



Urban Land
Institute

Climate, Buildings, and Behavior Symposium

Garrison Institute



May 26th 2011

Commercial Real Estate

Behavior changes Attitudes

Showcase communications strategies



Policy Change to Impact Behavior

Energy Efficiency Rating		Current	Potential
Very energy efficient - lower running costs			
(92-100) A			
(81-91) B			
(69-80) C			73
(55-68) D			
(39-54) E		67	
(21-38) F			
(1-20) G			
Not energy efficient - higher running costs			



unlawful to rent out a business premise with less than "E" energy rating

ULI – the Urban Land Institute

- Global Property Research and Education Not for Profit
- 30,000 members in 92 Countries
- Membership
 - ▣ Developers
 - ▣ Investors
 - ▣ Public Sector
 - ▣ Engineers
 - ▣ Architects



ULI Member-led Initiatives

- Events and Meetings
- Research and Publications
- Awards, global and national
- Councils – information exchange
- Urban Investment Network
- Advisory Services Panels
- LessEn – Building Energy Efficiency initiative



Communications Strategies



Direct | Regulate

Communicate

Nudge

Steer

Collaborate

Establish new normative behaviors

Sustainable Building Council



Mission: *To explore, research and discuss solutions, opportunities and new directions in sustainable real estate and land use efforts through case studies, focus groups and resource references to achieve greater awareness and understanding of best practices and emerging concepts*



Collaborative Communications




- Financing
- Metrics and Quantification
- Regulation and Incentives
- Underwriting and Valuation
- Systems and Products
- End User Functionality
- Communication—
Education and
Engagement: Investors /
Tenants
- Operations for Existing
Buildings
- Development
- New York in comparison
to progressive practices
elsewhere


Behavior Changes Attitudes



Leadership in ENERGY STAR

	Buildings	Area (SF)
 ENERGY STAR	154	71+ million
Designed to Earn ENERGY STAR	12	6+ million
TOTAL	166	77+ million

Leadership in LEED

	Projects	Area (SF)
 LEED Certified	75	47+ million
Leed Pre-certified	13	9+ million
LEED Registered	117	50+ million
TOTAL	205	106+ million

Hines GREEN OFFICE (HinesGO) is a voluntary, internal program created to measure and reward sustainability within all Hines offices worldwide. Hines employees lead the effort in setting the standard for a sustainable future by “walking the walk” in our own offices.

Complementing LEED and the ENERGY STAR “Bring Your Green to Work” program, HinesGO (short for Hines GREEN OFFICE) draws on more than half a century of expertise in high-performance office space.

Hines offers the same GREEN OFFICE program to its tenants around the world. To date, over 800 tenants, representing more than 39.5 million square feet of occupied space, have achieved the designation.





EPA Presents

THE NATIONAL BUILDING COMPETITION

Working off the Waste with ENERGY STAR®



Impressive Results



Sears Glen Burnie
 Reduced by: 31.7%
 Energy saved: 2.1 million kBtu
 GHG: Prevented: 272 metric tons



JCPenney, Orange, CA
 Reduced by: 28.4%
 Energy saved: 1.4 million kBtu
 GHG: Prevented: 152 metric tons



1525 Wilson Boulevard
 Reduced by: 29.0%
 Energy saved: 8 million kBtu
 GHG: Prevented: 1,218 metric tons



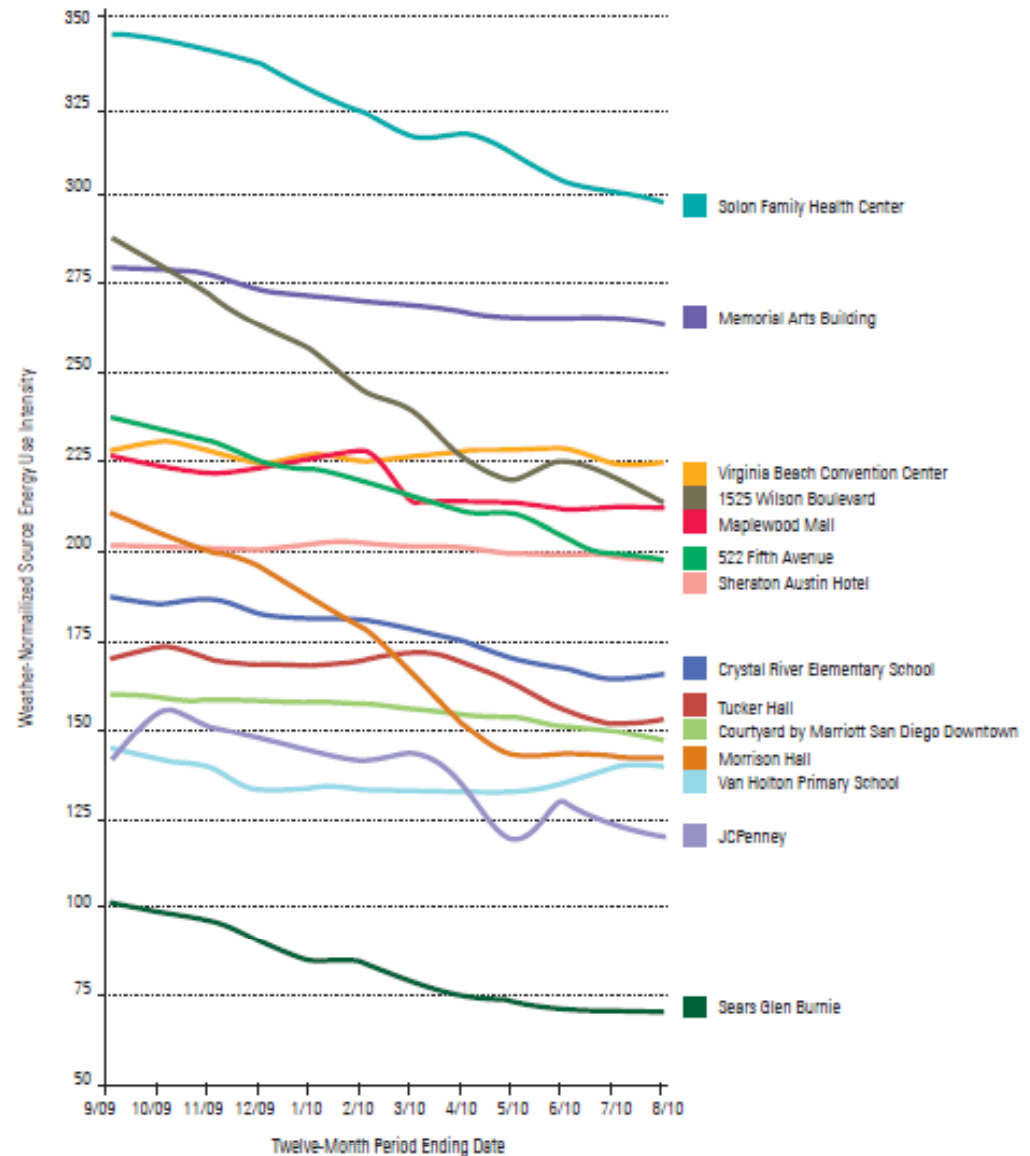
522 Fifth Avenue
 Reduced by: 18.1%
 Energy saved: 10.6 million kBtu
 GHG: Prevented: 1,038 metric tons

