SUSTAINABLE REAL ESTATE, ENVIRONMENTAL PERFORMANCE AND GREEN VALUE

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1/ Sustainable real estate: driver is political

2/ Environmental performance and green value

3/ Some recommendations for best performance and best value

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- **“Climate Change is the greatest and widest-ranging market failure ever seen”.**

  Sir Nicholas Stern, former World Bank Chief Economist,

  “The Economics of Climate Change” Review, London, 2006

  - Market tends to be blind because no many price signals are still available.
  - In Europe, Cape and Trade system is available only for Manufacturing Industry, not for Construction and Property Industry
  - Carbon Tax exists only in Sweden.

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- But Construction and Property sector represents
  - in European Union **36 % of Green House Gas emissions and 40 % of energy,**
  - in the USA **40 % of Green House Gas emissions and 40 % of energy**
- Construction and Property sector is problem number one for two worldwide strategic issues: **Climate change** and **Energy supply security**.
- Driver is political: Climate change first worldwide agreement was the **1997 Kyoto Agreement** implemented in 2005 (for Europe, minus 8 % GHG emissions between 1990 and 2012).
- Next worldwide agreement has been discussed in Copenhagen (2009), Caucun (2010) and will be discussed in Durban (December 2011).

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December 2009 European energy action plan defined three ambitious objectives for **2020:**

- unilateral decrease of **20% of Green House Gas** emissions between 1990 and 2020

- decrease of **20% of energy consumption** between 1990 and 2020;

- a share of **20% of renewable energy** in 2020 (9 % today).

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2002 European Energy Performance for Buildings Directive
(EPBD n° 2002/91/CE, December 16) imposed:

- Thermal **calculation method**
- Improved **regulations for new and existing** buildings every 5 years
- **Energy certificates** for new and existing buildings
- Public information about energy consumption in **public buildings**
- **Energy feasibility studies** for projects of more than 1000 m²
- Substantial thermal improvement for **refurbished projects** of more than 1000 m²
- **Boilers and air conditioning** equipment inspections.

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Eight years after, **2010 Energy Performance of Building Directive** (EPBD n° 2010/31/UE, May 19) imposed:

- **Nearly Zero Carbon and Energy new buildings in 2020 (2018 for new public buildings)**
- Strengthening the role and the quality of **Energy Performance Certificates,** which will be **compulsory in advertisements** for sale or rent
- Display of **Energy Performance Certificates in public buildings** (compulsory in 500 m² buildings, 250 m² in five years)

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2010 Energy Performance of Building Directive (EPBD) continued:

- Minimum energy performance requirements for **new buildings and major renovations,** with lowering of the 1000 m^2 threshold for existing buildings when they undergo a major renovation
- Lowering of the threshold for **Energy feasibility studies** in new buildings
- Strengthening the role and the quality of **Heating Ventilation Air Conditioning inspections**
- Benchmarking to achieve **cost-optimal levels**

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- **EPBD implementation support:**
  - EPBD Concerted Action,
  - CEN (European Committee for Standardization) EPBD standards,
  - Build up portal: www.buildup.eu
- **Programmes:**
  - Intelligent Energy Europe
  - R&D FP7 (7th Framework Programme 2007-2013) projects
  - Smart Cities
- **Networks:**
  - Convenant of Mayors
  - Sustainable Energy Europe Campaign
  - ManagEnergy

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Before 2007, France was very late on environmental topics

- Beginning of 2006: **not a single text to implement 2002 European Energy Performance of Buildings Directive** .
- **First text**, 2005 Thermal Regulation (May 2006) : **not very ambitious** (2000 Thermal Regulation energy consumption minus 15%)

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In **2007**, after Presidential election, “Grenelle de l’Environnement” was an **original national negotiation:**

- Between five bodies: **Government, Local authorities, Employers, Unions and Environmental associations,**
- About four topics: **Climate change, Biodiversity, Environmental risks, Health risks.**

= **Mobilization of main national bodies**

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First results:

