



BETTER THAN THE BEST

Using International Best Practices to Enable High Performance Buildings in BC

REPORT BY SUSTAINABILITY SOLUTIONS GROUP | MARCH 2009
FOR **ACCOMMODATION AND REAL ESTATE SERVICES**



Contents

Contents	
Summary	3
Overview	4
1. Overarching Strategies	7
2. Capital Asset Management Frameworks	10
3. Innovative Financing Mechanisms	12
4. Building Labelling	13
5. Triple Bottom Line Decision-making Tools	14
Appendix: Policy Measures and Instruments	16

Cover photo: Royal Alexandra Children's Hospital in Brighton. Winner of the 2008 Prime Minister's Better Public Building Award

Summary

This project identified innovative policy measures and instruments from international jurisdictions that address key barriers to public sector-owned and operated high performance buildings. Jurisdictions examined in-depth were selected for their recognized leadership on sustainable buildings and climate, and included the United Kingdom, Germany, Australia, and the United States. The measures described below were selected using the following criteria:

- addresses a barrier or challenge faced in BC;
- works with existing governance structures in BC;
- is innovative, bold or relatively easy to implement; and
- has delivered demonstrable results.

Research was focused in four key policy areas, as well as over-arching strategies to support policy implementation. The following recommendations are distilled from the practical experience of other jurisdictions and each one is based on the foundation of a similar policy or measure in another jurisdiction. These recommendations are meant to support the successful and effective implementation of the High Performance Building Policy (HPBP), as well as emissions reductions targets, in BC.

Overarching Strategies

- a. Develop technical resources and tools in accessible language and format to support the implementation of the revised Capital Asset Management Framework (CAMF) using best practices from the US.
- b. Develop an extensive education and training program to coincide with the adoption of the HPBP.
- c. Clearly identify triple bottom line outcomes, timelines and responsibilities for policy review and evaluation. Identify an independent third party, such as the BC Office of the Auditor General or an external consultant, to conduct the evaluation to ensure unbiased, transparent, and arms length reporting.
- d. Require Post Occupancy Evaluations at scheduled intervals after a new, renovated, or leased project is occupied.

Capital Asset Management Framework

- e. Rethink requirements for space as the most efficient facility is the one that isn't required, from both a cost and resources point of view. Consider models of distributed working, use of technology, design quality and other space redesign strategies to enhance the relevance of the workplace for the employees.
- f. Commit to Value for Money as the key financial

criterion for decision-making. The value for money approach shifts the emphasis from short-term to long-term and allows for the inclusion of factors traditionally externalised. Mandate life-cycle costing for all new buildings, leased facilities, and renovations in the government estate.

- g. Include the social cost of carbon in all policy decisions. This methodology helps decision-makers today avoid investments with a high carbon cost.
- h. Implement strategic and targeted incentives and regulations to shift both public and private sector performance. The provincial government pilots innovative incentive policies in its own operations prior to rolling them out across the market.

Innovative Financing Mechanisms:

- i. Implement a strategy that enables investment in energy efficiency and renewable energy using the model of Salix Finance in the UK.
- j. Create an entity with a similar role to that of the highly successful Carbon Trust in the UK with a mandate "to accelerate the move to a low carbon economy".

Building Labeling:

- k. Benchmark the performance of public sector buildings against key public policy objectives. Establish a benchmarking system that tracks building performance against a range of criteria including energy efficiency, cost of lease or ownership, condition, etc..
- l. Develop a comprehensive building labeling strategy beginning with assets owned by the public sector, then expanding to buildings leased by the public sector and finally including the private sector.

Triple Bottom Line Decision-making:

- m. Introduce a sustainability appraisal framework as the mechanism for evaluating policies and key decisions across government. Develop a standard and comprehensive methodology that addresses social, environmental and economic issues.
- n. Require multi-criteria decision-making analysis for all building projects as a key mechanism to evaluate sustainability at the schematic design and design development phases for building projects.

Overview

It is critical to consider each individual policy initiative discussed in this paper in the context of a systemic approach. This ensures that the BC government holds the whole picture and high-level policy objectives in mind while putting the details in place. The systemic approach proposed here focuses on the goals of high performance buildings and carbon neutrality for the BC government and for the province in general.

Figure 1 highlights how the policies and instruments discussed in this paper correspond to each step within this scheme. The left-hand y-axis and the solid line represent available indoor space in public sector assets. The right-hand y-axis and the dotted line represent greenhouse gas emissions per unit of space. Greenhouse gas emissions were selected as a main metric in this case due to their policy importance, but as the steps are implemented the performance of the buildings will improve across a range of indicators including quality of indoor environment, waste, water, materials, and others. The horizontal axis represents time and the various suggested stages of policy implementation, and under each stage the corresponding policy measures from international jurisdictions are listed. The following steps are detailed in progression:

1. **Benchmarking:** identification of the performance of various buildings in the government estate (owned and leased) informs future decisions.
2. **Rethinking workplaces:** How much space is really needed? Which space provides better value for money? Inefficient and poorly performing buildings are removed from the portfolio. This step avoids costly investments in space that is not needed due to different planning and allocation techniques and results in reduced greenhouse gas emissions.
3. **Procurement:** Before investing in retrofits, lease fit-ups, or new buildings, it is key to establish procurement systems that support the overall policy objectives. The cost of carbon, triple bottom line analysis and lifecycle costing should be incorporated into decision-making.
4. **Retrofits:** Now that the portfolio of buildings represents the most efficient and effective space possible, there are opportunities to increase efficiency using either a publicly-owned non-profit corporation or energy services contracts.
5. **Operations:** In conjunction with the retrofits, staff can contribute to ensuring the buildings are operating at peak efficiency, further reducing greenhouse gas emissions.
6. **New High Performance Buildings:** Additional space is



City of London Academy: Winner, Better Public Buildings 2006

- provided when required and when existing available space cannot meet needs. The knowledge developed through the earlier steps can inform the procurement of new high performance buildings. These new buildings result in further greenhouse gas emissions reductions as they are carbon positive, carbon neutral or produce minimal greenhouse gas emissions as per HPBP and government targets.
7. **Evaluation:** An ongoing cycle of learning includes the evaluation of the results at each step so that the lessons learned, for example in procurement, can inform future procurement processes.

In practice it is likely that many of these stages will occur simultaneously, however a systemic approach as described above will avoid situations such as replacing recently purchased, but inefficient, equipment as part of a retrofit on a new building that was not required for meeting space needs in the first place.