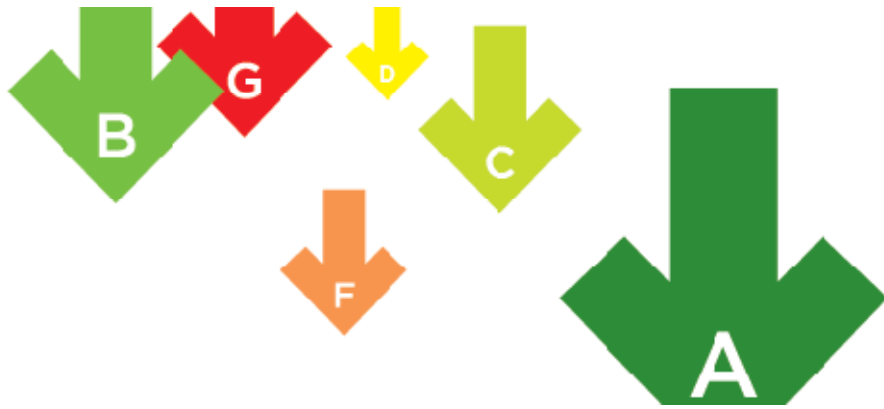


Solon Family Health Center, Cleveland Clinic
 Reduced by: 13.8%
 Energy saved: 750,000 kBtu
 GHG: Prevented: 201 metric tons



Crystal River Elementary School
 Reduced by: 12.2%
 Energy saved: 890,000 kBtu
 GHG: Prevented: 133 metric tons





Engaging People : Lessen Energy Use

- Knowledge bank of verified, objective building energy saving case studies from around the world, sharing detailed building energy data
- Business case studies that prove the financial case in retrofitting and behavior change adaption for lessening energy in existing buildings
- Policy summaries of leading international energy efficiency related policies
- Interactive Blog that engages occupiers, facilities managers and the broader public in discussing energy efficiency in existing buildings
- World's first Energy Map that shows the energy performance of over 40,000 buildings across the UK and USA.
- Energy Efficiency Products 'Market Place' developed in partnership with the Clinton Climate Initiative that shows where you can find products and suppliers for energy reducing products.
- Live Case Studies showcasing and sharing challenges and opportunities in reducing energy within existing buildings

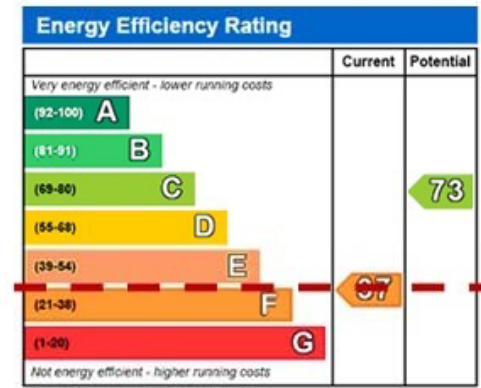


Policy driving energy efficiency



May 2011 - UK

From 2018 buildings with Energy Performance Certificate (EPC) less than E will not be able to be rented out.



unlawful to rent out a business premise with less than "E" energy rating

Feb 2011 - US

Better Building Initiative to achieve 20% improvement in energy efficiency in commercial buildings by 2020, estimated to save businesses \$40 billion a year



Not Re-inventing the Wheel...



