The Movement Towards Neighborhood Sustainability

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Brian Geller – Director, Seattle 2030 District

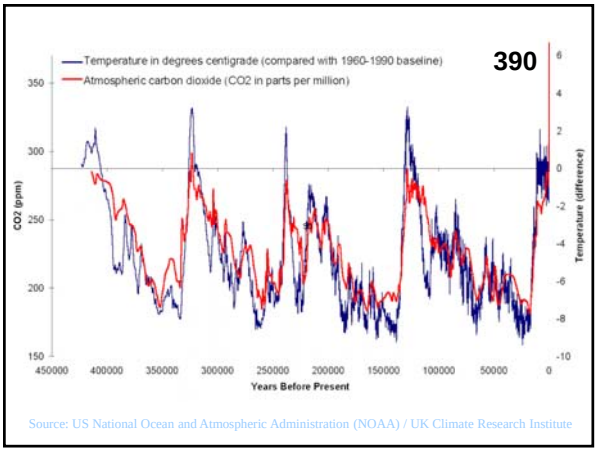
SEATTLE 2030 DISTRICT

portland sustainability institute

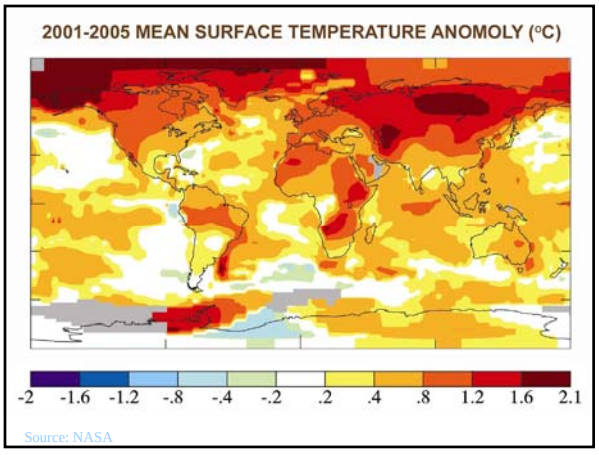
The EcoDistricts™ Framework
Building Blocks of Sustainable Cities

Why Neighborhood Sustainability?

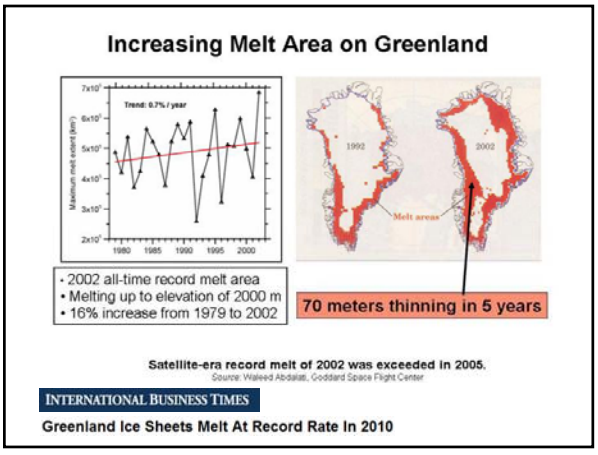
GLOBALLY, WE FACE
A CLIMATE CHANGE CRISIS
WHICH IS AN ENERGY CRISIS



Source: US National Ocean and Atmospheric Administration (NOAA) / UK Climate Research Institute



Source: NASA



TIME
IN PARTNERSHIP WITH CNN

Environment: Dying Oceans, Poisoned Seas

Monday Nov 08, 1971

0 Tweet

In 1942, when French Undersea Explorer Jacques Cousteau explored the Sargasso Sea, he could see underwater for about 300 ft. Today, he reports, the visibility has shrunk to barely 100 ft. When he first started diving in the Mediterranean 25 years ago, it was filled with life. Today? "You can hardly see a fish 3 in. long." What has happened is that pollution has caught up with the seas' and oceans' ability to cleanse themselves. Cousteau estimates that the vitality of the seas, in terms of fish and plant life, has declined some 30% to 50% in the past 20 years.

April 17, 2011

npr **With Climate Change Comes Floods**

AFP/Getty Images

Bangladeshi women make their way through flood water at Dhakuria in Sirajgonj district on Sept. 10, 2007.

