

## Global Sustainability Perspective – March 2011

### Sustainability Legislation for the Real Estate Sector

#### Overview

Legislation has been the cornerstone of the drive to more sustainable real estate over the past 40 years.

In this edition of Jones Lang LaSalle's Global Sustainability Perspective, we are focusing our attention on the legislative and regulatory framework as it applies to the real estate sector around the World. Our summary touches upon Energy Efficiency and Carbon Performance requirements of buildings, legislation on corporate Environmental/Social/Governance (ESG) reporting obligations, and renewable energy.

A first phase of legislation, commencing in the 1970s after the first oil shock, focused on energy consumption and efficiency design standards for new construction. Standards for building insulation and efficient equipment were introduced in an effort to diminish the supply dependency from energy imports. Legislation also became more environmental to cover large scale energy generation facilities to lower air pollutants such as sulfur dioxide (a key contributor to acid rain) and more recently extending to greenhouse gas (GHG) emissions to mitigate climate change. While there were no specific targets for GHG reductions for buildings, they were nevertheless indirectly impacted due to the energy production that was ultimately consumed in buildings. Furthermore, advanced economies introduced renewable, i.e. low carbon, energy production targets to implement their climate change policies:

1970s: The first Oil price shock following the 1973 Middle East military crisis and the second oil crisis in 1979 after the Iranian revolution created an energy supply challenge leading to energy saving requirements for petrol-based transportation and also for energy used for heating and cooling of buildings:

- New construction and quality of insulation improved to reduce energy consumption
- Energy efficiency standards for HVAC equipment were raised

1980/90s: Recognition that acid rain was becoming a problem in North America and Europe led to reduction targets for air pollutants from large energy production facilities and industrial installations

- The first regional environmental convention (UNECE/CLRTAP) signed in 1979 and applied from 1983, led to a strong decrease in major air pollutants across Europe and North America
- Amendments to the United States Clean Air Act in 1990 introduced an effective emissions trading system that helped reduce sulfur dioxide and nitrogen oxides
- European Union sulfur dioxide emissions trading cap and trade framework was established

1990s/2000s: Broad scientific support and evidence of the Climate Change theory led to GHG reduction policies. These were established on macro-economic levels by global organizations and individual countries and states:

- UN Kyoto Protocol (adopted 1997, entering into force in 2005) requiring developed economies to reduce Greenhouse gases by 5% by 2012 compared to 1990 levels
- California launches Renewable Portfolio Standard programme (2002) requiring 33% of its electricity production coming from renewable sources by 2020
- EU's legislation "Climate and Energy Package" (2009) stipulates 20% of renewable energy as share of total energy production, a reduction in greenhouse gas emissions by 20% and a reduction of 20% in primary energy use by 2020

A second phase in Sustainability law started in the 1990s. The previously limited focus on energy in buildings and large energy production facilities was extended to include entire corporate organizations. It saw wider environmental and social concerns added to the corporate reporting requirements that were to go beyond traditional disclosure of financial and market information. This means that environmental, social and governance issues have to be reported by companies covering all sectors including those active in the Property sector (Insurance companies, real estate investors, services companies, asset managers and consulting companies):

1990s/2000s: Environmental and social/governance reporting standards were introduced for listed companies

- Denmark introduced mandatory environmental reporting for companies in 1995 through its "Green Accounting Law"
- France established its New Economic Regulations (Nouvelles Régulations Economiques) in 2001, requiring social and environmental reporting to be added to annual accounts of stock exchange listed companies
- The EU's European Accounts Modernisation Directive of 2003 asked member states to add provisions in their legislative frameworks in order to add environmental and social criteria to be reported on in organisations' annual statements to shareholders

In parallel to mandatory obligations, voluntary reporting standards such as the Global Reporting Initiative framework, introduced in 2000, are influencing the compliance field. It is this kind of voluntary self-administered sustainability policies and initiatives that complements the mandatory frameworks. Voluntary sustainability measures and reporting can help companies to show leadership beyond compliance levels and create competitive differentiation in the marketplace.

Note: The following paragraphs provide a short summary of the content in the other three tabs.

## Energy & Carbon

Energy efficiency and carbon emissions stand at the forefront of legislative measures to respond to environmental challenges by countries around the world.

## ESG Reporting

Environmental, social and governance reporting has emerged as a counterbalance to short-term focused financial disclosure, providing deeper, more future oriented insight into company performance.

## Renewable Energy

The US, with its extended federal tax benefits, is poised for another record setting year of solar development while India and Asia Pacific are poised for unprecedented regional growth.

## Green Room

Jones Lang LaSalle speaks to the UK Green Building Council, Development Securities, Climate Change Capital and the European Public Real Estate Association, getting their perspectives on sustainable legislation as well as some of the projects that each of the organisations is involved in.

## Corporate ESG Reporting Requirements

Company financial reporting is an old art form. Indeed, the first known disclosure laws for public companies were enacted in Great Britain in 1841 when it was decreed that: “the accounts of every [joint stock] Company be open to the inspection of the shareholders.”

Nowadays, the practice of corporate financial disclosure is widespread, and a cornerstone of good governance.

Despite this long history, companies, governments and NGOs are beginning to question the focus of corporations and analysts on disclosures only related to annual financial performance. Environmental, Social and Governance reporting (ESG for short) has therefore emerged as a counterbalance to short-term focused financial disclosure, providing deeper, more future oriented insight into company performance.

At its simplest, ESG reporting is annual corporate disclosure via annual reports or related documents (e.g. Form 10K in the US), on environmental, social and governance issues.

ESG reporting typically includes a review of material risks and opportunities concerning environmental issues (e.g. climate change, water and energy), social issues (e.g. employees, customers, supply chain and communities) and corporate governance. In addition, key performance indicators in relation to these material issues are reported on a trend over time basis, with accompanying narrative.

### A new dawn in ESG disclosure regulation

Until recently, regulation on corporate ESG disclosure had been very limited. Such a ‘light touch’ regulatory approach was typified in Europe under the EU Accounts Modernization Directive (2003/51/CE – the current policy instrument upon which most of Europe’s national level non-financial reporting laws are based).

The Directive utilizes the ‘comply or explain’ principle most commonly associated with governance regulation, therefore enabling voluntary opt out where sufficient explanation is provided. Furthermore, the regulations are relatively high-level in terms of disclosure requirements, such that companies are only expected to report:

“...both financial and, where appropriate, non-financial key performance indicators relevant to the particular business, including information relating to environmental and employee matters”.

Fortunately, it has come to the attention of regulators in Europe, and beyond, that more stringent ESG disclosure laws are needed to encourage transparent reporting. These developments follow the lead of countries such as Denmark, France, Indonesia and the United States who have set the standard in terms of non-financial corporate reporting regulation.

Below we briefly review these key developments:

### Europe

- EU-level regulation: A consultation recently closed on new non-financial reporting regulations for European member states. The current regime – enforced through the EU Accounts Modernization Directive – is likely to be revised, to

include more specific disclosure requirements, possibly broadened to apply to a wider set of companies (listed and non listed), and potentially including more sector specific guidance

- France: All large listed and non listed companies are now required under Grenelle II Law to disclose environmental and social information in their annual reports. The information reported must be verified by an independent third party
- Denmark: The largest 1,100 companies, investors and state-owned companies are now required to include CSR information in their annual reports, including relevant policies, actions and outcomes
- United Kingdom: The UK government is currently debating how to enact more stringent ESG reporting requirements, via the pioneering Climate Change Act 2008 and the possible re-introduction of the Operating and Financial Review regulations. The focus in the UK, aside from broader ESG issues, is on mandatory GHG emissions reporting

### Americas

- United States: In 2010, the Securities & Exchange Commission issued a legal mandate that listed companies report in line with minimum "Commission Guidance Regarding Disclosure Related to Climate Change". The SEC has highlighted the following topics as examples of climate change matters that could trigger disclosure requirements under the Commission's current rules and regulations: impact of legislation and regulation; indirect consequences of regulation or business trends; physical impacts of climate change; impact of International Accords