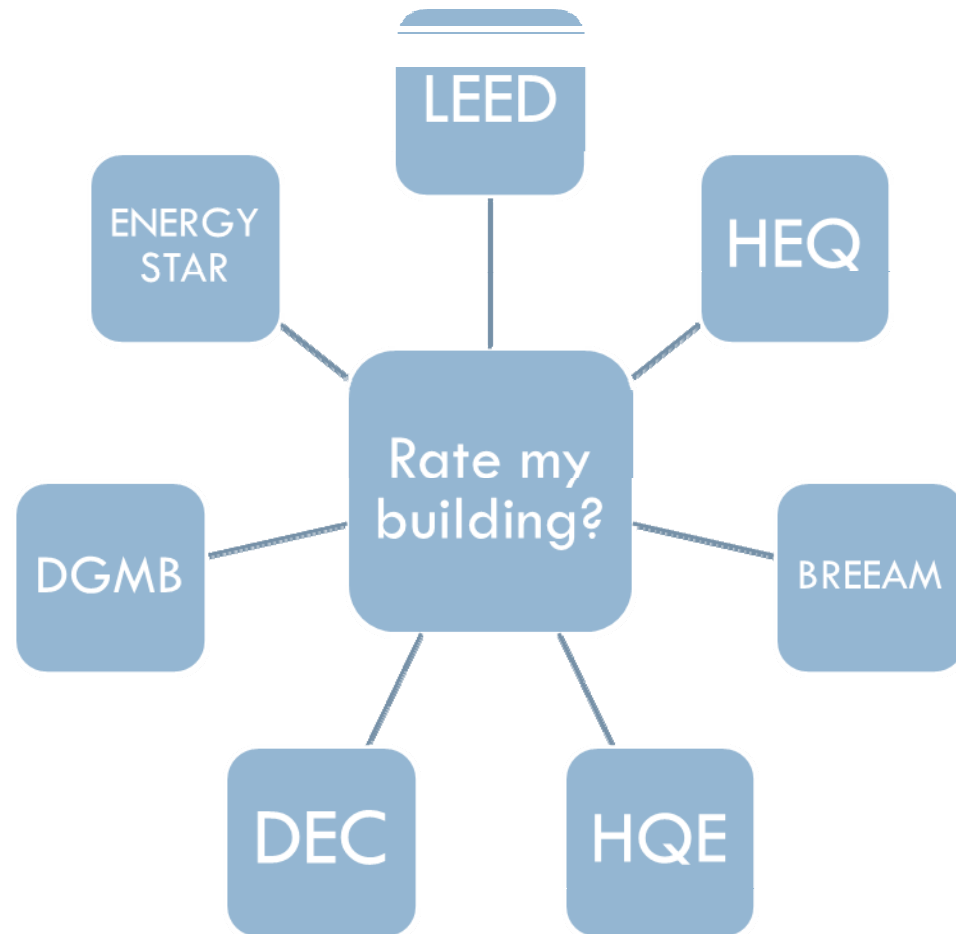
BETTER BUILDINGS PARTNERSHIP



Ratings and Metrics?



- ❑ Over 100+ building rating systems
- ❑ Reliance on technology
- ❑ Supporting policy and decision makers
- ❑ Demystifying building energy use



Good Intentions...