ScienceDaily
Your source for the latest research news

Global Warming to Bring More Intense Storms…..

Pakistan - 2010

Increase in annual temperature – 2ºF by 2020, 3.2ºF by 2040, 5.3ºF by 2080

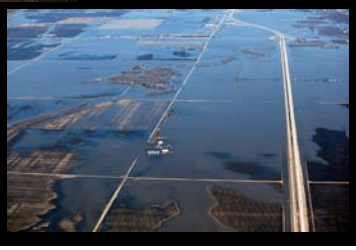
April 1 snowpack to decrease 28% by 2020, 40% by 2040, 59% by 2080

Area burned by fire – double by 2040, triple by 2080

WA 2007

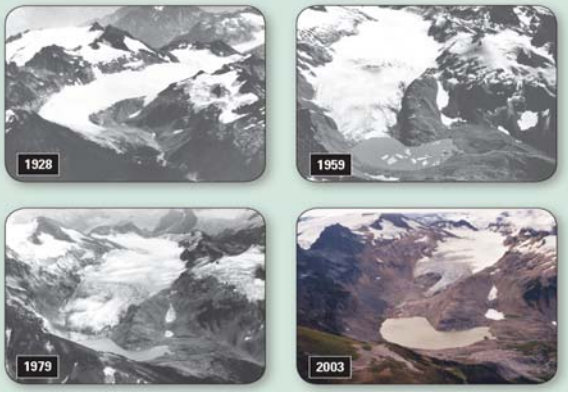
West Pittston, PA, Sept. 2011

Fargo, ND, April 2011

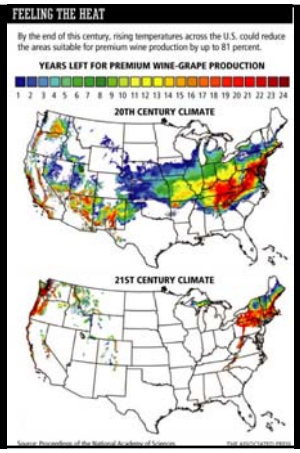


Texas, 2011

Texas, 2011



North Cascades Park has lost half its ice area in the past Century
Seattle Times January 4, 2010



How can the way we create and recreate our communities begin to address these challenges?

SEATTLE 2030 DISTRICT

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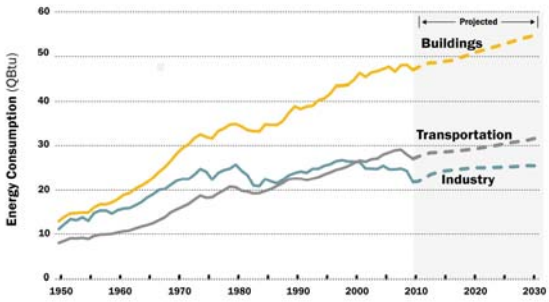
The EcoDistricts™ Framework
Building Blocks of Sustainable Cities

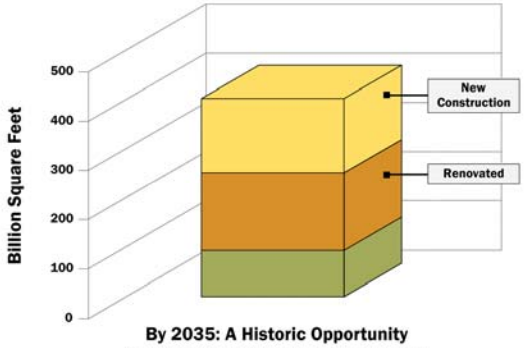
SEATTLE 2030 DISTRICT

A Groundbreaking high-performance building district in Downtown Seattle

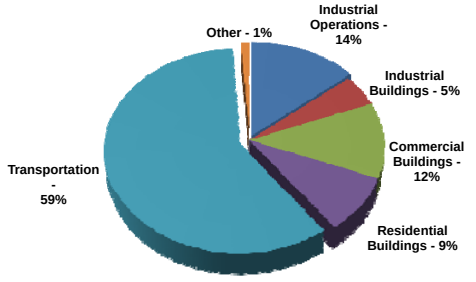
U.S. Energy Consumption by Sector



U.S. Energy Consumption by Sector (Historic / Projected)



