

## City of Seattle Green Building Task Force



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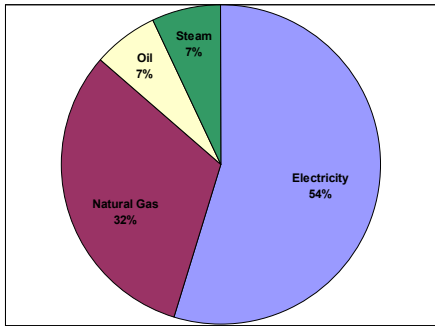
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## 2005 Seattle Residential and Commercial Building Energy Use



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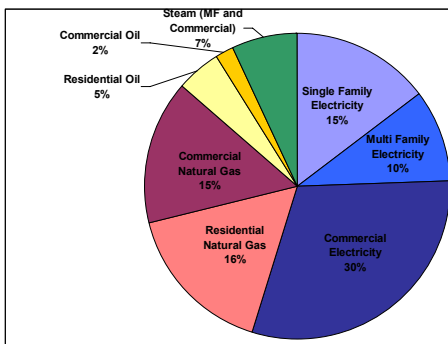
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## 2005 Building Energy Use by Sector



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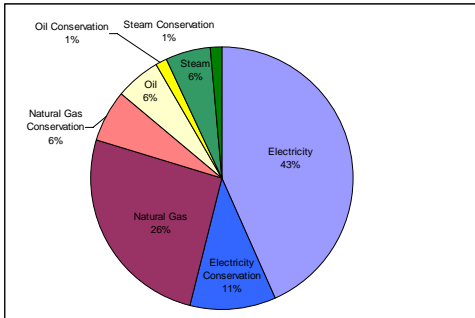
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### Assuming 20% Savings from all Fuel Sources



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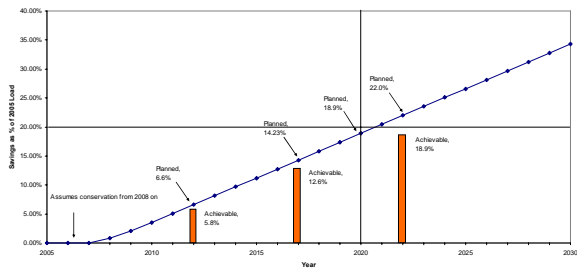
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### Projected Impact of SCL Conservation Plan on Seattle Electricity Use



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## New Buildings and Major Renovations

DRAFT STAFF APPROACH

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**Priority Green Permitting  
Near Term**

- Expedited and facilitated permitting
  - Predictability, with known timeframes
  - Cross departmental team with single point of contact provides opportunity to work closely with design team
- Consider DPD permitting plus other processes
  - Projects within designated "green zone" may be deemed to automatically meet SEPA review requirements
- Accountability for all parties
  - Financial penalties if project does not achieve energy targets
  - Consider permit fee rebate if turnaround target is not achieved
- Would likely affect small number of projects by adjusting threshold requirements; assuming 7.5% uptake of policy provides 1.75% savings of new construction energy consumption (735 MWh) in 2010
- Key issues to be resolved – DPD operational capacity, accountability

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**Innovation Review Board  
Near Term**

- Recommendation proposed by Task Force members
- Broader authority to approve permit requests if no life safety implications
- Embrace innovation and learn from experience
- Anticipate small efficiency gains, but paves the way for future code development
- Accountability for permit applicant
  - Performance bond
  - Monitoring and disclosure of actual performance
- Key issues to be resolved – governance, authority, selection of members, length of term

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**Density Bonus  
Not Recommended**

- Competes with other interests – density bonus is key program used to incentivize development of affordable housing and other public benefits

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## Energy Code Updates – Commercial Medium Term

- Raises base level of acceptable performance to alignment with 2030 Challenge goals
- Push for 30% performance improvement in WA State Energy Code, equiv to ~15% improvement on Seattle's current code (comments due by Mar 09)
- Prepare Seattle code amendments (if necessary) to achieve 2030 Challenge goals
- Collaborate with other local jurisdictions to align target expectations
- Mandatory energy modeling for projects > 50,000 sf
  - Promotes whole building approach
  - Current codes near limit of what can be achieved through prescriptive approach
- Compare energy performance post occupancy to modeled projections (disclosure only)
- Research simple and consistent tools and templates
- Key issues to be resolved – support at State level, cost effectiveness