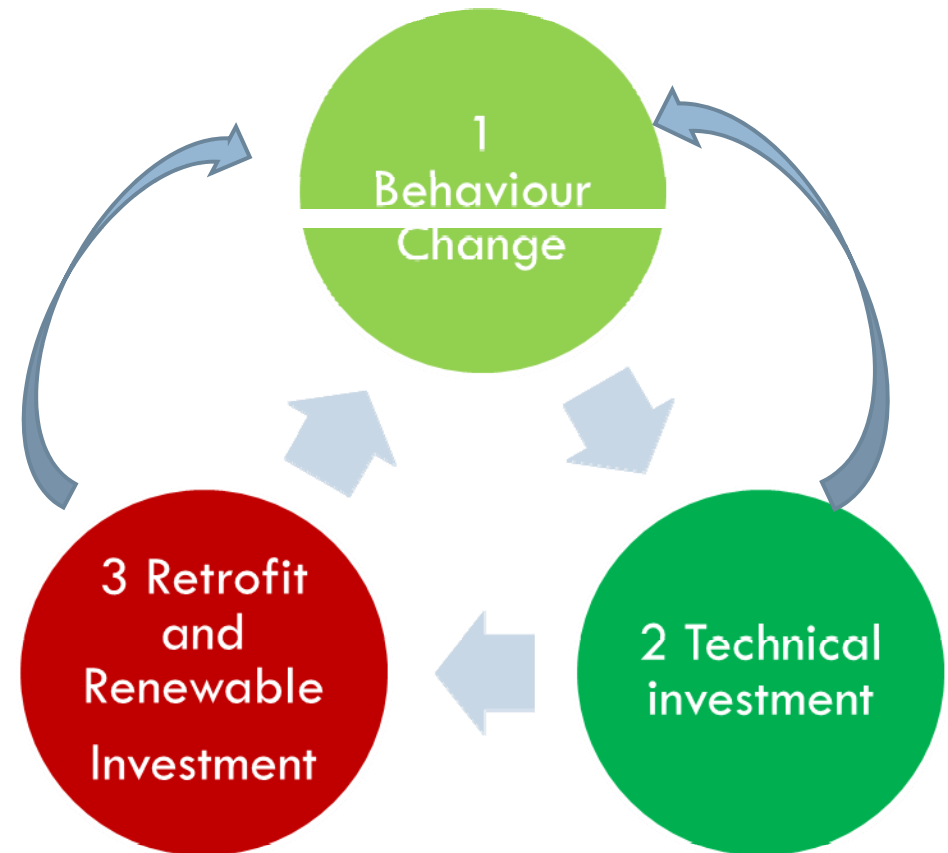


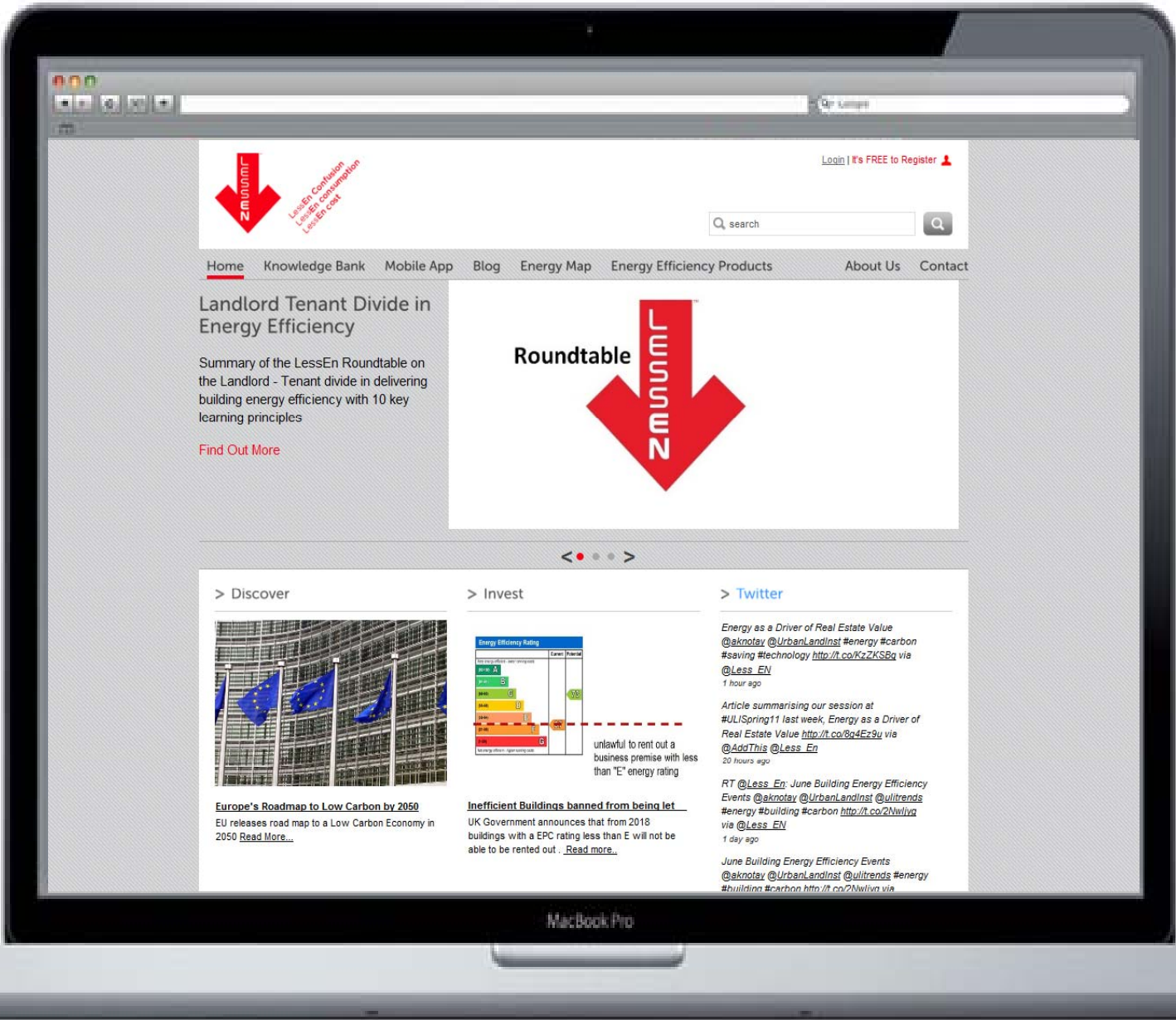
Unintended Consequences!

LessEn is...



- Energy efficiency in existing commercial buildings
- Showcasing what can and is being achieved
- A global platform of achievable initiatives
- 3 step process
- Sharing experiences





LessEn Coalition
LessEn consumption
LessEn cost

Login | It's FREE to Register

- Home
- Knowledge Bank
- Mobile App
- Blog
- Energy Map
- Energy Efficiency Products
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Landlord Tenant Divide in Energy Efficiency

Summary of the LessEn Roundtable on the Landlord - Tenant divide in delivering building energy efficiency with 10 key learning principles

[Find Out More](#)

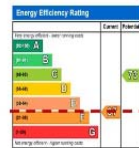


> Discover



Europe's Roadmap to Low Carbon by 2050
EU releases road map to a Low Carbon Economy in 2050 [Read More...](#)

> Invest



unlawful to rent out a business premise with less than "E" energy rating

Inefficient Buildings banned from being let
UK Government announces that from 2018 buildings with a EPC rating less than E will not be able to be rented out. [Read more...](#)

> Twitter

Energy as a Driver of Real Estate Value
[@aknotay](#) [@UrbanLandInst](#) #energy #carbon #saving #technology <http://t.co/KzZKSBq> via [@Less_EN](#)
1 hour ago

Article summarising our session at #ULISpring11 last week, Energy as a Driver of Real Estate Value <http://t.co/8q4Ez9u> via [@AddThis](#) [@Less_EN](#)
20 hours ago

RT @Less_EN: June Building Energy Efficiency Events [@aknotay](#) [@UrbanLandInst](#) [@ulitrends](#) #energy #building #carbon <http://t.co/2Nwlvjv> via [@Less_EN](#)
1 day ago

June Building Energy Efficiency Events [@aknotay](#) [@UrbanLandInst](#) [@ulitrends](#) #energy #building #carbon <http://t.co/2Nwlvjv> via

MacBook Pro

LessEn is about...



