

Coping with a Changing Climate: Opportunities and Challenges for Local Planning



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Overview

- What is ICLEI?
- Impacts of a Changing Climate
- Context for Local Action
- Planning for Climate Protection & Community Resilience
- Measurement & Indicators
- Barriers and Opportunities

What is ICLEI?

*International membership association of local governments
dedicated to achieving tangible improvements in global
environmental conditions through cumulative local action*

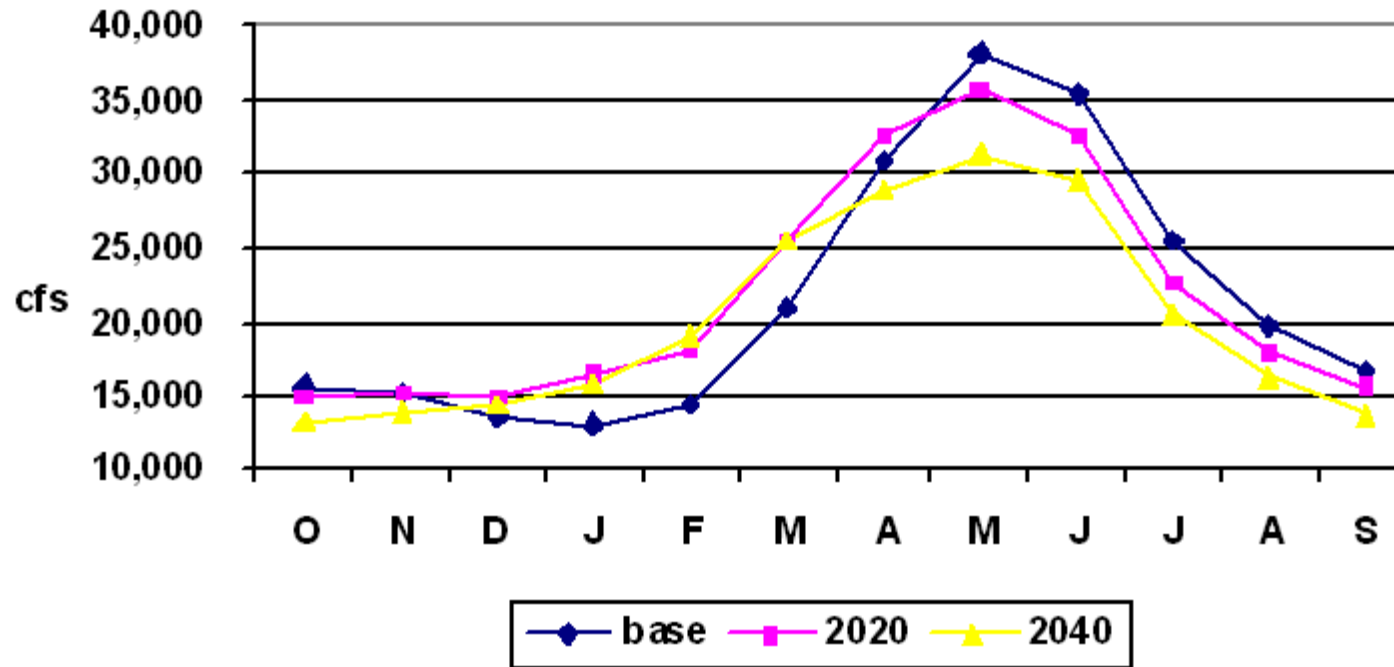
Over 1000 members worldwide – more than 600 in the U.S.

Members in all 50 states

3 Main Program Areas

Impacts of a Changing Climate

Hells Canyon Flows



University of Washington, University of Idaho, University of Montana

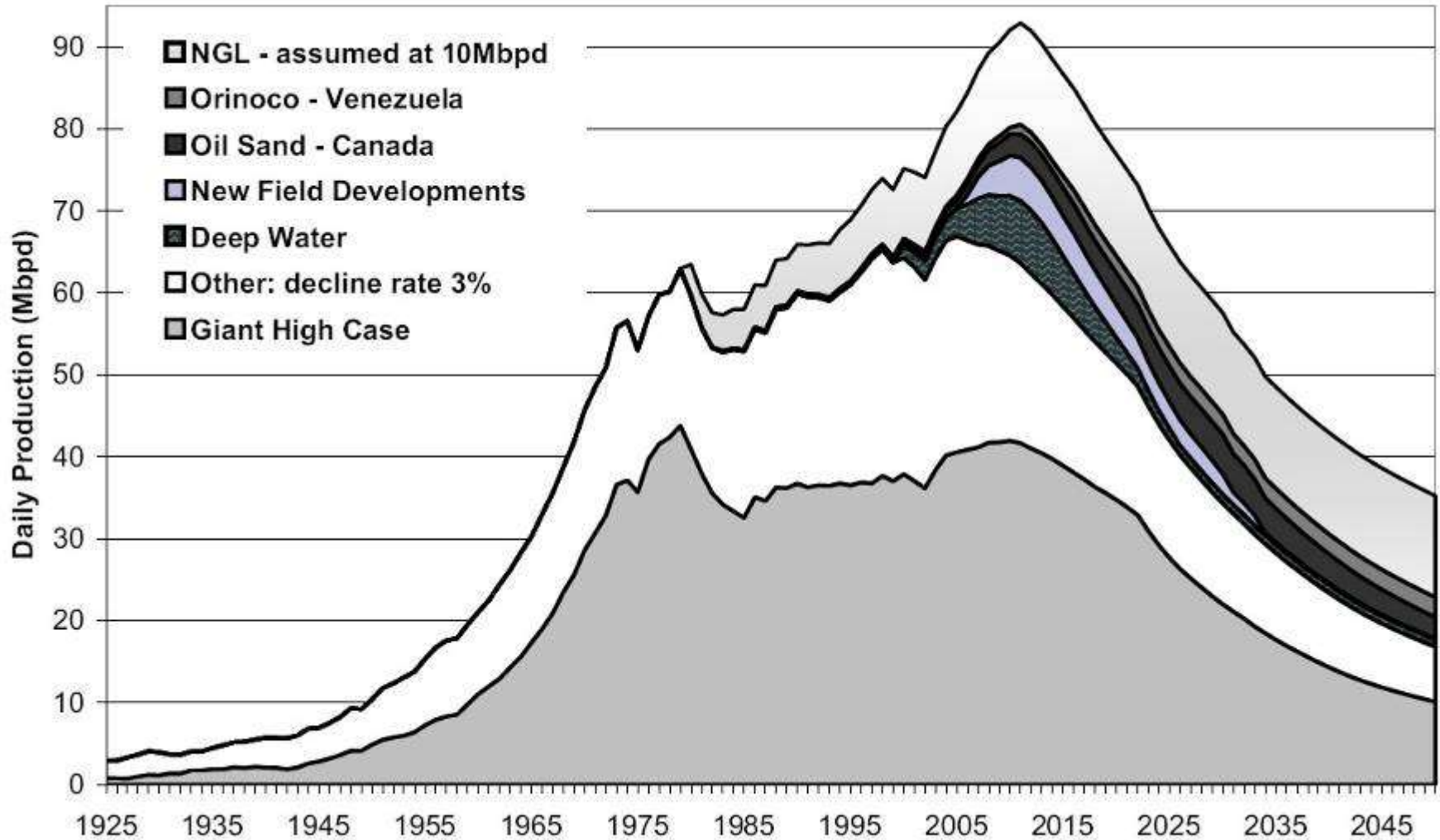
Climate Impacts Group:

