

# City of Bellevue Environmental Stewardship Initiative Update



City Council Study Session  
Presenters: Dan Stroh, Jennifer Ewing, Emma Johnson  
April 4, 2016

# Agenda

Agenda Item	Presenter
1. Introduction of new ESI Program Manager	Dan Stroh
2. ESI Program Overview: History and Key Progress, Scope and KPIs	Jennifer Ewing and Emma Johnson
3. Update on ESI Program Activities	Jennifer Ewing and Emma Johnson
4. Special Announcement and Recognition	Emma Johnson, Heather Mulligan, PSE
5. K4C Elected Officials Meeting: Municipal Building Energy Benchmarking Recommendations	Jennifer Ewing
6. What's Next for ESI	Jennifer Ewing
7. Council Decision Request and Discussion Ask: Challenge Bellingham RE Energy Reduction?	All

# ESI Program Overview: Program History

## *ESI Timeline*

### 2007 - 2008

- Mayors Climate Protection Agreement
- GHG inventory
- ESI formed

### 2009-2012

- Stimulus funding projects
- Resource Conservation Manager

### 2013

- Updated GHG Inventory
- Updated citywide environmental KPIs
- ESI Strategic Plan, 2013-2018

### 2014

- Comprehensive Plan Update (2014-2015)
- Community Energy Programs
- Join K4C
- Green Business Challenge and ESBA

### 2015

- Green Power Challenge
- Solarize Bellevue
- Georgetown University Energy Prize
- Urban Smart Bellevue