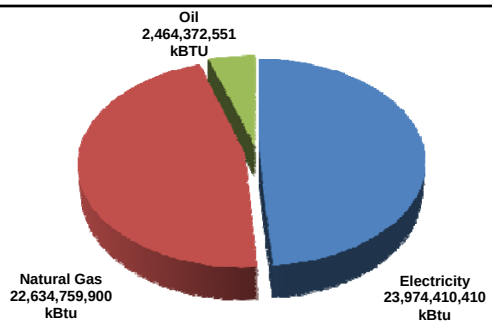
By 2035: A Historic Opportunity



Buildings – 26%
Buildings with Construction and Materials – 31.5%

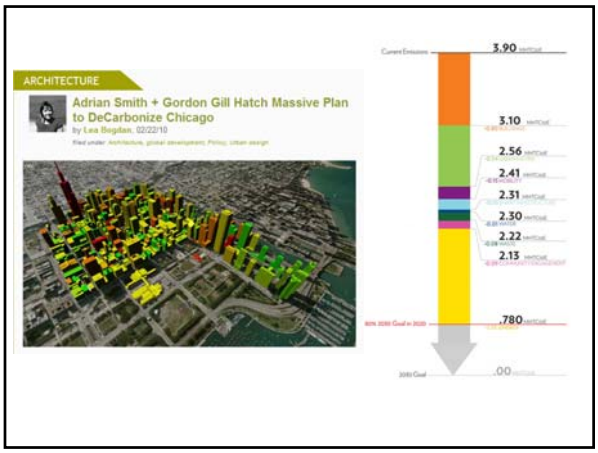
Seattle Energy Consumption by Sector

2008 Seattle Community Greenhouse Gas Inventory



Seattle Building Energy Consumption by Fuel Type

2008 Seattle Community Greenhouse Gas Inventory


ARCHITECTURE
Adrian Smith + Gordon Gill Hatch Massive Plan to DeCarbonize Chicago
by Lea Bogdan, 02/22/10
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3.10
2.56
2.41
2.31
2.30
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Central Business District and First Hill Area
Seattle, Washington


Central Business District and First Hill Area
Seattle, Washington


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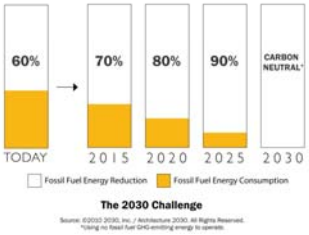
Seattle, Washington


Central Business District and First Hill Area
Seattle, Washington

Performance Targets

The 2030 Challenge for Planning
New Construction



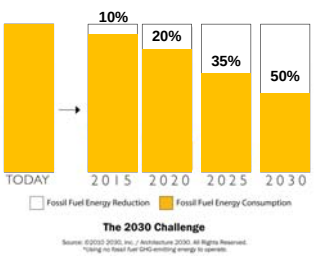
50% reduction in water consumption

+

50% reduction in Vehicle Miles Traveled (VMT) for auto and freight

Performance Targets

The 2030 Challenge for Planning
Existing Buildings



50% reduction in water consumption

+

50% reduction in Vehicle Miles Traveled (VMT) for auto and freight

The Regulatory Prefect Storm

US Conference of Mayors (USCM) Resolution #50 for all Cities

- June 2006

Calls for all new buildings and renovations (in all cities) to meet the 2030 Challenge.

http://www.architecture2030.org/files/USCM_Resolution_50.pdf

Seattle City Council

- A 2010 priorities was to adopt a carbon neutral goal for Seattle with specific milestones and implementation steps, along with a plan for adaptation to the effects of climate change.