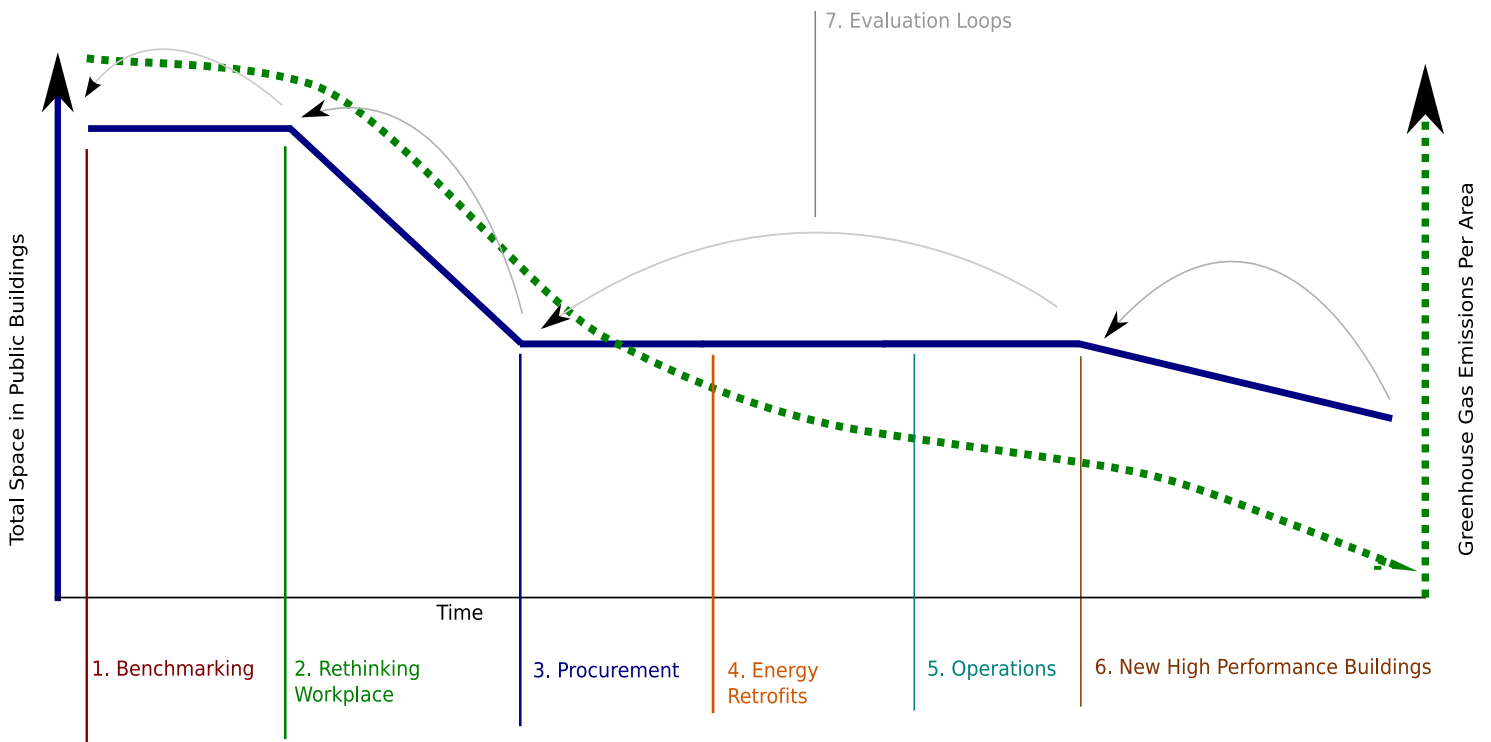


Figure 1: Trajectory Towards High Performance Buildings in the Public Sector

Policies and Instruments Grouped by Phase

1. Benchmarking

- Display Energy Certificates (UK/GER)
- Energy Efficiency in Government Operations (AUS)
- Mandatory Building Labelling (AUS)
- The Property Benchmarking Scheme (UK)
- High Performance and Sustainable Building Assessment Tool (US)
- Existing Building Assessment Tool (US)

2. Rethinking Workplace

- Work is what you do, not a place you go (UK)
- Workplace Matters (US)

3. Procurement

- Forward Commitment Procurement (UK)
- Pro Cure 21(UK)
- Quick Wins (UK)
- A Common Methodology for Lifecycle Costing (UK)

4. Energy Retrofits

- Super Energy Savings Performance Contracts (US)
- Carbon Trust (UK)
- Salix Finance (UK)
- 100,000 Roofs Program (GER)

5. Operations

- Are you a good corporate citizen? (UK)
- Sustainable Facility Checklist (US)

6. High Performance Buildings

- High Performance Building Policy (OR, US)
- Social Cost of Carbon (UK)
- Sustainability Appraisal (UK)
- Whole Building Design Guide (US)
- Achieving Excellence Design Evaluation Toolkit (UK)

7. Evaluation

- GSA Post Occupancy Evaluation (US)
- Building Cost and Performance Metrics (US)
- National Audit Office (UK)

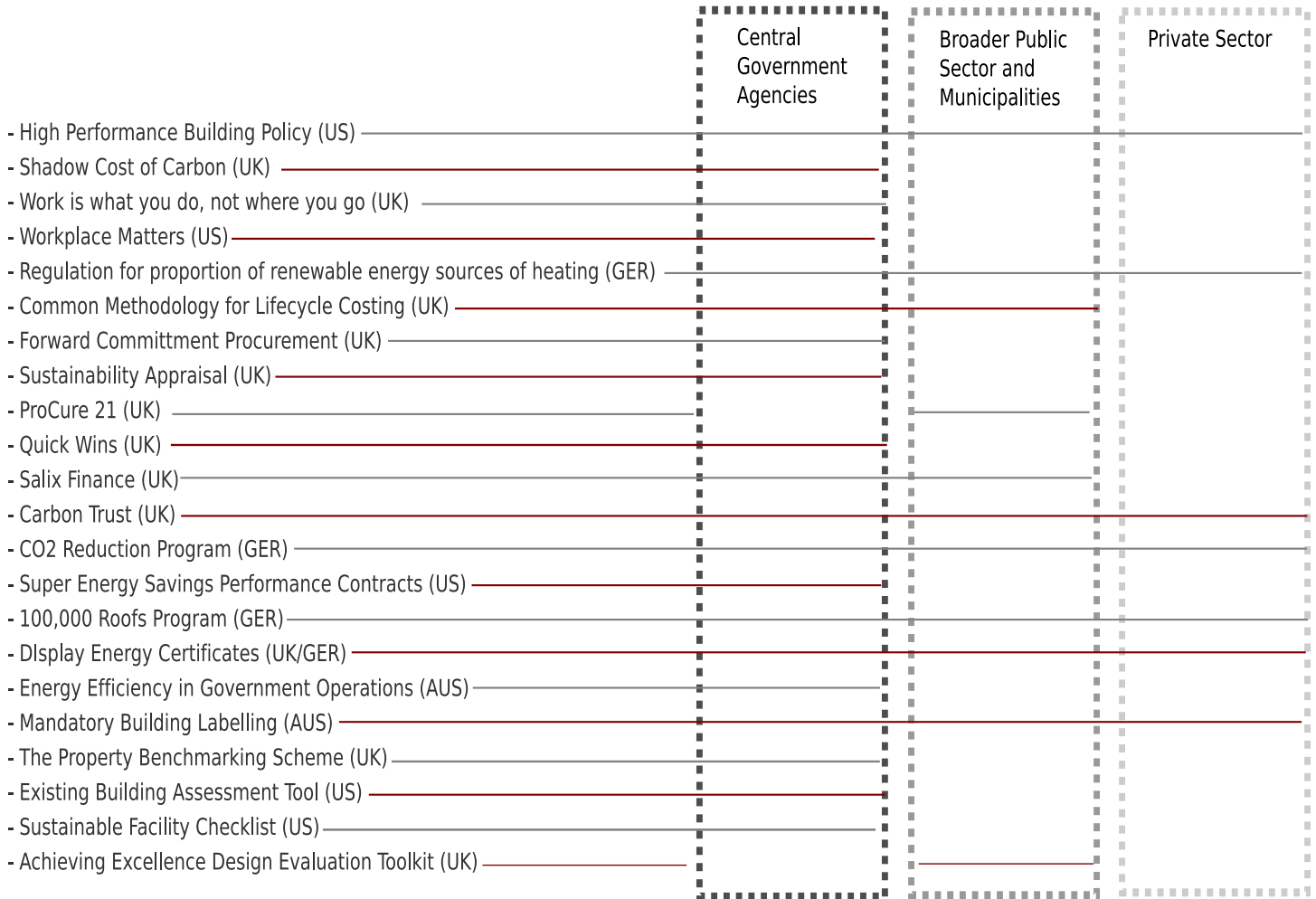


Figure 2: Scope of Policies and Instruments

Figure 2 illustrates the scope of the policies and instruments detailed in this report; whether they apply to central government agencies, the broader public sector (SUCH and Crown Corporations) and/or the private sector. Some instruments such as the Carbon Trust, cross all three sectors, as the purpose is to reduce emissions throughout society. Other instruments, such as Salix Finance, were developed to target the economic and social conditions encountered in the broader public sector. Other strategies may be piloted in the central government agencies, then expanded to the broader public sector and finally to the private sector. Examples of this are the Energy Efficient Government Operations and the Mandatory Building Labeling instruments from Australia, where the government began by requiring a certain level of performance in its owned and leased assets, and then expanded out this performance requirement to private sector owners leasing office space.

