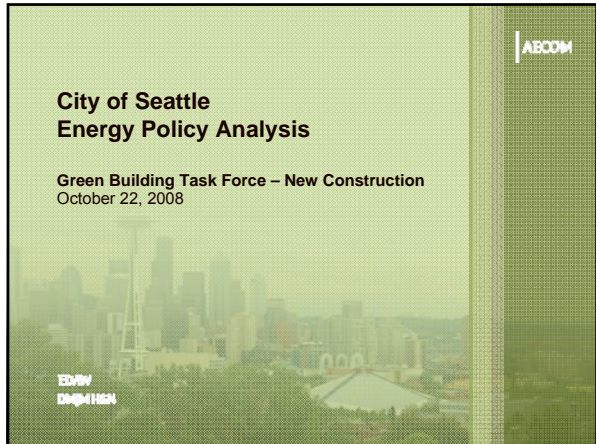


ARCOM

City of Seattle Energy Policy Analysis

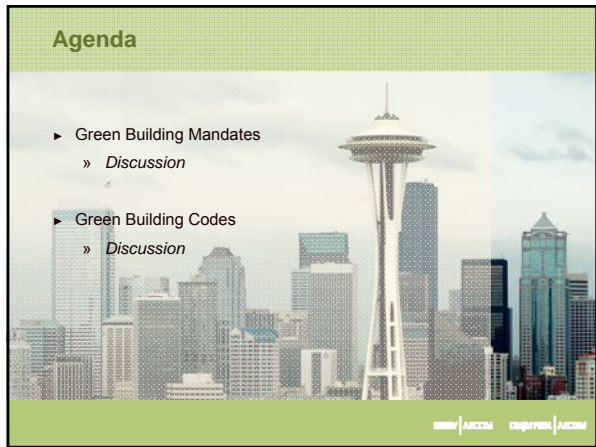
Green Building Task Force – New Construction
October 22, 2008

EMW
D&P/H&M



Agenda

- ▶ Green Building Mandates
 - » Discussion
- ▶ Green Building Codes
 - » Discussion



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Green Building Mandates

- ▶ Current Policy in Seattle
- ▶ Case Studies
 - » San Francisco Green Building Ordinance
 - » Washington DC Green Building Mandates



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Green Building Mandates

Current Policy in Seattle

- ▶ **Objective:** To improve the performance of all newly constructed and refurbished City-owned facilities over 5,000 sq ft.
- ▶ **Project Performance Threshold:** LEED® Silver
- ▶ **Geographic Focus:** City of Seattle



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Green Building Mandates

Policy in San Francisco - Green Building Ordinance

- ▶ **Objective:** Similar to Seattle, but more comprehensive as it incorporates sustainability requirements for commercial buildings over 5,000 sq ft and residential buildings including single family residences.
- ▶ **Geographic Focus:** City and County of San Francisco
- ▶ **Project Performance Threshold**
 - » Currently all new and refurbished Commercial Buildings > 25,000 sq ft must achieve a minimum of LEED® Certified rising to Silver in 2009.
 - » Residential program utilizes GreenPoint Rating Scheme:
 - › Hi-Rise Residential: Currently 50, rising to 75 point minimum in 2010
 - › Single Family Homes: 25 points in 2009 rising to 75 point minimum in 2012
- ▶ **Enforcement: Certified or Certifiable**
 - » Commercial Buildings are certified through USGBC
 - » Residential Green Point Rating Scheme is a self certification scheme.



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Green Building Mandates

Policy in Washington DC - Green Building Mandates

- ▶ **Objective:** Similar to Seattle, but is becoming more comprehensive as of 2012 when it incorporates commercial buildings over 50,000 sq ft.
- ▶ **Geographic Focus:** Washington DC
- ▶ **Project Performance Threshold**
 - » Currently all new and refurbished private buildings > 50,000 sq ft must submit a green building checklist.
 - » From 2012 private projects > 50,000 sq ft must be LEED Certified.
 - » Residential program utilizes Green Communities Standards:
 - › Affordable Housing > 10,000 sq ft must meet Green Communities Standards
- ▶ **Enforcement: Certified or Certifiable**
 - » Commercial Buildings must be certified through USGBC
 - » Green Communities Standards are self certified but will be party to additional city review