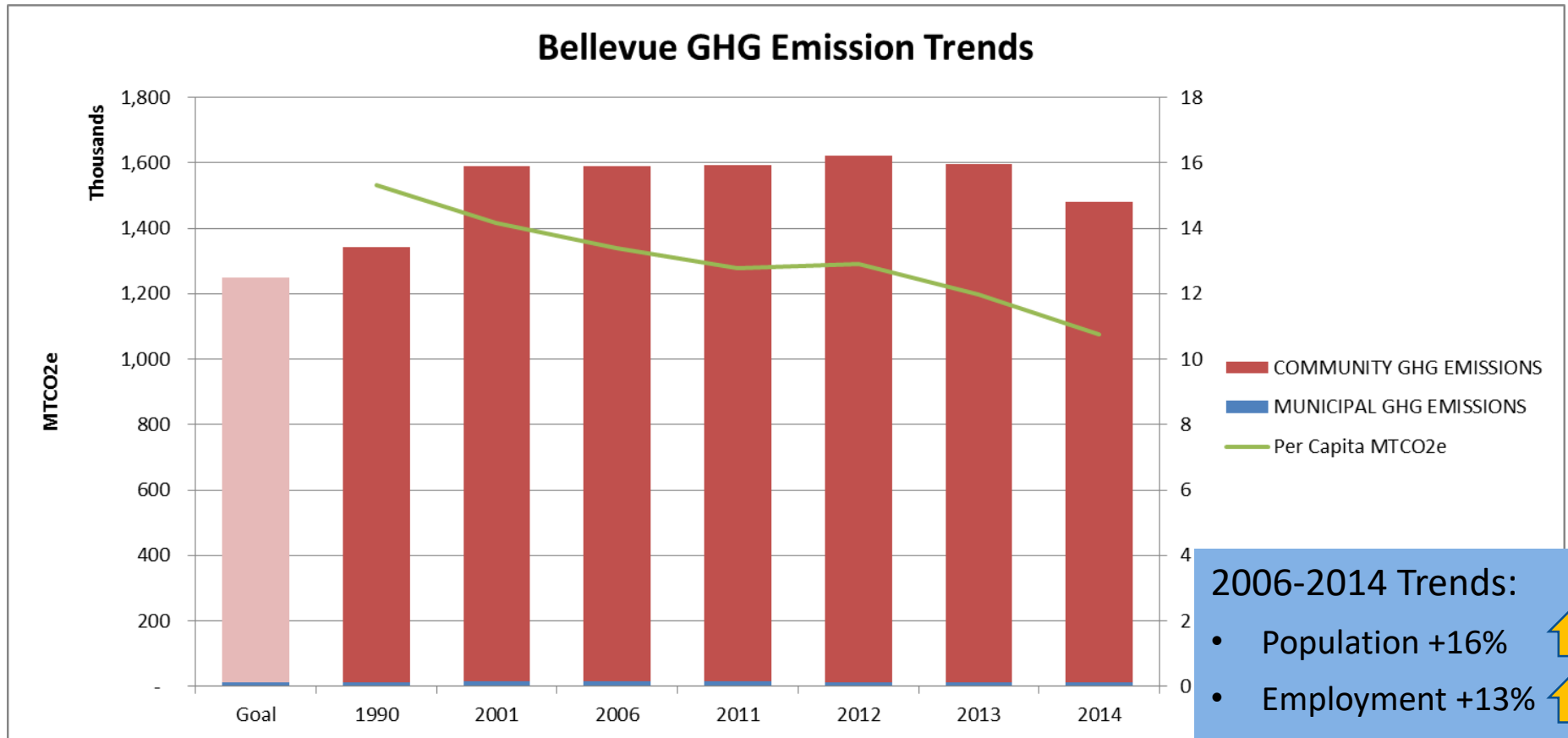


# ESI Program Overview: Key Policy Directives from the updated Comprehensive Plan

- Minimize environmental impact of city operations
- Minimize/eliminate release of harmful substances into the air, water, and soil
- Promote and invest in energy efficiency and renewable energy
- Citywide GHG reduction target
- Climate change adaptation strategies
- Regional leadership
- Public education
- Environmentally preferable purchasing
- Use life cycle cost analysis and BMPs in city projects and procurement
- Public-private partnerships
- Restore tree canopy coverage to 40%
- Alternative fuel vehicles for city fleet
- Reduce countywide GHG emissions, 25% by 2020, 50% by 2030, and 80% by 2050
- Establish a GHG emissions inventory and measurement framework

*\*Policy directives referenced on this slide, refer to EN-2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 16, and 54 in the Comprehensive Plan.*