<http://cses.washington.edu/cig/pnwc/ci.shtml>

Climate impacts in Idaho:

http://www.webpages.uidaho.edu/~jhicke/courses/biogeog_fall08/climate_change.pdf

Resource Scarcity



Source: Uppsala Hydrocarbon Depletion Study Group (www.tsl.uu.se/uhdsg)



Non-Environmental Impacts



Credit: flickr/[mark.hogan](https://www.flickr.com/photos/mark.hogan/)

"The ruins of the unsustainable are the 21st century's frontier."

Planning Context – International Action



Planning Context – Federal & State Action

- Cap & Trade
- Renewable Energy Standards
- Low Fuel Standards
- CAFE Standards
- Utility Regulation

“As the World Burns: How the Senate and the White House missed their best chance to deal with climate change.”

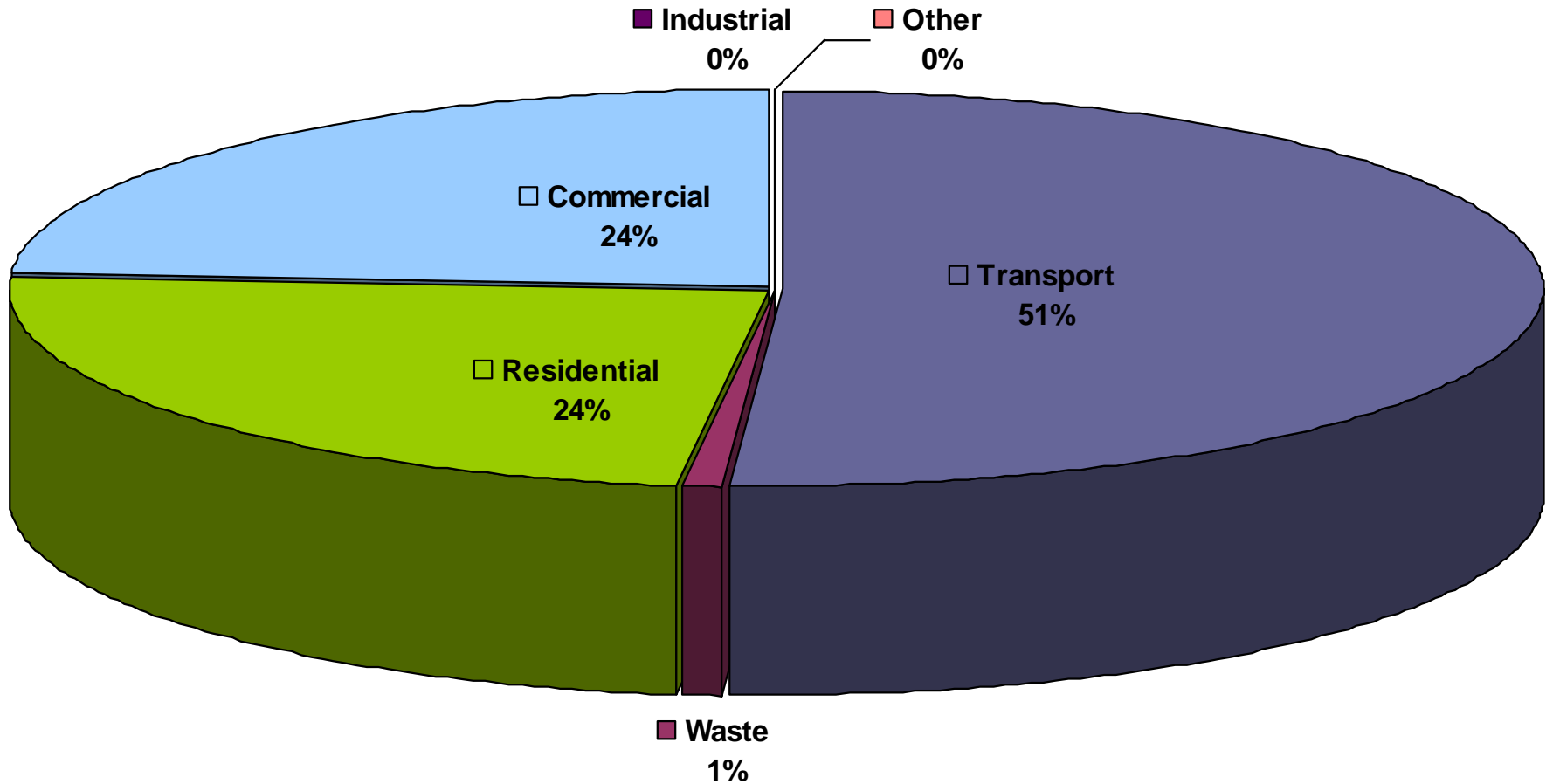
- New Yorker, October 11, 2010

The image shows the header and navigation menu of the ICLEI website. The header features the ICLEI logo on the left, which includes the text "I.C.L.E.I. Local Governments for Sustainability" and a yellow circle with "USA". On the right side of the header, there are links for "ICLEI Worldwide", "FAQ", "Newsletter", and "Press Room". A search bar is also present with the text "Search Site" and a magnifying glass icon, with a checkbox option "only in current section". Below the header is a navigation menu with the following items: "About ICLEI", "Programs", "Action Center", "Success Stories", "News & Events", "Blog", and "login". The background of the header features a city skyline with the text "Local Action Moves the World" overlaid.

Five-Milestone Methodology



GHG Emissions in the PNW



Climate Action Planning - Mitigation

- Includes M1 & M2 components
 - Inventory to establish baseline
 - Emissions Reduction Target
- M3: Plan to achieve reduction target by set date
- Plan components
 - Energy use – residential, commercial & industrial
 - Water – movement & treatment (wastewater/sewer)
 - Solid Waste
 - Transportation & Land Use



Climate Action Planning - Adaptation

- Community Resilience
 - M1: Baseline resiliency study
 - M2: Preparedness goals
- M3: Preparedness Plan
- Plan components
 - Risk sectors
 - Water
 - Energy supply
 - Emergency preparedness

- Not mutually exclusive!



Climate Action Planning

- TLUC
 - Commute Trip Reduction (TDM)