### Asia Pacific

- China: From 2008, the largest State Owned Enterprises (SOE) have been required to produce CSR reports. It is hoped that interaction between SOE's and other companies may strengthen CSR reporting in China
- Indonesia: Law No. 40/2007 regarding Limited Liability Companies became the first mandatory CSR reporting law in the world. Following widespread resistance from business and NGOs, however, the law was amended to apply only to companies involved in natural resource industries

### Africa

- South Africa: As of June 2010, all listed companies on the Johannesburg Stock Exchange (JSE) are now required to produce an annual integrated report, disclosing financial and non-financial information. Follow up Integrated Reporting Guidance by the JSE and South Africa Chamber of Commerce has recently sought to define the content of an integrated report

### Global level

On a global level, a range of voluntary initiatives is making waves in the ESG disclosure arena that go beyond compliance-based reporting:

- The Global Reporting Initiative – the world's leading sustainability reporting standard – continues to grow at a significant rate. Now the leading bastion of voluntary disclosure practice, at the time of writing, over 40 real estate companies had used the GRI guidelines. With the introduction of a sector supplement (Jones Lang LaSalle is strategic advisor to the GRI on this project), designed specifically to encourage further uptake by the real estate sector, the trajectory of the GRI standard is growth
- EPRA – trade body for listed real estate companies in Europe – is working to establish Best Practices Recommendations on sustainability reporting. Whilst voluntary to begin with, it is hoped that the guidelines will catch the attention of the analyst community and that of EU regulators who seem keen to encourage sector specific reporting
- Integrated Reporting has gone from the realms of academia to a panacea for the apparent ills of corporate reporting. Guidance is emerging and the future looks set to be well and truly integrated. See Jones Lang LaSalle's green blog for further insight on integrated reporting as well as our Connected Reporting Framework Worked Example (in collaboration with the Prince of Wales' Accounting for Sustainability Forum)
- The Carbon Disclosure Project focuses on the carbon and climate change-related risks and opportunities of companies and is the most important single indicator reporting framework with 82% of the world's 500 largest listed companies providing insight into their carbon emissions, regulatory, and physical risks and opportunities

To conclude, this article has provided an overview of the ESG disclosure landscape – past and present. Whilst there is no one-size-fits-all solution to the shortcomings of financial reporting in its current form, it is apparent that a new model of corporate disclosure is not only desirable but necessary to improve corporate transparency. ESG reporting looks set to play a significant role in this new order.

### GRI CRESS Reporting Progress

The Global Reporting Initiative (GRI) is the world's most widely used sustainability reporting framework. In 2010 alone, over 2,000 companies – including nearly 100 companies operating in the in sectors associated with the built environment – produced GRI compliant reports. Put simply, GRI wants to be to sustainability reporting what IFRS and GAAP are to financial accounting.

To facilitate greater uptake of the GRI guidelines by the construction and real estate sector, GRI embarked on a two year multi-stakeholder process towards the end of 2009 to define sustainability reporting guidelines for the sector. With the support of Jones Lang LaSalle's in-house experts on sustainability reporting, GRI have engaged a global cross section of industry and non-industry stakeholders to make the process of sustainability reporting for construction and real estate companies more consistent and comparable.

Organisations involved include ProLogis, Lend Lease, Oxford Properties, Hermes, Hindustan Construction Company, Citycon, the United Nations Environment Programme and the International Labour Organisation.

The new guidelines – titled the 'Construction and Real Estate Sector Supplement' (CRESS for short) – are due for launch in the summer of 2011. They cover some of the following key issues for our sector:

- Reporting building energy intensity, water intensity and CO2 emissions associated with buildings in-use;
- Green building certifications;
- Design, operation and retrofitting of buildings;

Management and remediation of contaminated land

### EPRA Survey

At the regional level, EPRA (the trade body for listed real estate companies in Europe) has taken the GRI guidelines, see above, as a starting point and has sought to provide further insight for listed property companies in Europe. Jones Lang LaSalle was also been selected to provide expert insight on sustainability performance reporting for this project which will result in a Best Practices Recommendations (BPRs) document.

The insight provided by this process will facilitate even greater comparability between companies sustainability reports, since it will address technical issues such as how to compile appropriate intensity metrics, the use of segmental analysis in reporting (e.g. by geography, and by property type) and the use of like-for-like portfolio analysis in line with financial reporting. Whilst GRI seeks to provides high-level guidance, the EPRA BPRs will provide detailed technical insight into reporting against energy, GHG emissions, water and waste KPIs to a more granular level detail than is within the scope of the GRI project.

## Energy Efficiency and Carbon Emissions

Energy efficiency and carbon emissions stand at the forefront of legislative measures to respond to environmental challenges by countries around the World. While the Western economies have started to introduce environmental legislation since the 1970s, developing countries have quickly caught up and established some of the most ambitious legislative frameworks in the World.

We covered some large and some smaller countries to provide you insight on legislative and regulatory requirements across the Globe.

### European Union

In the European Union, most of the legislation impacting the building sector comes through Directives, such as the Energy Performance of Buildings Directive (EPBD) that came into force in 2002. One of the requirements of this Directive is the Energy Performance Certificate (EPC) that needs to be provided for all new buildings constructed, sold or rented out. However, each Member State has flexibility over choosing its own methodology for implementing EPCs. Therefore, whilst EPCs as such are a great tool to increase awareness and transparency around this issue, comparisons across Member States are very limited.

Last May, the existing EPBD was recast in order to strengthen the building energy performance requirements and to provide a vision until the end of the decade. The recast directive needs to be transposed by the member states by July 2012.

The major elements of the Recast of the Energy Performance of Buildings Directive 2010 are:

- The obligation that renovated buildings must meet minimum energy performance levels is extended to all building sizes not only to buildings over 1000 sqm of useful floor area as defined previously. (Article 7)
- Energy performance certificates must be included in marketing materials for commercial media (Article 12)
- For a building where an energy performance certificate has been issued, if the building has a total useful floor area of over 500 sqm and is frequently visited by the public, the certificate must be displayed in a prominent place clearly visible to the public (Article 13). – The previous threshold was 1000 sqm
- Member states must set minimum requirements for the energy performance of technical building systems (Article 8)
- Member states must encourage the use of intelligent metering systems, for new and renovated buildings (Article 8)
- All new buildings must be nearly zero-energy buildings by 31st December 2020; new buildings occupied and owned by public authorities to be nearly zero-energy by 2019; Member States should take measures and set targets to encourage the transformation of buildings that are refurbished into nearly zero-energy buildings
- There continue to be a number of requirements with regard to the inspection of heating and cooling systems although there is more flexibility than the previous EPBD (Articles 14 and 15)

Going forward, the EU and its member states will put in place a methodology that proposes and verifies cost-optimal minimum energy performance requirements for buildings, a sort of cost-based benchmarking system. It will allow monitoring the cost-effectiveness of the energy efficiency measures put in place by the various national laws and regulations.

Further reading: [http://ec.europa.eu/energy/efficiency/buildings/buildings\\_en.htm](http://ec.europa.eu/energy/efficiency/buildings/buildings_en.htm)

## UK

The original European Energy Performance of Buildings Directive came into force in its UK transposition applicable for commercial buildings in 2008. Based on this directive, the obligation of establishing Energy Performance Certificates (EPCs) was introduced as in all other EU member states.

Since then, there has been an increasing voluntary push for Display Energy Certificates (DECs) in commercial buildings led by members of the UK Green Building Council. The intention is to move from labeling potential performance (EPCs) to showing actual operational performance. The UK Government has just released its carbon plan stating that by October 2012 DECs will need to be rolled out to commercial buildings.