# Community Greenhouse Gas Emissions

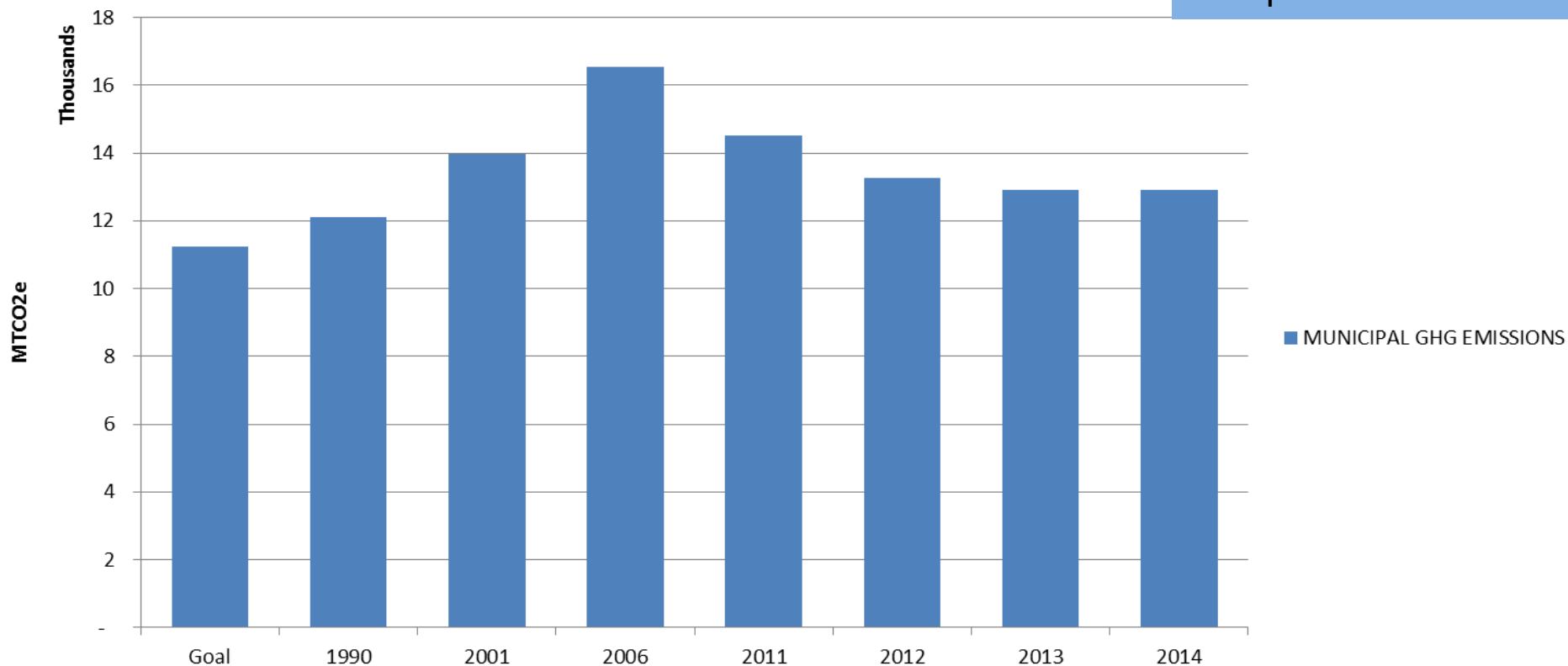


## 2006-2014 Trends:

- Population +16% ↑
- Employment +13% ↑
- Community emissions -6.6% ↓
- Per Capita emissions -19.5% ↓

# Government Operations Greenhouse Gas Emissions

**Bellevue GHG Emission Trends**




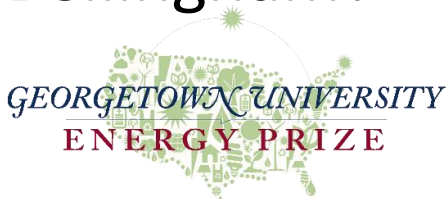
2006-2014 Trends:

- Government Operations -22%



# ESI Program Update: Georgetown University Energy Prize

- \$5 million prize
  - Currently in 5<sup>th</sup> place
  - \$30K grant from KCD
  - Earth Week Launch:
    - Coordinated campaign effort in schools, social media, neighborhood conference
  - Eastside Energy Corps:
    - Outreach in schools and in the community
  - Decision: Challenge Bellingham?
- 

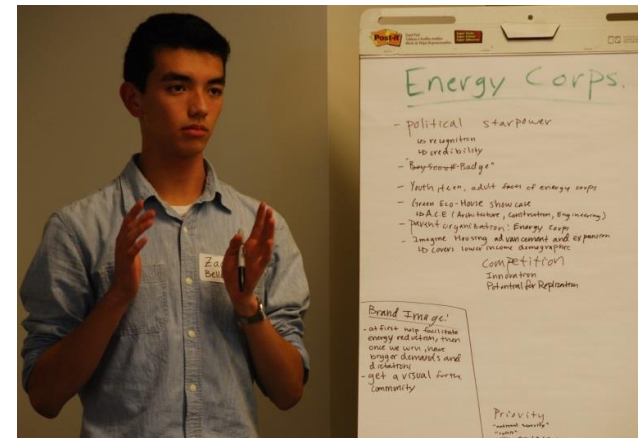


*Be* **energy smart**

- ☐ Turn off lights, computer, and TV when leaving your house
- ☐ Turn on lights only in rooms you are in
- ☐ Wash clothes in cold water
- ☐ Shower for 5-7 minutes with a high efficiency shower head
- ☐ Practice thermostat efficiency! Turn your heat down to 65° at bedtime.
- ☐ Evaluate your home's energy use with a HomePrint Assessment! Ask a Puget Sound Energy Advisor 1-800-562-1482.

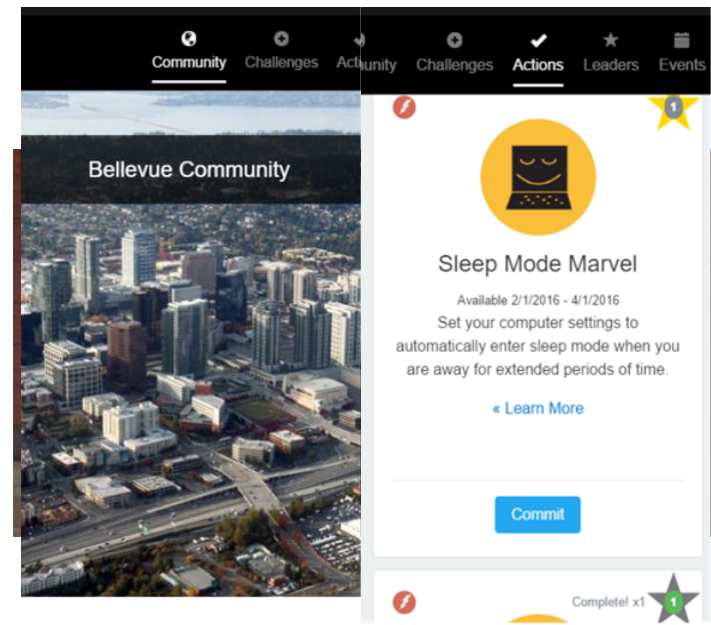
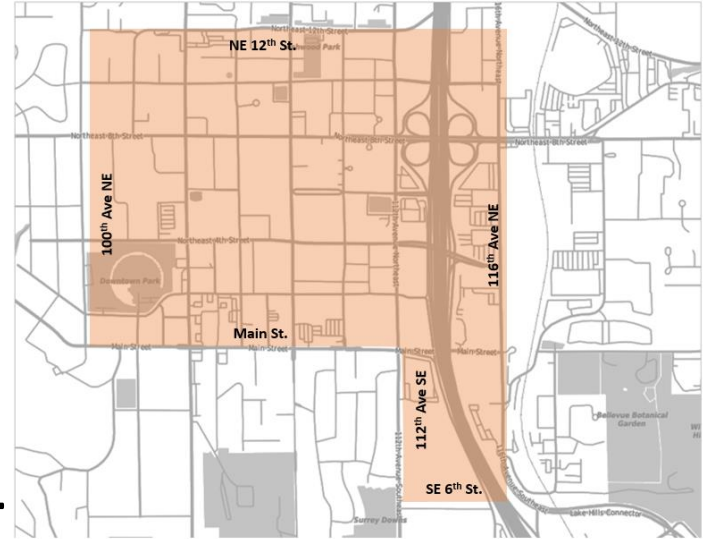