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Green Building Mandates

Energy Efficiency Potential ★★★★

- ▶ **Energy Savings Potential:**
 - » Impact on energy users is dependent on the level of certification required by the policy
 - » The policy may exclude single family or smaller residences due to restrictions under Washington State law which would reduce its scope.
- ▶ **Energy Savings:** ~ 1,300,000 – 1,600,000 MWhr
- ▶ **2030 Targets**
 - » Specific energy performance credits and/or local sustainability criteria could be used as additional prerequisites to further boost the potential benefit
 - » Enforcement of policy adoption over time will also be important





Green Building Mandates

Economic Impacts ★★★★

- ▶ **Substantial job creation**
 - » Green Building Professionals; Mandate Enforcement Auditors; Commissioning Professionals
 - » Sufficiently stringent requirements would force a wholesale move towards citywide green construction practices.
- ▶ **Policy Enforcement**
 - » Frequently overlooked but critical to the success of any mandate program.
- ▶ **Policy Stringency**
 - » Overly stringent policy could adversely affect both new construction and existing building market.







Green Building Mandates

Cost of Policy Implementation ★★★

- ▶ **Cost to City:** Highly dependent on selected baseline
 - » Adopting a 3rd party rating scheme such as LEED® reduces need for City funded training and review.
 - » Developing an internal standard as the baseline would require City to absorb more costs – the advantages of using a 3rd party system are diminished.
 - » Certified vs. Certifiable would affect ongoing administration costs.
- ▶ **Cost to Developer:** Compliance with a green building rating system will increase initial costs to developers
 - » Approximately 2-3% of project cost to meet threshold building performance standards
- ▶ **Performance bond:** Could be used to fund green building policy development and education and outreach activities





Green Building Mandates

Cost Effectiveness ★★★★

- ▶ **Direct City Benefit Cost -23**
(\$23.00 of energy savings per \$1.00 of program costs to the city)
- ▶ **Net Benefit Cost -0.2**
(\$0.20 of benefits for every \$1.00 of costs to the city and developer)
 - » Low due to the financial investment required by the developers to comply with the standard
 - » The financial burden will mainly be on smaller projects where LEED certification is not already being sought.
 - » Little corresponding benefit to the developer in terms of additional rents or offset costs
- ▶ **Cost per MWhr Saved - \$2.05**

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Green Building Mandates

Administrative Feasibility ★★★

- ▶ **Project Initiation and Implementation:** Programmatic infrastructure and experience exist and could be extended to cover additional programs.
 - » A Green Building Policy already exists that requires public buildings > 5,000 sq ft achieve a minimum of LEED® Silver.
 - » Extending the policy would require analysis of conflicts with current Seattle codes.
 - » Administrative effort will be driven by decision of whether buildings need to be "Certified" or "Certifiable".
 - » Provides a flexible framework within which Seattle can define additional pre-requisites.
- ▶ **Administrative capacity:**
 - » Seattle already has staff trained in LEED® and Green Matrix

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Green Building Mandates

Stakeholder Impacts

- ▶ If the policy is phased in gradually, the impact on the development community will be mitigated.
- ▶ Phasing would allow for building and construction industry to adapt to regulatory environment without excessive costs of compliance.
- ▶ Phasing would also allow the City to tackle the low hanging fruit while developing a more stringent requirement

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Green Building Mandates

Policy Scorecard

SUMMARY RATINGS (***** = best/most feasible)

ENERGY EFFICIENCY POTENTIAL	*****	COST EFFECTIVENESS	*****
ECONOMIC BENEFIT	*****	ADMINISTRATIVE FEASIBILITY	****
COST OF IMPLEMENTATION	****		

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Green Building Mandates

Lessons Learned

- ▶ **PROS**
 - » Cost effective policy – low program costs for the energy savings and financial benefits.
- ▶ **CONS**
 - » A mandate based program can place a relatively large financial burden on smaller projects, therefore a reasonable minimum threshold size requirement should be used exclude small projects. Additional resources or staffing requirements may be needed to implement the policy.
 - » May require stringent enforcement mechanism if using “certifiable” strategy.

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Green Building Mandates

Recommendations to Consider

- ▶ Consideration must be given between the benefits of a mandatory green performance standard rather than direct code updates
- ▶ A task force approach has been key to the successful implementation of existing mandate based policies in other jurisdictions.
- ▶ Target of policy – what type/size of development should the policy target?
 - » Less costly disclosure/compliance mechanisms should be made available to smaller buildings.
- ▶ Need to ensure early stakeholder involvement.
- ▶ A phased increase in minimum requirements will reduce market resistance.
- ▶ Need to determine whether to require “certified” or “certifiable” or a combination of the two.
- ▶ Consider use of existing 3rd party framework (LEED®, Green Globes etc) as basis, with the potential for increased level of prerequisites.
- ▶ Consider use of a performance bond to both fund the program and incentivize developer to comply.