1. Overarching Strategies

- a. Develop technical resources and tools in accessible language and format to support the implementation of the revised CAMF using best practices from the US.

A key barrier identified in the implementation of CAMF in BC was that the framework is not user-friendly and is inconsistently applied by people responsible for asset management in the province. It is expected that similar issues may be faced with implementing the HPBP, given the technical issues associated with the policy. A one-stop shop should be created, where newly created and existing resources are easily accessible and searchable for users. Resources should include relevant policies and regulations, technical guidance and tools developed for those who are responsible for planning, delivery, and evaluation of assets in the province. The focus should be on real, practical, easy-to-implement tools and strategies addressing barriers anticipated in the implementation of the HPBP. See side bar titled *One-stop shop resources*.

- b. Develop an extensive education and training program to coincide with the adoption of the HPBP.

Behaviour and training programs deliver cost savings, increase staff morale and increase the effectiveness of the organisation in supporting the relevant communities. Working with the Sustainable Development Commission, the National Health Services in the UK has developed a resource called “are you a good corporate citizen?”¹. The tool helps an organisation to identify and assess its contribution to good corporate citizenship through a sustainability lens and to provide ideas for future action. The self-assessment addresses six key areas: transport, procurement, facilities management, employment & skills, community engagement and new buildings. Results vary from increased local food procurement, enhanced green transportation options, support of public engagement, recycling programs, employment programs and support for public art. One health region reported annual energy savings of £500,000 per annum². The UK, through its National School of Government has developed a series of courses for civil servants including Making the Commercial Case, Buying a Better Future, High Performance Sustainable Development in Government Operations, Options Appraisal for Economists and others³.

¹ Available at: <http://www.corporatecitizen.nhs.uk/>

² Sustainable Development Commission (2008). Stockport NHS Foundation Trust. Available at: <http://www.corporatecitizen.nhs.uk/library/080208Stockport-CaseStudy.pdf>

³ <http://www.nationalschool.gov.uk/Sustainability/index.asp?tab=3>

One-stop shop resources in the US.

The key policy drivers for high performance buildings in the US are Executive Order 13423, the Energy Independence and Security Act (2007) and the Guiding Principles from a Memorandum of Understanding signed by multiple departments on High Performance and Sustainable Buildings. Several resources are available to support the implementation of these policies:

- Technical Guidance for implementing EO 13423 available on an extensive website. Includes topics ranging from integrated design and energy efficiency to moisture control, life cycle costing, and EMS integration. Offers design guidance as well as technical tools and resources, and is written by experts in each topic area. Available at: http://www.wbdg.org/references/sustainable_eo.php
- Sustainable Buildings Implementation Plan guidance provided by US government to agencies in order to develop plans to become compliant with policy drivers. Available at: http://www1.eere.energy.gov/femp/controlledaccess/sustainable_eo13423.html
- The GSA in the US initiated the creation of a comprehensive high performance building on-line resource called the Whole Building Design Guide. For two years the GSA developed this resource, and then handed it over to the National Institute of Building Sciences to continue to manage and grow, with funding from multiple federal government departments. It has become a comprehensive one-stop shop, and includes resources for design, construction and operation of sustainable buildings. Available at: <http://www.wbdg.org>.

An additional educational strategy used in the UK is the Better Public Building initiative⁴ which rewards excellence in both design and procurement. The judges look for high-quality design, efficient procurement, economic and social value, good team work between client, designer and contractor, sound financial management, whole-life value for money, client satisfaction, and sustainability.

⁴ Available at: <http://www.betterpublicbuilding.org.uk/award/index.htm>

- c. Clearly identify triple bottom line outcomes, timelines and responsibilities for policy review and evaluation. Identify an independent third party, such as the BC Office of the Auditor General or an external consultant, to conduct the evaluation to ensure unbiased, transparent, and arms length reporting.

The National Audit Office, on behalf of the Government of the United Kingdom, has evaluated their high performance building and climate change related policy initiatives⁵, and has found in many cases that they are not having the intended effects in achieving greenhouse gas reductions and sustainable construction practices. It is critical to have this feedback in order to make necessary mid-course corrections, and know that progress is being made toward high performance buildings and greenhouse gas reductions in BC.

Performance targets should be ambitious, and should be set over the short, medium, and long-term to allow for certainty in policy direction and planning for future targets⁶. This evaluation role, and these phased-in targets, should be clearly described in the High Performance Building Policy. The evaluation should be made against current targets set by the Province in the following areas, and should be able to adapt to ambitious new targets as well:

- Carbon neutral targets as legislated
- The High Performance Building Policy as it is approved
- The Great Goals for a Golden Decade, particularly goal #4: to lead the world in sustainable environmental management⁷ (note that clear actions, targets and timelines need to flow from this goal to make it actionable).

As the efficacy and success of these policies is reviewed and reported on, policies, strategies, and actions need to be re-evaluated to ensure sufficient progress is being made toward the ambitious targets that have been set. A

Evaluation of sustainable buildings in the UK

In the last ten years, the UK Government has developed innovative and ambitious policies and instruments with respect to sustainable buildings in the government estate. However, a range of different barriers have been encountered at the point of implementation. The National Audit Office (NAO), analogous to the Auditor General in the Canada, plays a critical role in monitoring the results of the policies, enabling the government to learn from its efforts. For example in 2007, the NAO published a report that found widespread failure in the efforts of government departments and agencies to meet the standards set for sustainable construction². Many government departments were applying the standards only to projects over a certain dollar value. Other barriers that were identified included insufficient leadership on sustainable construction, no enforcement or accountability and no central point of expertise in government. An investigation of the perceived conflict with value for money revealed that in fact departments were not carrying out appraisals of the balance between sustainability and value for money³. This information plays a critical role in allowing the government to adjust its policies accordingly, and indeed, the characteristics of some of the more recent instruments described below indicate that these lessons are being learned.

management system cycle of plan-do-check-act is useful context for this policy and review work.

- d. Require Post Occupancy Evaluations at scheduled intervals after a new, renovated, or leased project is occupied.

In order to have the data necessary to understand how well the HPBP is achieving its objectives and targets of reducing the negative impacts of buildings and increasing the positive impacts, extensive post-occupancy evaluations (POE) must be planned in the early stages of new build, renovation, and leased project initiation. The HPBP should

5 National Audit Office (2007). Building for the Future. Sustainable Construction and Refurbishment on the Government Estate. Accessed March, 2009: http://www.nao.org.uk/publications/0607/sustainable_construction_and_r.aspx

6 Office of Government Commerce (2008). Sustainable Operations on the Government Estate Targets. Accessed March, 2009: http://www.ogc.gov.uk/sustainability_soge_targets.asp. Office of Government Commerce (2008). Sustainable Procurement & Operations on the Government Estate: Delivery Plan. Accessed March, 2009: <http://www.ogc.gov.uk/documents/Delivery-Plan.pdf>

7 The Province of BC (2005). Great Goals for a Golden Decade. <http://www2.news.gov.bc.ca/archive/2001-2005/2005OTP0019-000122.htm>



In addition to a passive solar system, the Reichstag generates its own power using photovoltaics, a co-generation plant and surplus heat is stored in the ground. Photo licensed under Creative Commons.

outline the POE metrics that will be included in the review⁸, who is responsible for collecting the information, and who is responsible for collection, collation and reporting on overall performance of the BC government owned and leased space. This reporting responsibility should be required, with a penalty for non-compliance. The performance report should be made publicly available for transparency as well as to contribute this information to the broader community. The General Services Administration (GSA) in the US recently completed an extensive POE of 12 of their LEED certified buildings in different regions across the US and found that all of the energy use intensity (EUI, energy use per gross square foot) values were better than the baseline typical building, two-thirds of the water use intensity (WUI, gallons/occupant) values were better than or at the baseline, all of the occupant satisfaction scores were higher than the 50th percentile (the length of the line represents the percentage satisfaction), and more than half of the buildings have aggregate maintenance costs that are below the baseline⁹.