Legislation Type	Display Energy Certificates (DEC)
Country (State, Province, City)	United Kingdom
Effective Date	In effect – Voluntary
Description	Currently, display energy certificates (DECs) are intended for the public sector only. There is uncertainty as to whether or not DECs will become mandatory for private sector buildings. EU legislation wording is ambiguous; for example, it states: "floor area over 500m <sup>2</sup> and visited frequently by public".
Impact on Real Estate	If DECs became mandatory, landlords and tenants would need to share data as the landlord often does not obtain or know total energy consumed in whole building. Furthermore, DECs offer an opportunity to communicate real performance, as the operational rating is based on metered consumption.
For more	<a href="http://neupc.procureweb.ac.uk/estates/files/EPBD-the-facts-you-need-to-know.pdf">http://neupc.procureweb.ac.uk/estates/files/EPBD-the-facts-you-need-to-know.pdf</a>

The EPBD recast is expected to become UK law by the end of 2012 or beginning of 2013.

While the disclosure of building energy performance is already mandatory, the display of greenhouse gas emissions may become mandatory by 2012.

Legislation Type	Mandatory carbon reporting
Country (State, Province, City)	United Kingdom
Effective Date	Pending – Would be mandatory
Description	There is potential for carbon reporting to become mandatory by 2012 under the Climate Change Act 2008 (Companies Act 2006). The issues will be reviewed and updated by the Government, with key decisions being made in early 2011.
Impact on Real Estate	This will require property companies to consider: a) metrics for performance measurement b) internal systems for recording, monitoring and targeting data and c) management systems. Much like energy saving schemes, appropriate performance monitoring and management will identify opportunities for carbon reductions and potentially subsequent cost savings.
For more	<a href="http://www.businessgreen.com/bg/news/1906771/businesses-issue-mandatory-carbon-reporting">http://www.businessgreen.com/bg/news/1906771/businesses-issue-mandatory-carbon-reporting</a>

As part of the UK's Climate Change Programme, it introduced the Climate Change Levy Act (CCL) that came into force in 2001 and obliged non-domestic users to pay a tax on energy they consumed (electricity, coal and gas). The law's intention is to steer the market toward low carbon energy sources. In spring of 2011 work started on a reform of the CCL to provide support to the emergence of a carbon price. Measures to strengthen a carbon price might include extending the CCL-exemption (that currently exists for transportation and domestic users) to all low-carbon generation. The future of the CCL is currently unclear, both in terms of future changes of rate and also its potential overlap with the Carbon Reduction Commitment scheme (CRC), which is moving down a carbon tax route.

The UK's "Building a Greener Future" Policy Statement of 2007 announced that all new non-domestic buildings will be "zero carbon" from 2019. Despite this there are currently no definitive guidelines yet for developers or councils on what constitutes 'zero carbon' for non-domestic buildings. A definition will need to meet the requirements of the recast of the Energy Performance of Buildings Directive of 2010 that all new buildings will have "a very high energy performance. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources produced on site or nearby. This obligation is planned to enter into force after 31st December 2018 for publicly owned buildings and after 31st December 2020 for other buildings.

Consequently, the UK government is holding a consultation on the definition of "zero carbon" for new non-domestic buildings. It is expected that the achievement of "zero carbon" will be based on a hierarchy of three levels: energy efficiency, carbon compliance (e.g. on-site micro-energy generation and connected heat to district heating networks) and allowable solutions (for example large off-site carbon reductions or building control systems).

## France

The French Grenelle Environment law (adopted in two phases in 2009 and 2010) introduced a series of measures to mitigate climate change targeted at the built environment, notably residential buildings and commercial real estate. At its heart lie requirements for energy efficiency of new construction as well as existing buildings.

It imposes low energy consumption design for new buildings (at an average of 50kWh per sqm per year, expressed in source or primary energy). The intention is to increase energy efficiency by 50% compared to the last building energy efficiency law in force since 2006. The new requirement will enter into force on 28 October 2011. By 2020 the requirement will be pushed to "net zero energy" buildings, i.e. buildings that combine energy conservation methods with on-site generation of clean energy, resulting in zero carbon emission.

For existing buildings a new law will enter into force that requires energy consumption to decrease through energy efficiency improvements by some 38% by 2020. The necessary improvement works can start on 1 January 2012 and must reach the target within eight years, i.e. by 1 January 2020.

Legislation Type	Energy EPC (Diagnostic de Performance Energétique – Energie)
Country (State, Province, City)	France
Effective Date	In effect – Mandatory
Description	This law is the result of the EU EPBD. An EPC needs to be produced if owners want to sell or lease a building. The performance is rated along a scale of A to I for commercial buildings, i.e. including two additional levels "H" and "I" that are beyond the basic, residential building, EPC scale.
Impact on Real Estate	The transposition of the EPBD in France is significant and the Grenelle Environment Law provides an additional requirement that entered into force on 1 Jan 2011. It requires the display of a building's EPC in press advertisements, in estate agents shop window displays and if advertised on-line for sale or lease.
For more	<a href="http://www.developpement-durable.gouv.fr/IMG/pdf/DP_-_27-10-10_-_3.pdf">www.developpement-durable.gouv.fr/IMG/pdf/DP_-_27-10-10_-_3.pdf</a>

Within the same EPBD framework transposed into French law from 2006 onwards, France introduced the mandatory calculation of carbon emissions performance information as part of a French EPC (Energy Performance Certificate).

Legislation Type	Climate EPC (Diagnostic de Performance Energétique – Climat)
Country (State, Province, City)	France
Effective Date	In effect – Mandatory
Description	An EPC needs to be produced if owners want to sell or lease a building. It has a similar structure as the EPC label, where the performance is rated along a scale of A to I for commercial buildings, i.e. including two additional levels "H" and "I" that are beyond the basic, residential building, EPC scale.
Impact on Real Estate	In addition to creating awareness about energy efficiency it also provides information on a building's impact on CO2 emissions. It is a first step on creating points of reference for building CO2 performance, in a similar way as the energy efficiency measures the energy performance.
For more	<a href="http://www.developpement-durable.gouv.fr/IMG/pdf/DP_-_27-10-10_-_3.pdf">www.developpement-durable.gouv.fr/IMG/pdf/DP_-_27-10-10_-_3.pdf</a>

The Grenelle Environment law goes beyond requirements targeting only individual buildings. It also requires every company that employs over 500 people to publish a greenhouse gas report from 2012 onward, to be renewed every five years. It needs to include the sources of CO2 emissions and contain descriptions of possible avenues to decrease those emissions in the future. Thus it reinforces the existing requirements for large and stock exchange listed companies to report on social and environmental issues by extending the greenhouse gas reporting obligation to smaller and non listed organizations. A decree is expected over the coming months to provide details on this obligation.

## Germany

No mandatory carbon performance reporting standard for buildings currently exists in Germany. Carbon emission disclosure is a voluntary measure within the mandatory Energy Performance Certificate scheme. It does not seem likely that an introduction of mandatory carbon reporting standards for buildings will be introduced during the next few years.

Legislation Type	Energy Savings in Buildings Regulation (Energieeinsparverordnung, EnEV)
Country (State, Province, City)	Germany
Effective Date	1 October 2009
Description	Buildings compliance with minimum energy performance requirements. Results of performance calculation (e.g. primary energy demand in kWh per sqm per year) need to be displayed in the Energy Performance Certificates (EPCs) format (as introduced by the European Energy Performance in Buildings Directive). EnEV introduced in 2002, revised in 2007 and amended in 2009 providing for min. primary energy demand to be reduced by 30% compared to previous regulation. Mandatory disclosure of EPCs in case of leasing or sales transaction (both new construction and existing buildings)
Impact on Real Estate	Intention is the increased energy performance of buildings and the transparency of related information for buyers and lessees. The market acceptance of the EPC format still needs to be improved.
For more	<a href="http://www.oekozentrum-nrw.de/enev.html">http://www.oekozentrum-nrw.de/enev.html</a>

## USA

Laws to address climate change continue to meet political resistance at the national level, as many Americans remain unconvinced that there is a near- or intermediate-term crisis that can be resolved through swift and coordinated action. A current battle at the national level involves the question of whether the Environmental Protection Agency (EPA), which governs air, water and ground pollutants, has the authority to limit carbon dioxide, which has not traditionally been

considered a pollutant. Some regions of the country, notably the Northeast and California, have enacted carbon-reduction requirements that affect local utilities but have no direct impact on office buildings.