 - Parking Management
 - Non-auto Infrastructure
 - Transit Services
 - Transit Oriented Development
 - Compact Urban Form
 - Electric Vehicles?
 - Car sharing
 - Fleets



Climate Action Planning

- Development/Building Policy
 - Green Building
 - Priority Permitting
 - Impact Fees
 - Recycling/waste
 - Point of Sale Disclosure
 - PACE (financial tools)

- Internal Operations
 - Fleet
 - Water
 - Facilities/Energy



Climate Action Planning

- Information & Resources
 - Networks
 - APA
 - AIC/IAC
 - ICLEI
 - USDN
 - Inter-governmental Cooperation
 - Partners
 - Utilities
 - Universities
 - INL
 - EPA/NOAA/etc



Commute Trip Reduction

City of Kirkland WA (Pop ~48,500)

- Commute Trip Reduction/Transportation Management Program = 8,846 tons of CO₂e per year
 - Transportation Management Program (TMP) required in Office buildings > 50,000
 - Allowances to lower parking requirements if developer implements Transportation Demand Management (TDM) programs, with City assistance
 - Covered bicycle parking required city-wide in new development (not SF)
 - Bike lanes, pedestrian improvements



Commute Trip Reduction

City of Berkeley CA (& AC Transit) – EcoPass (Pop ~102,800)

- City employees allowed unlimited use of AC Transit buses, including Transbay lines.
- Demonstration year (2002)
 - 59% of employees used Eco Pass.
 - In 2003, Eco Pass was distributed to all employees and average monthly boardings increased by 16% and the number of Eco Passes in use increased by 19%.
- Victoria Transportation Policy Institute
 - Cost-effective
 - Relatively low-impact



Transportation Demand Management – Parking

- “Compared with other out-of-pocket expenses, parking fees are found to have a greater effect on vehicle trips, typically by a factor of 1.5 to 2.0.”
 - Victoria Transport Policy Institute

- Elasticity of vehicle trips with regard to parking prices is typically in the -0.1 to -0.3 range (a 10% increase in parking charges reduces vehicle trips by 1-3%)
 - Transportation Research Board

- ICLEI analysis: parking management “package” for City of 400,000
 - Price increases in metered & garage parking
 - Fees on new surface lots
 - Real-time parking facility information
 - Unbundling parking & unit costs in new development