2. Capital Asset Management Frameworks

A comprehensive approach to sustainable buildings has been recently developed by the National Health Services (NHS) in the UK¹⁰. The NHS' technical guidance addresses sustainable development within health and social care facilities by addressing the main issues that should be addressed throughout a building's life – highlighting key actions, commitments and responsibilities at every stage¹¹. Germany also has a comprehensive approach, called the

Guideline for Sustainable Building¹², however we were unable to ascertain the degree to which it has been used.

CAMF should consider the following issues and strategies as they relate to enabling and compelling high performance buildings:

- e. Rethink requirements for space as the most efficient facility is the one that isn't required, from both a cost and resources point of view. Consider models of distributed working, use of technology, design quality and other space redesign strategies to enhance the relevance of the workplace for the employees.

Two major reports¹³ in the UK use case studies to illustrate the benefits of this approach including improved efficiency, personal productivity, teamworking and communication, healthier, happier and more motivated workforce, refreshed brand identity, better space utilisation, improved access to information, more flexibility to work demands, better work/life balance for staff, reduced travel time, reduced office space requirements, better retention and improved trust. The idea of rethinking work in the UK has been paralleled by similar efforts in the US, spearheaded by the General Services Administration with emphasis on collaborative spaces, connectivity, flexible interiors, functionality and different types of workspaces¹⁴.

Relevant Policies or Instruments

1. [Work is what you do, not a place you go \(UK\)](#)
2. [WorkPlace Matters \(USA\)](#)

- f. Commit to Value for Money as the key financial criterion for decision-making. The value for money approach shifts the emphasis from short-term to long-term and allows for the inclusion of factors traditionally

8 The US Federal Energy Management Program (FEMP) developed the Building Cost and Performance Metrics Data Collection Protocol to provide a tool that could generate results in high-level comparative measurements of sustainably designed buildings. The protocol is available at: <http://www1.eere.energy.gov/femp/pdfs/pnnl15217.pdf>

9 Fowler, M. Kim and Rauch, M. Emily (2008). Pacific Northwest National Laboratory, operated by Battelle Memorial Institute, for the U.S. Department of Energy and the U.S. General Service Administration, Richland, Washington. Available at: <http://www.wbdg.org/research/sustainablehpbps.php?a=8>

10 Personal communication with Lorraine Holme, Programme Manager, Sustainable Development, Department of Health.

11 Estates and Facilities Division (2009). *Environment and sustainability – Health Technical Memorandum 07-07: Sustainable health and social care buildings*. Department of Health. Available at: <http://www.tsoshop.co.uk>

12 Federal Office for Building and Regional Planning (2001). Guideline for Sustainable Building. Ministry of Transport, Building and Housing. Available at: www.iisbe.org/iisbe/gbpm/documents/policies/guidelines/Germany_guideline_SB.pdf

13 Office of Government Commerce (2008). Working Beyond Walls: the Government as an agent of change and, HM Treasury (2004). Working without Walls: An insight into transforming government workplace. Available at: http://www.oqc.gov.uk/transforming_government_workplaces_working_without_walls.asp

14 General Services Administration (2006). Workplace Matters. Available at: http://www.gsa.gov/gsa/cm_attachments/GSA_DOCUMENT/WorkPlace%20Matters%20FINAL508%20lowres_R2-v6A_0Z5RDZ-i34K-pR.pdf

externalised. Mandate life-cycle costing for all new buildings, leased facilities, and renovations in the government estate.

HM Treasury in the UK provides the following definition of Value for Money¹⁵: “The public sector holds financial, corporate and physical assets in the pursuit of policy objectives and not for its own sake or for the creation of profit. In pursuing policy objectives, the public sector pursues Value for Money, defined as optimising net social costs and benefits. This Public sector assessment of value is based upon the interests of society as a whole and is not an assessment of value to the public sector alone.”

The broader scope represented by VFM facilitates the incorporation of social and environmental criteria in procurement decisions. A study by PricewaterhouseCoopers¹⁶ found that 77% public construction projects in the UK were considered to incorporate environmental criteria¹⁷, resulting in financial savings of 7% and greenhouse gas emissions reductions of 38%.

A major barrier to the use of lifecycle costing has been the lack of a standardised methodology¹⁸. Timelines and methodologies vary widely in Europe and as a result the EU recently commissioned the development of a standard approach¹⁹.

Relevant Policies or Instruments:

[3. A Common European Methodology for Life Cycle Costing \(EU\)](#)

- g. Include the social cost of carbon in all policy decisions. This methodology helps decision-makers today avoid investments with a high carbon cost.

15 HM Treasury (2008). Value for money and the valuation of public sector assets. Available at: [www.hm-treasury.gov.uk/d/9\(2\).pdf](http://www.hm-treasury.gov.uk/d/9(2).pdf)

16 PricewaterhouseCoopers (2009). Collection of Statistical Information on Green Public Procurement in the EU. Available at: http://ec.europa.eu/environment/gpp/index_en.htm

17 “Green Public Procurement (GPP) is a process whereby public and semi-public authorities meet their needs for goods, services, works and utilities by seeking and choosing outcomes and solutions that have a reduced impact on the environment throughout their whole life-cycle, as compared to comparable products/solutions.

18 Norway is the exception: all public projects use LCPProfit. Available at: http://www.lcprofit.com/default_en.asp

19 Davis Langdon (2007). Life cycle costing (LCC) as a contribution to sustainable construction: a common methodology. Available at: http://ec.europa.eu/enterprise/construction/compet/life_cycle_costing/final_report.pdf

Value for Money

The UK government has established that all public procurement should be based on value for money, defined as the “optimum combination of life cycle cost and quality (fitness for purpose) to meet the user’s requirement”⁶. A strong commitment to addressing climate change and sustainable development has resulted in the UK Government Sustainable Procurement Action Plan⁷ with a range of innovative policy measures such as the [19. Quick Wins](#) program. As the largest single procurer of buildings in the UK, the National Health Services has tested every type of building procurement system with mixed results; however [20. ProCure21](#), a recent innovation has delivered significant benefits. The Department of Defense has mandated sustainability appraisals for all projects and activities on the Defense estate since 2000, and as a result has developed award-winning sustainability projects.

The social cost of carbon (SCC) measures the full global cost today of an incremental unit of carbon (or equivalent amount of other greenhouse gases) emitted now, summing the full global cost of the damage it imposes over the whole of its time in the atmosphere²⁰. The SCC is used in decision-making, for example in a cost-benefit appraisal for a project or regulation. SCC differs from the carbon offset cost used by the BC Government in that it is a decision-making tool, it is not a real project or policy cost and the SCC is significantly higher than the offset cost and increases over time²¹. While it was initially developed in the UK, the US EPA has also been working on a SCC for the US context for use in policy development by US agencies²².

Relevant Policies or Instruments:

[4. Social Cost of Carbon \(UK\)](#)

20 DEFRA (2007). The Social Cost Of Carbon And The Shadow Price Of Carbon: What They Are, And How To Use Them In Economic Appraisal In The UK. Available at: <http://www.defra.gov.uk/environment/climatechange/research/carboncost/pdf/background.pdf>

21 DEFRA (2007). How to use the Shadow Price of Carbon in policy appraisal. Available at: www.defra.gov.uk/environment/climatechange/research/carboncost/pdf/HowtouseSPC.pdf

22 Communication with Will McDowall, National Round Table on the Environment and Economy. March, 2009

- h. Implement strategic and targeted incentives and regulations to shift both public and private sector performance. The provincial government pilots innovative incentive policies in its own operations prior to rolling them out across the market.

A feebate system has been proposed for Portland, Oregon financially penalising buildings with below-baseline performance and financially rewarding buildings with above-baseline performance, on a per square foot basis.²³ It includes commercial, multi-family, and single-family renovations and new construction. This measure could be initially implemented within the public sector through ARES and then rolled out to the private sector through a building code revision. The Forward Procurement Initiative in the UK identifies a sustainable procurement need and identifies a supplier who can develop a product to meet that need, stimulating innovation without a costly research and development program. Germany has successfully used targeted subsidies to develop leading industries around specific renewable energy technologies²⁴ such the second largest photovoltaics market in the world and this in spite of solar radiation levels lower than those in British Columbia²⁵. The most recent iteration of this policy is a requirement as of January 1, 2009 that all newly erected buildings in Germany cover part of their heating demand using renewable energy with fines of up to 500,000 euros [US \$739,000]²⁶.