Despite the U.S. Congress' failure to pass meaningful carbon legislation in 2010, federal action on energy efficiency in buildings continues to be active. In February of this year, President Obama proposed a suite of incentives intended to cut energy consumption from existing U.S. commercial buildings by 20 percent by 2020. The proposal includes tax credits, loan guarantees, worker training initiatives and a competitive grant program called "Race to Green." As of this writing, the proposal is part of the President's budget, which is subject to debate.

Commercial building owners in some states and cities are dealing with energy mandates in those jurisdictions. Application of LEED or other green-building standards is a common requirement for new buildings, and in recent years several cities and states have enacted energy requirements in existing buildings. These requirements vary, but fall into two general categories: 1) transparency rules, wherein buildings must participate in ENERGY STAR and be prepared to disclose the benchmarking score derived from that process; and 2) mandatory retro-commissioning and energy audits, with owners being further required to make any energy improvement uncovered by the audit with a direct payback of less than five years. The expectation is that these rules will spread to more jurisdictions in the coming years.

In the past, states and cities have also taken the lead in providing renewable energy incentives to building owners in the past. That has changed with two federal actions in December 2010—one allowing companies to depreciate 100 percent of renewable energy costs in 2011 and the other an extension of the 30 percent Treasury Grant for solar installations for another year. These actions effectively reduce microgeneration costs to a fraction of market rates, and make solar power financially advantageous for many.

### Energy Performance Rating Disclosure

Legislation Type	Commercial Building Energy/ Use Disclosure program
Country (State, Province, City)	U.S. (States of California and Washington)
Effective Date	Two years phase-in starting January 1, 2011 and second quarter 2011 (California)
Description	Utilities track energy data for nonresidential buildings and provide information to Energy Star Portfolio Manager with owners' consent. Owners must disclose 12 months of information to prospective buyers, lessees and lenders.
Impact on Real Estate	Transparency helps tenants, investors and lenders make more informed decisions based on market-wide benchmarking scores. Owners are encouraged to pursue energy efficiency in order to attract tenants and perhaps avoid more stringent Audit requirements (see below)
For more	<a href="http://www.energy.ca.gov/ab1103/">http://www.energy.ca.gov/ab1103/</a>

## Greener Greater Buildings Plan – Energy Audits

Legislation Type	Energy Audits & Retrocommissioning
Country (State, Province, City)	U.S. (New York City, Local Law 87; similar law passed in San Francisco, Calif. In February 2011)
Effective Date	Phase in starting on 1 January 2013 and complete by 2022
Description	Energy audits ("energy efficiency reports") and retrocommissioning are required at large buildings every 10 years, for buildings older than 10 years old. Owners are required to make energy improvements uncovered by audits (ASHRAE Level II) that will be repaid through lower operating costs within 5 years. The audits and accompanying energy performance disclosure rule are expected to reduce NYC greenhouse gases by 4.75%
Impact on Real Estate	Places potentially expensive requirement on owners, but will result in significant energy savings over time.
For more	<a href="http://www.nyc.gov/html/planyc2030/downloads/pdf/l187of2009_audits_and_retro-commissioning.pdf">www.nyc.gov/html/planyc2030/downloads/pdf/l187of2009_audits_and_retro-commissioning.pdf</a>

## Energy Performance Rating Disclosure

Legislation Type	Energy Performance Benchmarking of buildings
Country (State, Province, City)	U.S. (Washington, DC; New York City)
Effective Date	Four-year phase-in starting in 2010 (DC) and 2011 (NYC) with buildings over 200,000 and 50,000 sq ft respectively
Description	Energy consumption benchmarking based on Energy Star participation is required for commercial buildings. Results will be made publicly available through city-administered data bases.
Impact on Real Estate	Improved energy transparency and identified measures to upgrade energy efficiency.
For more	<a href="http://www.energystar.gov/ia/business/government/State_Local_Govts_Leveraging_ES.pdf">www.energystar.gov/ia/business/government/State_Local_Govts_Leveraging_ES.pdf</a>

## Canada

Canada participates in international climate change efforts but has no national mandatory requirement that directly affects commercial buildings. Some provinces, notably Alberta and British Columbia, have instituted their own requirements. For instance, Alberta requires facilities emitting over 100,000 tonnes of GHG annually to reduce emissions by 12 percent via a combination of improvements and carbon offsets.

No mandatory reporting mechanism for Carbon performance of buildings exists in Canada today. Carbon reporting happens on a voluntary basis and is not only limited to the building sector. An example is the Carbon Disclosure Project reporting scheme sponsored by the Conference Board of Canada. Another initiative, the Canadian Commercial Real Estate Sustainability Performance Report is run by REALPAC (Real Property Association of Canada).

Legislation Type	Carbon Tax Act BILL 37 — 2008
Country (State, Province, City)	Canada, Province of British Columbia
Effective Date	2008
Description	This Bill imposes a tax on the purchase of fuels, and the burning of combustibles in British Columbia
Impact on Real Estate	Because the first North American carbon legislation is seen more as auto fuel tax, the impact on the real estate seems rather muted. However, it drives building owners in adopting more aggressive energy conservation actions.
For more	<a href="http://www.leg.bc.ca/38th4th/1st_read/gov37-1.htm">http://www.leg.bc.ca/38th4th/1st_read/gov37-1.htm</a>

Legislation Type	Directory of Energy Efficiency and Alternative Energy Programs in Canada
Country (State, Province, City)	Canada
Effective Date	ongoing
Description	Canada has a multitude of voluntary federal, provincial, municipal and utilities energy efficiency and renewable energy programs based on standards, financial incentives, tax or, awareness raising measures
Impact on Real Estate	Various programs help investors, owners and property managers to overcome the initial investment hurdle on some of the efficiency measures. Owners are encouraged to pursue demand response, energy efficiency and renewable energy projects to reduce the energy infrastructure cost and to achieve energy savings.
For more	<a href="http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/policy_e/programs.cfm">http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/policy_e/programs.cfm</a>

Legislation Type	Federal Government Regulation "Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada"
Country (State, Province, City)	Canada
Effective Date	31 March 2011 (1 April 2012)
Description	Each federal department will establish a baseline of emissions, set a target and put in place an implementation plan to reduce greenhouse gas emission levels in absolute terms from 2005 levels and put them on a clear downward trend.
Impact on Real Estate	As of 1 April 2012, new construction and build-to-lease projects and major renovation projects will achieve an industry-recognized level of high environmental performance. Existing crown buildings over 1000 m <sup>2</sup> and new lease or lease renewal projects over 1000 m <sup>2</sup> , where the Crown is the major lessee and fit-up and refit projects will achieve an industry-recognized level of high environmental performance.
For more	<a href="http://www.ec.gc.ca/dd-sd/default.asp?lang=En&amp;n=E19EE696-1">http://www.ec.gc.ca/dd-sd/default.asp?lang=En&amp;n=E19EE696-1</a>

## China

In the last two years, China has given many indications that it will move forward with a national effort to limit GHG emissions. Having publicly announced a general CO<sub>2</sub> target and subsequently preferred broad strategies, such as energy efficiency and urban development, the upcoming year, following the launch of the Five-Year Plan in March 2011, is expected to see the roll-out of government projects, regulations, and incentives that are both more ambitious and impactful than the previous trial-and-error experiments that went into shaping the Five-Year Plan.

Legislation Type	First approved "Low-Carbon" eco-demonstration city
Country (State, Province, City)	Shenzhen, China
Effective Date	2012
Description	The Ministry of Housing and Urban-Rural Development (MOHURD) and Shenzhen Municipal Government signed a framework agreement on China's first low carbon eco-demonstration city. The parameters of this agreement have yet to be set, but the impact will be city-wide. This is the first time MOHURD has officially approved such a project.