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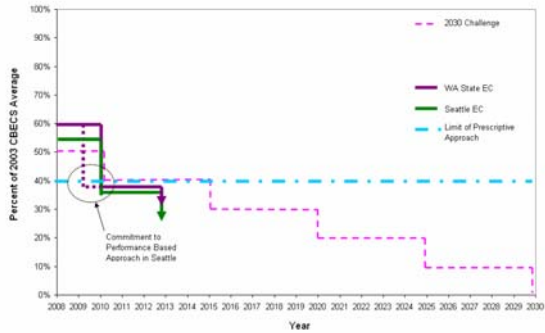
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## Projected Energy Code Improvements



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## Energy Code Updates Residential

- Push for 30% performance improvement in WA State Energy Code (comments due by Mar 09)
- Alternatively:
- Push for two-tiered requirements in residential section in WA State Energy Code
  - Evaluate State legislation to permit local code amendments

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## Energy Efficiency Feebate For Further Consideration

- Self funding program, with no net increase in fees
  - Additional fee charged for meeting minimum energy code requirements
  - “Stretch” code targets – fee is waived if achieving anticipated targets for next release of the energy code
  - Incentive rewards provided for high performance buildings
- Lower incentive bar for low income housing
- Correct identification (and periodic adjustment) of transition points is necessary to balance the program funding
- Key issues to be resolved – requires change in WA State regulations re use of permit fees and/or identification of different funding model (impact fees, general fund)

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## Thermal Energy Distribution For Further Consideration

- Recommendation proposed by Task Force members
- Strong interest, but further analysis still needed
- Heat sources should be waste heat, renewables (solar, biofuels) or CHP
- Initial steps:
  - Identify areas of greatest potential development activity
  - Identify areas with good heating/cooling sources and loads in close proximity
  - Incentivize use of hydronic systems in buildings
- Begin with neighborhood scale pilot projects
- Develop citywide energy “master plan” or “heat map”
- Long term potential dependent upon solving financing and institutional barriers
- Potential to be ground breaking in achieving energy and carbon reduction targets

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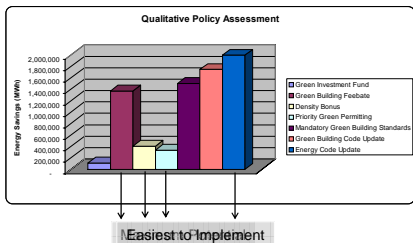
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## Why Did We Choose These Policies?



**Incentives:**  
 Density Bonus waiver requirement at 10% below current City baseline, with Green Building Code Update  
**Mandates:**  
 Energy Code = 30% below ASHRAE 90.1:2007 (historic performance based approach)

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## Achieving the Target

- Only way with certainty is through stepped improvements in energy code between now and 2030.
- Route map between now and 2030 to provide clarity for development community
  - 2010: 15% improvement
  - 2020: 30% improvement
  - 2030: 55% improvement
- Incentives to reward developers who exceed code will assist in market transformation
- Acceptable levels of cost and benefits will change over time relative to technology, fuel and pollution costs

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## Existing Buildings

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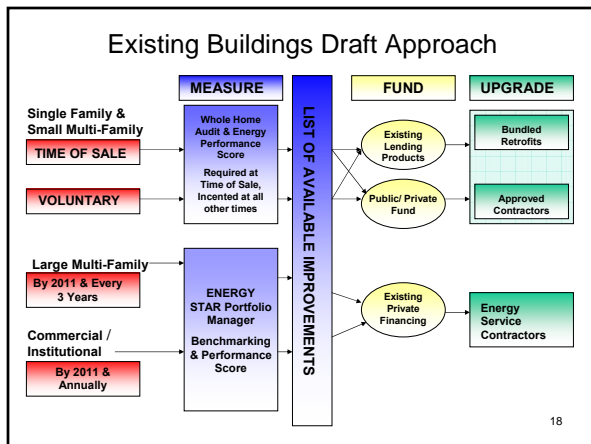
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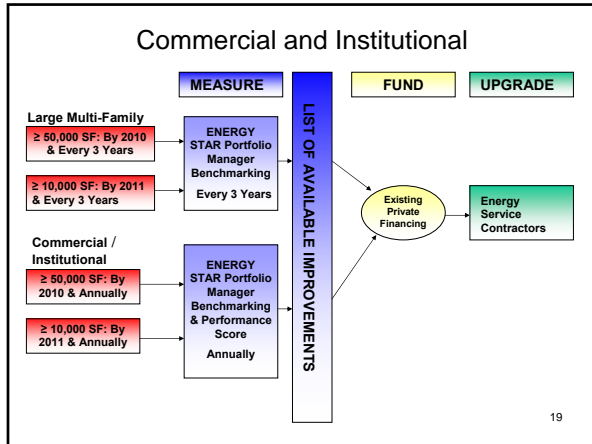
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### Measurement & Disclosure: Large Multi-Family, Commercial and Institutional