A small, fluffy dog with brown and white fur is holding two electrical plugs, one in each paw. Above the dog's head is a glowing yellow lightbulb. The background is a solid light blue.



# ESI Program Update: Urban Smart Bellevue Launch!

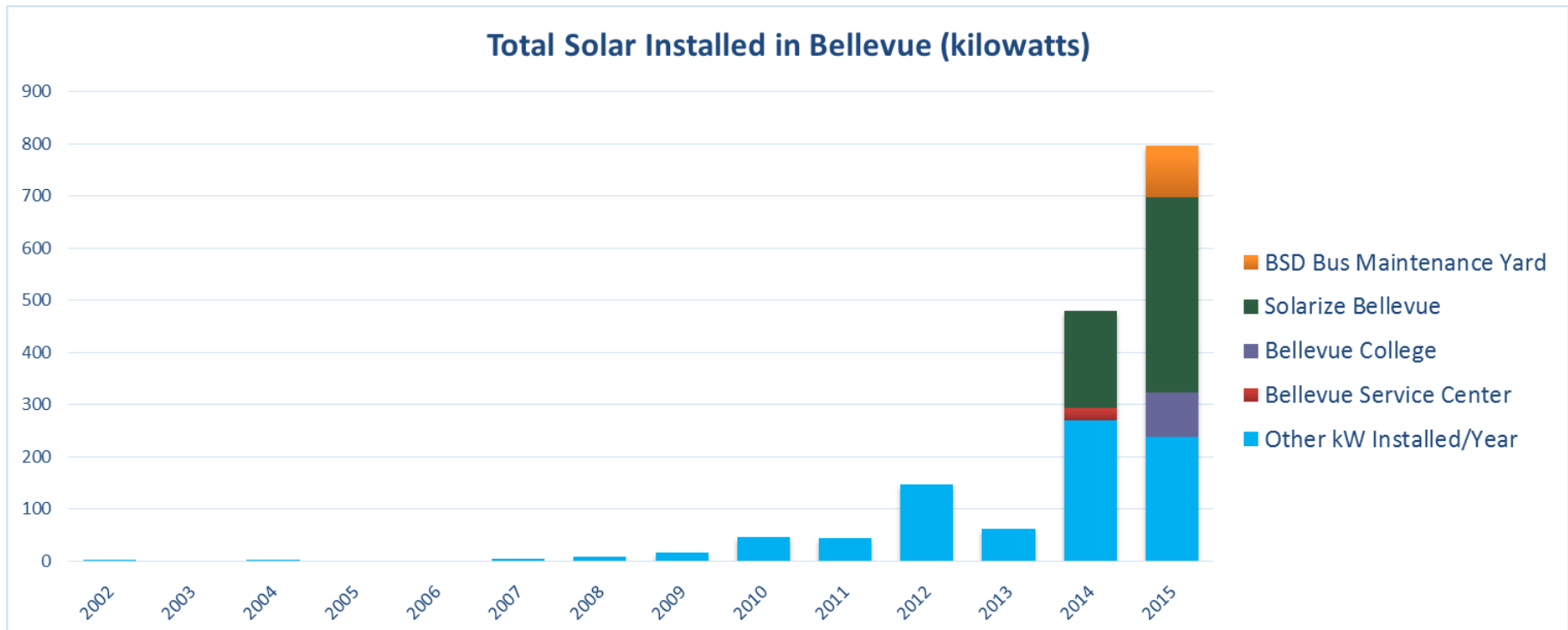
- 16 million kWh energy savings target
- 200 downtown businesses
- Recruiting all types of businesses and tenants in June
- Showing owners and tenants real-time building data through easy-to-use software
- Adopting tailored, simple Energy Action Plans
- Sharing lessons learned, empowering energy champions, and celebrating success
- Using apps and dashboards





