENCY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$204,149,934</td>
<td>$189,352,007</td>
</tr>
<tr>
<td>Market Sales Sum</td>
<td>$211,599,132</td>
<td>$206,082,725</td>
</tr>
</tbody>
</table>

Mexico is catching up with the green design, construction and building practices that have seen a tremendous evolution over the recent years. For more than 20 years, Mexican companies have been selling green building products with increasing acceptance. Such products include low volatile organic compound materials (low VOC) and paints, recovered materials, full solar and photovoltaic systems, wind power, light tunnels and more including the upgrade and recovery of previously-contaminated sites.

**Best Prospects & Opportunities**

In 2009, Mexico’s government pledged to stimulate the construction sector as a way to spur economic growth. Government investment, estimated in 2010 at $119 billion, has helped the construction sector’s performance not fall as drastically as it could have with the current economic situation. The government’s infrastructure investments are aimed not only to stimulate the economy but also addressing the lack of infrastructure investment projects in the past and increasing the competitiveness of the country. Inflation affected construction costs by nearly 5% in 2010, according to the Index of Builder’s Prices from the Bank of Mexico. An inflation rate of 4.5% is expected in 2011. While the Mexican construction industry contracted 5% in 2010, official sources predict the industry will grow by 2.3% in 2011. The total value of the construction sector in 2010 was $70.28 billion dollars. The major portion (48%) was allocated to PEMEX investment projects, the construction of houses and multi-use buildings (21%), and
The Mexican states that received the major investments from the federal government were: Mexico City (17%), Estado de Mexico (13%), Nuevo Leon (10%), Jalisco (7%), Veracruz (6%), and Campeche (4%).

Although green construction in Mexico continues on a growth trend, the actual numbers for the sustainable construction remain small. Mexico only has five buildings with the LEED certification and those are: the National Business Center of Chihuahua, the HSBC headquarters building in Mexico City, the Loreto Bay Development (residential and commercial project), ITESM Campus Chihuahua and the HINES Industrial Building in San Luis Potosi. Over 80 applied for certification process, while rating programs, market surveys, and anecdotal evidence indicate tremendous growth in this field.

Projects include real estate branches for tourism, marine, thematic and recreational parks, golf courses, residential areas and housing, town planning, industrial and commercial. Without widespread performance data and agreed upon performance benchmarks for comparison, no method exists to determine precisely how many buildings are green. As many other countries, Mexico will continue supporting these green initiatives for the construction and sustainable development. Several investors and developers are moving towards the construction of green buildings, some of them will be LEED certified and others will only be eco-friendly buildings.

Since 2001, government agencies and private sector groups have been experimenting with the use of alternative and renewable energy sources on a large scale in Mexico. Several of them are working to tie in with the energy grid to feed the national system and obtain carbon credits or net zero operations. According to the sources consulted, the potential value of the market for the sustainable construction will reach $376 million dollars in 2011. Mexican and foreign travelers and exports are also starting to show preferences for companies (hotels, builders and developers and other businesses) that have ecological and socially-responsible practices as well as those that have implemented green building materials and technologies. This tendency will drive future decisions made by companies from small businesses to major corporations and the government to favor such innovative and sustainable projects.

**Getting into the market**

*This information was acquired from the government website: export.gov*

To do business in Mexico, it is key to develop and maintain close relationships with clients and partners. Mexicans prefer direct communication such as telephone calls or face-to-face meetings. However, e-mail is widely used.

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• Mexican companies are extremely price conscious, seek financing options, tend to desire exclusive agreements, and value outstanding service and flexibility.
• U.S. firms wishing to export to Mexico will find a variety of market entry strategies. Many factors help determine the best strategy, such as the product/service, logistics & customs, distribution, marketing, direct or indirect sales, exporting experience, and language proficiency, among others.
• For further information: work with Duquesne University SBDC Global Business Program(www.duq.edu/SBDC), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office (export.gov/pa/Pittsburgh)
#3 Germany

Green Consciousness Overview

This information was acquired from the government website: www.worldgbc.org

Buildings are responsible for 35 per cent of energy consumption in Germany, and 12 per cent of that energy is from renewables. A Feed in Tariff has been in place for some time, this is credited with creating thousands of green jobs. Feed in Tariff, which is better known as FIT, is defined by as alternative method of investment in renewable energy, it is an environment policy that promotes investment in renewable energy. It usually contains long-term agreements, guaranteed pricing, and allowing diversity to the energy technologies.

Germany’s housing stock consists of 75 per cent built before 1975, with 17.5 million residential buildings, of which 12.5 million are one or two family households. However there is pressure on energy consumption from the building sector because of a desire for more living space. The following chart depicts U. S export sales in these subcategories.

<table>
<thead>
<tr>
<th>Products by Categories:</th>
<th>Germany 2001</th>
<th>Germany 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>In USD: Thousands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSULATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency in buildings</td>
<td>$116,983</td>
<td>$44,579</td>
</tr>
<tr>
<td>FIBROUS MATERIALS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cellulosic material</td>
<td>$14,939,776</td>
<td>$22,139,915</td>
</tr>
<tr>
<td>vegetable textile fibers</td>
<td>$74,265</td>
<td>$178,843</td>
</tr>
<tr>
<td>ENERGY EFFICIENCY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$30,541,450</td>
<td>$69,855,549</td>
</tr>
<tr>
<td>Market Sales Sum</td>
<td>$45,672,474</td>
<td>$92,218,886</td>
</tr>
</tbody>
</table>

Source: data was calculated from the acquired information given on the government website: tse.export.gov, by using HS codes

Germany has committed to reduce emissions by 21% during the period 2008-2012 compared to 1990 levels. The federal government has agreed that Germany will reduce its greenhouse gas emissions up to 40 per cent by the year 2020 (relating to the base year 1990), if the EU-states will agree to a reduction in European emissions of 30 per cent in the same timeframe (August 2009). The environment has been a big issue since the late 1970s or early 1980s in Germany, and as a result Germany has probably the highest construction standard in the world. The technology for sustainable construction is very developed in Germany and the country offers some of the best examples of energy efficient and sustainable buildings. Compared to the international standards, sharp guidelines in Germany’s Energy Conservation Regulations for buildings (EnEV) have been in force for a few years in Germany. These have raised the building standard continuously, especially with new buildings.

15 http://www.investopedia.com/terms/f/feed-in-tariff.asp#axzz1viW7exqy
However, the real challenge lies in the existing old buildings, which need to be refurbished in the coming years in order to reach the demanding climatic goals of the federal government.

The German Sustainable Building Council (DGNB) considers itself to be the central organization for exchange of knowledge, professional training, and for a rising public awareness of sustainable construction in Germany. The DGNB, together with the Federal Ministry of Transport, Building and Urban Affairs (BMVBS) has developed a voluntary certification system for sustainable buildings. It was developed by experts from the complete value chain of the construction and real estate sector and gives a clear direction for this future-oriented economical sector.

The German Sustainable Building Certificate was developed for use as a comprehensive tool for the planning and evaluation of buildings. As a clear and easy to understand rating system, the German Sustainable Building Certificate covers all relevant topics of sustainable construction, and awards outstanding buildings in the categories bronze, silver, and gold. Six subjects affect the evaluation: ecology, economy, social/cultural and functional topics, techniques, processes, and location.

**Best Prospects & Opportunities**

Currently Germany considers Green building and Renewable Energy to be synergistic and interchangeable. The main goal is to create a sustainable living so products for green building, renewable energy and environmental management are all intertwine. For opportunities please visit export.gov for more information. The other export guides published by the DU Center for Green Industries and SBDC of both renewable energy and environmental management will provide opportunities that are considered a green building prospect as well.

**Getting into the market**

*This information was acquired from the government website: export.gov*

- The most successful market entrants are those that offer innovative products featuring high quality and modern styling. Germans are responsive to the innovation and high technology evident in U.S. products, such as computers, computer software, electronic components, health care and medical devices, synthetic materials, and automotive technology.
- The German market is decentralized and diverse, with interests and tastes differing dramatically from one German state to another. Successful market strategies take into account regional differences as part of a strong national market presence. Experienced representation is a major asset to any market strategy, given that the primary competitors for most American products are domestic firms with established presences. U.S. firms can overcome such stiff competition by offering high-quality products, services at competitive prices, and locally based after-sales support.
- For further information: work with Duquesne University SBDC Global Business Program([www.duq.edu/SBDC](http://www.duq.edu/SBDC)), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office (export.gov/pa/Pittsburgh)
China has the world’s largest construction market. According to the Ministry of Housing and Urban-Rural Development (MOHURD), over the next decade, China will build half of the world’s new buildings and is currently adding 2 billion square meters of floor space annually. The following chart depicts U. S export sales in these subcategories.