- A lot of ambitious **policy instruments** between 2007 and 2010 for Construction and Property industry
- **"Grenelle One" Law** (n° 2009-967, 2009 August 3)
- **"Grenelle Two" Law** (n° 2010-788, 2010 July 12)

= **A coordinated Action Plan**

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A huge quantitative and qualitative jump for Construction and Property Sector:

- **New buildings**
  - **. 2012** Thermal Regulation = 2005 Thermal Regulation energy consumption **minus 50 %**
  - **. 2020** Thermal Regulation = 2005 Thermal Regulation **minus 100 %** ("Positive Energy Buildings") = minus 70 % + 30 % renewable energy produced by the building
- **Existing buildings**
  - **. 2020** stock consumption = 2009 stock energy consumption **minus 38 %** (from 240 KWh/m²/y to 150 KWh/m²/y primary energy)

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- Existing **public buildings**: minus **40% energy consumption**, minus **50% greenhouse** gas emissions between 2009 and 2020
- From January 2011, energy performance in **advertisements** relating to the sale or rental of real estate
- **Compulsory green leases** in more than 5000 m² non residential buildings,
- **Carbon analysis** integrating users transport, for all private firms of more than 500 employees and public bodies of more than 250
- In 2012, **labeling of pollutants**
- Real estate assets consumptions and emissions controlled by local authorities **Climate and Energy Territorial Plans**

France is no more late

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- **Price signals** only in American office market
- Two labels:
  - **Energy Star®,** energy label based on actual consumptions
  - **LEED®,** environmental label (site, energy, water, materials, indoor quality, innovation and design) with four levels: certified, silver, gold, platinum.

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•*Eichholtz Piet, Kok Nils, Quigley John M., Doing Well by Doing Good? An Analysis of the Financial Performance of the Green Office Buildings in the USA. March 2009 (Maastricht and California Universities)*

- The certified buildings have on average a **3% higher rent**, a **6% higher rental revenue** (rent multiplied by the occupation rent) and a **16% higher resale price**.

All quoted researches are available at our bilingual blog dedicated to Sustainable Real Estate www.immobilierdurable.eu

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- *Eichholtz Piet, Kok Nils, Quigley John M., "The Economics of Green Building". September 2010*

- During the **real estate crisis**: September 2007 - October 2009.
- Rents decreased in two years on average by 5.4%.
- Certified buildings resist more and maintain an advantage but the difference is reduced: it is of **1.2% for rents** and **2.4% for rental revenues.**
- For **resale prices**, the difference is on average **13%** in favor of certified buildings.

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•*Fuerst Franz, McAllister Patrick, New Evidence on the Green Building Rent and Price Premium. April 2009 Henley Business School (Reading University).*

- Beginning of 2009
- They find a higher difference in **rent**, equal to **6%**
- Their figures are more surprising for **resale values**: over **31%** for Energy Star buildings, over **35%** for LEED buildings.

- *Miller Norm, Spivey Jay, Florance Andy, Does Green Pay Off? 2008 (San Diego University, CoStar Data Basis)*

- 2005-early 2008 period
- **Resale price** difference over **6%** for Energy Star, plus **10%** for LEED.

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- *Pyvo Gary, Fisher Jeffrey D. "Investment returns from Responsible Property Investments: Energy Efficient, Transit-oriented and Urban Regeneration Office Properties in the US from 1998-2008". March 2009. (Research on Energy Star® label only)*

- The **net revenue per square foot** is on average greater by **5.9%** for Energy Star buildings. This difference is explained by a **4.8% higher rent**, a 0**.9% higher occupation rate** and a **9.8% lower fluid expense.**
- The **market value** is greater by **13.5%.**
- The **capitalization rate** is **0.5% less**.
- The **change over time of the market value** of Energy Star buildings is not greater
- The overall efficiency (**revenues** and **sale price capital gain**) is **comparable** for Energy Star buildings and non certified buildings.