Impact on Real Estate	Pending specific guidance from the national Five Year Plan (2011 – 2015) due for ratification in March 2011, immediate implications can only be based on the recent eco-demonstration efforts in Shenyang and Tianjin. The Tianjin eco-development, a joint effort between Singaporean and Chinese government organizations started in 2005, set energy efficiency standards for all new buildings at 65% above existing stock. However, base standards in the upcoming Five Year Plan are widely expected to exceed 65%. Therefore, the Shenyang city wide initiative approved by the Standing Committee in Beijing in 2009 set energy efficiency standards at 75% above a 1980s baseline. Based on these experiences, it is easy to see how building standards for new construction in Shenzhen would be at least on par with Shenyang and possible higher.
For more	<a href="http://house.163.com/10/0421/16/64QB3C9100073SDJ.html">http://house.163.com/10/0421/16/64QB3C9100073SDJ.html</a> OR <a href="http://www.cei.gov.cn/">http://www.cei.gov.cn/</a>

Legislation Type	Legally Binding Carbon Limits (per unit of GDP)
Country (State, Province, City)	China
Effective Date	2012
Description	Huang Huikang, Chinese Foreign Ministry envoy to the Cancun COP16, announced that China could have internationally legally binding carbon emissions limits. This announcement comes after the decision by China's Standing Committee to include in the upcoming Five Year Plan (2011 – 2015) binding carbon targets of 40 to 45% per unit of GDP
Impact on Real Estate	Carbon emissions and energy consumption limits which are binding, whether domestically or internationally, will impact all levels of government and the economy. While details will not be known until the release of the Five Year Plan, officials in Beijing have suggested that nationally binding targets will be implemented by allocating limits to provinces and industries. Therefore, conditions will vary by region, but the likelihood that building standards will continue to be strengthened as a result is almost certain. Current energy efficiency standards for new construction are 50% above 2001 levels in all cities except Beijing, Tianjin and Shanghai, where it is 65%.
For more	<a href="http://www.reuters.com/article/2010/12/06/us-climate-china-idUSTRE6B55H720101206">http://www.reuters.com/article/2010/12/06/us-climate-china-idUSTRE6B55H720101206</a>

Legislation Type	Energy Consumption Targets (per unit of GDP)
Country (State, Province, City)	China
Effective Date	In effect
Description	The 11th Five Year Plan set binding energy consumption targets of 20 to 25% fall in energy intensity per unit of GDP to be reached during the 2006-2010 period. The heated growth of the national economy during this period made reaching this target seem difficult at the start of 2010. In reaction to possibly missing their target, the national government announced an "iron fist" policy and imposed draconian measures throughout the country including the closure of many energy intensive factories which supply

	building materials as well as limiting electricity availability to certain areas of the country.
Impact on Real Estate	In the areas affected by these measures, real estate development costs increased and developments were delayed; however, foreign investors and Tier 1 developers had little exposure because most of the affected areas were in Tier 3 cities and heavy industry hubs dominated by SOEs.
For more	<a href="http://www.smh.com.au/business/beijings-iron-fist-on-emissions-has-industry-gasping-20100908-151ew.html">http://www.smh.com.au/business/beijings-iron-fist-on-emissions-has-industry-gasping-20100908-151ew.html</a>

Legislation Type	China Green Building Council gains oversight responsibilities
Country (State, Province, City)	China
Effective Date	In effect
Description	The Ministry of Housing and Rural Urban Development recently passed to the China Green Building Council the ability to certify green buildings at the highest level of the local standard, 3 Stars. This represents a significant increase in the authority of the China Green Building Council.
Impact on Real Estate	Developers will need to work more frequently with the CGBC as MOHURD and other agency put more emphasis on the China green building standard, 3 Star. Developers not seeking 3 Star Certification will not be impacted.
For more	<a href="http://www.usgbc.org/News/USGBCInTheNewsDetails.aspx?ID=4347">http://www.usgbc.org/News/USGBCInTheNewsDetails.aspx?ID=4347</a>

Legislation Type	Lighting regulations
Country (State, Province, City)	China
Effective Date	2018
Description	Officials in China have announced that the production and installation of incandescent bulbs will be phased out and entirely eliminated by 2018. It will be included in the upcoming 5-Year plan. No roll-out plan has been articulated yet.
Impact on Real Estate	Without the specifics of a roll-out plan, assessing the near and mid-term impact on real estate is not possible. In the long run, this policy shift will have a minimum impact on commercial property in most Tier 1 and Tier 2 city markets where Compact Fluorescent Lightbulbs (CFLs) have long been the standard practice. Other property types and locations more reliant on incandescents will require a moderate amount of lighting retrofits.
For more	<a href="http://english.peopledaily.com.cn/90001/90778/90862/7259311.html">http://english.peopledaily.com.cn/90001/90778/90862/7259311.html</a>

## Hong Kong

Hong Kong continues to take an early majority approach to adopting environmental regulations and policies. As an increasing number of the world's financial capitals move ahead with their approaches to energy and carbon, Hong Kong is preparing for the potentially "new normal" of such a regulatory framework.

Legislation Type	Buildings Energy Efficiency Ordinance
Country (State, Province, City)	Hong Kong
Effective Date	Q1 2012
Description	All commercial buildings larger than 2,000 sqm must conduct an energy audit and submit the results to the Ministry of Housing once every 10 years. Younger buildings will be required to submit their energy audits within one year of final approval of this legislation while older buildings will have a grace period of up to four years after final passage of the legislation. The legislation is scheduled for final approval in Q2 of this year.
Impact on Real Estate	In addition to significantly increasing regular demand for energy audits, raised awareness of energy performance of buildings for investors and tenants may trigger pressure towards future energy improvements
For more	<a href="http://www.gov.hk/en/residents/environment/energy/">http://www.gov.hk/en/residents/environment/energy/</a>

## Singapore

As an early adopter of CDM (Clean Development Mechanism under the Kyoto Protocol) financing, Singapore is quickly laying the foundation for both a future of carbon trading and a renewable resource based electrical grid. The government has moved from encouraging private sector change through voluntary schemes and light touch incentives to mandates and government led precedent. These initiatives are reaching increasingly across the economy.

Legislation Type	Green building certification standards increased
Country (State, Province, City)	Singapore
Effective Date	In effect
Description	All new construction larger than 2,000 sqm; additions or extensions to existing buildings which involve increasing gross floor area of the existing buildings by 2000 m <sup>2</sup> or more; or building works which involve major retrofitting to existing buildings with existing gross floor area of 2000 m <sup>2</sup> or more is required to at least meet the first of four levels of the Singaporean green building certification standard, Green Mark. This minimum level and all subsequent levels were raised last year by 10% from the prior standard. The expectation is that 80% of all building stock will be at least Green Mark Certified, the lowest of 4 levels, by 2030.
Impact on Real Estate	In addition to making it much harder to achieve a Platinum Certification level, these regulatory changes will uniformly increase the cost of development for all mandated buildings. The new mandate will increase the demand for quality consultants familiar with Green Mark design, development, and reporting.
For more	<a href="http://www.bca.gov.sg/index.html">http://www.bca.gov.sg/index.html</a>

Legislation Type	Energy Efficiency Improvement Assistance Scheme (EAS)
Country (State, Province, City)	Singapore
Effective Date	2010
Description	The National Environment Agency is encouraging companies to conduct energy audits

	by offering grants up to 50% of the cost of engaging ESCOs (Energy Services Companies) to conduct the assessments and recommend improvement measures. New regulations in Singapore are typically first predated by market incentives to organically grow new practice.
Impact on Real Estate	To date, the impact on the industry has been marginal. Building owners who were arguably already planning to conduct energy audits in the short moved forward with their plans. Very few others participated in the program.
For more	<a href="http://www.e2singapore.gov.sg/ease.html">http://www.e2singapore.gov.sg/ease.html</a>

Legislation Type	Government building energy audits
Country (State, Province, City)	Singapore
Effective Date	2011
Description	All government buildings larger than 10,000sqm require energy audits. To participate in the public bidding process, service providers must be nationally registered, certified ESCOs (Energy Services Companies).
Impact on Real Estate	When the government takes the lead on adopting new practices, there typically follows legislation encouraging the private sector to follow suit. Given the disappointing impact of the EAS and the fast following, move by the government to lead themselves, building owners may expect future enforcement mandating energy audits.
For more	<a href="http://www.bca.gov.sg/index.html">http://www.bca.gov.sg/index.html</a>

## India

The Indian Bureau of Energy Efficiency based on the Energy conservation act (2001) has classified commercial buildings with connected loads of 500 kW and above as designated consumers. The designated consumers are expected to conduct periodic energy audits (once a year). Few state governments like Delhi, have legislated annual energy audits mandatory by accredited energy auditors for such buildings.