<table>
<thead>
<tr>
<th>Products by Categories:</th>
<th>China 2001</th>
<th>China 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>In USD: Thousands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSULATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency in buildings</td>
<td>$0</td>
<td>$519,928</td>
</tr>
<tr>
<td>FIBROUS MATERIALS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cellulosic material</td>
<td>$348,077</td>
<td>$28,072,161</td>
</tr>
<tr>
<td>vegetable textile fibers</td>
<td>$176,837</td>
<td>$132,700</td>
</tr>
<tr>
<td>ENERGY EFFICIENCY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$4,662,291</td>
<td>$31,214,629</td>
</tr>
<tr>
<td>Market Sales Sum</td>
<td>$5,187,205</td>
<td>$59,939,418</td>
</tr>
</tbody>
</table>

Source: data was calculated from the acquired information given on the government website: tse.export.gov, by using HS codes

2011 was the first year of China’s 12th Five-Year (2011-2015) plan for Economic and Social Development. In this plan, China is set to make the reduction of energy consumption and carbon dioxide emissions a “binding goal.” Many provinces and cities have drafted their own enforcement plan, and many cities are planning to become an “eco-city” by not only retrofitting old buildings but also by building new low-carbon buildings. The U.S. Department of Energy and MOHURD are cooperating on green building research and pilot projects through the U.S. China Clean Energy Research Center.

Best Prospects & Opportunities

Green building products that meet the new energy efficiency standards in new, unique or economically competitive ways have a potential market in China. Some of the best prospects for China’s market are:

- Green-design techniques
- HVAC systems
- Solar products
- Grey water, water reuse systems, and landscape materials
- New building materials
- New technologies & products
According to the China Greentech Initiative 2010 report, the following building materials are targeted to become energy efficient products in China.

- Concrete: slag cement and fly-ash content; autoclaved aerated concrete
- Insulation: Expanded (EPS) and Extruded Polystyrene (XPS)
- Roofing: Reflective Systems, Vegetated Roofs, TPO membranes
- Windows and Doors: double-glazed, low-solar-gain, Low-E Glass
- Lighting: T-series light fixtures, CFL and LED bulbs
- HVAC: absorption chillers, variable frequency drives (VFD), energy recovery wheels, air purifying equipment
- In-door building materials: low-emission, thermal and noise reduction, and insulation
- Integrated designs

On December 2010, the Ministry of Finance, Ministry of Science and Technology, MOHURD, and the State Energy Bureau jointly announced government subsidies for solar roofing systems to promote the development of solar products in China. China’s thirteenth economic development zones were designated as demonstration areas.

Due to China’s geographical structure, heat preservation, insulation, translucence, and ventilation are very important in China’s different regions. For example, in northern China, it is imperative to reduce the energy consumed by heat production. Improvements in heat conservation in new and old buildings are vital to achieving this goal. New types of energy conservation products, such as wall-structure preservation products, and heat supply measuring systems have been used extensively in these areas.

The year 2011 was the beginning of China’s 12th Five-Year (2011-2015) Plan for Economic and Social Development. Many provinces and cities have drafted their own development plans.

For example:

- According to Zhu Zhongyi, Vice Chairman of the China Real Estate Association, in every year of the plan, China plans to build 6 million units of commercial buildings, and 5 million units of affordable housing.
- China will build over 40,000 kilometers of express rail lines, and over 85,000 kilometers of highway during China’s 12th Five-Year period.
- By 2012, China will build 804 railway stations for a total floor space of 24 million square meters, of which 51 railway stations will be high-end stations.
- The Xinjiang Autonomous Region will invest $22.4 billion (RMB150 billion) to build transportation infrastructure projects which include highways and complex transportation hubs.
- According to the “National Airport Allocation Plan”, China will upgrade, expand and build 244 airports by the end of 2020. For example: Beijing’s second capital airport will be located in Daxing County, Beijing. The airport is expected to be operational in 2015, and will serve 600 million passengers per year.
• According to China Construction News, in 2011 MOHURD plans to build 10 million units of affordable housing (this figure is double the size of the China Real Estate Association’s prediction). The total investment will be over $21 million.

Lighting: T-series light fixtures, CFL and LED bulbs

• HVAC: absorption chillers, variable frequency drives (VFD), energy recovery wheels, air purifying equipment
• In-door building materials: low-emission, thermal and noise reduction, and insulation
• Integrated designs RMB 140million), while Beijing plans to build 1 million units of affordable housing in 2011.
• Xi’an City will build 3.73 million square meters of affordable housing, and Chongqing city will build 30 million square meters by the year 2013.
• According to MOHURD’s Qinghai branch, Qinghai province plans to invest $11.2 billion (RMB 74 billion) in real estate development by 2015.
• By 2015, Nanchang city plans to build 231 key projects, the total investment of which will reach $23 billion (RMB 150 billion). Projects will include fast transportation systems with modern transportation hubs, bio-landscape gardens, and a renewable energy demonstration city.
• By 2015, Hubei province plans to build 1,000 eco-demonstration towns and villages. The water supply pipe line will reach 98% of the province, the garbage treatment rate will reach 85%, and the urbanization rate will reach 52% in Hubei province.
• Nanjing city plans to use geo-thermal technology in their buildings, and 60% of new buildings plan to include this technology by 2013.
• During the 12th Five-Year period, Wuhan city plans to invest $2 billion (RMB 13.1 billion) in green landscape projects.

Getting into the market
This information was acquired from the government website: export.gov

• Two of the primary objectives of U.S. policy with regard to China are (a) creating jobs and growing the American economy by increasing exports, and (b) ensuring our companies’ ability to compete on a level playing field. A company should visit China in order to gain a better perspective and understanding of its potential as a market.
• Chinese company representatives respect – face-to-face meetings, which can demonstrate a U.S. company’s commitment to working in China. Prospective exporters should note that China has many different regions and that each province has unique economic and social characteristics.
• U.S. companies commonly use agents in China to initially create these relationships. Localized agents possess the knowledge and contacts to better promote U.S. products and break down institutional, language, and cultural barriers.
For further information: work with Duquesne University SBDC Global Business Program (www.duq.edu/SBDC), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office (export.gov/pa/Pittsburgh)
#5 Japan

**Green Consciousness Overview**
*This information was acquired from the government website: export.gov*

Japan is ranked as the most energy-efficient economy in the world. According to a recent Forbes Magazine report, Japan consumes only 4500 BTUs for every one US dollar of GDP\(^\text{16}\). The measurement used to evaluate was an index of "energy intensity," that compares GDP to BTUs consumed. In other words, how much output a country produces as a whole versus the amount of energy used. European countries ranked closely behind Japan with the UK coming in at 6,100 BTUs per dollar and Germany at 7,400 BTUs. The US came in double that of Japan at 9,000 BTUs per dollar and China at a whopping 35,000 BTUs\(^\text{17}\). The following chart depicts U.S export sales in these subcategories.

<table>
<thead>
<tr>
<th>Products by Categories:</th>
<th>Japan 2001</th>
<th>Japan 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INSULATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency in buildings</td>
<td>$406,806</td>
<td>$0</td>
</tr>
<tr>
<td><strong>FIBROUS MATERIALS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cellulosic material</td>
<td>$45,450,352</td>
<td>$38,666,652</td>
</tr>
<tr>
<td>vegetable textile fibers</td>
<td>$529,369</td>
<td>$9,623</td>
</tr>
<tr>
<td><strong>ENERGY EFFICIENCY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$60,139,832</td>
<td>$35,970,553</td>
</tr>
<tr>
<td><strong>Market Sales Sum</strong></td>
<td>$106,526,359</td>
<td>$74,646,828</td>
</tr>
</tbody>
</table>

*Source: data was calculated from the acquired information given on the government website: tse.export.gov, by using HS codes*

Consumer demand has driven energy efficiency in conjunction with increased government regulation. Imported energy costs more and residential electricity rates are much higher in Japan. According to the International Energy Agency, Japan’s residential electricity rates are around 24 cents kw/h, about double the US average of 12 cent kw/h. More expensive electricity means higher costs to heat, cool, light and operate a building, and therefore a greater incentive to use electricity as efficiently as possible\(^\text{18}\).

Japan has seen an increase in sustainable buildings, but very little has come from regulation. There is no top-down, mandatory green building regulations in Japan like you see in European countries. The green building guidelines that exist are called CASBEE (Comprehensive Assessment System for Building Environmental Efficiency), which is similar in concept to the American LEED (Leadership in Energy and Environmental Design) green building standards. The Japan Sustainable Building Consortium developed CASBEE in 2002, in

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\(^{16}\) [http://www.forbes.com](http://www.forbes.com)

\(^{17}\) [http://www.jetro.org/content/815](http://www.jetro.org/content/815)

\(^{18}\) [http://www.jetro.org/content/815](http://www.jetro.org/content/815)
conjunction with several other Japanese government agencies including the Ministry of Land, Infrastructure and Transportation (MLIT)\textsuperscript{19}.

Eco-Model Cities began in 2008 and is designed to demonstrate a model for a low carbon society. It promotes a multi-sector approach that integrates transportation, energy waste and forest conservation. The project includes a total of 13 cities of varying sizes that will meet a goal of 30% reduction of GHG by 2020 and a 50% reduction by 2050\textsuperscript{20}.