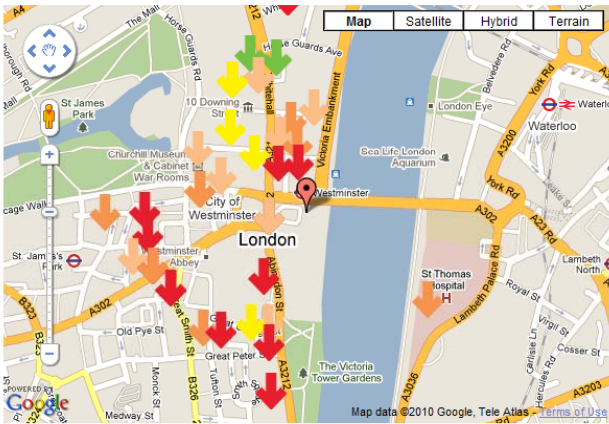
- Best practice experience beyond theory/debate
- Engaging individuals AND organisations
- Data transparency, what works and what does not!
- Simple, clear and practical solutions
- **Beyond the greenwash and geekspeak!**



Making energy visible globally



UK

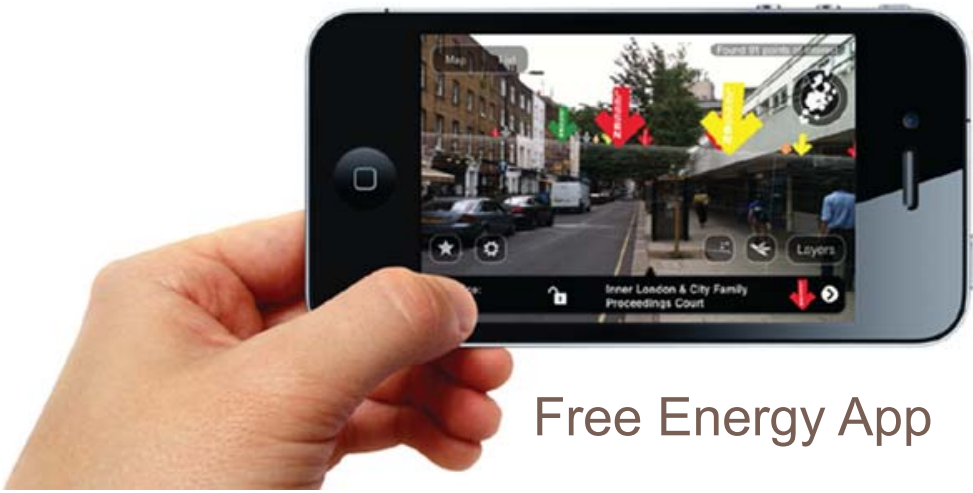


Display Energy Certificates

USA



Energy Star



Free Energy App

Campaign - schools energy use



- Performance of schools
- League table
- Engaging school managers, teachers, parents and community
- Engaging Government
- Annual campaign

Rank	Local Authority	Schools rated	Avg. of Operational Energy Rating
1	Dorset	54	75
2	Poole	25	79
3	Middlesbrough	52	79
4			
5			



Schools need to improve their green credentials and teach pupils to save energy (Richard Piche)

Schools are squandering hundreds of millions of pounds a year in unnecessary energy bills, new research has found.

Schools comprise just over half of all public buildings in England and Wales, but only 29 of the 11,992 earned the top "A" rating for energy efficiency last year. The Display Energy Certificate system requires all public buildings to undergo an annual energy efficiency audit, grading them from G – the worst – to A.

Lessen, the energy efficiency group that conducted the survey, says 1,703 schools were given the lowest ranking. The data will provide an impetus to councils struggling with public funding cuts to increase efforts to cut energy consumption.

Alexandra Netay at Lessen said the aim was not to "name and shame" the worst performers – Camden council ranks bottom – but to help them improve.

She said: "It's not enough to buy fancy technology or install low-consumption lightbulbs. That will only take you so far. It is about behaviour change – getting people to turn off lights, to turn down the heating a couple of degrees."

Indeed Portcullis House, the office building for MPs in Westminster, was awarded an A star rating for its design when it was opened in 2001. Last year, however, it was given a G for performance because of the number of people who now work there round the clock.

Dorset is the top performer: the county's 54 schools earned an average C rating. Of the 155 councils covered by the study, Dorset is one of the few that has a dedicated energy...

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SEARCH

Internet ICT Manager
Aberdeen City Council - Aberdeen • £70,000

Interim/Temporary Commissioning
GCS - UK - Not specified

Purchasing Manager
Jaguar Land Rover - Midlands - GSK, plus excellent benefits

Head Of Sales And Marketing - Northern Europe
Guzon Partnership - Midlands - GSK has a bonus + benefits

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Influencing Change



Schools' D minus for waste

Danny Fortson
SCHOOLS are squandering hundreds of millions of pounds a year in unnecessary energy bills, new research has found. Schools comprise just over half of all public buildings in England and Wales, but only 29 of the 11,993 earned the top "A" rating for energy efficiency last year. The Display Energy Certificate system requires all public buildings to undergo an annual energy efficiency audit, grading them from G — the worst — to A.

