



## Existing Buildings Policy Research

### Disclosure Mandates

Peter Erickson, Cascadia Consulting Group  
Christine Grant, Cascadia Consulting Group

September 23, 2008




---

---

---


---

---

---


---

---



## Policies Being Researched

- Disclosure Mandates
  - Historical energy use
  - Energy performance checklist
  - Energy performance rating/label
- Upgrade Mandates
  - Prescriptive requirements
  - Performance requirements




---

---

---


---

---

---

---

---




## Policies Being Researched

- Financing and Incentives
  - Low-interest loans
  - Private financing pool
  - Energy efficient mortgages
  - Public financing pool
  - Add-on to property taxes
  - On-bill financing
  - Energy efficiency tax credits
  - Carbon fee-bates

} Funding Sources

} Re-payment mechanisms

} Other Incentives




---

---

---

---

---

---

---

---

## Consulting Team

- Cascadia Consulting
  - Environmental policy and planning
- ECONorthwest
  - Economic and impact analysis of energy efficiency programs
- Seattle-Northwest Securities
  - The City's financial advisor



---

---

---

---

---

---

---

## Assessment

- Relative ratings
  - Intended as starting point for discussion, not as basis for City policy
- Criteria
  - Efficiency Potential
  - Economic Impact
  - Administrative Feasibility
  - Cost to City and Partners
  - Stakeholder Impacts



---

---

---

---

---

---

---

## Efficiency Potential - Methodology

- Work conducted by ECONorthwest
- Primary data sources are energy efficiency potential studies:
  - Seattle City Light Conservation Potential Assessment, Oct. 13, 2006
  - Puget Sound Energy Comprehensive Assessment of Demand-Side Resource Potentials, May 4, 2007



---

---

---

---

---

---

---

## Efficiency Potential - Methodology

- Efficiency potential studies cover electricity and gas in the commercial and residential sectors
- End uses included in analysis:
  - Lighting
  - Space Heating
  - Cooling
  - Water Heating
  - Appliances
  - Refrigeration
  - Pool Heating



---

---

---

---

---

---

---

---

## Efficiency Potential - Rating System

Each policy is rated based on 2 sub-criteria:

1. Market Potential Rating (1–5 scale)
    - Applicability of policy to all market sectors, measures, and end uses
  2. Program Effectiveness Rating (1–5 scale)
    - Likelihood that policy will motivate building owners to purchase efficiency measures
- Average of 2 scores gives overall Efficiency Potential rating



---

---

---

---

---

---

---

---

## Economic Impact - Methodology

- Also conducted by ECONW
- Economic benefits come from:
  - Spending on measure installation (labor and equipment)
  - Savings to households and businesses from lower energy bills
    - Households will spend more money on other goods and services
    - Businesses can produce more due to lower production costs



---

---

---

---

---

---

---

---

## Economic Impact – IMPLAN model

- Each dollar spent in a community will be spent multiple times
- Used the IMPLAN “Input-Output” model for King County to estimate:
  - **Direct Effects:** Result directly from policy option spending (measure installation and bill savings)
  - **Indirect Effects:** Occur from secondary spending in supporting industries
  - **Induced Effects:** Result from spending due to increased income from direct and indirect effects



---

---

---

---

---

---

---

---

## Economic Impact - Methodology

- Cost of achieving potential calculated from SCL and PSE potential studies:
  - Electric in residential sector - \$81.59/MWh
  - Electric in commercial sector - \$174.71/MWh
  - Gas in residential sector - \$0.78/therm
  - Gas in commercial sector - \$0.53/therm



---

---

---

---

---

---

---

---

## Economic Impact – IMPLAN model

- Energy savings and spending needed to achieve efficiency potential used as IMPLAN model inputs
- Outputs of IMPLAN model for each policy:
  - Economic output (value of goods and services produced)
  - Jobs
- Economic Benefit rating assigned based on rank of estimated economic output for each policy option



---

---

---

---

---

---

---

---

## Administrative Feasibility

- Interviews with City, partners, and other jurisdictions
- Assessment considered:
  - Technical capacity
  - Operation and Maintenance needs
  - Ease of initiation
  - Legal barriers