The Tokyo Metropolitan Government (TMG) has instituted a large number of measures to reduce greenhouse gas emissions under the Tokyo Metropolitan Environmental Security Ordinance. This includes everything from renewable energy, reduced driving behavior and waste management. There are two programs related to green building including energy conservation specifications and a Green Building Labeling program. The purpose of the green building labeling program is to allow consumers to quickly identify how buildings rank environmentally and designed to be simple and easy to understand. By creating a system for evaluating the housing market, owners will be more encouraged to include environmental aspects into the design. There are four key areas ranked including: rationalization of energy use, appropriate use of resources, conservation of the natural environment, and abatement of the urban heat island effect\textsuperscript{21}.

The green building policies described above have a long-term focus. This is appropriate, as buildings are built to last for decades and the reorganization of city transportation is not an overnight process. However, near-term improvements in energy efficiency are needed and Japan has implemented several programs to influence consumer behavior and consumer spending\textsuperscript{22}.

The Japanese economy is also struggling from the financial crisis of 2008, and like many countries, they have created stimulus packages to help support the struggling economy. Japan’s stimulus package includes a $147 billion (USD) investment in public works, health care and clean technology. Some of the programs created were intended to spark consumer spending for energy efficiency\textsuperscript{23}.

**Best Prospects & Opportunities\textsuperscript{24}**

- Green Roofs and Food Production
- Waterless Washing Machine
- Smart Windows
- Lighting
- HVAC (Heating Ventilation and Air Conditioning)
- Residential Fuel Cell

\textsuperscript{19} http://www.jetro.org/content/815
\textsuperscript{20} http://www.kankyo.metro.tokyo.jp
\textsuperscript{21} http://www.kankyo.metro.tokyo.jp
\textsuperscript{22} http://www.jetro.org/content/815
\textsuperscript{23} http://www.jetro.org/content/815
\textsuperscript{24} http://www.jetro.org/content/815
Getting into the market

This information was acquired from the government website: export.gov

- U.S. companies wishing to enter the Japanese market should consider hiring a reputable, well-connected agent or distributor, and cultivating business contacts through frequent personal visits. Japan’s business culture attaches a high degree of importance to personal relationships, and these take time to establish and nurture.

- The customs and pace of deal-making in Japan are quite different from the United States. U.S. business executives are advised to retain a professional interpreter, as many Japanese executives and decision-makers do not speak English, or prefer to speak Japanese.

- For further information: work with Duquesne University SBDC Global Business Program (www.duq.edu/SBDC), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office (export.gov/pa/Pittsburgh)
South Korea

**Green Consciousness Overview:**
*This information was acquired from the government website: www.iisbe.org*

In January 2006, Korea implemented a Housing Performance Rating Disclosure System for the purpose of ascertaining quality supply of housing as a nation, while promoting increase in the supply of ecologically friendly housing. The system was introduced through a revision to the housing ordinance, whereby housing providers must disclose housing performance rating information in five areas (noise, structure, external environment, living space environment and fire safety) under twenty categories, as assessed by a designated authority, when issuing an invitation for tenancy on housing to become available.

The original Green Building Certification System was implemented in 2002, with the Ministry of Land, Transport and Maritime Affairs taking turn every two years with the Ministry of Environment to operate a jointly adopted plan. With the revision to the construction ordinance, the system was seen as certification based on law. The construction ordinance empowers the Ministers of Land, Transport and Maritime Affairs and Environment to jointly implement a green building certification system for the purposes of realizing sustainable development, and promoting the construction of natural resource frugal, nature friendly buildings, and to enact joint regulations under the Ministries of Land, Transport and Maritime Affairs and Environment as necessary for certification body selection standard and procedure, and application procedure for approval as a certification body. The following chart depicts U. S export sales in these subcategories.

<table>
<thead>
<tr>
<th>Products by Categories:</th>
<th>S.Korea 2001</th>
<th>S.Korea 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSULATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency in buildings</td>
<td>$790,182</td>
<td>$720,875</td>
</tr>
<tr>
<td>FIBROUS MATERIALS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cellulosic material</td>
<td>$2,330,776</td>
<td>$23,370,278</td>
</tr>
<tr>
<td>vegetable textile fibers</td>
<td>$33,000</td>
<td>$0</td>
</tr>
<tr>
<td>ENERGY EFFICIENCY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$9,920,897</td>
<td>$15,505,975</td>
</tr>
<tr>
<td>Market Sales Sum</td>
<td>$13,074,855</td>
<td>$39,597,128</td>
</tr>
</tbody>
</table>

*Source: data was calculated from the acquired information given on the government website: tse.export.gov, by using HS codes*

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Types of facilities for approval under the green building certification system include multi-family housing units, office buildings, mixed-use residential buildings, schools, retail markets and lodging facilities. Recently in Korea, there has been an increase in green technology applications for various types of construction, especially in the application of energy reduction technology such as insulation quality improvements and natural lighting, together with a gradual increase in renewable energy applications such as solar energy. With these sustainable technology applications for buildings, however, their quantitative assessments of how many energy savings are being achieved is not forthcoming, due largely to the absence of an assessment metric having been developed for the quantitative measurement of these sustainable technologies’ energy saving effects for building applications. But in 2007, an environmental demand analysis program was developed in Korea for an entire life cycle of a building. The program was utilized to measure the energy savings effects of a building with sustainable technology applications.

**Best Prospects & Opportunities**

This information was acquired from the government website: www.iisbe.org

Data indicates trends for a sustainable building are changing from the current concept of Green Building to a notion of Sustainable Building, with elements of social, economic and city planning mixed in. For the Government Sector transition is required from the current green building certification system to an assessment system for sustainable buildings, with consideration at a level of an entire region of buildings for their eco-friendly performance.

Recently, MACCA, the Korean Multifunctional Administrative City Construction Agency for the new administration capital to be built in South Chungcheong Province’s YeonGi-Gun declared it to be built as a CO2 neutral city, and active research has been underway in concert with sustainable building research institutes. The details of these R&D efforts are introduced below under 7.1 Sustainable Multifunctional Administrative City - CO2-Neutral City.

Korea is primarily interested in foreign companies with skills in advanced engineering and in the sustainable construction, green building and design sectors. Areas such as quantity surveying, architectural design, consultancy, and supervision/inspection and project management are easier to penetrate as international companies’ capabilities are generally better than Korean ones. The opportunities include:

- **Collaboration on Overseas Projects**

Korean companies are keen to partner with foreign companies for overseas projects.
• **Sporting Events**

South Korea has hosted a number of major sporting events in the past 20 years and they are going to host the Pyeongchang Winter Olympic Games in 2018. It should provide a number of opportunities for hiring expertise in stadium design, legacy planning and advanced engineering.

• **Green Homes**

Seoul, the capital city, plans to create one million green homes and convert one million existing houses into green homes. This is a government-funded R&D program to develop technologies for low-energy and environmentally friendly apartments. Daelim Construction and Engineering is leading the market as they introduced ‘three-liters’ house model apartments that consume significantly less energy than conventional ones by requiring only three liters of gas per square meters per year. These apartments are very popular due to their high energy efficiency, renewable energy and environment friendly spaces.

• **Green and Sustainable Buildings**

Public and private interest in sustainable construction and building materials has risen in the Korean construction sector. There has been consensus that green management in buildings should be applied to the construction industry. The government will support Korean construction companies in making green management strategies to reduce green house gas emissions in their buildings conducting energy efficiency improvement projects and receiving certification of eco-friendly buildings.

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**Building Level**

- **Step 1**: establishing CO2 Assessment System for building

**Urban Level**

- **Step 2**: Establishing CO2 Assessment System for Urban Planning, transportation and energy

**National & Global Level**

- **Step 3**: Providing CO2 Systems and Policies by government. Establishing alliance with sustainable cities in the world.
**Getting into the market**

*This information was acquired from the government website: export.gov*

To compete in South Korea, companies are recommended to have a capable local distributor, licensee or franchise partner who has an established network in the market and extensive market knowledge. A long-term perspective and a reliable partnership between supplier and their local partner is one of the key factors in achieving success.

- For further information: work with Duquesne University SBDC Global Business Program(www.duq.edu/SBDC), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office (export.gov/pa/Pittsburgh)
#7 Brazil

**Green Consciousness Overview**

This information was acquired from the government website: export.gov

The 2014 soccer World Cup, the 2016 summer Olympics, and other international games to be hosted by Brazil over the next few years, will generate numerous business opportunities in the twelve cities hosting games, particularly in the Architecture/Engineering/Construction (ACE) sector. The Government of the State of Rio de Janeiro estimates that investments in the State from 2011 to 2016 will reach at least US$ 50 billion, in sectors including building and sports infrastructure, transportation, public security, education, catering, leasing, insurance, etc. Many of the projects and investments carried out before the Olympics will be done under Public-Private Partnerships (PPPs). The following chart depicts U.S export sales in these subcategories.