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Mike Pettidemange, engineer for the county council's sustainable property team, said: "Dorset has consistently invested money in energy conservation and we have good data going back to 1978 showing the progress we have made to reduce our fuel bills."

"We can demonstrate that our annual energy costs would have amounted to £4.6m more if we had continued to

consume fuel at the same rate that we were 30 years ago." The measures Dorset has put in place are far from revolutionary. It has come up with a puppet children to turn off lights in classrooms.

When repairs are needed to a roof, insulation is installed at the same time. "The extra £5,000 this might cost is money well spent," said Pettidemange. "The workers will be up there anyway, so why not put in some insulation that will generate savings for years to come."

With George Osborne cutting public spending across the country, Pettidemange expects others to follow Dorset's lead.



Top 10 Tips – global campaign



Top 10 tips for schools



1 Identify your school's energy rating

You will find your School Display Energy Certificate rating on the League Table or the LessEn Energy Map. If you use an iPhone, Android or Blackberry smart phone, you can also use the LessEn app (download it from www.less-en.org for free). It shows your school's most recent energy rating and CO2 emissions data. You can also share comments about the school building, and explore ways to improve its energy.

2 Improve your rating

Find out if there is a working group on energy. If not, set one up and appoint a leader. The most successful groups include the school's leadership, technical staff, governors, parents, support staff and students. Make raising your DEC rating your aim and report your results monthly. Join the Eco Schools programme <http://www.eco-schools.org.uk/>

3 Start with the simple stuff

Are outside lights on during daylight hours? Are computers switched off at night? Is lighting or heating left on overnight, during weekends or during holiday periods? Appoint class monitors for lights, blinds and heating. Bring teachers and students to work together to understand energy and check that your heating and lighting systems switch off during periods of no use such. Leaving heating on over Christmas can result in 10% increase in heating related energy bills.

4 Get to know how your building works

Could it be keeping you warmer or stopping you overheating? Review your buildings and assess where you could be losing heat at winter or storing too much heat during the summer.

5 Build relationships with partners who can help

Contact your Local Authority, local sustainability organisation and energy provider. Opportunities that may be available are: funding, training, collaboration work with other schools as well as advice from energy and property experts on energy efficiency strategies.

6 Become more energy smart

Install smart meters, obtain an energy audit and set up sub metering. You can obtain the energy data you need by reading your meters weekly or daily and using the results not just to improve performance by identifying ways to save energy but also to raise awareness and understanding in the curriculum, and create behaviour change with teachers, students and building managers. For example, in maths, business and science lessons.

7 Check out your kit

Arrange for your caretaker or Facilities manager to review and commission systems in the building to ensure that they are running as efficiently as possible. This will not only help you run your school in a more energy efficient way, but also potentially increase the life of your equipment.

8 Replace and upgrade

Install low-cost energy saving technologies such as low energy lights, energy efficient heating and variable speed pumps. Ideally, develop a programme to replace older, less energy efficient equipment with low energy alternatives.

9 Go bright green

When you have done the basics explore ways to generate clean energy through renewable technologies, such as solar, wind and biomass. Local Authorities may have funding available to support this and the 10:10 campaign can point you in the right direction.

10 Get out your tambourines

Use working groups to discuss 'gain share' opportunities to share capital costs and energy savings through a more extensive building retrofit. Start with an energy audit to identify the big wins for your building and then discuss options for how costs can be equitably apportioned through service charges.



TIPS FOR REDUCING ENERGY USE IN NON-DOMESTIC BUILDINGS. FOR TENANTS AND LANDLORDS.

Produced in association with **ARUP**

1. Turn off lights and computers when not in use.
2. Turn off lights and computers when not in use.
3. Turn off lights and computers when not in use.
4. Turn off lights and computers when not in use.
5. Turn off lights and computers when not in use.
6. Turn off lights and computers when not in use.
7. Turn off lights and computers when not in use.
8. Turn off lights and computers when not in use.
9. Turn off lights and computers when not in use.
10. Turn off lights and computers when not in use.

PLEASE STICK ME WHERE THE GREEN TEAM CAN USE ME

Remember to check the 10:10 Business Methodology to see exactly what you need to do to meet the 10:10 Business challenge. Download it at 1010uk.org/business

For more free advice and guidance contact the Carbon Trust online helpline on **0800 085 2005** or visit www.carbontrust.co.uk

Get your company together for your 10:10 challenge at 1010uk.org

10:10 Company

Get your company together for your 10:10 challenge at 1010uk.org

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The Human Factor!



□ “Quick Wins” Small behaviour changes can make a radical difference!