Relevant Policies or Instruments:

- [5. High Performance Building Policy \(Portland, US\)](#)
- [6. Regulation for proportion of renewable energy sources of heating \(GER\)](#)
- [7. Forward Commitment Procurement \(UK\)](#)
- [8. 100,000 Roofs Program \(GER\)](#)

3. Innovative Financing Mechanisms

- i. Implement a strategy that enables investment in energy efficiency and renewable energy using the model of Salix Finance in the UK.

Salix Finance in the UK was set up in 2004 as a publicly-funded non-profit private company to move public sector energy efficiency investment from a marginal activity to the mainstream. It has been extremely successful, addressing key barriers within the public sector²⁷ with minimal staff resources. As a non-profit, Salix can work on an impartial basis with the public sector to develop long-term partnerships. Salix provides zero interest matching funding that is recycled at least three times within a public sector organisation. In this way, a \$250,000 investment is matched to become \$500,000 and recycled three times within the organisation, resulting in \$1.5 million worth of investments²⁸.

A second innovative strategy in the US is the Super Energy Savings Contracts, an umbrella policy and contract structure for the private sector to invest in energy savings in government assets (both existing buildings and new projects).

Relevant Policies or Instruments:

- [9. Salix Finance \(UK\)](#)
- [10. Super Energy Savings Contracts \(US\)](#)

- j. Create an entity with a similar role to that of the highly successful Carbon Trust in the UK with a mandate “to accelerate the move to a low carbon economy”.

The Carbon Trust in the UK works with organisations to reduce carbon emissions. The Carbon Trust’s support of low carbon innovations has encouraged the private sector to invest £2 for every £1 it has committed to its Innovation Programme and £10 for every £1 committed to its venture capital investments. It has worked with 12% of all companies over £500,000 in the UK and delivered

23 EcoNorthwest (2008). Economic Impacts of Portland’s High Performance Green Building Policy. Available at: <http://www.portlandonline.com/osd/index.cfm?c=45879&a=220900>

24 Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2007). EEG: The Renewable Energy Sources Act: The Success Story of Sustainable Policies for Germany. Available at: www.gtai.com/uploads/media/EEG_Brochure_01.pdf

25 Solar BC (2008). Solar in BC’s Climate. Accessed: <http://www.solarbc.ca/learn/solar-in-bcs-climate>

26 German Ministry of the Environment (2008). The Renewable Energies Heat Act in brief. Available at: http://www.erneuerbare-energien.de/files/pdfs/allgemein/application/pdf/ee_waermegesetz_fragen_en.pdf

27 Salix Finance (2007). Joint Committee on the Draft Climate Change Bill Written Evidence. Available at: <http://www.parliament.the-stationery-office.com/pa/jt200607/jtselect/jtclimate/170/170we59.htm>

28 Personal communication with Kevin McDonald, Business Development, Salix Finance, April, 2009.



emissions savings of between 1.2 million and 2.0 million tonnes in 2006-07.²⁹ While the UK Carbon Trust evaluates projects in terms of GHG emissions, the Pacific Carbon Trust could evaluate projects using a triple bottom line analysis including considerations like community economic development opportunities.

Relevant Policies or Instruments:

[11. Carbon Trust \(UK\)](#)

4. Building Labelling

- k. Benchmark the performance of public sector buildings against key public policy objectives. Establish a benchmarking system that tracks building performance against a range of criteria including energy efficiency, cost of lease or ownership, condition, and others.

Main Station Stuttgart, Germany, places the railway station underground to recover land to create a new urban area, combining structural and landscape aspects. Photo: Holcim Awards.

This analysis is a more comprehensive layer underlying the data represented Recommendation I. Building Labelling. It incorporates a number of benchmarks for example, around the quality and cost of leasing or owning the space as well as energy targets. The result of the benchmarking can be indexed into a single efficiency or effectiveness number. This number can then be used to target buildings for retrofit, sale or lease and will ultimately improve quality of space for government operations and services and reduce operating costs for government facilities.³⁰

Relevant Policies or Instruments:

- [12. Property Benchmarking Scheme \(UK\)](#)
- [13. Existing Building Assessment Tool \(USA\)](#)

- I. Develop a comprehensive building labeling strategy

²⁹ National Audit Office (2007). The Carbon Trust: Accelerating the move to a low carbon economy. Available at: http://www.nao.org.uk/publications/0708/the_carbon_trust_accelerating.aspx

³⁰ Office of Government Commerce (2007). High Performing Property Implementation Plan. Available at: <http://www.ogc.gov.uk/documents/CP0154HighPerformingPropertyImplementationPlan.pdf>

beginning with assets owned by the public sector, then expanding to buildings leased by the public sector and finally including the private sector.

The main rationale for government intervention of this type is that the market is failing to deliver cost-effective energy efficiency improvements to buildings at a fast enough rate to reduce the risk of climate change. The benefits of a building labeling strategy are expected to come from three areas. The first is improved resource management resulting from obtaining annual data. The second is increased accountability through the requirement to display a building label to the public. The third benefit will be from increased update of resource efficiency measures recommended through the labeling process. While this measure is relatively new in the UK, as the result of a European Directive, it has been standard practice in Germany since 2002 and has allowed Germany to establish and monitor energy saving requirements for buildings³¹.

Relevant Policies or Instruments:

- [14. Display Energy Certificates \(UK and GER\)](#)
- [15. Mandatory Building Labelling \(AUS\)](#)
- [16. Energy Efficiency in Government Operations \(EEGO\) \(AUS\)](#)

5. Triple Bottom Line Decision-making Tools

- m. Introduce a sustainability appraisal framework as the mechanism for evaluating policies and key decisions across government. Develop a standard and comprehensive methodology that addresses social, environmental and economic issues.

A sustainability appraisal is a tool that provides for the systematic identification and evaluation of the economic, social and environmental impacts of a government policy or major project. These appraisals should take a long-term view of the expected impacts of the policy

or project and form an integral part of all stages of plan preparation. The UK Ministry of Defense has developed and implemented sustainability appraisals as an obligatory part of its decision-making process since 2001³². Multi-criteria decision-making (Recommendation n.), the social cost of carbon (Recommendation g.) and lifecycle costing (Recommendation f.) would be components of the sustainability appraisal.

Relevant Policies or Instruments:

- [17. Sustainability Appraisal \(UK\)](#)

- n. Require multi-criteria decision-making analysis for all building projects as a key mechanism to evaluate sustainability at the schematic design and design development phases for building projects.

This is already included at the planning stage for new projects in BC, however it is recommended that there are mandatory criteria representative of the government's targets and that the design team is mandated to balance social, ecological and economic dimensions equally. Economic dimensions are evaluated according to life cycle costing- see Recommendation f. Sustainability is an inherently multi-dimensional concept and developing a comparable scale for the different social, ecological and economic dimensions involves subjective assumptions³³. Multi-criteria analysis allows the users to transparently weigh, rate and in some cases determine the criteria for a particular project and is therefore an analytical method compatible with sustainability³⁴.