<table>
<thead>
<tr>
<th>Products by Categories:</th>
<th>Brazil 2001</th>
<th>Brazil 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INSULATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency in buildings</td>
<td>$41,645</td>
<td>$0</td>
</tr>
<tr>
<td><strong>FIBROUS MATERIALS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cellulose material</td>
<td>$12,164,238</td>
<td>$8,982,772</td>
</tr>
<tr>
<td>vegetable textile fibers</td>
<td>$32,903</td>
<td>$0</td>
</tr>
<tr>
<td><strong>ENERGY EFFICIENCY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$12,726,822</td>
<td>$19,495,746</td>
</tr>
<tr>
<td><strong>Market Sales Sum</strong></td>
<td>$24,965,608</td>
<td>$28,478,518</td>
</tr>
</tbody>
</table>

Source: data was calculated from the acquired information given on the government website: tse.export.gov, by using HS codes

**Market Investments Planned:**

a) For the 2014 World Cup (To be held in 12 Brazilian Cities):

- Stadiums: US$ 2.7 billion
- Airport renewals: US$ 3 billion
  (Not including the High Speed Train Rio/Sao Paulo, which might not be ready by 2014, and which is valued at US$ 20 billion)

b) Investments in Sport Facilities (Including World Cup and Olympic Games)

Although more than half of Rio 2016 venues are already in place because Rio hosted the 2007 Pan American Olympic Games, about 20 new facilities will need to be built. These include:
- Aquatic sports stadium - US$40 million;
- Olympic Park to host gymnastics, cycling, handball, etc. - US$200 million;
- Olympic village - US$450 million;
- Olympic Tennis Center - US$45 million;
- Rowing stadium at Rodrigo de Freitas Lagoon - US$2 million;
- Copacabana Beach Volley Arena - US$7 million; and
- Maracanã Stadium renovation (for both the World Cup and the Olympic Games): US$400 million before 2014. The stadium will be used for soccer games and for the Opening and closing ceremonies of the 2014 World Cup and the 2016 Rio Olympic Games.

c) Investments in Hotel/Hospital Facilities

Over thirty hotels will be built or renovated to handle the increase in visitors resulting from the Games. Of these thirty hotels, seventeen are already licensed and several hotels are already being refurbished. State and Federal tax incentives are being offered to make opportunities for refurbishment, building, acquiring or operating hotels more attractive to investors.

In the health care sector, there are plans to build an Olympic Village Clinic and three new state-of-the-art hospitals in the city of Rio before the 2016 Olympic Games.

d) Investments in Infrastructure

As above mentioned, the estimated investment in infrastructure for the World Cup and the Olympic Games is slated at US$50 billion, of which US$5 billion will be used for logistics upgrades at seaports and airports.

The main infrastructure projects include:
- Modernizing and enlarging two airport terminals;
- Highway widening to accommodate “Olympic lanes”;
- The Port of Rio revitalization of 30,000 square meter leisure area featuring bars, restaurants, an amphitheater, museum, aquarium, a multi-use space and parking;
- Port dredging;
- Two new subway lines;
- Bus Rapid Transit (BRT) system;
- Housing projects (to include low income housing); and
- Various water sanitation projects.

Best Prospects & Opportunities
This information was acquired from the government website: export.gov

Best prospects for US companies include the following areas:
- **Architecture/Engineering/Construction (ACE):** Stadiums, hotels, airports, ports, housing, museums: new design and build and renovation of existing facilities
- **Advanced technology:** Areas such as ICT, ITS and energy efficiency and green technologies
- **Services:** Financial (Banking services, Insurance, Private Equity and Venture Capital, Leasing, Legal, among others.)
Procurement directly related to the Olympic Games has not yet begun. The Brazilian Olympic Public Authority will be in charge of the overall procurement tied to the Olympic Games and that authority has not yet been assembled by the new Administration but it is expected to be formed over the next few months. There will also be procurement for the Olympic Games by the Rio City and State Governments and the Brazilian arm of the International Olympic Committee.

The Brazilian Constitution provides that all governmental purchases, at Federal, State and Municipal levels should be contracted through public tenders. This process is regulated by the Brazilian Bid Law (Law # 8,666, introduced in 1993). This law requires any and all official bidders have a legal presence in Brazil. Since practically all procurement related either directly or indirectly to the Olympic Games will be made by Brazilian Governmental entities under Law 8,666, the U.S Department of Commerce office in Brazil recommends working with that office to find a qualified local representative/distributor or Brazilian JV partner now in order to participate in the many business opportunities offered by the Games.

**Getting into the market**
This information was acquired from the government website: export.gov

- Brazil’s business culture is largely based upon personal relationships. Companies will need a strong presence and must invest time in developing relationships in Brazil. The U.S. Commercial Service encourages U.S. companies to visit Brazil to meet one-on-one with potential partners. One of the best ways to enter the Brazilian market is by attending a local trade show or using the U.S. Commercial Service’s Gold Key Service (GKS).
- U.S. companies have found it essential to work through a qualified agent or distributor when entering the Brazilian market. It is extremely difficult for U.S. companies to get involved in public sector procurement without a local Brazilian partner.
- For further information: work with Duquesne University SBDC Global Business Program[www.duq.edu/SBDC](www.duq.edu/SBDC), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office (export.gov/pa/Pittsburgh)
#8 United Kingdom

**Green Consciousness Overview**

This information was acquired from the government website: export.gov

In 2010, the UK market for construction products and services was worth an estimated $155 billion, a decrease of 8.2% from the previous year. In 2011, the market is predicted to decline by a further 2%, before recovering by a modest 1% in 2012. Despite the current weakness of the construction market, it remains a large, competitive market that has a constant need for new products and services. Sustainable construction is estimated to account for about 12% of the total market, representing a value of $18.6 billion in 2010. Strong demand for ‘green’ products and services should help the sustainable segment to maintain its value at $18.6 billion in 2011. As the market begins to recover in 2012, it is forecasted to grow to about $20 billion. The following chart depicts U. S export sales in these subcategories.

<table>
<thead>
<tr>
<th>Products by Categories: In USD: Thousands</th>
<th>UK 2001</th>
<th>UK 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSULATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency in buildings</td>
<td>$298,766</td>
<td>$110,354</td>
</tr>
<tr>
<td>FIBROUS MATERIALS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cellulosic material</td>
<td>$13,043,685</td>
<td>$11,631,916</td>
</tr>
<tr>
<td>vegetable textile fibers</td>
<td>$1,623,315</td>
<td>$10,474</td>
</tr>
<tr>
<td>ENERGY EFFICIENCY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$29,926,430</td>
<td>$10,902,677</td>
</tr>
<tr>
<td>Market Sales Sum</td>
<td>$44,892,196</td>
<td>$22,655,421</td>
</tr>
</tbody>
</table>

Source: data was calculated from the acquired information given on the government website: tse.export.gov, by using HS codes.

Further, the Energy Bill 2011 will create the Green Deal, a financing framework for fixed improvements to the energy efficiency of homes. On the commercial side, the CRC Energy Efficiency Scheme, a mandatory scheme to improve energy efficiency in large public and private sector organizations, will help drive demand in the retrofit segment.

**Best Prospects & Opportunities**

This information was acquired from the government website: export.gov

- Design/architecture in the affordable, sustainable housing segment
- The Green Deal will create demand for products which improve the energy efficiency of households and non-domestic properties, such as lighting, water efficient appliances, and solar panels.
- Innovative waste management systems
The government’s Green Deal program that will come into force in 2012 will provide a mechanism that will make it easier for householders to invest in energy improvements to their homes. The Green Deal will enable private firms to offer consumers energy efficiency improvements for their homes, community spaces and businesses at no upfront cost. The suppliers will recoup the money that they have advanced to consumers through additional charges on their energy bills. Separate legislation will also require private domestic and non-domestic landlords to improve their least efficient properties if funding is available.

In an early example of how the Green Deal will work, Birmingham City Council is searching for partners in a $160 million scheme to deliver energy saving improvements to private and social housing in the city. The proposed improvements include the installation of solar panels and weatherization of homes.

**Central and regional government tenders can be found on the Official Journal of the European (OJEC) web site at:** [www.ted.europa.eu](http://www.ted.europa.eu)

**Getting into the market**

- Demonstrate a clear competitive advantage (i.e., price, quality, branding).
- Pay close attention to both the obvious and subtle cultural differences between the United States and the United Kingdom and adjust marketing strategies accordingly.
- Evaluate prospective partners carefully and choose an experienced, well-established local distributor.
- For further information: work with Duquesne University SBDC Global Business Program([www.duq.edu/SBDC](http://www.duq.edu/SBDC)), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office ([export.gov/pa/Pittsburgh](http://export.gov/pa/Pittsburgh))
#9 Singapore

*Green Consciousness Overview*

This information was acquired from the government website: Singapore green building council: www.sgbc.sg

The Inter-Ministerial Committee on Sustainable Development (IMCSD) was set up to formulate a national strategy for Singapore’s sustainable development in the context of emerging domestic and global challenges. The Building and Construction Authority is playing a key role for the targets set out in the building and construction industry through the developing the Green Building Master plan – a roadmap that sets out specific initiatives to green both the new and existing building stock in Singapore. The following chart depicts U.S export sales in these subcategories.