# ESI Program Update: Solarize Bellevue 2.0

- **38 new systems (266kW!) for second campaign**
- **Both campaigns will install 559 kW**
- **1700 kW in Bellevue!**

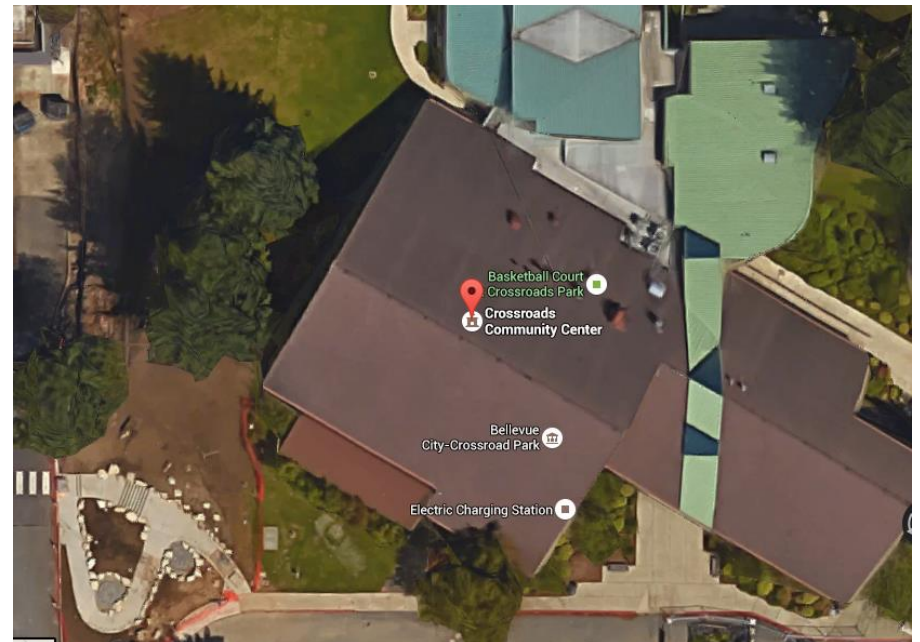


# ESI Program Update: Green Power Challenge

- Bellevue joins the ranks of Issaquah, Puyallup, Redmond, Anacortes, Bainbridge, Kirkland, Snoqualmie, Tumwater, Mercer Island, Olympia, and Lacey to host a “Green Power Challenge.”
- Stretch goal of 250 (net) new Green Power customers by October 31<sup>st</sup> 2015
- Achieved 543 new Green Power customers!
- \$50,000 prize funding for solar array at Crossroads Community Center
- Potential to receive additional \$50,000 from the Department of Commerce to expand the array



*Guest Speaker: Heather Mulligan,  
Green Power Program Manager, PSE*



# ESI Program Update: Other Key Projects

- Regional Green Business Program (EnviroStars)
- Green Fleet Guidelines
- EV Station Planning and Management



# King County-Cities Climate Collaboration (K4C)

## Subcommittees

- Regional Code Collaboration (RCC)
  - Living Building Challenge Model Ordinance
  - Energy Code and Building Code Amendments
- Collaborative legislative priorities discussion
- Clean Energy
  - Working in partnership with PSE to achieve GHG reduction targets
  - Topic of focus at October 15 K4C Elected Official Summit
- Scope 5 Greenhouse Gas Monitoring System
  - Expanded use of software from Bellevue to five K4C agencies

\*K4C Elected Officials Summit – April 7, 2:00-4:00pm

# K4C: Building Energy Benchmarking

- What is Benchmarking?
  - Process of tracking the energy consumed, over time, of an existing building and comparing the results to similar buildings or an applicable standard
  - US EPA Portfolio Manager typically used (free tool)
- What is public disclosure?
  - Analyzing the data and creating a report
  - Publishing the report with related context and findings
  - Making individual building energy benchmarking results public