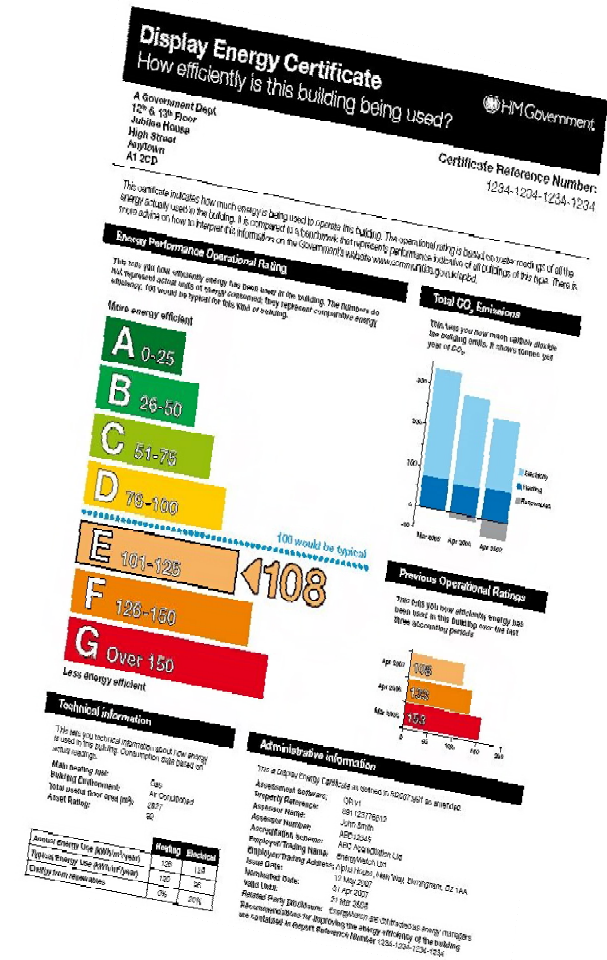
- Arup security team
- Chelsfield housekeeping team
- Land Securities 1 °C temperature variance
- Philips and Lutron – LED Smart Lighting and load-shedding devices – but train people how to use them!
- Allianz 3 step approach and 20% carbon reduction
- ULI Europe team strategy



Engaging Public Sector



- DEC data shows UK Health Care (NHS) create 3% of the UK's carbon emissions.
- Creating 8 tonnes of CO₂ /yr = a bigger polluter than over 50 small countries.
- Oldham Primary Care Trust managed successful carbon reduction of 800 tonnes saving £41,000/yr.



It can be done!



□ **Case Study: Empire States Building**

- 102 floors and 2.8million square feet
- \$11million annual energy costs with CO2 emissions of 25,000tonnes/yr
- 5 Partner Organisations
- Detailed assessment of 60 strategies
- \$550million capital investment to:

“Create a replicable model to demonstrate how to cost-effectively retrofit a large multi-tenant office building to inspire others to embark on integrated energy efficiency retrofits.”



Proven results



- ❑ **Incremental cost of \$13.2 million**
- ❑ **\$4.4million saving**
- ❑ **38% energy reduction**
- ❑ All details on www.esbsustainability.com

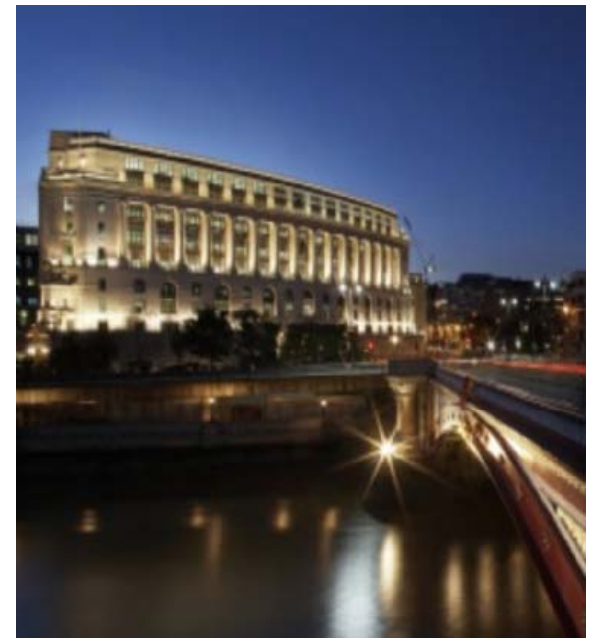
“Our industry loves attention but we hate scrutiny. That scrutiny is coming whether we like it or not.”

Tony Malkin – Malkin Holdings – Owner of the Empire State Building. ULI Energy Finance Forum, June 2010