<table>
<thead>
<tr>
<th>Products by Categories:</th>
<th>Singapore 2001</th>
<th>Singapore 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INSULATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency in buildings</td>
<td>$16,465</td>
<td>$6,982</td>
</tr>
<tr>
<td><strong>FIBROUS MATERIALS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cellulosic material</td>
<td>$99,589</td>
<td>$755,196</td>
</tr>
<tr>
<td>vegetable textile fibers</td>
<td>$12,900</td>
<td>$8,303</td>
</tr>
<tr>
<td><strong>ENERGY EFFICIENCY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$15,467,522</td>
<td>$19,992,735</td>
</tr>
<tr>
<td>Market Sales Sum</td>
<td>$15,596,476</td>
<td>$20,763,216</td>
</tr>
</tbody>
</table>

Source: data was calculated from the acquired information given on the government website: tse.export.gov, by using HS codes.

*Best Prospects & Opportunities*

According to Singapore Green Building council the following list of products pertain to the green building industry, and are most imported by that country.

- **24kV cubicle Type Vacuum Insulated Switchgear**
  HITACHI ASIA LTD
  Classification: Environmental Protection / Other Green Building Features and Innovations
  Specification Listing (NPQS): Mechanical & Electrical

- **Admira High Pressure Laminates (HPL)**
  ADMIRA PTE LTD
  Classification: Indoor Environment / Environmental Protection / Other Green Building Features and Innovations

- **Bamboo Flooring [Carbonised Bamboo]**
  WOODLAND EASIFLOR PTE LTD
Classification: Energy Efficiency / Water Efficiency / Indoor Environment / Environmental Protection / Other Green Building Features and Innovations

- **Bio-Kil** [Betech001]
  BETECH (S'PORE) PTE LTD
  Classification: Indoor Environment / Environmental Protection / Other Green Building Features and Innovations
  Specification Listing (NPQS): Mechanical & Electrical / Mechanical Ventilation & Air Conditioning / Air Distribution Systems & Equipment

- **Cablofil** [CF]
  LEGRAND (S) PTE LTD
  Classification: Energy Efficiency / Indoor Environment / Environmental Protection / Other Green Building Features and Innovations
  Specification Listing (NPQS): Mechanical & Electrical / Electrical Works / Cables & Wiring

- **Ceramic Cover CC Systems 100** [Insulation Coating-CCS100]
  TRANSVERT GREEN SOLUTIONS PTE. LTD.
  Classification: Energy Efficiency / Indoor Environment / Environmental Protection / Other Green Building Features and Innovations

- **CI Green Efficient Glass** [CI Green Efficient Glass]
  COAT-INNOVATIVE INTERNATIONAL PRIVATE LIMITED
  Classification: Energy Efficiency / Indoor Environment / Other Green Building Features and Innovations

- **Eco - Art Strip Flooring** [Eco - Art series]
  WOODLAND EASIFLOR PTE LTD
  Classification: Indoor Environment / Environmental Protection / Other Green Building Features and Innovations

- **Eurotiles - Compressed Concrete Slab**
  SUNWAY PAVING SOLUTIONS SDN BHD
  Classification: Other Green Building Features and Innovations
  Specification Listing (NPQS): Civil & Structure / Driveways & Footways

- **GlasBac®/GlasBac®RE**
  INTERFACE HEUGA SINGAPORE PTE LTD
Classification: Indoor Environment / Environmental Protection / Other Green Building Features and Innovations

- **Interlocking Concrete Pavers**
  SUNWAY PAVING SOLUTIONS SDN BHD
  Classification: Other Green Building Features and Innovations
  Specification Listing (NPQS): Civil & Structure / Driveways & Footways

- **LCP SPANLOCK** [LCP SPANLOCK]
  LCP BUILDING PRODUCTS PTE LTD
  Classification: Other Green Building Features and Innovations

- **Mipolam SYMBOIZ**
  GERFLOR
  Classification: Water Efficiency / Indoor Environment / Other Green Building Features and Innovations

- **MONOCLAD** [MONOCLAD]
  LCP BUILDING PRODUCTS PTE LTD
  Classification: Other Green Building Features and Innovations

- **MULTILAYER PIPES & ONE-PUSH FITTINGS SYSTEM**
  HIGA TRADING PTE LTD
  Classification: Energy Efficiency / Other Green Building Features and Innovations
  Specification Listing (NPQS): Mechanical & Electrical / Plumbing, Sanitary & Miscellaneous Services

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**Getting into the market**

*This information was acquired from the government website: Singapore green building council: [www.sgbc.sg](http://www.sgbc.sg)*

- Singapore is a major trading hub, importing and exporting all kinds of products from consumer goods to high technology and industrial goods for re-export to third countries. U.S. companies will find attractive market opportunities in the following best prospects sectors: electronics, oil and gas equipment, aircraft and parts, pollution control equipment, medical devices, laboratory and scientific instruments, computer hardware and software, telecommunication equipment, university education services and franchises.
• Singapore firms are aggressive when it comes to representing new products and usually respond enthusiastically to new opportunities. In addition, most Singaporean companies are open to joint venture proposals, and many are interested in manufacturing under license.
• Price, quality and service are the main selling factors in Singapore. Prospective exporters to Singapore should be aware that competition is strong and that buyers expect good after-sales service. Selling techniques vary according to the industry and product but are comparable to the techniques used in any other sophisticated market.
• For further information: work with Duquesne University SBDC Global Business Program(www.duq.edu/SBDC), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office (export.gov/pa/Pittsburgh)
#10 Australia

**Green Consciousness Overview**

This information was acquired from the government website: export.com

In 2007, Australia had passed a $125 million green job program; it would invest in green training programs, energy efficiency, and conservation block grant. It authorized local communities to get grants that would help improve energy efficiency and renewable energy. Many colleges and universities have adopted the incentives of the green evolution. They have started to green their campuses: creating sustainable buildings, recycling, waste management, and incorporating green studies into their curriculum. Many of the school across the country have now established sustainable architecture programs, and other green innovation programs. The following chart depicts U.S export sales in these subcategories.

<table>
<thead>
<tr>
<th>Products by Categories:</th>
<th>Australia 2001</th>
<th>Australia 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INSULATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency in buildings</td>
<td>$0</td>
<td>$19,940</td>
</tr>
<tr>
<td><strong>FIBROUS MATERIALS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cellulosic material</td>
<td>$57,808</td>
<td>$67,696</td>
</tr>
<tr>
<td>vegetable textile fibers</td>
<td>$61,381</td>
<td>$7,800</td>
</tr>
<tr>
<td><strong>ENERGY EFFICIENCY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$7,180,687</td>
<td>$7,902,860</td>
</tr>
<tr>
<td>Market Sales Sum</td>
<td>$7,299,876</td>
<td>$7,998,296</td>
</tr>
</tbody>
</table>

Source: data was calculated from the acquired information given on the government website: tse.export.gov, by using HS codes.

**Best Prospects & Opportunities**

This information was acquired from a government website: export.com

In a survey done by the Green Building Council in 2006, the green building market in Australia shows that green buildings are no longer a niche occurrence. With 84% of architects, contractors and building owners involved in green building, the demand for green buildings is ever growing, especially in the government sector and large corporate owners. "This Report confirms what the Green Building Council already knows - green buildings are no longer just the future of the industry, they are today's reality, and the Green Star environmental rating system is becoming the green building standard of the industry," said Green Building Council Chief Executive, Romilly Madew.

- more than 50% of Australia's architectural firms and contractors see their sales associated with green building on the rise - yet 65% of all architects and contractors see 'little or no impact' of green building on their profits;

• the main reasons for architecture, engineering, contracting and building owners to get involved in green building are: 'lowering lifecycle costs' (71%) and 'being part of an industry that values the environment' (75%);
• Government and education are the sectors expected to witness the greatest growth in green building.

Getting into the market

This information was acquired from the government website: export.gov

• Successful market entry strategies for Australia have three common elements: understanding the market, selecting the optimal partner, and providing ongoing support to that partner in the market
• Often requires establishing a local sales presence, to many American exporter this means appointing an agent or distributor. American companies should visit Australia both to meet prospective partners and demonstrate ongoing support, as this is the common practice of their competitors.
• For further information: work with Duquesne University SBDC Global Business Program(www.duq.edu/SBDC), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office (export.gov/pa/Pittsburgh)
Additional Countries
The following countries were included in some of the data of HS codes for the top ten countries’ subcategories for Green Building. For further information on these countries, please visit: export.gov

- Costa Rica
- Trinidad & Tobago
- Russian Federation
- Qatar
- Philippines
- Peru
- Venezuela
- Sweden
- Netherlands
- Nicaragua
- Jamaica
- Guatemala
- Dominican Republic
- Spain
- United Arab Emirates
- Colombia
- Haiti
Upcoming Countries

The following country quick facts are in compliance with Ex-Im Bank’s upcoming countries that have shown prospect opportunities for Green Industries. Ex-Im Bank is defined by entrepreneur’s encyclopedia website as an independent bank established by Congress that finances or insures foreign purchases of U.S. goods for customers unable or unwilling to accept credit risk.27

India

- **Market Facts**
  - With over 1.2 billion population, a rapidly growing economy and major infrastructure development requirement, this market presents extraordinary opportunities to U.S. exporters.
  - Projected expenditures on infrastructure will amount to over $1 trillion during the next 5 years this includes:
    - Strong market for Solar Power projects with over $100 million covering several projects that have been recently approved.