The Regulatory Prefect Storm

State of Washington
- Legislation SB 5854

Energy Code reductions to 70% by 2030

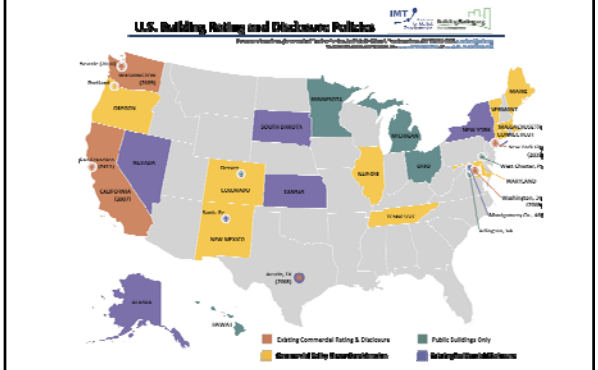
http://apps.leg.wa.gov/billinfo/summary.aspx?bill=5854&year=2009

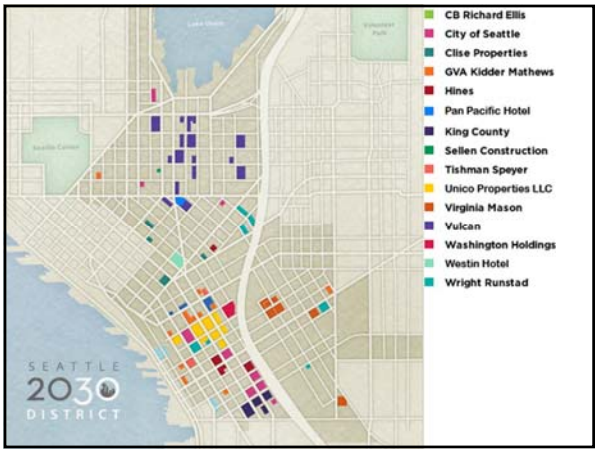
City of Seattle
- Ordinance CB 116731

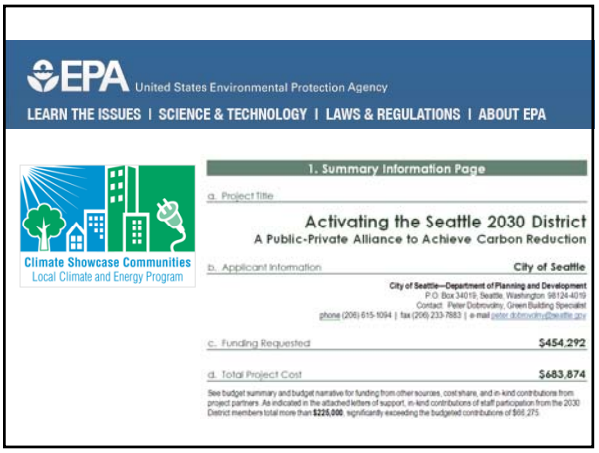
Public energy disclosure

http://www.seattle.gov/dpd/GreenBuilding/OurProgram/PublicPolicyInitiatives/DPDP018682.asp

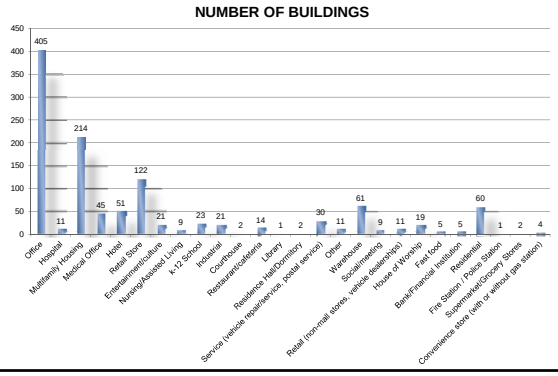
Replication Opportunities







Seattle 2030 District Profile



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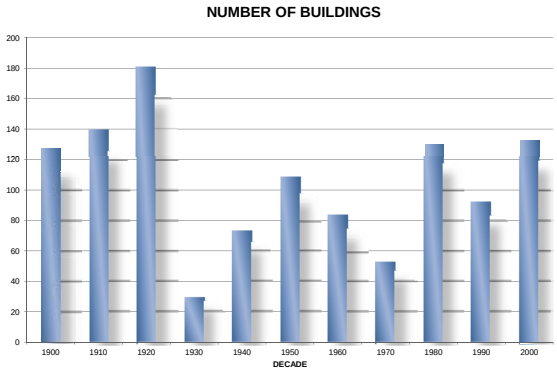