- Over \$10 million in new revenue

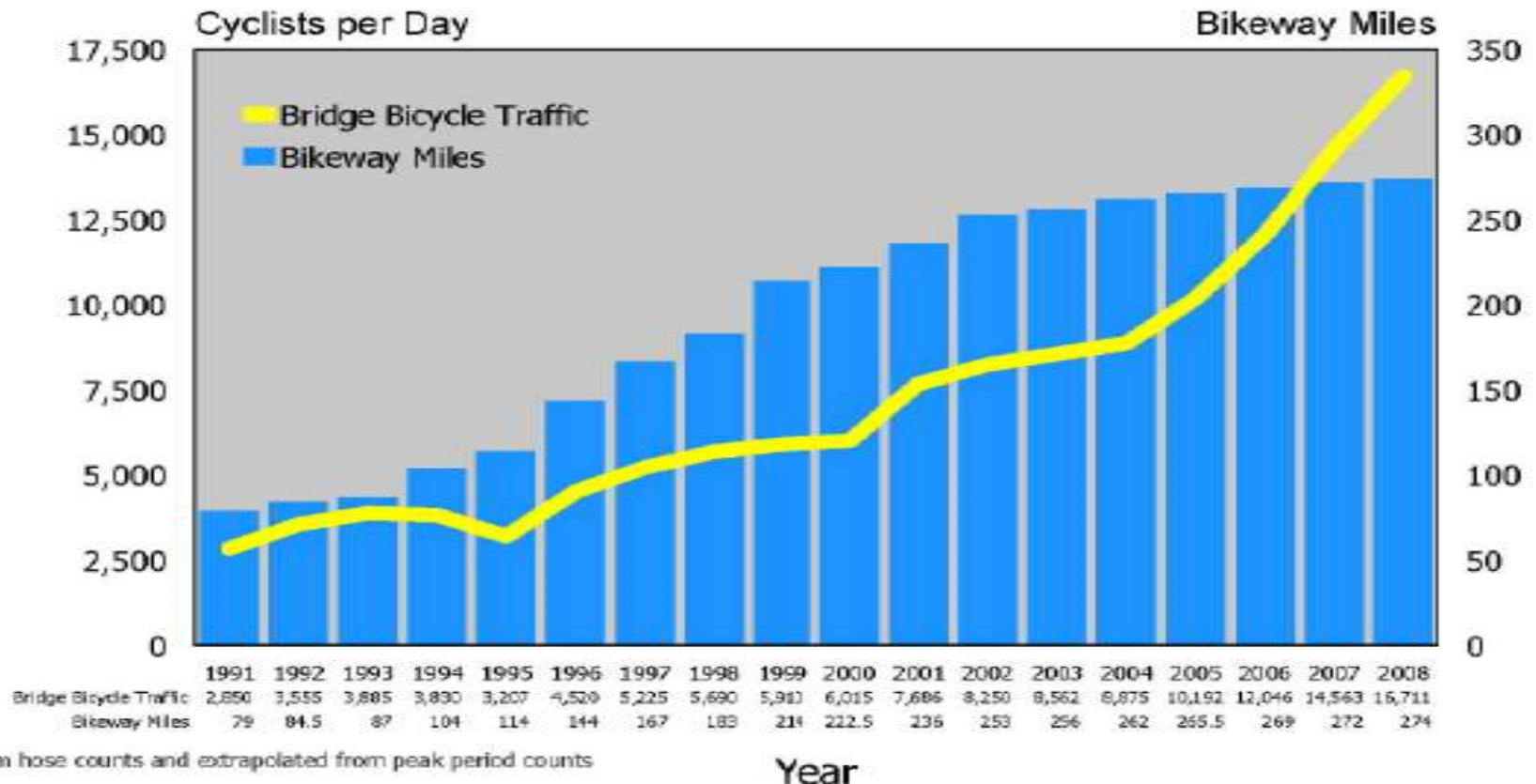
- Over 25,000 tons of CO₂e reduced

Parking Management – Portland, OR

- Portland capped parking spaces in downtown area at 44,000. Maximum parking limits based on:
 - Type of use
 - Availability and frequency of transit service
 - Allows transfer of unused parking entitlement
- Lower maximums based on $\frac{1}{4}$ mile walk from frequently served bus stop or $\frac{1}{2}$ mile walk from a transit station.
- Parking maximum in central core is 0.7 per 1,000 sq. ft. and rises up to 2.5 spaces per 1000 sq. ft. in adjacent business districts.
- Results:
 - Transit use increased 20-25% at the initial implementation stage and 48% in mid-1990's, due in part to parking maximums.

Pedestrian & Bicycle Infrastructure

Combined Bicycle Traffic over Four Main Portland Bicycle Bridges Juxtaposed with Bikeway Miles