Relevant Policies or Instruments:

- [18 Achieving Excellence Design Evaluation Toolkit \(UK\)](#)

31 Federal Office for Building and Regional Planning (2008). Implementation of the EPBD in Germany: Status and future Planning. Available at: http://www.buildingsplatform.eu/cms/index.php?id=118&publication_id=3143

32 Ministry of Defense (2003). The Sustainability Appraisal Handbook. Available at: <http://www.contracts.mod.uk/dc/pdfs/SustainabilityHandbk.pdf>

33 Stirling, Andrew (1999). The Appraisal of Sustainability: Some problems and possible responses. in Local Environment Vol.4, No. 2

34 AEDET is a good example of a multi-criteria analysis. National Health Services (2008). Achieving Excellence Design Evaluation Toolkit. Available at: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_082089

Appendix: Policy Measures and Instruments

1. Work is what you do, not a place you go (UK)	
SCOPE	Government estate.
POLICY OVERVIEW	Radical re-thinking of the government estate. Driven by expectations of citizens for high quality services, competition for the highest quality workforce and the combined challenges of climate change and dwindling supplies of fossil fuels. Work has migrated beyond the conventional boundaries of time and space into a wider environment and those who manage the government estate need to be prepared ⁵ . Themes include: <ol style="list-style-type: none"> new workstyles and ways of supporting them; communications; workplace as repository of identity and brand; and quality in design and procurement.
SUCCESS	The best practice was translated into efficiency standards that required the average space per person to be 10 square metres for new builds and between 10 and 12 square metres for refurbishments. The standard, however, allows the department to determine how that space will be allocated. Total dollar savings from reduced space were anticipated to be from 20 to 25%. Increased satisfaction of staff.
ANALYSIS	It is fundamental to analyse what the actual building needs are due to changing expectations and technologies. Reduced space requirements reduce energy consumption and greenhouse gas emissions and allow for increased quality.
LINK	http://www.ogc.gov.uk/transforming_government_workplaces_working_beyond_walls.asp

2. WorkPlace Matters (USA)	
SCOPE	General Services Administration of the USA study using research and pilot project results, and investigating how work is done in the US government.
POLICY OVERVIEW	Driven by the need to retain and recruit employees given their large retirement-aged workforce demographic, and the recognition that different generations of employees work in different ways. The WorkPlace program consists of four key elements: <p>Balanced Scorecard Approach: financial, business practices, customer, and human capital are considered in organizational assessments.</p> <p>Quantitative and Qualitative Discovery Toolkit: space planning based on both reported and observed work styles.</p> <p>Change Management: broad based inclusion of employees to both understand their perspectives and build consensus about future changes.</p> <p>Feedback Loop: use a plan, do, check, act cycle of ongoing feedback and improvement of systems and approaches.</p>
SUCCESS	This initiative reflects upon about 24 pilot projects, and uses the results of those pilots to provide a toolkit for others to help them rethink workplace design.
ANALYSIS	There are great potential synergies between the High Performance Building Policy objectives, as well as the focus on recruitment and retention issues within government. By rethinking workspace design to accommodate resource efficiency as well as demands of a different kind of labour force, multiple objectives can be met.
LINK	http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentId=22952&contentType=GSA_DOCUMENT&noc=T

3. A Common European Methodology for Life Cycle Costing (EU)	
SCOPE	Methodology designed to meet EU purchasing requirements for use throughout EU member countries.
POLICY OVERVIEW	In 2006 the European Commission appointed Davis Langdon from the UK to undertake a project to develop a common European methodology for Life Cycle Costing (LCC) in construction. Generally (with the exception of Norway) the use of LCC in construction is unregulated and, to a large extent, public guidelines generally do not exist. However the methodology is used for a wide range of projects.
SUCCESS	Life cycle costing is not yet standard practice in public procurement in the EU, with the exception of Norway, which mandates the use of LCC for public projects.
ANALYSIS	This strategy offers good potential to address some of the issues associated with defining how life-cycle costing is done for a project, as this was identified as a challenge in the existing Capital Asset Management Framework. By adopting a standard methodology, it allows projects to be consistently evaluated and reviewed using LCC.
LINK	http://ec.europa.eu/enterprise/construction/compet/life_cycle_costing/index_life_cycle_en.htm

4. Social Cost of Carbon (UK)	
SCOPE	Regulatory analysis, project analysis for the public sector.
POLICY OVERVIEW	The social cost of carbon (SCC) measures the full global cost today of an incremental unit of carbon emitted now, summing the full global cost of the damage it imposes over the whole of its time in the atmosphere. It is assigned a monetary value so it can be incorporated into economic analysis.
SUCCESS	Recommended since 2002 in the Treasury's Green Book, which is the UK's guidance on policy appraisal. Used in the cost-benefit appraisal of a range of programs, regulations and projects. US EPA has been developing a social cost of carbon and will be recommending a figure to the White House Office of Management and Budget.
ANALYSIS	The use of shadow carbon pricing will ensure all policies and regulations contribute to least-cost emissions reductions.
LINK	http://www.defra.gov.uk/environment/climatechange/research/carboncost/pdf/background.pdf

5. High Performance Building Policy (Portland, US)

SCOPE	Community-wide (public and private sector) policy regulating commercial, multifamily residential and single family residential for both new construction and existing buildings. Policy in final stages of approval by City Council.
POLICY OVERVIEW	Uses a feebate model, where conventional construction pays additional per square foot fees, projects with some environmental attributes are cost neutral, and projects with significant environmental attributes receive a rebate. Feebate applies to new commercial and multifamily residential projects upon policy implementation, and other project types are phased in over time as clearly described in the policy.
SUCCESS	This policy is in the final stage of being adopted, thus the effects are as yet unknown.
ANALYSIS	In the shorter term, a feebate model could be used by ARES and development partners for providing government accommodations, both new construction and leased projects. In the longer term, future code revisions could consider a feebate model that would allow more conventional practice, while providing a financial incentive for greener building practice.
LINK	http://www.portlandonline.com/osd/index.cfm?c=ry5879&

6. Regulation for proportion of renewable energy sources of heating (GER)

SCOPE	Legislation enforcing a shift towards renewable energies in building of new public and private buildings
POLICY OVERVIEW	As of January 1, 2009 new buildings in Germany must use renewable energies for their heat requirements. Private individuals, the state and businesses are subject to this regulation. All forms of renewable energy, or combinations of them, can be used. Renewable energies include solar thermal, photovoltaics, geothermal energy, passive solar and biomass.
SUCCESS	This policy has just been adopted, thus the effects are as yet unknown.
ANALYSIS	This is a highly aggressive strategy that could achieve significant greenhouse gas reductions in both the public- and private sector in BC, and could also support the creation of a robust renewable energy technology development, supply and installation industry in the province.
LINK	http://www.bmu.de/english/renewable_energy/downloads/doc/42351.php

7. Forward Commitment Procurement (UK)	
SCOPE	Any UK government department can submit a proposal for a particular need to the Department for Innovation, Universities and Skills, who will coordinate a forward commitment procurement.
POLICY OVERVIEW	Involves identifying a product need and making a commitment to a supplier to purchase at a set rate and time. The mechanism requires no additional funding, and delivers better, cheaper, more sustainable solutions. Focus is on outcomes rather than products.
SUCCESS	Office of Government Commerce piloted this program with the Prison Service. They identified a need for a zero waste mattress to address a waste load of approximately 40,000 mattresses per year. They used the FCP system, to create a Zero Waste Prison Mattress System. The success of the pilot has led to a permanent office to facilitate the process.
ANALYSIS	Highly cost effective mechanism to stimulate innovation for real needs. Contrasts with conventional R&D strategies that provide research funding for potential needs.
LINK	http://www.berr.gov.uk/files/file35312.pdf

8. 100,000 Roofs Program (GER)	
SCOPE	National, both public and private sectors.
POLICY OVERVIEW	First stage ran from January 1999 to June 2003, providing low-interest or interest free loans for photovoltaics in Germany. Subsequent versions targeted solar hot water and biomass. Total loans of about €300 million resulted in 100,000 new facilities installed, with an output of approx. 350 MW per annum. As a result the cost of photovoltaics has decreased at a rate of approximately 5-7% per year since 1999. The program also stimulated €2.1billion in private investment. After the program market growth was expected to continue at least 150 MW per annum.
SUCCESS	Created a viable German industry and decreased dependence on imports. Within five years, Germany has become the largest PV market in Europe and the second largest in the world after Japan, supporting 11,000 jobs. Proves that a subsidy program with clearly defined timescales can help to overcome psychological barriers to green technology uptake.
ANALYSIS	Although PV may not be the most appropriate technology in BC, other green technologies and products could be the subject of a similar incentive program, like solar hot water systems, geothermal, and tidal energy generation. Highlights the ability of government to target specific technologies and to develop both a market and an industry around that technology.
LINK	http://www.ahk.org.br/upload_arq/DENA.pdf