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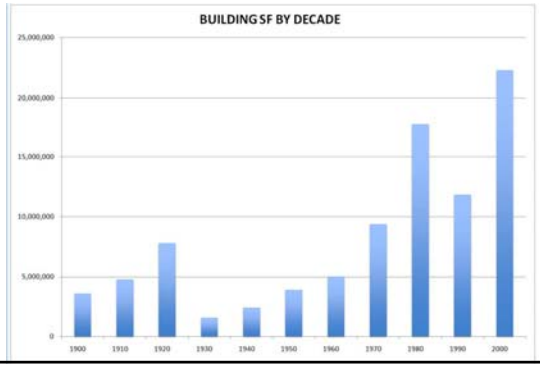

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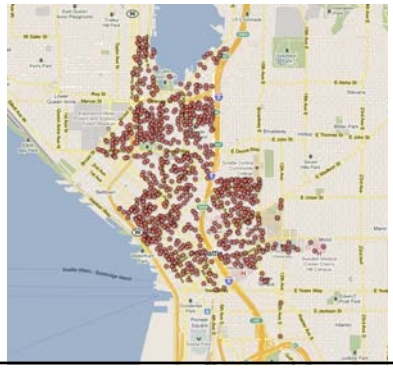

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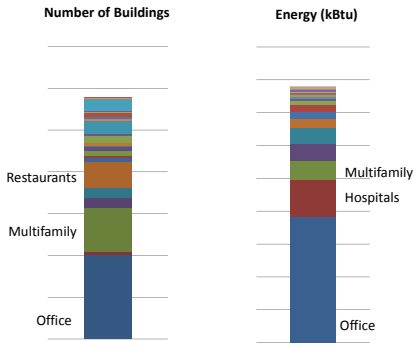
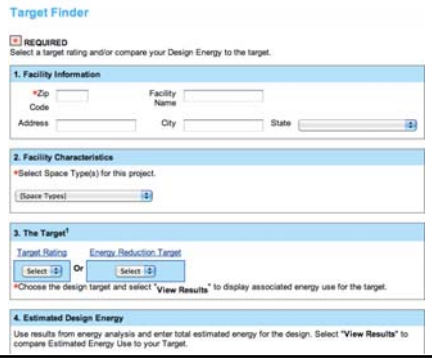


Performance Targets



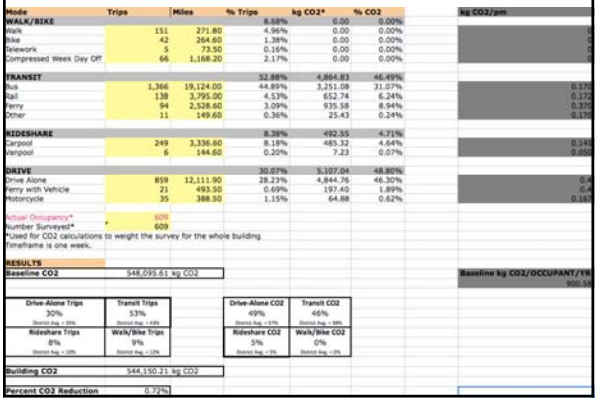
Performance Targets - Energy

BUILDING TYPE DESCRIPTION	# OF BUILDINGS	FLOORSPACE (SF)	AVG ENERGY USE (kBtu/sf/yr)
Bank/Financial Institution	4	36,501	9
Convenience store (with or without gas station)	4	6,572	24
Courthouse	2	642,902	10
Entertainment/culture	13	1,808,711	9
Fast food	4	17,098	53
Hospital	6	2,956,960	31
Hotel	37	4,533,136	7
House of Worship	12	298,289	2
Industrial	13	308,062	20
K-12	15	837,411	7
Library	1	412,000	10
Medical Office	31	3,873,403	9
Multifamily Housing	198	8,134,107	4
Nursing/Assisted Living	5	615,388	12
Office	265	23,567,325	7
Other	7	268,661	10
Residence Hall/Dormitory	1	45,288	8
Restaurant/cafeteria	9	116,945	30
Retail (non-mall stores, vehicle dealerships)	8	178,096	8
Retail Store	84	2,480,167	7
Service (vehicle repair/service, postal service)	20	270,658	7
Social/meeting	7	213,540	5
Supermarket/Grocery Stores	2	12,338	26
Warehouse	40	806,604	2
Seattle 2030 District	786	52,440,162	