Property Sector Challenges



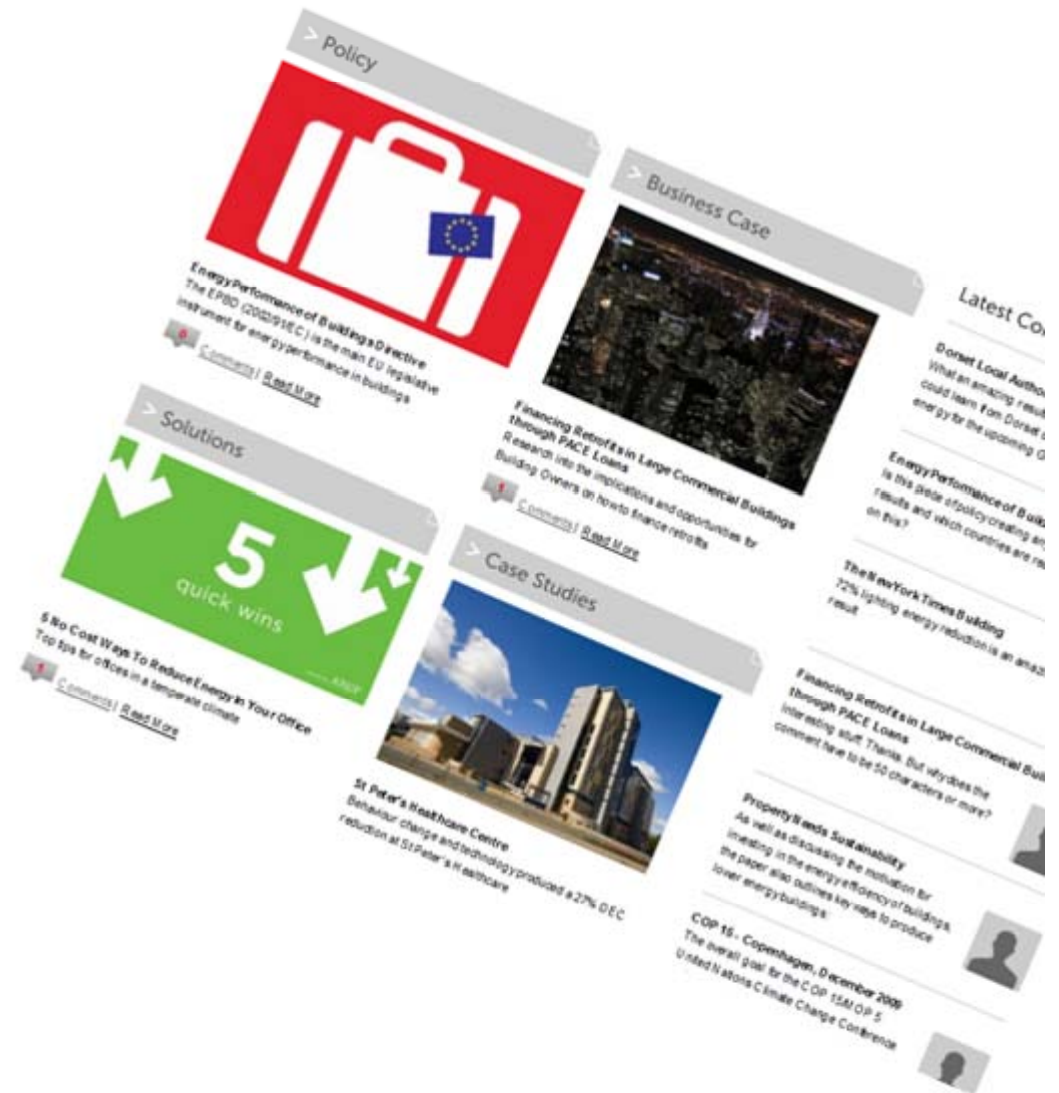
- Reliance on legislation ‘stick’ in UK and Europe?
- Transparency is necessary and coming fast...
- Develop and share expertise, especially on how to tackle multiple occupancy or listed buildings
- Need to be realistic – we can’t get each building’s DEC to an A rating but every emissions reduction is valuable.
- **The critical human element!**

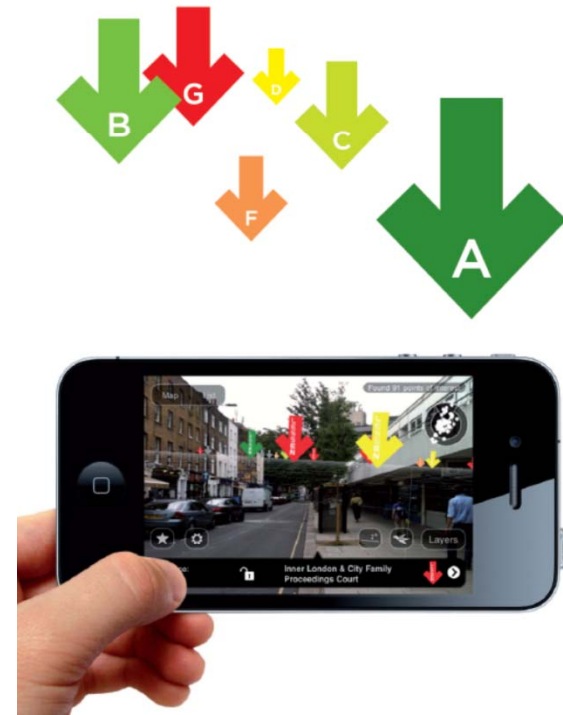


What LessEn can do for you



- Showcase your energy developments
 - **Blog stories**
 - **Case Studies**
 - **Share data**
 - **Join us on Twitter or LinkedIn**
- Use LessEn as a tool to engage your tenants and building owners





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To validate the approach and effectively design the NEPDW, interviews were conducted...

Stakeholder Groups	Primary Market Role	Representative Company	# of Institutions Interviewed
Financial Institutions	▶ Investing large sums (\$400MM+) of investors' money (e.g. pension fund) in building energy efficiency retrofits	▶ Deutsche Bank	▶ 2
	▶ Provide loans >\$50,000 directly to building owners or ESCOs/ESAs, with a minimum total loan portfolio approximately \$200MM	▶ Wells Fargo	▶ 2
	▶ Regional banks and non profits funded through state or Federal grants that provide small loans to local customers	▶ Green Choice Bank	▶ 4
Building Owners	▶ Portfolio Managers: Manage large number of (mainly commercial) buildings on behalf of owners	▶ Grubb & Ellis	▶ 1
	▶ Portfolio Owners: Own and manage large portfolio of (mainly commercial) buildings	▶ Tishman Speyer	▶ 1
ESCOs	▶ Develop, implement and finance (often directly) energy efficiency retrofits, primarily in MUSH market	▶ Johnson Controls	▶ 1
ESA Providers	▶ Identify and finance energy efficiency retrofits and pay themselves through energy savings	▶ Transcend Equity	▶ 2
Insurance Companies	▶ Provide insurance "wraps" for asset backed securities	▶ Assured Guaranty	▶ 2

(1) This list only includes institutions that directly informed use cases.



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Useful Links

- www.less-en.org
- www.uli.org

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