- **Cover Policy**
  - Ex-Im Bank is fully open for all tenders in India for both the public & private sectors with no specific restrictions.

- **Ex-Im Bank Exposure**
  - Ex-Im Bank current exposure to India is $7 billion

The following countries are countries that have also entered the green innovations market, and are growing to be a competitor among the top countries in this market.

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27 http://www.entrepreneur.com/encyclopedia/term/82410.html
Additional Markets for Green Building

The following countries are countries that have also jumped on the green innovations market, and are growing to be a competitors among the top countries in this market.

Belgium

Green Consciousness Overview

This information was acquired from the government website: export.gov

Before considering the green building market, it is important to have a broad understanding of the general construction market in Belgium. The construction market is one of Belgium’s largest industry sectors, employing nearly 200,000 workers with an annual turnover of $32 billion. The building sector activity showed enormous growth in the past years — an increase of 5 percent in 2008 from 2007. Residential and non-residential construction outperformed all other economic sectors in 2008. Building trade turnover also increased by more than 7 percent from 2007 to 2008. This high rate of growth was due to a favorable economic conditions in the Belgian market (the Belgian economy grew by 2 percent in 2006 from 2005), low interest rates on housing loans since 2003, and a mix of government tax deduction measures.

The following chart depicts Belgium’s market size sum in these subcategories for the last five years. Source: data was calculated from the acquired information given on the government website: tse.export.gov, by using HS codes

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation</td>
<td>$0.00</td>
<td>$18,468.00</td>
</tr>
<tr>
<td>Veg. textile</td>
<td>$5,334.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>fibrous cellulosic</td>
<td>$3,769,330.00</td>
<td>$5,922,287.00</td>
</tr>
<tr>
<td>fluorescent tubes</td>
<td>$4,628,670.00</td>
<td>$2,924,519.00</td>
</tr>
<tr>
<td>Market Size</td>
<td>$10,079,816</td>
<td>$6,417,846</td>
</tr>
</tbody>
</table>

Despite the recent upsurge in growth, the construction market in Belgium is quite mature, and general growth in this sector, with the exception of renovation, fell in 2008, not exceeding a growth of 1%. Euroconstruct, Europe’s leading construction business research group, forecasts a stabilization of the decrease of the activity in the sector for 2009. In recent years, green technology and sustainable development has seen an increased interest and attention across Europe. Ambitious goals have been set by national governments to improve energy efficiency in buildings and the need for environmental conservation has been growing in popularity among the general population. Green building is becoming more appealing as it reduces energy consumption, creates jobs, decreases the impact on the environment, and improves future sustainability. There is a strong need for green building in Belgium, as its energy efficiency is one of the lowest in Europe. The average residential energy consumption was among the highest in Europe and was 72% higher than the EU-25 average. Such large consumption is due to the old age of buildings, higher percentage of single families, and relatively few energy efficiency features.
Strong public opinion for change is backed by federal government actions, such as the EU striving to reduce its greenhouse gas emissions by 20 to 30% by 2020. The EU is working as a whole to establish a common energy policy that will result in renewable energy accounting for 20% of the total energy by 2020. In 2008, the EU’s energy consumption from renewable sources was less than 10%, a proportion which must double in order to achieve its goal. Belgium must increase its renewable energy consumption, which was 2.67% in 2007, to 13% in order to comply with the EU expectations.

**Best Prospects & Opportunities**

*This information was acquired from the government website: export.gov*

Belgium’s residential and commercial buildings account for 35% of primary energy demand. Of this primary energy demand, residential buildings are responsible for 73%, with commercial buildings accounting for the remaining 27%. Demand for energy efficient products such as heating ventilation, air conditioning, and lighting have grown due to government initiatives and regulations. In addition, demand is expected to rise further due to federal tax incentives, eco-loans, and positive media coverage.

Belgians are increasingly investing in real estate and renovation of aging buildings. Since 2007, there is more demand for renovation - in both the residential and non-residential building sector – reflecting a trend and a genuine need for more development in renovation. About 80% of Belgian homes were built before 1980 and are environmentally inefficient.

American companies may take advantage of this opportunity to enter the Belgian green building market, paying close attention to the unique characteristics of the Belgian population. The high standard of living in most of the country represents a multitude of export opportunities for high quality building products. It is important to note that the cost of housing and renovation in Belgium has increased significantly and is expected to continue to rise. The scarcity of land in all three regions of Belgium has led to rising costs in the building and construction sector. The demand for greater comfort in homes has also increased average building prices.

The active expansion of the renovation sector has been the most important trend in residential construction in recent years. Residential renovation projects increases demand for energy efficient products and construction materials. Several new EU Directives, aimed to reduce energy and pollution, have resulted in a strong demand for economic water systems, double glazing, and an increased interest in solar panels, heating systems, and green roofs/rainwater usage. Energy-efficient construction materials are also tax deductible—a feature which creates further incentives for green construction.

The *EU Directive on the Energy Performance of Buildings* came into full effect in Belgium on January 4th, 2006, although it is currently under review. Its main objective is to promote improved energy performance of buildings within the EU through cost-effective measures and also the convergence of building energy standards. Almost half of the energy-related CO2 emissions derive from energy use in buildings. The Directive also applies a
minimum standard of energy performance for new buildings, and existing buildings with a total surface area over 1000 square meters, when they are renovated.

The Energy Performance Directive mandates certification requirements in the country—such energy certificates (EPASS: Energy Efficiency Passports) are designed to promote high visibility and should have a large impact on the property sector, both residential and non-residential, and new buildings and existing stock. The Belgian Construction Certification Association (www.bcca.be) is a specialized certification body in the construction sector for products and construction systems, organization systems, and management systems.

Rising prices in renovation and new building construction reveal a Belgian preference for high quality and luxury products as well as innovative green building materials. With increasing real estate investment, there is even greater demand for superior quality building and renovation. There is also a growing interest in smaller pieces of property, such as duplexes. Duplex housing construction tends to apply more sustainable and durable building materials and utilizes exterior spaces very well (small gardens, courtyards, terraces, bike shelters, parking spots). Townhouses, like duplexes, are also becoming quite popular in Belgium.

Increasing energy prices are encouraging many Belgians to install more efficient HVAC (Heating, Ventilation, and Air Conditioning) and water heating systems. Much of the shift is from electric water heating to solar and high-efficiency gas and oil heaters. For the past few years, there has been a growing interest in wood construction. High labor costs in Belgium also indicate a strong demand for cost-efficient materials that are easy to install—such as prefabricated walls and wall partitions in plastic.

**Getting into the market**

*This information was acquired from the government website: export.gov*

- U.S. exporters can penetrate the Belgian market through importers/distributors, wholesalers or specialized retailers, depending on their products and their company size. Interested U.S. exporters need to focus on innovation, quality and competitive pricing to successfully penetrate the market.
- In support of U.S. commercial interests in Belgium, the U.S. Embassy in Brussels uses the combined resources of the various U.S. Government agencies to promote exports of U.S. goods and services. It also supplies information on trade and investment opportunities and serves as an advocate for U.S. firms.
- For further information: work with Duquesne University SBDC Global Business Program([www.duq.edu/SBDC](http://www.duq.edu/SBDC)), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office ([export.gov/pa/Pittsburgh](http://export.gov/pa/Pittsburgh))
Italy
This information was acquired from the government website: export.gov

Five good reasons to enter Italy’s solar and green building market

1) Italy is the world’s second largest market for photovoltaic installations

2) Italy already has over 1GW of solar power in place and is expected to add at least 1GW of capacity annually over the next three years

3) Immediate opportunities exist, Italy has one of the most generous government backed feed-in-tariff programs in the world, with rates of $0.34 to $0.60 per kWh of generation capacity

4) Best prospects for the Italian green building market include insulation products, energy saving systems for residential and industrial applications, solar thermal panels for building heating and hot water production, wood construction and geothermal energy for building heating applications

5) The Leadership in Energy & Environmental Design (LEED) green building certification system is gaining prominence in Italy. Italian builders and construction professionals are in need of U.S. architectural and engineering expertise to develop LEED projects in Italy

Green Consciousness Overview
This information was acquired from the government website: export.gov

The construction sector is fundamental to the Italian economy: in 2009 it accounted for 12.8% of Italy’s GDP, while construction and other firms that provide related products and services employed about 3 million workers. It has though suffered a decline in 2010 & 2011.

CRESME, a non-profit construction sector think tank, is slightly more optimistic than ANCE (Italian association of construction firms) + CRESME (non-profit construction sector research center) and foresees a modest growth of 0.9% in overall construction activities in 2011, because it takes into account the impact of “Piano Casa”, a stimulus plan agreed upon by the central Government and the Italian Regions (similar to the U.S. states) that aims at revitalizing the construction sector by giving building owners the option to demolish, rebuild and enlarge certain buildings by up to 20-30%. If fully implemented, the plan has the potential to generate 60 billion Euros in investments, but its full impact is estimated to take place after 2012.