- Energy Star Portfolio Manager
  - Multi-Family: Audit and Benchmarking every 3 Years
  - Commercial and Institutional: Annual Benchmarking and Energy Performance Rating Disclosure
- 2010: Buildings Over 50,000 SF
- 2011: Buildings Over 10,000 SF

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### Portfolio Manager's Statement of Energy Performance (Commercial and Institutional)

**Site Energy Use Summary**

Electricity (kWh)	123,456
Natural Gas (kBtu) <sup>1</sup>	123,456
<b>Total Energy (kBtu)</b>	<b>246,912</b>

**Energy Intensity<sup>4</sup>**

Site (kBtu/ft <sup>2</sup> -yr)	6.3
Source (kBtu/ft <sup>2</sup> -yr)	19.5

**Emissions (based on site energy use)**

CO <sub>2</sub> (1000bs/yr)	263
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**STATEMENT OF ENERGY PERFORMANCE**  
Sample Facility  
Building #1, 12345  
1234 Main Street, Springfield, VA 22150

**Energy Performance Rating** (1/1/2012 - 8/1/2012)

Rating	Score	Comments	Operating Status	Percent of PACE
1	100		Operating	100%

**Site Energy Use Summary**

Electricity (kWh)	123,456
Natural Gas (kBtu) <sup>1</sup>	123,456
<b>Total Energy (kBtu)</b>	<b>246,912</b>

**Energy Intensity<sup>4</sup>**

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**Emissions (based on site energy use)**

CO <sub>2</sub> (1000bs/yr)	263
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**Professional Engineer**  
Signature: [Signature]  
License Number: 123456789  
State: VA  
City: Springfield, VA  
1234 Main Street, Springfield, VA 22150

Based on actual "whole – building" energy performance data

Normalizes for factors that affect energy use intensity:

- Climate/weather
- Size
- Occupancy

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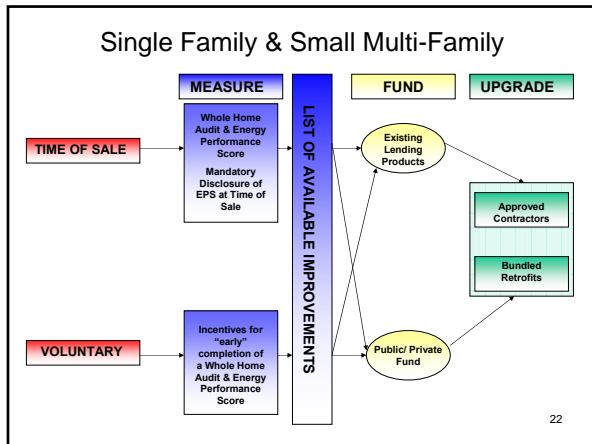
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### Measurement & Disclosure: Single Family & Small Multi-Family

- Full Home Energy Audit:
  - Utilizing:
    - Certified Auditors (to national standard)
    - Standard Audit Procedures
    - Energy Performance Score (emerging national standard) audit including:
      - Analysis of home energy performance using state-of-the-art diagnostics, such as a blower door test to measure air leakage
      - Comparison of home energy and carbon score to established benchmarks.
      - Recommended upgrades to improve home's score while also reducing energy costs and increasing comfort and safety.
  - Conducted up to 5 years before sale of home
  - Disclosure at Time of Sale

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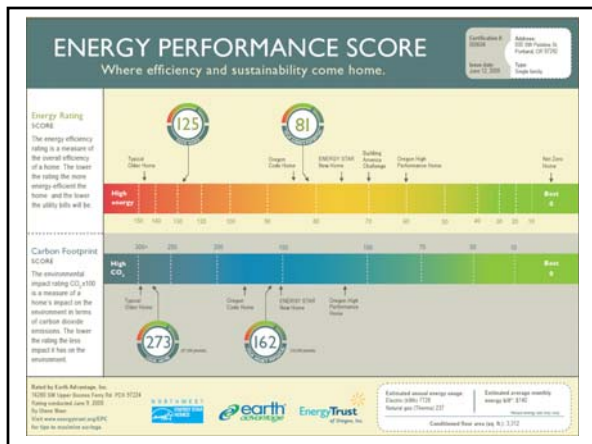
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## Existing Financing Tools (Residential)