Performance Targets - Water

BUILDING TYPE	BASELINE GAL/SF/YR
Restaurant	125.99
Hotel	50.07
MultiFamily	41.14
Social/meeting	36.95
Industrial	32.53
Nursing/Assisted Living	30.11
SF Residential	27.63
Hospital	26.12
Retail	24.77
Medical Office	21.00
Office	14.21
Warehouse	13.00
Entertainment/culture	12.88
Service (vehicle repair/service, postal service)	11.74
House of Worship	11.31
K-12 School	11.09

Performance Targets – Transportation CO2



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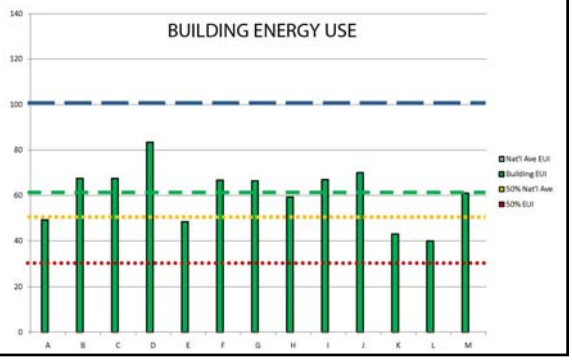


Roadmap to 2030 / Existing Buildings

Seattle 2030 District Energy Efficiency Contracting Services

Commitment to meeting District goals

Standard set of steps to achieve 50% savings or more

Development of design solutions and finance options

Construction and implementation

Ongoing measurement and verification with agreed on protocol

Continuous retro-commissioning & re-tuning

Training and Education

ENTER TARGET FINDER

BETTERBRICKS

Preferred Purchasing

CLINTON CLIMATE INITIATIVE

New Construction

Streamlined Permitting Services

Case Studies

SEATTLE
2030
DISTRICT

A Groundbreaking high-performance building district in Downtown Seattle

portland sustainability institute

MISSION
- Transitioning to a Low Carbon & Green Economy
- Greening the Built Environment

ACTIONS
- Drive high impact projects
- Develop innovative public policy
- Increase public awareness
- Accelerate global best practices

INITIATIVES
- Climate Prosperity Greenprint
- Oregon Sustainability Center
- EcoDistricts

building blocks of sustainable cities

ECODISTRICTS

A neighborhood committed to improving its sustainability performance over time with:

1.  GREEN BUILDINGS
2.  SMART INFRASTRUCTURE
3.  BEHAVIOR & CHOICE

Districts are an important scale to accelerate sustainability — small enough to innovate quickly and big enough to have a meaningful impact.

drivers

ECODISTRICTS

- Jobs
- Carbon
- Urban form
- Growth management
- Smart infrastructure
- Mobility
- Resilience
- ROI

value proposition
ECODISTRICTS

- TEST BED for building, infrastructure, and demand management solutions
- INNOVATION – Support the growth of clean tech and green development cluster
- TRIPLE BOTTOM LINE ROI supporting economic, environmental and equitable outcomes
- POLICY – Align and accelerate local public policies – link to state and federal agendas (e.g. HUD-DOT-EPA)
- BRAND cities sustainability leadership
- RESEARCH partnership with local universities

value proposition
ECODISTRICTS

- Public private partnerships that link:
  - Real estate development
  - Infrastructure projects
  - Demand management projects
- Vehicle to recruit consortium of companies and researchers to participate
- Vehicle for supporting tech commercialization

value proposition
ECODISTRICTS

Grey to Green

- $63M savings ($11M investment)
- Achievement of watershed goals
- Improved placemaking
- Enhanced property values
- Local job generation