In the case of newly constructed buildings with load of 500 kW and above the design and construction should comply with the Energy Conservation and Building Code (ECBC).

Legislation Type	Energy Conservation Building Code
Country (State, Province, City)	India
Effective Date	May 2008 (not yet mandatory)
Description	Energy Conservation Building Code is applicable for new construction with connected load of 500 kW or contract demand of 600 kVA. Presently under voluntary adoption. This code is likely to become a compulsory code over the next few years.

Impact on Real Estate	Establishment of maximum energy consumption norms (per square meter) for new commercial buildings and existing buildings (through retrofit).
For more	<a href="http://www.emt-india.net/ECBC/main.htm">http://www.emt-india.net/ECBC/main.htm</a> and <a href="http://www.emt-india.net/ECBC/ECBC-Guidebooks/Energy%20Assessment%20guide%20for%20Commercial%20Buildings.pdf">http://www.emt-india.net/ECBC/ECBC-Guidebooks/Energy%20Assessment%20guide%20for%20Commercial%20Buildings.pdf</a>

The Government of India introduced Energy Star ratings which are based on kWh/ sq m / year but they are not compulsory at this point in time. The benchmarks are developed under an USAID funded project called ECO III Energy conservation and Commercialization project. While Energy Star ratings talk about kWh/ sq m/ year, ECBC talks about design guidelines for new construction.

Legislation Type	Energy Star Rating
Country (State, Province, City)	India
Effective Date	Not mandatory - Schemes introduced more as a reward for high performing offices
Description	Energy Star for climatic conditions based on kWh per sqm per year for office buildings and Business Process Outsourcing (BPO) offices. Typical range: 80 – 190 kWh per sqm per year depending on climate zone and star rating of 1 – 5.
Impact on Real Estate	Norms when made mandatory will force builders and occupants to implement energy efficient design and energy saving projects. Range for IT buildings, Hospitals, Hotels and Shopping Malls under development. Further benchmarks have been developed under USAID supported ECO3 project.
For more	<a href="http://www.bee-india.nic.in/seminars/document/2010/Sanjay%20Seth.pdf">http://www.bee-india.nic.in/seminars/document/2010/Sanjay%20Seth.pdf</a> and <a href="http://www.buildingenergytools.in/benchmarking/RegressionLogin.jsp">http://www.buildingenergytools.in/benchmarking/RegressionLogin.jsp</a>

India released the National Action Plan on Climate Change (NAPCC) on 30th June 2008 to outline its strategy to meet the challenge of Climate Change. NAPCC covers eight National Missions that form the core of the National Action Plan, representing multi-pronged, long term and integrated strategies for achieving key goals in the context of climate change. However, no formal building carbon performance reporting mechanism is currently in force in India.

Green Building Certification: Indians typically adopt a “get – set – go” attitude once convinced and it is noticeable that sustainability is firmly getting introduced in the property industry. There is a rush to get green building certification whether it is LEED New Construction (NC) or LEED Core and Shell (CS) for new buildings or major renovation through Indian Green Building Council. LEED Commercial Interior for interior fit-out is another certification that has gained popularity in India. Green Rating for Integrated Habitat Assessment (GRIHA) is the Indian National Rating, an initiative by the Ministry of New and Renewable Energy (MNRE). Central Public Works Department (CPWD) has issued a memorandum in August 2009 that all the newly constructed central Government buildings under CPWD will adhere to the GRIHA rating.

## Australia

Sustainability legislation affecting the real estate sector in Australia has developed significantly over recent months. Legislation in Australia can be administered at a federal level or by each of the Australian States and Territories making it a complex environment to navigate the legislative obligations of building owners and occupiers. As with other regions around the globe, the focus of sustainability legislation in Australia has shifted from environmental protection to improving transparency in the way that real estate is transacted.

On the 1st November 2010, the Australian property industry saw the introduction of one of the most significant pieces of legislation affecting the built environment through the Commercial Building Disclosure program (CBD). In steps not dissimilar to the European Union's Energy Performance of Buildings Directive, the CBD seeks to promote transparency in the Australian property market by incorporating a Building Energy Efficiency Certificate into commercial property transactions.

Legislation Type	Building Energy Efficiency Disclosure Act 2010 - Commercial Building Disclosure programme (CBD)
Country (State, Province, City)	Australia
Effective Date	Nov. 1, 2010
Description	The CBD requires the disclosure of the energy efficiency of commercial office buildings during sale, lease, and sub-lease of space with a net lettable area at least 2,000 sqm.
Impact on Real Estate	To facilitate the disclosure, buildings must be certified with a NABERS Energy Star rating, a Tenancy Lighting Assessment, and Building Energy Efficiency Guidance; however during the first year only the NABERS rating will be required.
For more	<a href="http://www.cbd.gov.au/default.aspx">http://www.cbd.gov.au/default.aspx</a>

Whilst a Building Energy Efficiency Certificate will not need to be displayed in a building, owners will need to display the NABERS Energy Star Rating of the building on all advertisements offering the property for sale or lease. In this way, occupiers and investors will be able to compare the energy performance of buildings and make informed decisions on where they choose to occupy or invest.

Investment in renewable technologies and energy efficiency requires capital expenditure that may not be accessible in all areas of the real estate sector. The Australian Government has developed multiple avenues for funding at both Federal and State levels including the Green Building Fund, which has been developed to accept applications from sectors outside of commercial offices such as shopping centres and hotels.

Legislation Type	Government subsidies and incentives
Country (State, Province, City)	Australia
Effective Date	In effect
Description	The Australian Government has developed multiple avenues for funding sustainable real estate projects at both the Federal and State levels, including the Green Building Fund, an ongoing 5 year grant program; the Low Carbon Communities Programme; Environmental Upgrade Agreements; and the Carbon Farming Initiative. The government is also consulting on the introduction of tax breaks for green buildings.

Impact on Real Estate	The greater availability of funding mechanisms will support the cost-effective retrofitting of existing assets to achieve an overall improvement in the building stock.
For more	Details on all of these can be found from AusIndustry: <a href="http://www.ausindustry.gov.au/Pages/AusIndustry.aspx">http://www.ausindustry.gov.au/Pages/AusIndustry.aspx</a>

In February 2011, the Australian Government announced plans to implement a framework for introducing a carbon price in Australia. It remains unclear as to what the full implications of establishing a carbon price will be however there will be impacts on end consumers as energy providers pass on the additional costs of energy generation. Furthermore, buildings with lower carbon emissions as a result of efficient energy management and investment in renewable energy technologies should be less impacted upon by a price on carbon than less efficient buildings. As organisations introduce carbon costs onto their corporate balance sheets we will see this impact on the way in which the real estate sector values energy efficient buildings and the importance of low-carbon retrofit programs.

## Renewable Energy

Renewable energy is now considered an established component of most developed country's energy platforms. While the economic crisis has slowed the unprecedented feed-in-tariff driven growth in continental Europe, several countries continue to expand their solar footprint (most notably the UK and Italy). The US, with its extended federal tax benefits, is poised for another record-setting year of solar development while India and Asia Pacific are poised for unprecedented regional growth.

With the cost of solar panels expected to drop further in 2011, and the continued expansion of available capital, this year and next look to be ones of promise for the renewables market.

### USA

The 2011 federal budget offered an extension of the 2010 Investment Tax Credit cash grant and sweetened the accelerated depreciation for projects completed in 2011 to 100% recovery in the first year of operation. Together with the local state incentives, led by the New Jersey SRECs (Solar Renewable Energy Certificates), solar energy will continue to be the leading form of renewable power generated in the United States in 2011.