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Green Building Mandates

Discussion

- ▶ What aspects of a uniform, mandatory approach like this appeals or doesn't appeal to you?
- ▶ How would this policy specifically impact:
 - » Multi-family sector
 - » Commercial sector
 - » Low income community groups
- ▶ Does this do "enough" to make a difference in achieving our energy efficiency goals for new buildings and major renovations? If not, what could be changed to make this policy more effective?
- ▶ What other thoughts, comments, ideas do you have on these policy options?

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Green Building Codes

- ▶ California Green Building Code
- ▶ ASHRAE 189.1 Green Building Code



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Green Building Codes

Current Policy in Seattle

- ▶ There is no current comprehensive Green Building Code implemented within Seattle



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Green Building Codes

ASHRAE 189.1 Green Building Code

- ▶ **Objective:** To provide a national Green Building Code that can be adopted by individual States or Cities as the basis of their local Green Building Code
- ▶ **Geographic Focus:** National
- ▶ **Development Process:**
 - » Currently under development though the ASHRAE 189.1 was recently disbanded .
 - » It is hoped the project will be revived shortly though a final date for publication is currently unknown.
- ▶ **Project Performance Threshold**
 - » No specific energy requirements
 - » Compliance is deemed to be equivalent to LEED® Certified.
- ▶ **Enforcement:** Requires individual States or Cities to implement enforcement.







Green Building Codes

California Green Building Code

- ▶ **Objective:** Provide voluntary standard that provides comprehensive green building standards for adoption by individual AHJs.
- ▶ **Geographic Focus:** State of California
- ▶ **Development Process:**
 - » Deliberately used LEED® as basis
 - » Limited stakeholder involvement as currently is a voluntary standard.
 - » Future developments likely to be based on ASHRAE 189.1
- ▶ **Project Performance Threshold**
 - » Compliance is approximately equivalent to LEED® Silver
 - » A minimum of 15% is designed to be achieved
- ▶ **Enforcement:**
 - » The standard requires enforcement by individual AHJs.








Green Building Codes

Energy Efficiency Potential ★★★★★

- ▶ **Energy Savings Potential**
 - » Long term energy savings potential is high
 - » Overall impact on energy efficiency is dependent upon the level of stringency in the mandatory requirements
 - » Specific energy reduction targets could be provided to comply with 2030 Challenge goals
 - » Where green building codes include energy codes the same standards may be applied to both; thus yielding equivalent energy savings
 - » **Energy Savings:** ~ 1,600,000 – 1,900,000 MWhr
- ▶ **Applicability to 2030 Challenge Targets:**
 - » Stipulate requirement for performance based energy compliance route
 - » Stipulate mandatory energy performance requirements



Green Building Codes

Economic Impacts ★★★★★

- ▶ **Excellent potential for job creation**
 - » Mandatory green building code would force a wholesale shift towards green building
- ▶ **Policy Enforcement**
 - » Enforcement is critical to success of a Green Building Code
 - » Strong policy enforcement in Seattle could lead to the creation of green building inspection and enforcement jobs
- ▶ **Policy stringency**
 - » Overly stringent policy could negatively impact the real estate market




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Green Building Codes

Cost of Policy Implementation ★★★

- ▶ **Cost to City**
 - » Cost to City will be dependent upon the level of amendments that are required to existing codes.
 - » Initial Seattle analysis indicated this may be a significant undertaking.
 - » Additional staff may be required to meet the increased administration and implementation workload
- ▶ **Cost to Developer**
 - » Cost to developer associated with complying with the comprehensive Green Building standards.
 - » Compliance anticipated to increase construction costs by 2 – 3%



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Green Building Codes

Cost Effectiveness ★★★

- ▶ **Strategy is cost effective for the City, though developers will experience some financial burden in complying with the code**
- ▶ **Direct City Benefit Cost -9**
(\$9.00 of energy savings per \$1.00 of program costs to the city)
- ▶ **Net Benefit Cost -0.2**
(\$0.20 of benefits for every \$1.00 of costs to the city and developer)
 - » Low due to the financial investment required by the developers to comply with the standard
 - » Little corresponding benefit to the developer in terms of additional rents or offset costs
- ▶ **Cost per MWhr Saved - \$5.10**