9. Salix Finance (UK)	
SCOPE	Operates across the public sector.
POLICY OVERVIEW	Independent, not-for-profit company set up by the Carbon Trust in 2004 as an integral part of the UK's Climate Change Program. Today has less than 20 employees. Designed specifically to address the challenge of accessing public sector investment capital for investments in energy efficiency, as well as annual financing rules. Salix stimulates investment by establishing ring-fenced, interest-free funds matched by the public sector. The funds are unique in that they recycle savings back to the organisation. The commercial banking community was unwilling to commit to investing on similar terms without Government guarantees that would have negated much of the benefit that the Salix model provides. Funding typically ranges from between £100k and £500k, targeted at cost-effective projects with longevity and CO2 impact. Projects must comply with either of the following criteria: Payback period of 5 years or less which costs less than £100 per tonne lifetime carbon saved; Payback period of 7.5 years or less with a cost of less than £50 per tonne lifetime carbon saved.
SUCCESS	Rapidly expanding programs across the public sector, including hospitals, universities and central government buildings. <i>"Salix Finance is an organisation that is punching well above its weight in the campaign to reduce public sector carbon emissions. With just a four year track record it has jointly funded 1400 projects in the public sector bringing lifetime carbon savings of 315,000 kilotonnes. It is involved in energy efficiency projects worth over £100 million."</i> ⁸
ANALYSIS	Appropriate for the BC government, and addresses similar issues faced in BC: difficulty of accessing capital for retrofits or energy investments in new projects; and multi-year payback difficult to fit into annual budget cycle. A highly effective mechanism that bypasses traditional financial and government silos to enable the public sector to maximise energy savings and minimise the administrative burden by creating standardised protocols.
LINK	http://www.salixfinance.co.uk/home.html

10. Super Energy Savings Contracts (US)	
SCOPE	Across the public sector of the US government, worldwide.
POLICY OVERVIEW	The General Services Administration entered into infinite delivery, infinite quantity contracts (including general terms) with ESCOs who demonstrated their abilities to provide services to their client departments. This allows them to access capital for energy projects without up front capital costs or need for special Congressional appropriations of funds. Template documents for contracts, case studies, relevant legislation and regulations and the list of qualified ESCOs, along with the pre-screening of qualified companies, greatly streamlines the process.
SUCCESS	More than 460 projects have been awarded by 19 different federal agencies. About \$2.3 billion has been invested in federal facilities through this mechanism, saving over 18 trillion BTU annually. GSA staff felt that these projects would not have happened without the utilization of an ESCO mechanism due to the inability to access funds for the energy efficiency retrofits.
ANALYSIS	Great potential to assist the BC Government with moving existing building stock toward energy efficiency and carbon neutrality without requiring access to additional public funds. Use as an interim measure until a government owned ESCO (like Salix Finance) comes on-line, which should be the longer-term objective in order to keep more public dollars within the public sector.
LINK	http://www1.eere.energy.gov/femp/financing/superespcs.html

11. Carbon Trust (UK)	
SCOPE	Both public and private sector.
POLICY OVERVIEW	Aim is to accelerate the transition to a low carbon economy by helping organisations reduce their current carbon dioxide emissions and by developing commercial low carbon technologies. Established in 2001 as a publicly-owned private company, the Carbon Trust can work with any sector of the economy by bypassing typical departmental boundaries and regulations. Received £77.1 million in funding from the Department for Environment, Food and Rural Affairs in 2006-07, plus £23.1 million from the Department for Business, Enterprise and Regulatory Reform and the devolved administrations.
SUCCESS	The advice and financial support for measures to reduce carbon dioxide provided by the Carbon Trust has resulted in estimated reductions of carbon dioxide emissions of between 1.2 million and 2.0 million tonnes, equivalent to a projected net financial saving of between £222 million and £359 million in future reduced energy costs since it began in 2001. Its work supporting the development of low carbon technology up to March 2007 could lead to an estimated annual reduction of between 13.7 million and 20.7 million tonnes of carbon dioxide by 2050.
ANALYSIS	A highly effective mechanism for reducing greenhouse gas emissions in the UK; the Pacific Carbon Trust could play a similar role in BC
LINK	http://www.carbontrust.co.uk/

12. Property Benchmarking Scheme (UK)	
SCOPE	Public buildings leased and owned.
POLICY OVERVIEW	Consolidates social, environmental and economic factors into a single framework to enable integrated decision-making. Buildings can be examined by location, by size of building, by number of employees and by tenure. They can compare costs, space and effectiveness indicators for all key buildings or across all buildings. The measures are assessed in an effectiveness index, and include: kWh/m ² /year; solid waste; recycled materials; water use/FTE; management practices; health and safety; condition; functional suitability; workplace environment; facilities; and downtime.
SUCCESS	The Office of Government Commerce initially piloted the scheme on 130 buildings over four departments. The success of the pilot project resulted in an expansion of the project to 375 buildings from 31 departments in 2006, a total of 1,370,000 m ² with operating costs of £551 million. While the scheme is data-intense, the information has proven to be valuable in the strategic management of the government estate.
ANALYSIS	The information system used can be deployed in the BC context to both leased and owned buildings- it will help inform future design decisions as well as strategies for increasing the efficiency of public sector buildings.
LINK	http://www.ogc.gov.uk/documents/OGC_Property_Benchmarking_2006_report.pdf

13. Existing Building Assessment Tool (USA) Sustainable Facility Checklist (USA) High Performance and Sustainable Buildings Assessment Tool (USA)	
SCOPE	Department of Health and Human Services, Environmental Protection Agency, and Department of Environment tools to use for their existing building stock, both owned and leased.
POLICY OVERVIEW	These are three different tools created in response to meeting the Guiding Principles ¹⁰ from their key high performance building policy drivers: Executive Order 13423 and the Energy Independence and Security Act of 2007. They use slightly different approaches to assess, measure and monitor performance as well as to prioritize projects to undertake in both owned and leased facilities in order to become compliant with the Guiding Principles.
SUCCESS	The Memorandum of Understanding that laid out the Guiding Principles was signed in January 2006, and Departments are required to report annually to the Office of Management and Budget on their achievement of the Guiding Principles using a high-level scorecard format. Actual results from the policy, and these implementation tools, are not yet available and with a changing regulatory climate in the US this may not occur.
ANALYSIS	A useful triple bottom line decision making tool that could be redesigned to correspond to the High Performance Building Policy and issued for use to all client groups within the Provincial government. Will help the BC government assess and prioritize actions to take in existing owned assets.
LINK	Downloads to all three tools are available here: http://www1.eere.energy.gov/femp/controlledaccess/sustainable_eo13423.html

14. Display Energy Certificates (UK and GER)	
SCOPE	Buildings with a total useful floor area of over 1000m ² that are occupied by a public authority, and by institutions providing a public service to a large number of persons and therefore visited by those persons are included in the policy.
POLICY OVERVIEW	<p>UK- By October 2008, buildings included in the policy must display a DEC showing an Operational Rating in a prominent place clearly visible to the public (valid for one year). An energy assessor is commissioned to produce a DEC and an advisory report, and this information is provided to the accreditation body and posted on the government's register as well as to the building occupant. There are three main steps to performing the assessment:</p> <p>gathering the relevant information (dimensions, energy meter readings and building energy services); entering the information into an approved software (OR Methodology) program; and producing the certificate and the advisory report for the building.</p> <p>GER- On or after the 1st of July 2008, the Energy Savings Act requires that an energy performance certificate must be made available when selling, renting or leasing a residential building built in 1965 or earlier. The energy performance certificate is compulsory for new residential buildings from the 1st of January 2009 and for non-residential buildings from the 1st of July 2009.</p>
SUCCESS	<p>UK- As of 23 October 2008, 49.5% of central government buildings requiring a DEC had obtained one, with plans in place for remaining buildings to have DEC's by 4 January 2009. Of those that had a DEC, 59% of the Operational Ratings fell below the benchmark of 100 which is the performance relative to the average energy performance for a category of building of its type.</p> <p>GER- No information</p>
ANALYSIS	The labels in the building increase accountability for energy performance and create a feedback loop, which encourages performance improvements. The BC government could easily commit to undertake this type of measure for its owned assets.
LINK	<p>UK- http://www.communities.gov.uk/planningandbuilding/theenvironment/energyperformance/publiccommercialbuildings/displayenergycertificates/</p> <p>GER- http://www.zukunft-haus.info/en/energy-certificate.html</p>