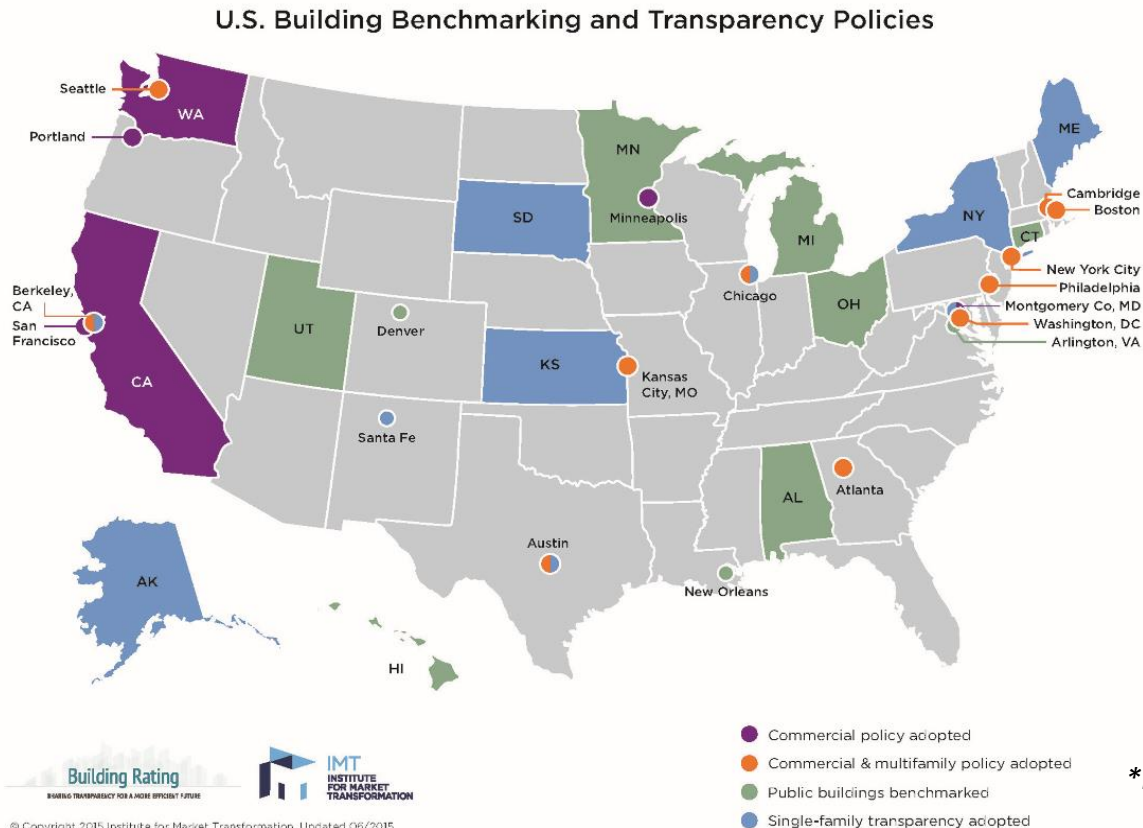
# Benefits of Benchmarking

- Energy and cost savings:
  - 2.4% energy savings on average per year, each year, for a total of 7% savings for buildings that benchmark
- Improved management of energy data leads to energy efficiency projects
- Supports Smart City goals
- Creates jobs



# Different approaches to benchmarking

- Public buildings and private buildings
- Voluntary and mandatory programs

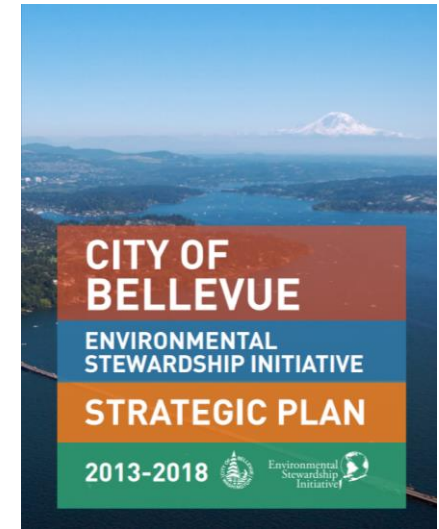


- 15 cities, 2 states, and 1 county have commercial benchmarking policies.
- At least 10 other jurisdictions require benchmarking of public buildings\*