Courtesy of Puttman Infrastructure

HOW

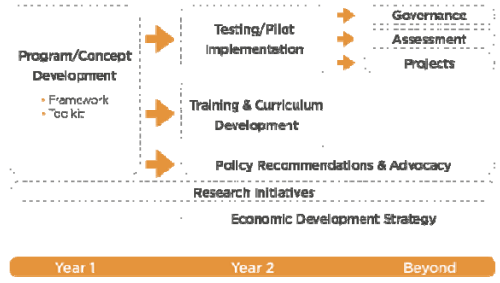
framework
ECODISTRICTS

process
ECODISTRICTS

Five Step EcoDistricts Implementation Process

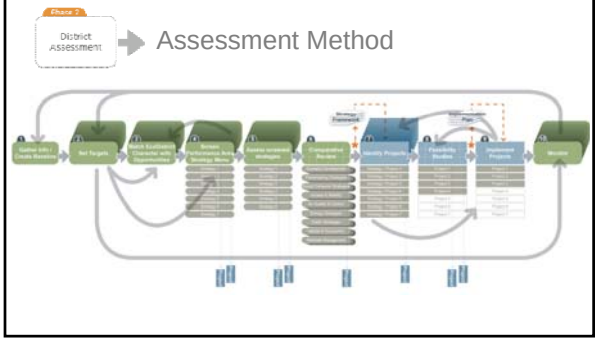
initiative roadmap

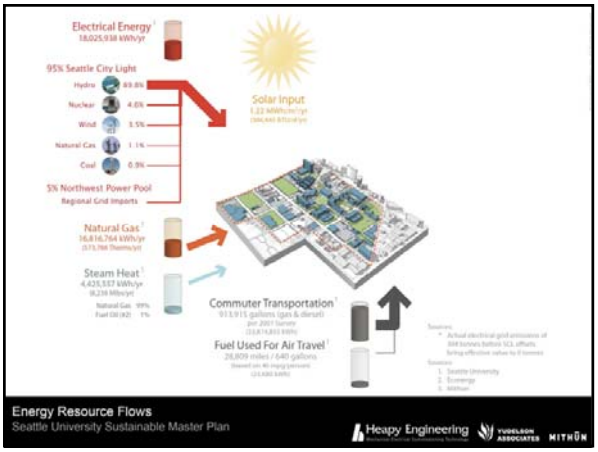
ECODISTRICTS

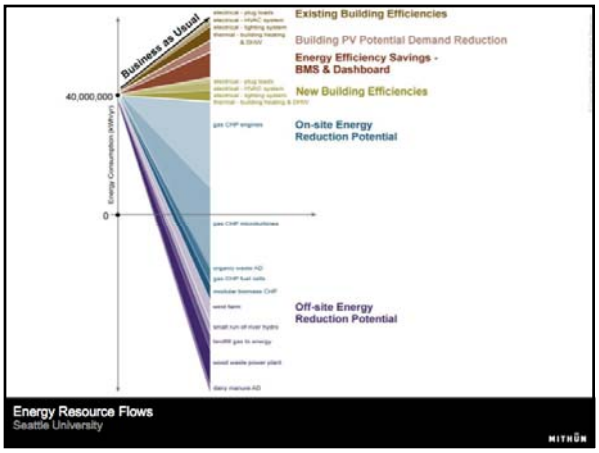


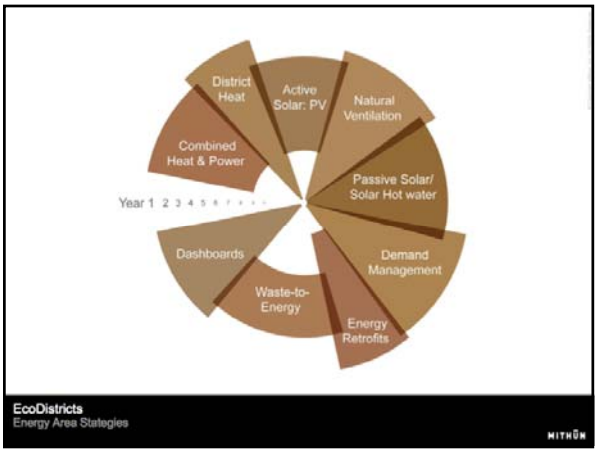
district assessment

ECODISTRICTS

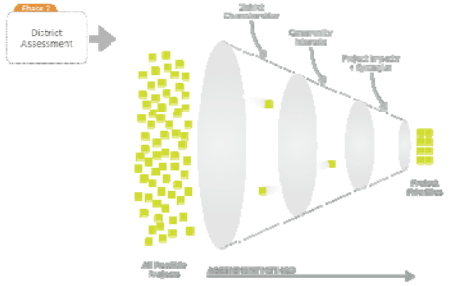






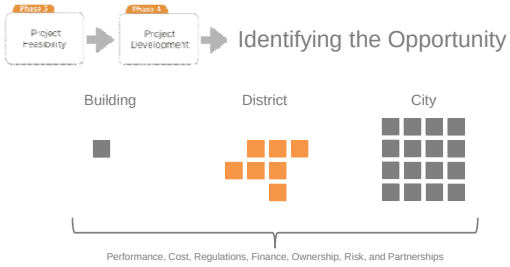


district assessment
ECODISTRICTS



PROJECTS

projects
ECODISTRICTS



projects
ECODISTRICTS

Types of Projects


GREEN BUILDINGS


SMART INFRASTRUCTURE


BEHAVIOR & CHOICE

projects
ECODISTRICTS

Green Buildings

projects
ECODISTRICTS

Smart Infrastructure Strategy

Objective:
- Create district infrastructure strategy and roadmap to leverage public and private investments to catalyze EcoDistrict development.

Scope:
- Establish infrastructure concepts for energy, water, transportation and waste management