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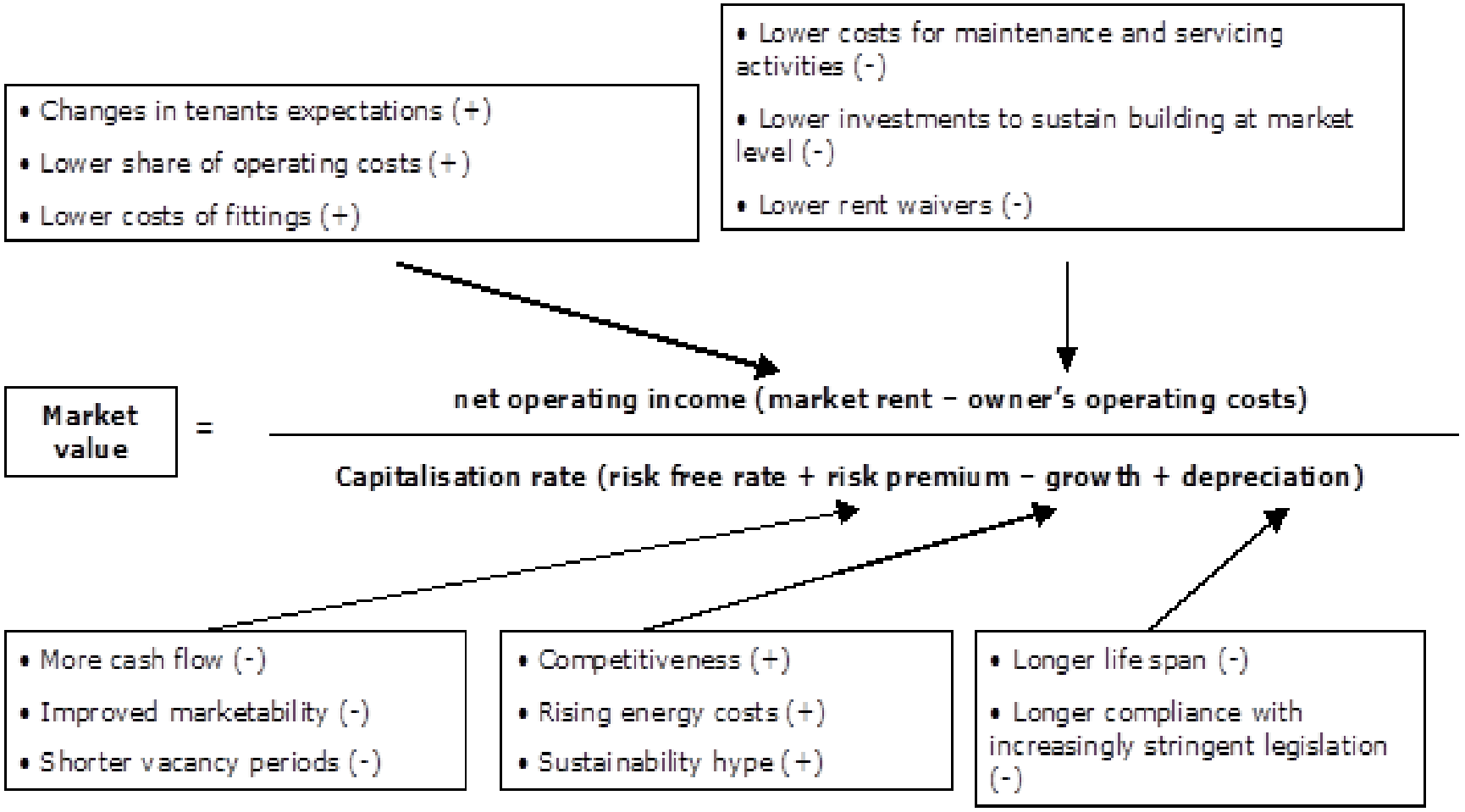
Components and potential environmental determinants of the market value of rental property



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Source D.Lorentz in Bullier et alii. Assessing Green Value, a Key to Investment in Sustainable Buildings. June 2011