At any rate, as shown by these tables below, residential renovation is the only segment of the Italian construction sector that has already recovered from the downturn. This has been largely a result of tax deductions for renovation activities, with higher percentage deductions for projects that meet certain energy efficiency requirements.

The following tables summarize recent and future trends in the Italian construction Sector:
Table 1: Investments in construction in Italy

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011 (estimated)</th>
<th>2012 (estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Construction</td>
<td>188,421</td>
<td>181,416</td>
<td>180,648</td>
<td>185,887</td>
</tr>
<tr>
<td>Residential</td>
<td>106,162</td>
<td>98,541</td>
<td>99,257</td>
<td>102,547</td>
</tr>
<tr>
<td>new</td>
<td>44,790</td>
<td>38,304</td>
<td>37,508</td>
<td>39,328</td>
</tr>
<tr>
<td>renovation</td>
<td>61,382</td>
<td>60,237</td>
<td>61,749</td>
<td>64,219</td>
</tr>
<tr>
<td>Non residential</td>
<td>92,259</td>
<td>82,875</td>
<td>81,391</td>
<td>83,339</td>
</tr>
<tr>
<td>private</td>
<td>53,436</td>
<td>49,361</td>
<td>49,292</td>
<td>50,278</td>
</tr>
<tr>
<td>public works</td>
<td>38,823</td>
<td>33,513</td>
<td>32,009</td>
<td>33,062</td>
</tr>
</tbody>
</table>

Values in USD Millions. Sources: ANCE (Italian association of construction firms) + CRESME (non-profit construction sector research center)

Table 2: Investments in construction: % change in value in local currency vs. previous year – in real terms

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011 (estimated)</th>
<th>2012 (estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Construction</td>
<td>-7.70%</td>
<td>-6.40%</td>
<td>-2.40%</td>
<td>0.90%</td>
</tr>
<tr>
<td>Residential</td>
<td>-8.90%</td>
<td>-4.90%</td>
<td>-1.20%</td>
<td>1.30%</td>
</tr>
<tr>
<td>new</td>
<td>-18.80%</td>
<td>-12.40%</td>
<td>-4.00%</td>
<td>0.20%</td>
</tr>
<tr>
<td>renovation</td>
<td>0.00%</td>
<td>0.50%</td>
<td>0.50%</td>
<td>2.00%</td>
</tr>
<tr>
<td>Non residential</td>
<td>-6.30%</td>
<td>-8.00%</td>
<td>-3.70%</td>
<td>0.40%</td>
</tr>
<tr>
<td>private</td>
<td>-7.00%</td>
<td>-5.40%</td>
<td>-2.10%</td>
<td>0.00%</td>
</tr>
<tr>
<td>public works</td>
<td>-5.40%</td>
<td>-11.60%</td>
<td>-6.10%</td>
<td>1.00%</td>
</tr>
</tbody>
</table>

Sources: ANCE (Italian association of construction firms) + CRESME (non-profit construction sector research center)

**Best Prospects & Opportunities**

This information was acquired from a government website: export.gov

In addition to the already mentioned tax deductions for renovation projects that meet energy efficiency requirements, the following factors are driving the demand for green building products and services in Italy:

**LEED**

As a result of the growing acceptance in Italy of the U.S. - developed green building certification protocol known as LEED (“Leadership in Energy and Environmental
Design”), Italian construction professionals are in need of the U.S. architectural and engineering expertise in green building that is needed to develop LEED projects in the country. As of January 2011, there are 5 non-confidential LEED certified projects in Italy and 67 non-confidential LEED registered projects (i.e. projects currently undergoing LEED certification), but the actual figures, which include confidential projects, are higher. The Italian chapter of the Green Building Council estimates the size of the Italian market for LEED projects to be 3 billion Euros.

Local Italian Building Regulations

Local Italian communities issue, monitor and enforce regulations for the construction, enlargement and renovation of buildings. Over 700 Italian cities and towns, accounting for about a third of the country’s population, have included energy efficiency and green building criteria in their building regulations.

Social Housing

Energy efficiency requirements will also have to be met, and therefore green building techniques employed, in the construction of “social housing” projects (i.e. housing projects composed of low cost rental units). The market for “social housing” in Italy is estimated to be 11 billion Euros through 2015. The buildings will have to meet specific environmental certification criteria because otherwise "Cassa Depositi e Prestiti", the state-controlled joint-stock company that finances development projects in Italy, will not finance the projects.

Growth of ESCOs

Energy Service Companies (ESCOs) are becoming increasingly active in Italy, and this is also expected to drive up the demand for energy saving products and services. When performing their energy saving projects, ESCOs in Italy focus mostly on renewable energy sources, cogeneration, and various projects in the manufacturing sector, public lighting, energy services, district heating, HVAC, and the building envelope. The Italian public sector is a major client of ESCOs but recently opportunities for ESCO have also arisen in the commercial, residential and industrial sectors.

Expo 2015

The city of Milan will host the 2015 World Expo and it is expected that construction will have to conform to sustainability criteria. This could be an opportunity for LEED certification and for suppliers of know-how and products that help achieve LEED certification. € 1.746 billion will be invested by the Italian Government, by local governments and by the private sector to prepare the site and construct the necessary facilities (€ 1.235 billion), to connect the site to the surrounding area (€ 359 million), and roughly € 241 million of the € 1.746 billion figure quoted above. For information, please contact CS Milan Commercial Specialist Federico Bevini at: federico.bevini@trade.gov to improve the accommodation capacity and to carry out other technical work (about € 152 million). The private sector (companies, financial institutions, etc.) has shown great interest in the infrastructure works. It is estimated that private businesses will invest.
**Getting into the market**

*This information was acquired from a government website: export.gov*

- The cultivation and maintenance of personal relationships are a vital part of doing business in Italy. Finding the right agent, distributor, or business partner in Italy is essential in entering the Italian market. The Italian market remains individual and different from the general EU market, so it is best to rely on a distributor that is native to the Italian market.

- Ideally contracting someone that already has a network of relationships in place, this will open many doors for a U.S exporter trying to enter the Italian market. Patience is always essential, as it may take two to three times longer than expected to establish business.

- E-Commerce remains relatively less developed in Italy due to factors such as a high level of credit card fraud, lack of trust in the postal system, and the tradition of less favorable return practices of Italian merchants. However, Italians do use the internet for social networking and information.

- For further information: work with Duquesne University SBDC Global Business Program([www.duq.edu/SBDC](http://www.duq.edu/SBDC)), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office ([export.gov/pa/Pittsburgh](http://export.gov/pa/Pittsburgh))
South Africa

Green Consciousness Overview
This information was acquired from a government website: export.gov

South Africa presents lucrative opportunities for U.S. firms involved in Green Building Technologies (GBT). While South Africa lags behind developed economies in adoption of green building technologies, the trend towards green building is gathering momentum in South Africa with an array of projects currently in the pipeline. This, in turn, is making green building an increasingly feasible option with its advantages in terms of longevity, efficiency, and the reduction of operation costs in the long run.

- The South African Government, together with the private sector, recognizes the need for energy-efficient building systems and practices. To achieve a green and sustainable building culture, South Africa requires extensive international, financial and technical support, and seeks green building technologies and practices from developed countries, such as the U.S.

Market Developments

- South Africa is a member of the World Green Building Council (WGBC), and utilized the expertise and guidance of other WGBC nations in establishing the Green Building Council of South Africa (GBCSA) in November 2008.
- GBCSA is expected to be the entity that will ultimately lead the green revolution in South Africa. Current market trends indicate great potential in this growing market, which effects a positive indication of existence of such products, as well as the growing desire and ability to offer more environment-friendly products.
- GBCSA launched the Green Star South Africa rating tool for office developments, which can be found at the Council’s website at www.greenbuilding.co.za. The Green Star is intended to set the benchmark against which sustainable building practices can be measured. While these rating tools draw from the original U.K. and U.S. systems, the influence of the Australian and New Zealand systems are particularly prominent due to the similar climates in those countries. Although no Green Star buildings have been certified by GBCSA, the council is likely to play a prominent role in the building industry in the future.
- Although no formal statistics are currently recorded for green building products in South Africa, the current building and construction materials market is estimated to be about $11.88 billion per year, with 60 percent sold directly to end-users, and 40 percent via the distribution/merchant network. Of the $11.88 billion, $2.12 billion (18 percent) of materials are used in the additions, alterations and home improvement market (including unrecorded home improvement).