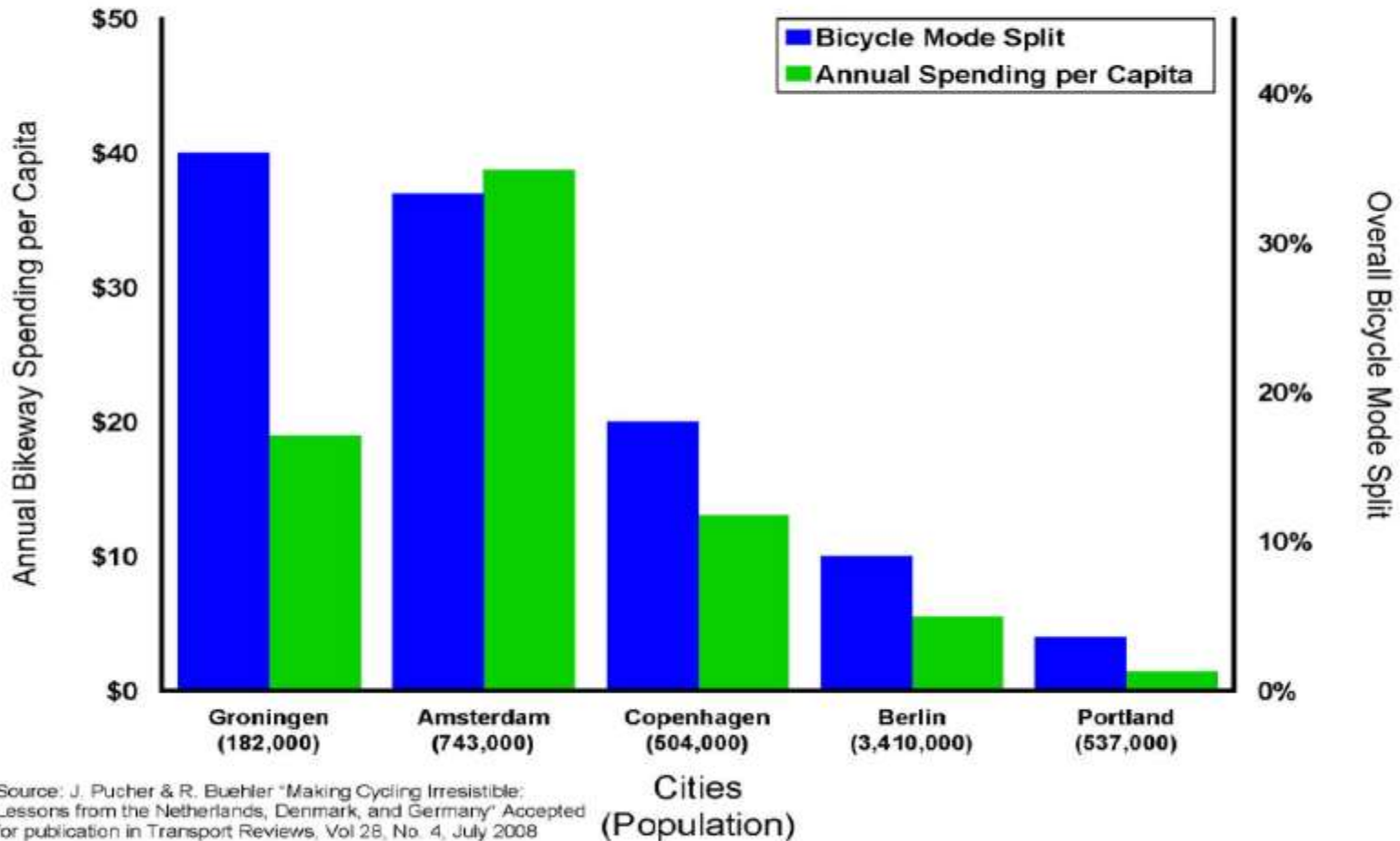


From hose counts and extrapolated from peak period counts

Portland's Bikeway Network increased 250% between 1991 and 2008. During that same period, the number of bicycle riders daily crossing the four main bicycle bridges in Portland increased 490%. This increase was especially noticeable on the Broadway, Hawthorne, and Steel Bridges, where combined daily ridership went from 2,115 in 1991 to 14,676 in 2008. During this period, the bikeway network feeding these bridges was greatly improved, as were facilities on the bridges themselves.

Pedestrian & Bicycle Infrastructure

Annual Spending on Bicycles per Capita and Mode Split



Transit Oriented Development (compact urban form)

- High Reduction Potential:
 - Center for Clean Air Policy: site-level VMT reduction = 20-30%
 - *Growing Cooler*, Ried Ewing et al.: VMT reduction = 30% in compact TOD
- Common indicators rarely include GHG or energy
 - Increased Ridership = decreased VMT



Transit Oriented Development

- **Sacramento: 29th Street Station (Farmers Market)**
 - Total commercial area of 500,000 square feet
 - 44% of on-site employees utilize public transit
 - Modeling for Royal Oaks Station TOD shows 15% decrease in VMT and 68% increase in transit boardings (based on 1,224 dwelling units and 2,137 employees).



Renewable Energy & Financing

Community Solar Project – Ellensburg, WA

- ❑ Community & municipal utility jointly fund purchase of system
- ❑ City provides utility bill credit equal to household's share of production
- ❑ Program expanded to include thin-film solar and micro-wind

PACE (on-bill financing)

DOE – Solar America Cities

<http://www.solaramericacities.energy.gov/>



Setting Policy & Integrating Sustainability

- Priority Permitting
 - ❑ Seattle (Pop ~617,300)
 - ❑ Redmond, WA (Pop ~52,500)
- Plan integration (Comp plan)
 - ❑ Seattle
 - ❑ Portland (Pop ~566,000)
 - ❑ Lynwood (Pop ~35,000)
 - ❑ Issaquah (Pop ~24,000)



S.A.M.

Sustainable Action Map



Name: _____

Decision: _____

Healthy Environment



Natural: How does it impact environmental health?

S:
W:
O:
T:

Strong Community



Individual: How does it directly impact the well-being of people?

S:
W:
O:
T:



Community: How does it impact relationships, effective government, social justice, and overall livability?

S:
W:
O:
T:

Vital Economy



Economy: How does it impact the local economy and at what long and short term costs?

S:
W:
O:
T:

Print

SWOT: S=Strengths W=Weaknesses O=Opportunities T=Threats

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City/Citizen Partnerships



- Low income home weatherization
- Green Business Recognition
- Community green power or EE challenge
- Tax benefits for Clean Tech/Green businesses
- Household energy competitions
- Community efficiency challenges – 10% Challenge
- Create climate change curriculum

Community Outreach



Green Business Program

Kirkland, WA

Mayor's Climate Challenge

Eugene, OR

- ▶ Transportation
- ▶ Home
- ▶ Food
- ▶ Waste
- ▶ Yard
- ▶ Next Steps

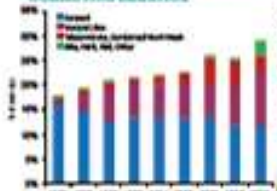


Contribute to and learn about other tips from the community in our Climate Challenge Forum

Measurement & Indicators

MOBILITY

CHANGING COMMUTING BEHAVIOR



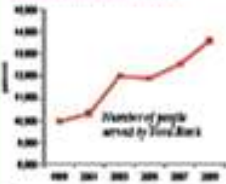
Since 1993, employees of large business have been taking fewer trips by car and more by vanpool, bus and other means. Drive alone level decreased from 55% of trips in 1993 to 71% in 2008.

An award winning program, COFFCO hosts 54 vanpools, one of the largest fleets in the state. 32% of employees commute to the world-wide headquarters of the Issaquah employee by bus, bike, telecommute, carpool or vanpool.



FOOD BANK USE

EXPANDING BASIC NEEDS



The number of people served by the Issaquah Food Bank has increased by 5,000. The Food Bank does not serve everyone in need and has continued to expand its operations since it opened in 1982.