\*K4C Building Benchmarking Report

# What's Next for ESI

- Review progress on implementing the ESI Strategic Plan
- Analysis of ESI KPI trends
- Comparison with best practices
- Establish a government operations and community-wide GHG reduction target, per the Comp Plan
- Enhance sustainability criteria in existing initiatives, such as LID regulations and Downtown Livability
- Tree canopy gap analysis and action plan, per the Comp plan
- Municipal Building Energy Benchmarking: further analysis and policy recommendation



**KEY PERFORMANCE INDICATORS**  
A Snapshot of Current Conditions

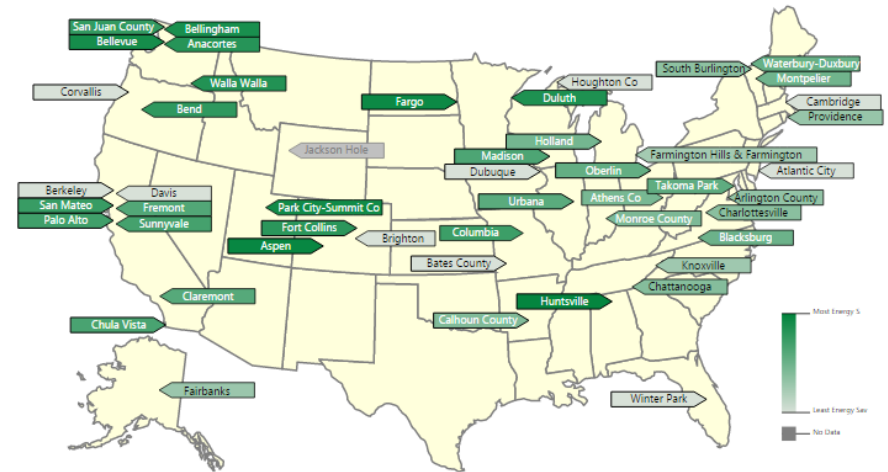
Community Municipal

KEY PERFORMANCE INDICATOR	TARGET	2011 ACTUAL	% REDUCTION NEEDED	TREND SINCE 2006
<b>GREENHOUSE GAS EMISSIONS</b>				
Greenhouse gas emissions (tCO <sub>2</sub> e)	11,200	14,313	22%	Improving
Greenhouse gas emissions (tCO <sub>2</sub> e per \$1M of sales)	1,238,203	1,577,500	22%	Steady state
<b>MOBILITY &amp; LAND USE</b>				
Per capita GHG emissions (tCO <sub>2</sub> e per capita)	2,498	3,119	20%	Improving
Emissions from vehicle miles traveled (tCO <sub>2</sub> e)	481,836	772,000	37%	Steady state
Commuter trip reduction - Drive Alone Rate (%) of large employers	56.9%	43.9%	23%	Mixed
<b>ENERGY &amp; WATER</b>				
Emissions from kWh and therms (tCO <sub>2</sub> e)	5,444	9,369	42%	Improving
Emissions from kWh and therms (tCO <sub>2</sub> e per \$1M of sales)	610,736	875,000	30%	Mixed
Galons of water used	Decrease 20% within 10 years	336,498		Mixed
Galons of water used per day	303,080	306,453	1%	Improving
Renewable energy installed in buildings	Increase	123		Improving
<b>MATERIALS MANAGEMENT &amp; WASTE</b>				
Emissions from landfill solid waste (tCO <sub>2</sub> e)	117	91	22%	Steady state
Emissions from landfill solid waste (tCO <sub>2</sub> e per \$1M of sales)	7,576	8,200	7%	Improving
% of total waste recycled and composted	50.0%	43.3%	13%	Improving
<b>ECOSYSTEMS &amp; OPEN SPACES</b>				
Citywide tree cover (%)	40%	36%	11%	Steady state
Stream habitat	Improve			Mixed
Access of open space and parks	Increase	2,351		Improving
Public urban forests in Class 1 and 2 condition (Class 1 is healthiest)	Transition 100 acres per year from Class 3 and 4 to Class 1 and 2 condition	72%		Improving

\*Percentage increase from 2011 actuals needed to reach target  
% Reductions are based on Mayors Climate Reduction Agreement and other City adopted targets.

# Council Decision Request and Discussion

- Council decision needed:
  - Should we initiative a friendly competition with the City of Bellingham to reduce the most energy use by the end of 2016?