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Green Building Codes

Administrative Feasibility ★★★

- ▶ **Use of an externally developed Green Building Code**
 - » Implementing a 3rd party standard would reduce the development costs compared to an 'in house code'
 - » ASHRAE 189.1 is likely to be considered the national baseline for entities developing future Green Building Codes (*no date available for its publication*)
- ▶ **Detailed Review of existing Standards prior to implementation**
 - » Undertake a comprehensive review of any 3rd party standard used as the basis of any Green Building Codes to ensure compatibility with existing codes
 - » Washington State building standards may conflict with green building code requirements which may limit the scope of the proposed standard
 - » The administrative burden on the City would be significantly eased were the State to adopt a green building standard within its codes

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Green Building Codes

Stakeholder Impacts

- ▶ **Industry opposition of specific standards within the Green Building Code**
 - » The construction industry should be involved in code development to minimize opposition to implementation
 - » Small commercial and multi family residential developers are likely to be impacted more than larger commercial developers
 - » Phased implementation could be used to minimize initial burden on developer
- ▶ **Design Community**
 - » Would need to be on board with code requirements in order that they could be prepared for the implementation of a holistic green building code.

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Green Building Codes

Policy Scorecard

SUMMARY RATINGS (★★★★★ = best/most feasible)


ENERGY EFFICIENCY POTENTIAL	★★★★★	COST EFFECTIVENESS	★★★★
ECONOMIC BENEFIT	★★★★★	ADMINISTRATIVE FEASIBILITY	★★★
COST OF IMPLEMENTATION	★★★		

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Green Building Codes

Lessons Learned


- ▶ **PROS**
 - » Overall cost effectiveness of policy to the City – low program costs for the energy savings potential, though potentially high costs to developer.
 - » Would be a key driver in a wholesale move towards green building in the City
 - » Provides flexibility as the City is in control of content and criteria
- ▶ **CONS**
 - » Existing Seattle Building Standards would need to be reviewed and updated to incorporate Green Building Code requirements
 - » Upfront loaded costs associated with code integration



Green Building Codes

Recommendations to Consider


- ▶ Stringency of building requirements and the associated level of financial burden to impose on the developer industry?
- ▶ Should mandatory requirements be phased to reduce the economic / administrative burden on the City & developer?
- ▶ Will policy requirements contradict with State building code requirements? Should a green building code be adopted at State level prior to local implementation?
- ▶ If achieving exemplary green building performance is required across the board for all construction, how would the City continue to promote the development of truly exceptional buildings to drive innovation?
- ▶ Suggestions for improvements to the Washington State Codes end on March, 31 2008 (for the next 3-year cycle) therefore changes which may be affected by state policy should be submitted before this date.



Green Building Codes

Discussion

- ▶ What aspects of a uniform, mandatory approach like this appeals or doesn't appeal to you?
- ▶ How would this policy specifically impact:
 - » Multi-family sector
 - » Commercial sector
 - » Low income community groups
- ▶ Does this do "enough" to make a difference in achieving our energy efficiency goals for new buildings and major renovations? If not, what could be changed to make this policy more effective?
- ▶ What other thoughts, comments, ideas do you have on these policy options?



Green Building Mandates and Codes

Summary

- ▶ Both have significant energy savings potential
- ▶ Using an externally developed 3rd party standard as the baseline reduces the implementation cost and schedule
- ▶ Green Building Codes achieve success by requiring compliance
- ▶ Green Building Mandates achieve success by penalizing non-performance
- ▶ Both require a task force approach with significant industry involvement to be successful
- ▶ Enforcement is key to both and has been frequently overlooked by other municipalities
- ▶ Both policy options could be funded by developer performance bond requirements

ENERGY EFFICIENCY | COST EFFECTIVENESS | ADMINISTRATIVE FEASIBILITY

Summary of Policy Scorecards

SUMMARY POLICY SCORECARD		Energy Efficiency Potential	Economic Impacts	Cost of Policy Implementation Rating (1-5)	Cost Effectiveness	Administrative Feasibility
Financing and Incentives	Green Investment Fund	*	*	**	*	***
	Green Building Feebate	***	***	***	**	***
	Density Bonus	**	***	***	*****	***
	Priority Green Permitting	**	**	***	**	***
Mandates	Green Building Performance Standards	****	****	***	****	***
	Green Building Code	*****	*****	***	***	***
	Energy Code Updates					

ENERGY EFFICIENCY | COST EFFECTIVENESS | ADMINISTRATIVE FEASIBILITY