15. Mandatory Building Labelling (AUS)	
SCOPE	A building labeling strategy for office buildings for sale or lease to all prospective buyers or tenants, and corporations that own or lease these buildings if they are more than 2,000 m2 net lettable area.
POLICY OVERVIEW	<p>This is a new policy initiative that is in the final stages of approval, and will govern all commercial office space in Australia through requiring disclosure of a building, or building portion that is tenanted or sub-leased in the following areas:</p> <ul style="list-style-type: none"> -Star rating (Australian building labeling system, similar to LEED in its application) -building energy efficiency certificate -energy efficiency assessment report. <p>Voluntary disclosure by non-constitutional corporations is also encouraged. A Consultation Regulation Impact Statement was also prepared by an independent firm to provide analysis of the financial and other impacts anticipated to result from policy implementation.</p>
SUCCESS	This is an innovative measure in the final stages of policy approval, thus success is not yet known.
ANALYSIS	Interesting later-stage strategy to consider implementing in BC. The first stage would be for the BC government to require more consistent performance (energy, water, indoor environmental quality, waste management) and disclosure on leased space (like the Australian governments' green lease schedule) in order to begin shifting the market through public sector leadership. Once this mechanism has been implemented, these labeling or disclosure requirements could be extended out to the whole sector providing office space and potentially also include additional building types.
LINK	commercialbuildings@environment.gov.au http://www.environment.gov.au/settlements/energyefficiency/buildings/consultation.html

16. Energy Efficiency in Government Operations (EEGO) (AUS)	
SCOPE	Public sector agencies, country-wide. Includes the Green Lease Schedule (GLS), which governs leased spaces.
POLICY OVERVIEW	Is a proactive management framework enabling agencies to identify, monitor and manage their energy consumption by specifying minimum energy performance standards in contracts, leases, and other relevant documentation for new buildings, major renovations and new leases over 2,000 m2. Energy intensity portfolio targets are updated regularly, and training resources are provided in order to assist people with implementation. The Australian Building Greenhouse Rating (ABGR) is the assessment tool used to track and report on energy use. The GLS includes five standard clauses: 4.5 stars on ABGR energy performance; separate metering; a building management committee; an energy management plan; and disputes and remedies clauses.
SUCCESS	EEGO was implemented in 2006. The GLS has streamlined green leasing by making the requirements the same of all potential landlords to the Australian government, thus leveling the playing field and streamlining contractual and legal issues around leasing. Energy is managed for new projects, renovations and leases in an ongoing way (not only at time of purchase, lease or renovation work) thus addressing ongoing operational efficiency issues, which has previously been difficult to manage. A mid-term policy review is currently underway, and will be available in June 2009. Reports on energy savings from governments' own operations are available, starting in 1997, at the second web link below.
ANALYSIS	The GLS could simplify the BC Governments' leasing activities by requiring all potential landlords to meet certain requirements in their space. These can be made more stringent over time if clearly mapped out from the beginning (eg. Set performance targets out several years so building owners can work toward meeting them in a cost-effective way). This is also a great mechanism to shift other building owners and organizations that lease large amounts of space to undertake similar initiatives.
LINK	http://www.environment.gov.au/settlements/government/eego/index.html http://www.environment.gov.au/settlements/government/eego/energyuse/index.html

17. Sustainability Appraisal (UK)	
SCOPE	UK Defense Estate; requirement for any new projects or policies.
POLICY OVERVIEW	Initial, high-level 'screen' to clarify issues and topics requiring further assessment. The screen includes a checklist and evaluation process designed to assess performance against sustainability objectives. UK Defense requires an appraisal for all policies, programs, projects, activities and other decisions are evaluated at an early stage. Includes a triple bottom line rating system.
SUCCESS	Has been successful at building an understanding of sustainability across the department. Has resulted in winning sustainability awards: Aspire Defence won awards for the 'Best Sustainability Initiative in the Public Sector' and 'Best Sustainable Development of the Year' for a major housing project; International Green Apple Awards for 'Environmental Best Practice' for the reduced carbon footprint that has been achieved by using modular construction rather than traditional methods.
ANALYSIS	The BC Government could require that all policies and project require an explicit sustainability appraisal integrating social, ecological and economic factors into a single analysis.
LINK	http://www.contracts.mod.uk/dc/pdfs/SustainabilityHandbk.pdf

18. Achieving Excellence Design Evaluation Toolkit (UK)	
SCOPE	Used in the design process of National Health Services projects.
POLICY OVERVIEW	AEDET is a tool for evaluating the quality of design in both new and existing healthcare buildings. Healthcare building design frequently involves complex concepts that are difficult to measure and evaluate, in addition to broad government goals for building performance. The benchmarking system allows both weighting and scoring of each aspect. The resulting chart allows the users to easily evaluate the performance of the building.
SUCCESS	AEDET is used extensively as a component of the procurement system. However there has been no evaluation of its effectiveness that we encountered.
ANALYSIS	This methodology is an effective and understandable mechanism that can be used to evaluate building design. Can be used as is in BC for the health care facilities, however to increase its applicability to other sectors and building types a modified version could be developed that addressed the BC context and targets. The tool could then be integrated into the procurement, project evaluation and funding process and project management systems and could be added to CAMF.
LINK	http://www.dh.gov.uk/en/Procurementandproposals/Publicprivatepartnership/Privatefinanceinitiative/InvestmentGuidanceRouteMap/DH_4132945

19. Quick Wins (UK)	
SCOPE	Mandatory across the public sector.
POLICY OVERVIEW	A set of minimum environmental standards to which commonly purchased products must conform. Covers a range of goods including IT equipment, white goods, paper and construction materials and relates to characteristics such as energy consumption, recycled content and biodegradability. Each standard has two levels - a lower mandatory standard, and a more stretching 'best practice' standard.
SUCCESS	A 2007 review of uptake found more than half of the projects in the analysed sample used Quick Wins for indoor wall paints and energy efficient white goods. Since then, improvements have been made to the website and purchasing systems.
ANALYSIS	Current sustainable purchasing practices within the BC government could be extended to include building construction and maintenance materials and systems. This is a simple and easily implementable strategy to improve sustainable procurement practices.
LINK	http://www.defra.gov.uk/sustainable/government/what/priority/consumption-production/quickWins/index.htm

20. ProCure 21 (UK)	
SCOPE	Used by local owners of hospitals as part of a standardised procurement system used by the National Health Services.
POLICY OVERVIEW	Procurement system designed to support local health trusts that have limited procurement experience and capacity in developing a health care facility. Pre-selects supply chain partners, usually a consortium of design and construction companies, compliant with the EU's rules relating to public procurement. Health care facility selects a supply chain partner and then agrees upon a guaranteed maximum price, working to agreed margins with full open book accounting procedures. Comprehensive and ongoing benchmarking for performance enables tracking of both cost and quality and transfers experience from one project to another across all the supply chains using a common database. National Health Service is currently has a second program in development called ProCure 21+, building on the experience of ProCure21.
SUCCESS	Of the 200 health care facilities delivered through ProCure21's £2.4bn program, 94% were on time and 89% on budget. Overcomes the adversarial approach to construction and leads to rapid conflict resolution. To date there has been no litigation on any ProCure21 scheme.
ANALYSIS	Can be used in the BC context to support the construction of high performance buildings, particularly within the school, university, college and health sectors. ARES could undertake the pre-selection and ongoing evaluation of companies and contractors to ensure capacity to meet High Performance Building Policy requirements.
LINK	http://www.nhs-procure21.gov.uk