---

---

---

---

---

---

---

---

## Administrative Feasibility

Rating	Description
★★★★	No significant administrative barriers; relatively easy to establish
★★★	No insurmountable challenges; could require significant (but feasible) new system or procedure
★★	One or more potential challenges that appear surmountable with moderate effort
★	At least one difficult administrative barrier
★	Capacity to implement the policy is lacking



---

---

---

---

---

---

---

---

## Cost of Policy Implementation

- Some interviews, but data lacking
- Consultant order-of-magnitude assessment of costs for:
  - Policy assessment
  - Technology upgrades
  - Legislative development
  - Foregone revenue/City investment
  - Enforcement



---

---

---

---

---

---

---

---

## Cost of Policy Implementation

Rating	Meaning
*****	< \$30,000 implementation costs to City and Partners
****	\$30,000 - \$100,000
***	\$100,000 - \$500,000
**	\$500,000 - \$1,000,000
*	> \$1,000,000



---

---

---

---

---

---

---

---

## Stakeholder Impacts

- Consultant research focused on identifying likely impacts based largely on experience elsewhere
- Not rated: ultimately, this committee a better judge



---

---

---

---

---

---

---

---

## Disclosure Mandates

Assessment Results



---

---

---

---

---

---

---

---

### Policy Objectives -- Disclosure Mandates

- Increase information available to building owners and occupants
- Create a mechanism for market differentiation
- Help identify opportunities for efficiency gains
- Encourage voluntary upgrades



---

---

---

---

---

---

---

### Three Options Researched

- Historical Energy Use
  - Required disclosure of energy history
- Performance Checklist
  - Required disclosure of checklist-type audit
- Performance Rating
  - Required disclosure of performance-based rating or score



---

---

---

---

---

---

---

### Historical Energy Use

- Relatively few examples
  - Montgomery County, MD
  - Gainesville, Florida
- Energy use disclosure sometimes part of a performance rating
  - State of California, City of New York, Portland, City of Austin



---

---

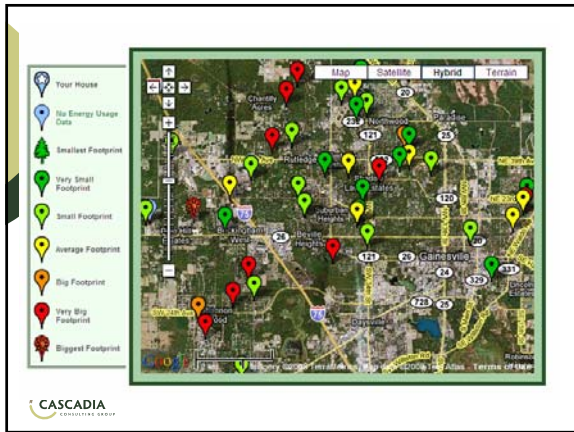
---

---

---

---

---




---



---



---



---



---



---



---

### Performance Checklist

- Denver, CO
  - Residential checklist pilot
- Austin, TX
  - Proposed 8-item residential checklist
- San Francisco, Berkeley
  - Checklists required as part of RECO, CECO but also require upgrades

CASCADIA  
RESIDENTIAL ENERGY

---



---



---



---



---



---



---

### Performance Rating/Label

- Commercial
  - State of California AB 1103
  - New York City, Washington D.C., Portland, Austin all developing legislation
  - State of Washington investigating
- Residential
  - Washington, D.C., Boulder, CO
  - Berkeley, San Fran considering
  - Pilot ongoing in Oregon

CASCADIA  
RESIDENTIAL ENERGY

---



---



---



---



---



---



---



## Policy Assessments

	Energy Efficiency Potential	Economic Benefit	Cost of Policy Implementation	Admin. Feasibility
Historical Energy Use	★	★	★★★	★★★★
Performance Checklist	★★★	★★★★	★★★	★★★★
Performance Rating	★★★	★★★★	★★★	★★★



---

---

---

---

---

---

---

---