Lending Product	Benefits and Potential Limitations
Energy Efficient Mortgages:	<ul style="list-style-type: none"> <li>• Provide owners with additional financing for improvements at discounted interest rates.</li> <li>• Existing Fannie Mae Energy Efficient Mortgage, but rarely used as few individuals are able to qualify.</li> <li>• New ENERGY STAR Loan product is being developed as a pilot through a partnership with the Energy Programs Consortium, though this is not yet ready for a national launch.</li> </ul>
FHA 203(k) Loans:	<p>Two types of FHA loans are available in the Seattle market offering up to \$35,000 for retrofits.</p> <p>203(k) products may also be used for refinancing.</p> <p>The maximum loan available is \$417,000, which may limit utility for the Seattle market.</p>
Home Equity Loans	<p>Home equity products are not terribly viable in the current market</p> <ul style="list-style-type: none"> <li>• Most banks not currently willing to lend this type of credit</li> <li>• Many homeowners have already exhausted the equity in their homes.</li> </ul> <p>Studies have shown that energy efficiency tends to be a lower priority than other considerations (bathrooms, kitchens, etc.)</p>

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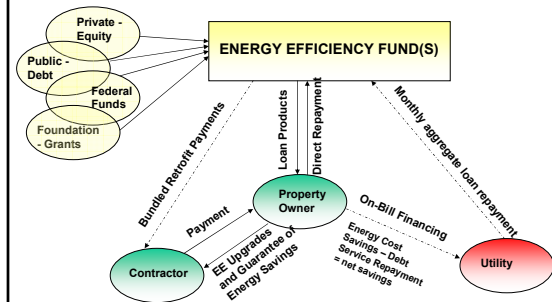
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## Private Energy Efficiency Financing Pool



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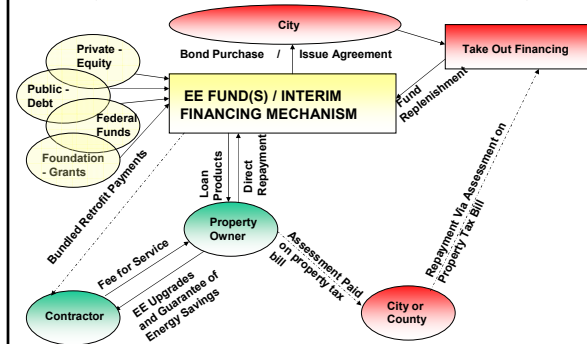
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## Energy Efficiency Fund with Take Out Financing



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## Overall Draft Staff Approach

	Commercial	Multi-Family Residential	Single-Family Residential
New	<ol style="list-style-type: none"> <li>1. Priority Green Permitting</li> <li>2. Innovation Review Board</li> <li>3. Commercial Energy Code Improvements</li> </ol>	<ol style="list-style-type: none"> <li>1. Priority Green Permitting</li> <li>2. Innovation Review Board</li> <li>3. Residential Energy Code Improvements</li> </ol>	<ol style="list-style-type: none"> <li>1. Residential Energy Code Improvements</li> </ol>
Existing	<ol style="list-style-type: none"> <li>1. Disclose Energy Performance and Score (Energy Star Portfolio Manager)</li> </ol>	<ol style="list-style-type: none"> <li>1. Disclose Energy Performance (Energy Star Portfolio Manager)</li> </ol>	<ol style="list-style-type: none"> <li>1. Energy Audit</li> <li>2. Disclose Energy Performance Score</li> <li>3. Public/Private Funding for Improvements</li> </ol>

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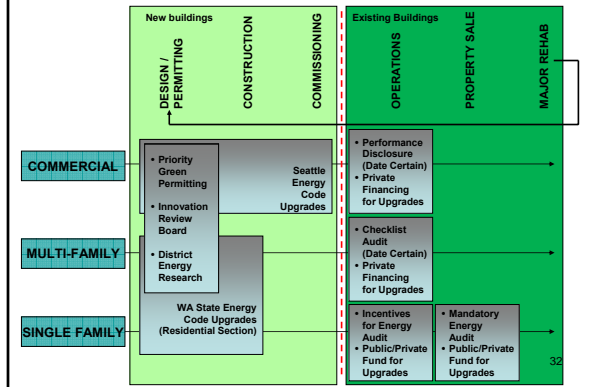
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## Policy Recommendations vs. Bldg Lifecycle



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