- Create district performance specification ("performance spec")
- Develop of a "unified CIP" to guide public infrastructure improvements (cross bureau integration)
- Identify potential 3rd party infrastructure opportunities
- Develop and test business model scenarios for implementation

projects

ECODISTRICTS

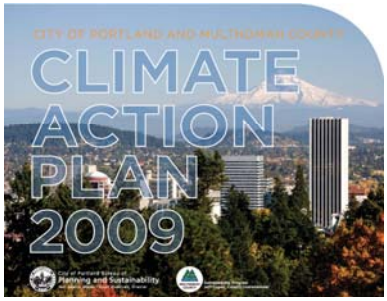
Behavior & Choice

KNOWLEDGE + GOALS + PROJECTS + INCENTIVES = ACTION

Courtesy of Puttman Infrastructure

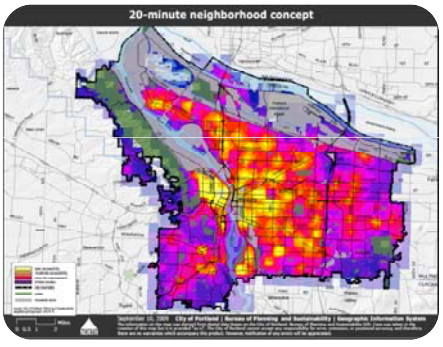
CITY LEADERSHIP

CLIMATE ACTION



PORTLAND PLAN

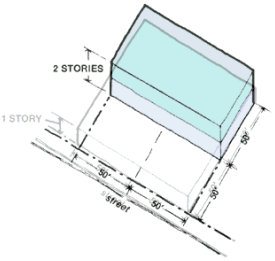
HEALTHY CONNECTED CITY

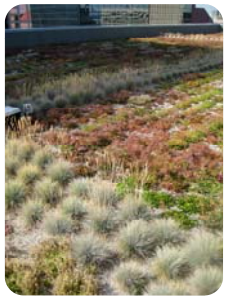


POLICY & CODE

FINANCING

INCENTIVES

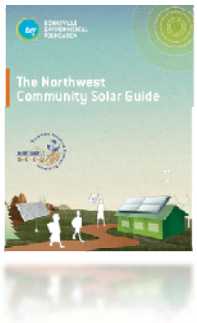




ENERGY EFFICIENCY

SOLARIZE PDX

COOPERATIVE SOLAR



DISTRICT ENERGY

Presented by GE and the City of Portland

portland sustainability institute

The EcoDistricts Summit

Accelerating Sustainability at a District Scale

October 26-28, 2011

Portland, Oregon

www.ecodistrictssummit.com