Communities sort by Rank (Highest to Lowest)

1	Huntsville, AL	-19 Overall Energy Score (OES)	-83,001,686 kWh 13,864,673 Therms	\$ -1,190,753 Total Financial Savings	-27,367,752 Total CO <sub>2</sub> Saved kg	i
2	Aspen, CO	-16 Overall Energy Score (OES)	9,352,468 kWh 608,488 Therms	\$ 895,917 Total Financial Savings	2,992,485 Total CO <sub>2</sub> Saved kg	i
3	Fargo, ND	-12 Overall Energy Score (OES)	41,274,513 kWh 2,756,659 Therms	\$ 3,207,242 Total Financial Savings	14,704,035 Total CO <sub>2</sub> Saved kg	i
4	Park City-Summit Co, UT	-11 Overall Energy Score (OES)	17,022,180 kWh 3,071,606 Therms	\$ 1,968,715 Total Financial Savings	4,293,827 Total CO <sub>2</sub> Saved kg	i
5	Bellevue, WA	-11 Overall Energy Score (OES)	68,029,328 kWh 3,283,766 Therms	\$ 4,979,228 Total Financial Savings	17,160,326 Total CO <sub>2</sub> Saved kg	i
6	Bellingham, WA	-11 Overall Energy Score (OES)	39,178,290 kWh 1,643,333 Therms	\$ 2,629,624 Total Financial Savings	9,882,682 Total CO <sub>2</sub> Saved kg	i

GUEP Energy  
Score Rankings:

- #5 Bellevue
- #6 Bellingham



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## APPENDIX



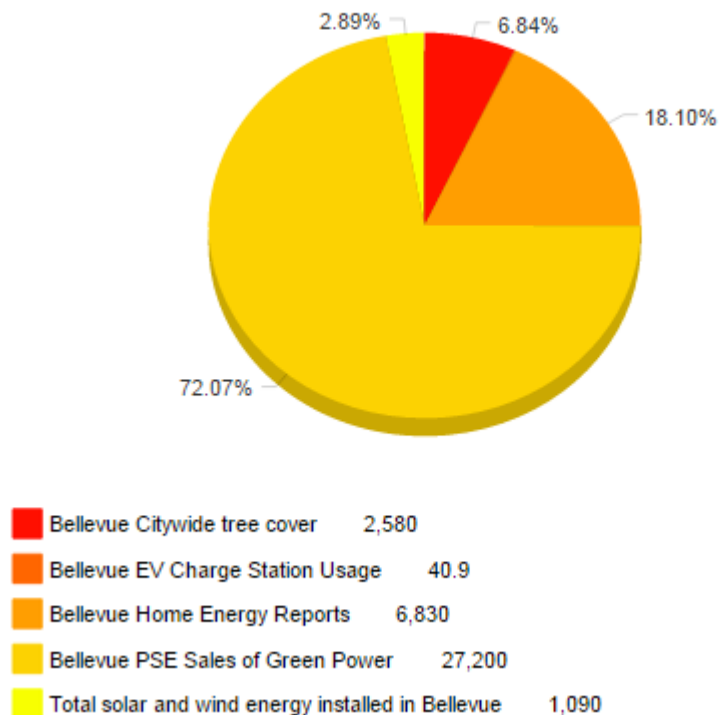
# K4C and Bellevue Legislative Interests

- Coal Bill passes WA state legislature
  - Bill secures funding for PSE to decommission and clean-up Colstrip Units 1 and 2 in Montana when they are retired
  - Colstrip is one of the largest emitters of carbon pollution in the West
  - Governor will sign the bill, with 1 partial veto (4/1/2016)
- Solar incentives bill stalled in committee



# Impact of Green Power Purchasing

2015 Annual Emission Reductions, in Tonnes



# Ecological Audit - Tree Canopy Analysis

- **2008 Inventory**
- City-wide Acres = 21,377
- City-wide recommended Canopy Cover = **40%**
- 2007 City-wide Tree Canopy = 7,700 acres = **36 %**
- 2007 City-wide Impervious = 9,800 acres = **46 %**
- 1986 to 1996 – Tree Canopy Loss = **12 %**
- 1996 to 2007 – Tree Canopy Loss = **9 %**

**Table 4. Tree Canopy Percentage by Land Use**

	Citywide	Urban Residential	Suburban Residential	Central Business District	Commercial & Mixed Use	Industrial	Parks	ROW
Canopy %	36%	30%	35%	7%	21%	19%	67%	20%
AF Recommended Canopy %	40%	35%	50%	15%	25%	25%	25%	25%
Difference in Canopy %	-4%	-5%	-15%	-8%	-4%	-6%	-5%	-5%