Potential for positive differentiation in favor of green buildings

Components of market value (impact on value)	Impacted (+) Upward (-) Downward	Impacted by:	Impact level			
			Rental Housing		Rental Office	
			Short term	Medium term	Short term	Medium term
Market rent (+)	+	Sustainability expectations of demand	→	↗	↗	↑
	+	Lower rental charges	↗	↑	→	↗
	+	Less works for new tenants	→	→	→	→
	+	Health of occupants	→	↗	↗	↑
	+	Productivity of workers (offices only)	/	/	→	↑
Owner expenditures (+)	-	Major maintenance & repair	↗	↗	→	→
	-	Costs for upgrading and refurbishment	↗	↑	↗	↑
	-	Maintenance of performance	→	↗	→	↗
	-	Deductibles and rent discounts	/	/	↗	↑
Risk premium (-)	-	More cash flow	→	↗	↗	↑
	-	Faster commercialisation time	↗	↑	↑	↑
	-	Anticipated compliance with regulations	↗	↑	↗	↑
Growth of owner income (+)	+	Competitiveness, attractiveness	→	↗	→	↗
	+	Energy costs	↗	↑	→	↗
	+	"Sustainable" image	→	↗	→	↗
Depreciation (-)	-	Longer lifespan	↗	↑	↗	↑
	-	Longer compliance with regulations	↗	↑	↗	↑

→	Little or no influence on the difference of property value
↗	Significant influence on the difference of property value
↑	Important influence on the difference of property value
/	Not relevant

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Source: Bullier et alii. Assessing Green Value, a Key to Investment in Sustainable Buildings. June 2011

- To summarize, the **link between environmental performance and real estate value is likely**, provided that the "green" building abides by the fundamentals of real estate: a **good location** and quality access to public transport, and **good usage quality**.
- This green value may take two forms:

  - An **added value for "green" buildings**, in upward-trending real estate markets,

  - A **discount for non - "green" buildings** in downward-trending markets.
- The green value will be more readily apparent in **balanced real estate markets** than in tight markets.

Link to the article with the two previous figure and table: Bullier et alii. Assessing Green Value, a Key to Investment in Sustainable Buildings. June 2011

http://jeancarassus.zumablog.com/images/2128_uploads/Assessing_Green_Value___Bullier_Sanchez_Le_Teno_Carassus_Ernest_and_Pancrazio___ECEEE_____.pdf

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- 1/ Set up a system for observing the **actual environmental consumption** of the buildings, certified and non certified, defining the conditions of use.

- 2/ Highlight **six measurable indicators:** non-renewable **energy** (KWh of primary energy), **CO2** (Kg of CO2-eq), **water** (m3), **waste** (Kg), **air quality**, distance from **public transport** (meters). Naming an actual **environmental performance manager** within the building or group of buildings.

These 8 recommendations are extracted from Carassus J. "Are Green Office Buildings keeping their promises?" CSTB-CERTIVEA. March 2011, available at: http://jeancarassus.zumablog.com/images/2128_uploads/green_buildings_promises_english_version.pdf

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- 3/ When **designing** buildings, prioritize the quality of usage, **comfort,** and well-being of the occupants. Placed particular emphasis on **temperature, ventilation, lighting, acoustics, and air quality**. Make sure the occupant can individually control his or her immediate environment. Whenever they are known, get the future **users involved** in designing the building.

- 4/ Integrate the building's future maintenance **operation** in its **design**. Strike a balance between environmental **efficiency, robustness, cost, and ease of maintenance,** without seeking the greatest theoretical effectiveness. Have an **operator involved** in the design team.

- 5/ Ensure the intrinsic environmental quality of the building by including a **performance guarantee**, secured by a third party and strengthened by an insurer.

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- 6/ Set up three-party environmental performance **agreements** between **owner/manager, user and operator**.

- 7/ **Remunerate** stakeholders **depending on performance**: design team, contractor, building manager, operator, and user. Prioritize the institution of performance-based remuneration for the design team, building manager, and operator.

- 8/ Integrate **the energy-environment-health performance** into the evaluation of the **buildings' value**.

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Thank you for your attention

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Any question?

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