The FRATLAND COMMUNITY GARDEN, a project of Sustainable Issaquah, provides a place to acquire fresh, organic produce, gather neighbors and connect with local vendors. The garden was first at Work! started by a group of interested individuals, the garden designed 25% of plots to growing food for the local food bank, providing 300 pounds of organic produce last year alone.

ARTS PARTICIPATION

PARTICIPATION IN ART WALK



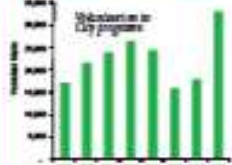
The art walk is a key to local economic development and foster understanding between community members. During the past 2 years, attendance at Art Walk has increased to approximately 2,000 participants.

Beginning with a single idea to spread culture in historic downtown Issaquah, ART WALK has grown from just one art gallery in 2005 to 5 galleries, a glass blowing studio, 5 music instruction schools and more than a dozen businesses that feature local artists. Art Walk is held May-September on the first Friday of the month.



VOLUNTEERISM

INVOLVEMENT IN OUR COMMUNITY



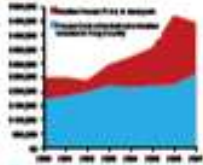
By volunteering, residents improve the quality of life in Issaquah for themselves and others, which is fundamental to building a more sustainable community. Issaquah residents volunteered 25,310 hours last year in City programs alone, a value of more than \$701,000 in donated time.

MOUNTAINS TO SOUND has been a leader in engaging, communicating and preserving natural areas for generations to come. Since 2002, in partnership with the City, thousands of volunteers have invested more than 60,000 hours restoring natural areas in and around Issaquah.



HOUSING AFFORDABILITY

CHANGING HOUSING AFFORDABILITY GAP



The gap between the amount a typical household can afford for housing and the median price of housing in Issaquah has increased from \$71,000 in 1993 to \$181,200 in 2007.

Developed by the TWPCA of Seattle-King, the newly the FAMILY VILLAGE will greatly expand truly affordable housing in the Issaquah community. Featuring sustainable design principles, homes will be provided for 400 persons including working families, disabled individuals and seniors.



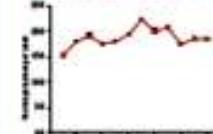
How is ISSAQUAH DOING?

"Sustainability is not some abstract ideal, it's about the relationships and balance between clean, fresh air, a vibrant environment, our people and our economy." - Mayor Art Pranger

SUSTAINABILITY is thinking long term. It recognizes the interrelationships of social, economic and environmental challenges, and assures the quality of life for the next generation.

WASTE GENERATION

WEEKLY HOUSEHOLD GARBAGE

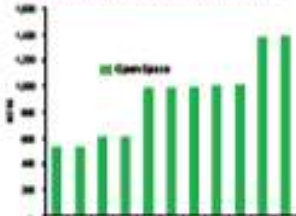


Although Issaquah households now recycle 6% more than in 1993, total waste generation has increased to 14.4 pounds per person per week, up from 11.2 pounds in 1993.

Leaders in food waste composting, the National Days REUSE RANGERS diverted 4.7 tons of waste from the landfill at the city's first, second Issaquah Festival, using events including bicycle of the Year from the WA State Recycling Association. Over 700 volunteer hours were devoted to recycling and waste collection at last year's event.

NATURAL OPEN SPACE

GROWTH IN NATURAL OPEN SPACES



During the past 10 years, Issaquah protected open space has grown by 50 acres, representing nearly 30% of total acres in the City.

Founded in 1979, the ISSAQUAH ALPS TRAILS CLUB was instrumental in the preservation of Cougar, Squah and Tiger Mountains.

More than 350 miles of trails and 25,500 acres of forested hillside form Issaquah's backdrop, making it the 19th "Fittest City" Free guided hikes are provided year-round.



EDUCATION

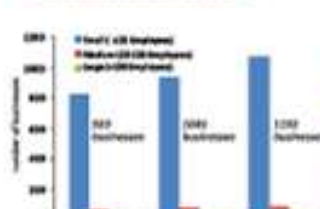
Issaquah schools are consistently ranked among the best in the nation. Local students hold graduation rates of approximately 95%. Education is a key indicator of sustainability. Solutions and measurement of behavior is still in progress.

With interactive science and technology curricula, student-run learning gardens, environmental projects and high-lying recycling initiatives, Issaquah faculty and staff educate our six state recipients of EARTH HEROES AT SCHOOL environmental award.

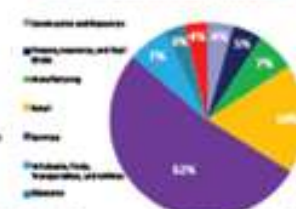


BUSINESS DIVERSITY

ISSAQUAH BUSINESSES BY SIZE



ISSAQUAH BUSINESSES BY TYPE



Issaquah economy supports businesses of many sizes and types as well as employees with diverse skills. The number of small and large businesses have both grown since 2005, as well as the number of jobs in many sectors.



For more than 12 years, the DOWNTOWN ISSAQUAH ASSOCIATION and CHAMBER OF COMMERCE have presented the historic downtown area and its many places to dine, play live and work. From the historic Stationer Food Store, ARTWALK and Village Theater to historic stone and restaurants, Issaquah is a growing and vibrant center.