Best Prospects & Opportunities
This information was acquired from a government website: export.gov
The Green Technologies sector offers opportunities for U.S. companies in the following sectors:

- Natural Heating and Cooling; Natural Lighting (design of buildings to make optimal use of Day-lighting) and Energy-Saving Lighting technologies.
- Energy Generation: photovoltaic, wind turbines, solar hot water heaters, flat panel collectors, evacuated tubes.
- South African environmental building professionals have set their sights on reducing the carbon footprint of their buildings and residences, especially by using design and technological innovation to decrease energy consumption and limit waste. Still, local suppliers and manufacturers are reluctant to commit funds towards expensive green stock and resources during the current global recession.
- GBCSA may well face a challenge in overcoming industry reluctance to understand and accept its role in green certifications. Another shortcoming will also be whether the design and material solutions are readily available as the GBCSA provides merely a rating tool and certification of buildings, but does not provide direct design advice.
- Given this situation, only a few green manufacturers are in the local market. Many complex green building products are outsourced from abroad (mainly from Australia and the EU). In the long run, South African companies should be able to devote sufficient resources to supply many green building materials, if they partner with relevant international companies to source technological expertise and obtain distributor and/or licensing agreements. This is certainly an opportunity for U.S. companies in this sector.
- As a first step, U.S. companies seeking South African representation should contact the U.S. Commercial Service South Africa (www.buyusa.gov/southafrica)

**Getting into the market**

This information was acquired from a government website: export.gov

Because the South African market is sophisticated, entry should be well planned and should take into consideration the following factors:

- The skewed demographic income distribution pattern, where ten percent of the population earns 45 percent of national income;
- The price-sensitive nature of the majority of consumer demand;
- Distribution issues given that the large retail centers are spread over only five metropolitan regions;
- A judicious selection of one of three low-risk entry strategies: representation, agency or distributorship (Note: if you are selling to the government or government-funded organizations, a local partner should be BEE-compliant);
- The entrenched bias of a conservative market that sticks to known suppliers and therefore requires sustained market development; and
- South Africa’s position as the pre-eminent stepping stone for developing most sectors in sub-Saharan Africa: the marketing mix should anticipate this medium-term option.
For further information: work with Duquesne University SBDC Global Business Program (www.duq.edu/SBDC), Pennsylvania DCED’s Center for trade Development, and the U.S Department of Commerce, Pittsburgh office (export.gov/pa/Pittsburgh)
Resources and Contact Information

This data was acquired from a government website: export.gov

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Web Resources:

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  Email address: tmueller@cagbc.org
- Secondary Contact: Julea Boswell
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  Postal Address: 800 - 325 Dalhousie Street
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  Telephone: 613.241.1184
  Fax: 613.241.4782
  Email address: jboswell@cagbc.org
  Website address: www.cagbc.org

#2 Mexico
This information was borrowed from a government website: export.gov
For more information please contact:
- Mr. Francisco Ceron, Senior Commercial Specialist (Energy)
  Commercial Service, U.S. Embassy in Mexico City
  Francisco.ceron@trade.gov
- Arturo Dessommes, Commercial Specialist (Electric Power)
  Commercial Service, U.S. Embassy in Mexico City
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#3 Germany
Government:
- German Energy Agency (DENA): [www.dena.de](http://www.dena.de)
- International Renewable Energy Agency (IRENA): [www.irena.org](http://www.irena.org)

Trade Fairs:
- Wind Energy: Husum Wind Energy, [www.husumwind.de](http://www.husumwind.de)
- Hannover Messe Energy, [www.energy-hannover.de](http://www.energy-hannover.de)
- Solar Energy: Intersolar, [www.intersolar.de](http://www.intersolar.de)
- Biogas: Eurotier, www.eurotier.de

❖ Commercial Service Contact: Andrea.Stahl@trade.gov

#4 China

Important Contacts: Environmental Management, Renewable Energy & Green Building
- Ministry of Housing and Urban-Rural Development
  http://www.mohurd.gov.cn/
  See also: http://www.uschina.org/public/china/govstructure/govstructure_part5/
- China Building Materials Industries Association
  http://www.cbminfo.com/
- China Energy Conservation Program

- Ministry of Environmental Protection of China
  http://www.mep.gov.cn/
- US China Build (a program of Evergreen Building Products Assoc)
  http://www.uschinabuild.org
- CS China Energy Webpage and Newsletter
  http://www.buyusa.gov/china/enenergy.html
- CS China Design Construction Webpage
  http://www.buyusa.gov/china/endesignconstruction.html
- China Greentech Initiative
- U.S.-China Energy Cooperation Program
  http://www.uschinaecp.org

U.S. Commercial Services Contact Information in China
Beijing Office: Tel: (86-10)8531-4463 Fax: (86-10)8531-3701
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#6 S.Korea  
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- Mr. Young Wan Park  
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  E-mail: chris.ahn@trade.gov  
  Website: [http://www.buyusa.gov/korea](http://www.buyusa.gov/korea)

### Green Building

- Ministry of Knowledge Economy (MKE)  
- Korea Smart Grid Institute (KSGI)  
  [http://www.smartgrid.or.kr/eng.htm](http://www.smartgrid.or.kr/eng.htm)
- Korea Smart Grid Association (KSGA)  

#7 Brazil  
Green Building  
The U.S. Commercial Service Brazil World Cup and Olympics reports at:  
- [http://www.buyusa.gov/brazil](http://www.buyusa.gov/brazil). Click at “World Cup and Olympic Games in Brazil” on Highlights

For more market research reports please visit:
http://www.export.gov/mrktresearch/index.asp

U.S. Commercial Service Brazil:
http://www.buyusa.gov/brazil

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#8 United Kingdom

Commercial Service Contacts:
For further information about the UK environment, please contact:
- Sara Jones, Commercial Assistant
  U.S. Commercial Service, American Embassy
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Green Building
Contact Details
For more information about the UK sustainable construction market, please contact:
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#10 Australia
- Australian Bureau of Agriculture and Resource Economics: http://www.abare.org.au
- Clean Energy Council: http://www.cleanenergycouncil.org.au
- Department of Climate Change and Energy Efficiency: http://www.climatechange.gov.au/

Upcoming Countries

India
- For further information please visit www.exim.com

Additional Markets for Renewable Energy

Belgium
While there is no association specific to green building in Belgium, many of the construction associations have green building divisions.

- The Belgian Association of Producers of Materials for Construction (PMC) (http://www.bmpmc.be)
  *PMC is a main actor in Belgian economic life: it represents 60,000 jobs and a turnover of 9 billion Euros.*
- The Belgian Federation of Building Traders (FEMA) / Federation for Construction Material Negotiators (FEPROMA) http://www.fema.be/
  *FEPROMA is affiliated with FEMA (see below) and often coordinates sales with building material traders in the FEMA federation. FEPROMA is comprised of 49 different Belgian producers comprising a diverse assortment of building materials. FEMA represents approximately 200 general traders and has merchant divisions for Flanders, Walloon, Brussels, and a national representative office. 80% of the building market traders are represented in FEMA and the organization offers registered official representation and can act as a viable social partner—particularly with union debates.**FEMA is well introduced to Belgian building traders and is a great source for American exporters**
- The Confederation of the Construction Industry http://www.confederationconstruction.be
  *Concrete, brick and roadwork’s, general structural covering, modern construction equipment, joinery, decoration and sea and river works are some of the areas in which the members of this non-profit association are active. This organization represents for over 14,000 affiliated small, medium-sized and large Belgian firms that are active in every possible area of the construction industry.*
- European Association of Builders’ Merchant Associations (UFEMAT) http://www.ufemat.eu
UFEMAT represents building materials traders from over 16 different countries in the European Union. This EU federation is similar in goal and structure to Belgium’s trade federation FEMA.

- **European Federation of Building and Woodworkers (EFBWW)**
  
  http://www.efbww.org/

  *The European Federation of Building and Woodworkers (EFBWW) is the European Industry Federation for the construction industry, the building materials industry, the wood and furniture industry and the forestry industry. The EFBWW has 74 affiliated unions in 30 countries and represents a total of 2,350,000 members. The EFBWW is a member organization of the European Trade Union Confederation (ETUC).*

**Italy**

**Commercial Service Contacts:**

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  Senior International Trade Specialist
  
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With respect to marketing building products it is advisable for U.S. companies to find a local Italian partner. The U.S. Commercial Service in Italy can assist with that. Please contact:

- U.S. Commercial Service Trade Specialist in Milan:
  
  Federico Bevini
  
  Federico.Bevini@trade.gov
  
  Ph.: +39 02 626 88 520
  
  www.buyusa.it

- ANCE - National Association of Italian Contractors
  
  www.ance.it

- Green Building Council – Italy Chapter
  
  www.gbcitalia.org

- Green Building Certification Institute
  
  http://www.gbci.org/Homepage.aspx

- Lists of non-confidential certified and registered LEED projects in Italy are available at:
  
  http://www.usgbc.org/LEED/Project/CertifiedProjectList.aspx
  
  http://www.usgbc.org/LEED/Project/RegisteredProjectList.aspx

- Expo 2015 official website:
  
  http://www.expo2015.org/

**South Africa**

**Green Building**

**Key Contacts**

- Green Building Council of South Africa (GBCSA)
World Green Building Council (WGBC)
www.worldgbc.org

Environmental Goods and Services South Africa Forum
www.egsf.org.za

South African Government, Department of Trade and Industry (DTI)
www.thedti.gov.za

For More Information
The U.S. Commercial Service Commercial Specialist for the Green Building Technologies Sector in Cape Town, South Africa can be contacted via e-mail at: Jaisvir.Sewpaul@trade.gov; or Phone: 27-21-702-7379; Fax: 27-21-702 7402 or visit our website: http://www.buyusa.gov/southafrica/

Bibliography
The greater part of this guide had its information acquired from the government’s website: export.gov. Other section that were not were duly cited their proper acquirement of information.

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