### New Jersey SREC

Legislation Type	Renewable Energy Requirement
Country (State, Province, City)	U.S. (State of New Jersey)
Effective Date	In effect
Description	State utilities must produce 22.5% of their electricity from renewable sources or purchase Solar Renewable Energy Certificates (SRECs) from private suppliers. SRECs representing one mWh of electricity trade on an open market, with prices that have ranged from \$490 to \$680.
Impact on Real Estate	Solar power companies will lease large rooftops such as warehouses at lucrative rates. In some cases, solar companies pay to repair/replace aging roofs in lieu of rent.
For more	<a href="http://www.njcep.com/srec">www.njcep.com/srec</a>

**Modified Accelerated Cost-Recovery System (MACRS)**

Legislation Type	Solar (Renewable) Incentive
Country (State, Province, City)	U.S.
Effective Date	In effect through 2011, modified in 2012
Description	Renewable energy systems placed in service between Sept. 8, 2010 and before Jan. 1, 2012 qualify for 100% first-year depreciation. In 2012, depreciation reverts to 50%.
Impact on Real Estate	Significantly reduces the effective cost of installation for owners who pay taxes that can be offset by accelerated depreciation
For more	<a href="http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US06F&amp;re=1&amp;ee=1">http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US06F&amp;re=1&amp;ee=1</a>

**U.S. Treasury Dept. Renewable Energy Grants**

Legislation Type	Solar (Renewable) Incentive
Country (State, Province, City)	U.S.
Effective Date	In effect – for systems that start construction in 2011
Description	Grant available to commercial/industrial sectors provides 30% grant for solar, fuel cell and small wind turbine technology, up to \$1,500 per 0.5 kW for qualified fuel cell property. May not be taken with the Business Energy Investment Tax Credit or Renewable Energy Production Tax Credit.
Impact on Real Estate	Reduces cost of solar energy installation by 30%.
For more	<a href="http://www.treasury.gov/initiatives/recovery/Pages/1603.aspx">http://www.treasury.gov/initiatives/recovery/Pages/1603.aspx</a>

**UK**

Since the first wind farm was built in 1991, applications for large-scale on-shore wind farms have grown exponentially in the last 20 years. The exponential growth has been in large part due to the growing pressure of the 2002 introduction of the Renewables Obligation in the UK and the broader European 20-20 targets for renewable energy. To meet the UK target of 15% renewable energy by 2020 wind will have to play a major part with a project 33GW of capacity. The UK coast has some of the best wind-potential sites in Europe. There are currently 284 on-shore projects operational in the UK, according to the UK Wind Energy Database, with another 510 projects in the pipeline.

The 'UK Renewable Energy Strategy' (UKRES, 2009) states that the UK needs to radically increase the use of renewable electricity. The document sets out the means by which the UK can meet the legally binding target of 15% of energy consumption from renewable sources by 2020. This will mean a very substantial increase in the share of renewables in the energy mix about a decade.

The UKRES contains a 'lead scenario', which suggests that more than 30% of electricity should be generated from renewables in the UK by 2020. The majority of this is expected to come from wind power, both on and offshore.

Along with the UKRES, the UK Government published the 'UK Low Carbon Transition Plan' as a White Paper in July 2009. The plan seeks to deliver greenhouse gas emission cuts of 18% on 2008 levels by 2020 (representing a reduction in excess of one-third compared to 1990 levels), and emphasizes that the UK will need to drive major changes to the way energy is used and supplied.

It seeks to ensure that the UK will get 40% of electricity from low carbon sources by 2020, with policies to produce approximately 30% of UK electricity from renewables by 2020, by substantially increasing the requirement for electricity suppliers to sell renewable electricity. Sources will be such as renewables, nuclear and fossil fuel coal generation fitted with carbon capture and storage technology.

In Scotland, policy and commitment generally reflects that of the UK Government. In 2007 the Scottish Government set a target that 50% of gross electricity consumption should come from renewable sources by 2020, with an interim target of 31% by 2011. On 23 September 2010, the Scottish Government announced that Scotland's electricity target for 2020 would be raised to 80%.

It is clear from the background of renewable energy policy, that at the highest level of policy making, the UK has taken an unambiguously positive approach to the setting of ambitious renewable energy targets and stringent carbon budgets.

Planning issues remain one of the biggest challenges to the installation of renewable technologies in the UK.

#### The Renewables Obligation Order 2002 and other renewable policy

The new Government plans to make changes to the Renewables Obligation by means of the next Renewables Obligation Order (ROO) which will come into effect on 1 April 2011. This is the main support scheme for renewable energy projects in the UK.

It includes:

- Obligation for UK electricity suppliers to source an increasing proportion from renewable sources
- Feed-in Tariffs (FiTs): Financial incentive scheme pays householders and organisations for electricity generated through installation of certified technologies. The Comprehensive Spending Review announced FiTs will be reviewed in 2012 but possibly earlier if required. [Link to Jones Lang LaSalle's new Solar Power Solutions service offer](#)
- Renewable Heat Incentive (RHI): Tariffs paid to bridge the gap between the cost of conventional and renewable heat systems at all scales

#### Use of renewable energy onsite - The Merton Rule becomes planning policy

The Merton Rule refers to a policy started by Merton Borough Council in 2003 to enforce the use of renewable energy onsite to reduce carbon emissions. It grew in popularity and was adopted to varying degrees by approximately half of all UK councils. This led to changes to planning rules in 2007 and the creation of a Climate Change Planning Policy Statement (PPS) which placed mandatory requirements on local authorities to 'provide a framework that promotes and encourages renewable and low-carbon energy generation'. While the Merton Rule acted as a catalyst for change these alterations in policy, the Code for Sustainable Homes and the Energy Performance of Buildings Directive have now superseded it.

#### France

Renewable energies are one of the pillars of the Grenelle Environment Law ("Grenelle de l'environnement") adopted last summer, containing an entire chapter covering this topic. It reinforces the objective to reduce greenhouse gases and supports the French target of reaching 23% of total energy consumption coming from renewables by 2020, based on wind power, solar power, energy from biomass, and other sources.

However, after the introduction of a generous solar PV electricity feed-in tariff (FiT) scheme from 2002 and reinforced in 2006, the French Government changed the levels of the feed-in tariffs substantially in 2010 to avoid the development of a solar PV "bubble". Installed Solar PV capacity had more than doubled within 2010. In addition to revising future FiTs lower, it introduced a three-month moratorium for new solar PV FiT projects in December 2010. Beyond destabilizing solar PV projects for investors, it also resulted in the cancellation of a major solar panel manufacturing investment project in France that was planned for 2012 (planned in collaboration with First Solar of the US).

For Wind Power projects 500 wind power generators are targeted to be established every year by 2020, corresponding to 1250–1500 MW of new capacity each year. In order to avoid sprawl and to protect landscapes, projects need to have a minimum size of five windmills organized in a cluster. In order to reinforce wind power generation in France, the French President launched a public project of 600 windmills to be installed offshore. They are planned to start generating electricity from 2012.

In order to boost renewable energy from biomass, a special "Heat Fund" ("Fonds Chaleur") subsidy scheme was established in 2008 in support of collective heat production projects. The first production units are scheduled to start in 2011. At the same time, a feed-in tariff scheme for biomass generated electricity introduced in 2009 has been slightly reduced as of January of this year.

## Germany

The German Renewable Energy policy has been developed within the European legal framework called 'climate and energy package' that became law in June 2009. The national target for Germany for its share of renewable energy in the overall energy consumption was set at 18%.