Measurement Tools

- CACP

<http://www.icleiusa.org/action-center/tools/cacp-software>

- CAPP

<http://www.icleiusa.org/action-center/tools/decision-support-tool>

- CCAP

http://www.ccap.org/safe/guidebook/guide_complete.html

- ADAPT

<http://www.icleiusa.org/action-center/planning/climate-adaptation-planning-resources>

- Sierra Club calculator

<http://www.sierraclub.org/sprawl/density/>

<http://www.smartgrowth.org/library/bytype.asp?typ=26&res=1280>



ARRA & plan implementation

- ARRA funding round 1:
 - \$400 million for transportation electrification
 - \$2 billion for advanced battery manufacturing grant
 - \$3.2 billion for EECBG
 - Development and implementation of transportation programs to conserve energy
 - State pass-through funds
- Electric vehicles
- Traffic Signalization



ARRA & plan implementation

- **Recovery Act Funds:
Job-months per
billion dollars**
- Public Transportation
= **16,419**
- Highway
Infrastructure
(Surface
Transportation
Program (STP) funds)
= **8,781**

<http://www.smartgrowthamerica.org/stimulus2009.html>

January 5, 2010

What we learned from the stimulus



*And how to use what we
learned to speed job creation in
the 2010 jobs bill*



Barriers & Opportunities

- Attention & Importance
 - Impacts remote in time and space
 - Political indifference/low priority
 - Community indifference/low priority

- Social/Political Hostility
 - Language of sustainability & climate
 - Doubts about science & impacts

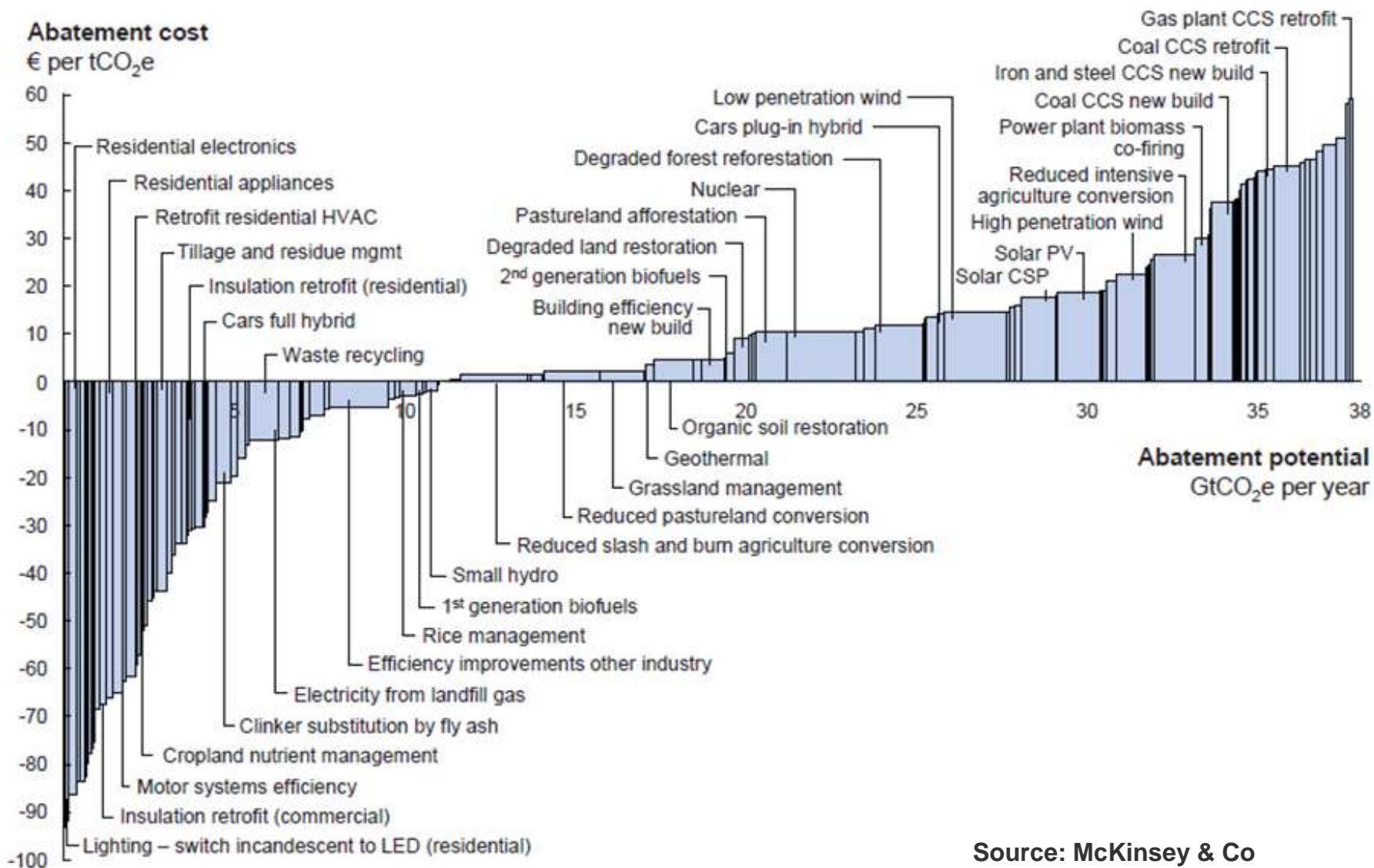
- Lack of Resources
 - Funding
 - Staffing