Legislation Type	Law for the Promotion of Renewable Energies for Heat Generation (Gesetz zur Förderung Erneuerbarer Energien im Wärmebereich, EEWärmeG)
Country (State, Province, City)	Germany
Effective Date	In effect
Description	Mandatory feed-in of min. 15% renewable energies for heat provision for all buildings erected post 31.12.2008 Renewable energies: solar-thermal, geo-thermal, biomass, passive thermal heating Alternative compliance: <ul style="list-style-type: none"> <li>- 15% outperformance of EnEV min. requirements</li> <li>- According reduction of heat requirement by use of co-generation</li> <li>- According reduction of heat requirement by use of communal / thermal heat</li> </ul>
Impact on Real Estate	Coming preference for locations connected to communal / thermal heat grid
For more	<a href="http://www.bmu.de/erneuerbare_energien/downloads/doc/40512.php">http://www.bmu.de/erneuerbare_energien/downloads/doc/40512.php</a>

Legislation Type	Co-Generation Law (Kraft-Wärme-Kopplungsgesetz, KWKG)
Country (State, Province, City)	Germany
Effective Date	In effect
Description	Amendment of a 2002 legislation on promotion of co-generation supporting market introduction of fuel cell technology and communal / district heating. Regulates feed-in tariffs for co-generated energies
Impact on Real Estate	Of significance esp. for commercial parks with decentralized district heating capacities
For more	<a href="http://www.bmu.de/energieeffizienz/energieerzeugung/kraft-waerme-kopplung/doc/37906.php">http://www.bmu.de/energieeffizienz/energieerzeugung/kraft-waerme-kopplung/doc/37906.php</a>

Similar to the recent evolution of the Solar Power energy sector in France, Germany has announced that it will decrease feed-in tariffs from 1 July 2011. Reductions are expected to reach some 15% compared to the existing levels.

## China

Chinese policy has made a dramatic shift in recent years towards the aggressive encouragement of cleantech industries - especially those with globally competitive Chinese companies – over more environmentally damaging ones. This trend became evident with China's stimulus response to the GFC in which billions of dollars were poured into cleantech infrastructure projects such as smart grid, EV, mass transit, and renewable energy power plants. Since then, the trend has accelerated into the private sector as policy moves from direct spending project to private sector incentive programs such as feed-in tariffs. In March this year, the Central Committee will release the new 5-Year plan. If, as expected, government support for cleantech continues to grow, the impact on buildings and the energy systems within them could be huge.

Legislation Type	Solar feed-in-tariffs
Country (State, Province, City)	China
Effective Date	In effect
Description	China announced at the Cancun COP16 that it has recommitted to its existing Golden Sun and Solar Roof subsidy programs
Impact on Real Estate	The national government will subsidize off-grid PV projects by up to 70% the total capital cost and 50% for on-grid projects. Priority will be given to BIPV projects and come in the form of subsidies of up to RMB 17 per installed Watt of capacity. Additionally, provincial governments are augmenting these programs with their own, such as Zhejiang and Jiangsu which in 2011 will offer feed-in tariffs of RMB 1.4/ kWh and RMB 2.9/kWh respectively for qualified PV projects. These subsidies will be reducing project payback periods from more than 20 years to less than 8 years.
For more	<a href="http://www.china-greentech.com">http://www.china-greentech.com</a>

## Singapore

As a resource-scarce nation, Singapore has long been on the leading edge of resource efficiency, and its approach to real estate has been no exception. The island-nation's government was one of the first in Asia to introduce energy efficiency standards for buildings along with a glut of voluntary programs. Now, the country is positioning to take these efforts to the next level by mandating efficiency programs. The Green Mark building certification standard is expected to result in certification of a full 80% of Singapore building stock by 2030.

Legislation Type	Renewable energy subsidies for buildings
Country (State, Province, City)	Singapore
Effective Date	In effect
Description	The Solar Capability Scheme (SCS) provides funding for new private buildings to install solar technologies. The funding provided is between 30 to 40% of the total capital cost and capped at US\$ 1 million.
Impact on Real Estate	This scheme may be icing on the cake for those who already have their mind set to install PV technologies on private buildings. However, it has not provided the push needed to make PV technology a main-stream technology in commercial real estate. The payback is still too long (>15 years) with 40% offset on pricing.
For more	<a href="http://www.lowcarbonsg.com/">http://www.lowcarbonsg.com/</a>

## India

A lot of thrust is given to Solar Energy (Solar PV) in India. The National Solar Mission was announced by the Ministry of New and Renewable Energy. At the same time, the Indian Electricity Act already provides a role for renewable energies. The National Tariff Policy 2006 mandates the State Electricity Regulatory Commissions (SERC) to fix a minimum percentage of energy purchase from renewable sources of energy. It is also expected that the State electricity regulators fix a percentage for purchase of solar power. Such a purchase obligation may start with 0.25% in phase I and go up to 3% by 2022.

The Central Electricity Regulatory Commission recently issued guidelines for feed-in-tariffs for solar power generation. These will be revised on an annual basis. Feed in tariffs are at Rs 15 to Rs 17/ kWh (\$0.315 to \$0.357) as against a grid power available today at Rs 7/ kWh (\$0.147) for commercial establishments.

India plans to build 479 MW of installed power generation capacity, based on concentrated solar power (CSP). The Central Electricity Regulatory Commission (CERC) determined feed-in tariffs for CSP plants at Rs 15.31/kWh (\$0.322). Feed in tariff schemes, as of now, are for large scale operations only.

## Australia

An area where we will see innovation and opportunity is renewable energy generation. Australia has massive potential for large scale renewable energy generation to reduce its reliance on inefficient coal fired power stations. Across Australia, the states and territories operate feed-in tariff (FiT) schemes independently. Following an unexpected take-up of the New South Wales Solar Bonus Scheme since its introduction in January 2010, the NSW Government slashed its FiT for solar generated electricity by two thirds. This surprising move will impact organisations looking to invest in this technology and the equipment providers that supply the market. In an era of burgeoning opportunity around so called 'green jobs' consistency and long term commitments are needed to support domestic initiatives focused on achieving carbon reductions.

Despite Australia's comparatively low energy tariffs, the cost of electricity has been steadily increasing, and is predicted to double by 2020 as a result of increased network and transmission costs, the shift to renewable energy, and the imposition of a price on carbon. Escalating energy costs will improve the rate of return and the attractiveness of an investment in energy efficient technologies.

Legislation Type	Solar Bonus Schemes
Country (State, Province, City)	Australia
Effective Date	In effect
Description	Solar Bonus Schemes (or feed in tariffs as they are known elsewhere) are being introduced into Australia to support the installation of renewable energy infrastructure. However, in late 2010 the NSW Government solar feed-in tariff was cut by two thirds from AUS\$0.60 / kWh to AUS\$0.20 / kWh for new installations.
Impact on Real Estate	The reduced FiT will change the return on investment for projects installing PV systems on buildings reducing the attractiveness of rooftop installations and decreasing the number of otherwise marginal projects with limited output capacity.
For more	<a href="http://www.industry.nsw.gov.au/energy/sustainable/renewable/solar/solar-scheme/faq">http://www.industry.nsw.gov.au/energy/sustainable/renewable/solar/solar-scheme/faq</a>

## What key sustainable real estate players have to say on Sustainability Legislation

Jones Lang LaSalle speaks to the UK Green Building Council, Development Securities, Climate Change Capital and the European Public Real Estate Association, getting the views from two interest groups, a developer and an investor. The short audiocasts offer a range of perspectives on sustainable legislation as well as some of the projects that each of the organisations is involved in.

- Development Securities, London based property development and investment company Interview with Duncan Trench, Head of Project Delivery: "We need to see some consolidation of targets, legislation and measurement."
- Climate Change Capital, environmental investment manager and advisory group, London
- Interview with Tim Mockett, Partner Climate Change Property Fund: "Legislative drivers for sustainable property investors are maybe even more important today than before the crisis."
- UK Green Building Council, London based industry association with a mission to bring clarity, purpose and co-ordination of sustainability strategy to the sector
- Interview with Jo Wheeler, Senior Policy Advisor and Anna Surgenor, Senior Technical Advisor: "We are right in the middle of the debate whether a carbon tax or a carbon trading scheme is the most effective in driving down emissions in buildings."
- EPRA (European Public Real Estate Association) represents the publicly traded real estate sector in Europe, and is based in Brussels. With 200 members it represents €250bn in investments
- Interview with Gareth Lewis, EPRA's Director of Finance: "Investors are hungry for consistent and comparable information on sustainability performance."