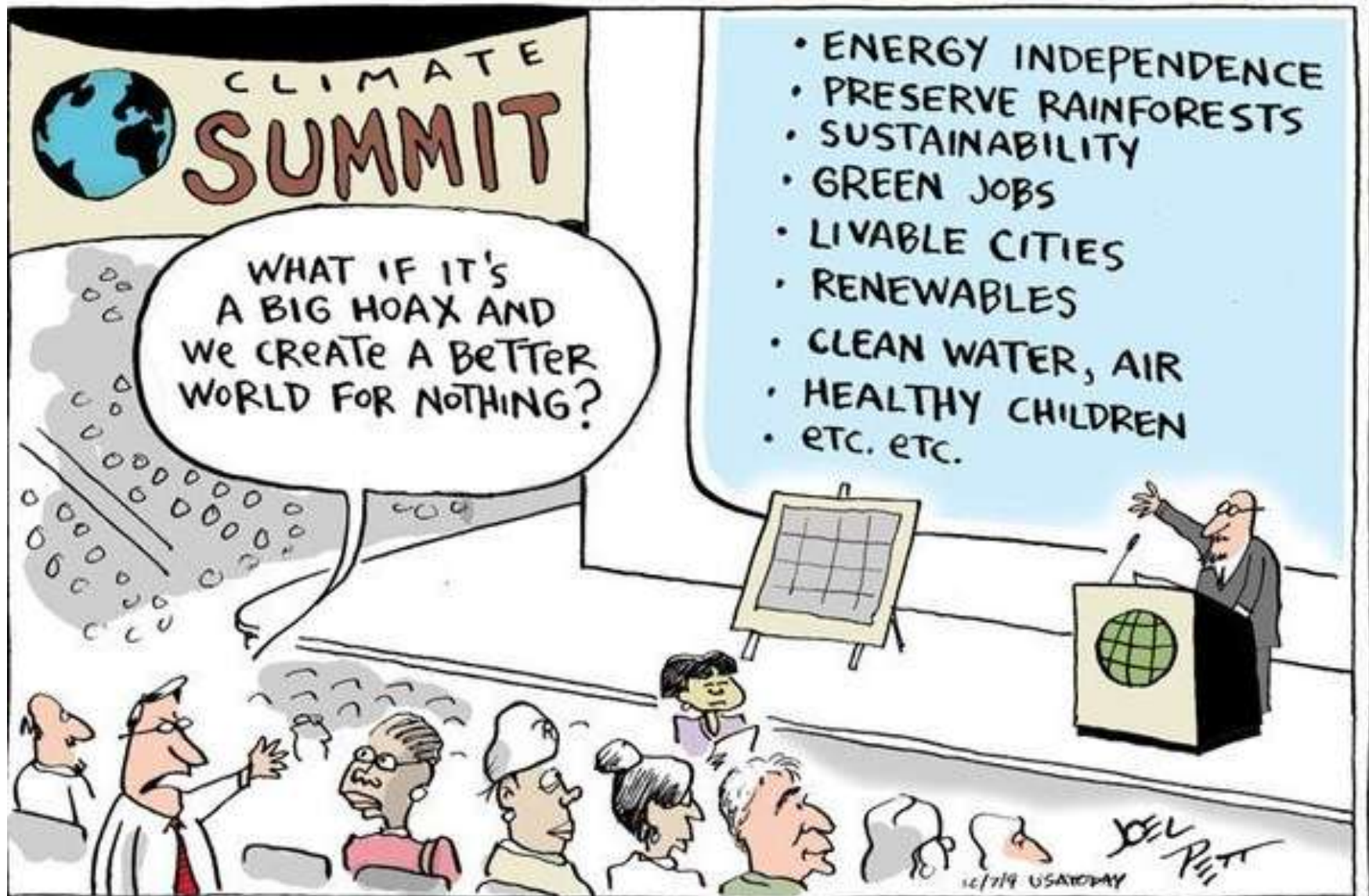
Image: Denver Post

How Much Will It Cost?

Global GHG abatement cost curve beyond business-as-usual – 2030



Barriers & Opportunities



Thank You!



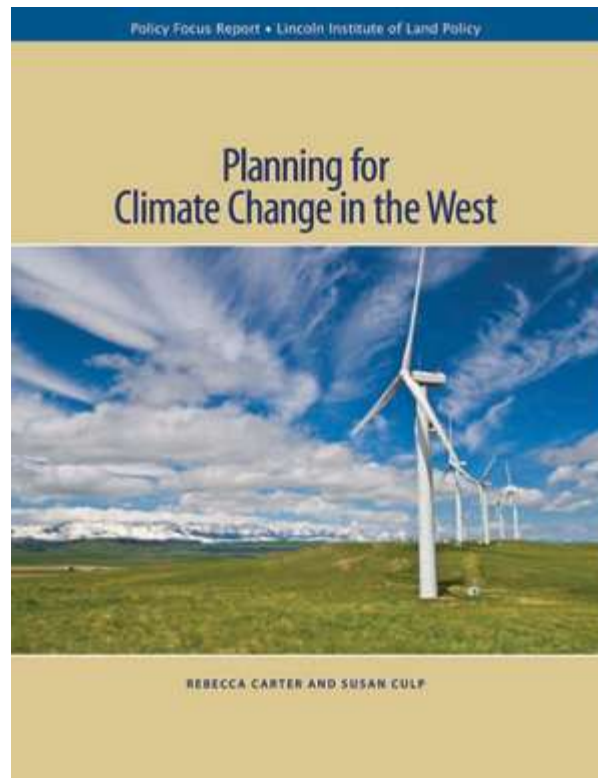
Photo by Jason Abbot

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Reference Materials

- <http://www.icleiusa.org/action-center/learn-from-others/transportation-and-climate-change-project/>
- <http://www.icleiusa.org/action-center/planning/transportation-and-land-use-planning-resources>
- <http://www.icleiusa.org/action-center/learn-from-others/Policy%20Implementation%20Matrix.pdf>
- <http://www.icleiusa.org/action-center/learn-from-others/case-studies/TOD%20case%20study.pdf/>
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- Growing Cooler: Evidence on Urban Development and Climate Change. Reid Ewing, et al. Urban Land Institute. October 2007
- Metropolitan Transportation Commission. "Reforming Parking Policies to Support Smart Growth. Toolbox/Handbook: Parking Best Practices & Strategies for Supporting Transit Oriented Development in the San Francisco Bay Area." June 2007. p. 28. (http://www.mtc.ca.gov/planning/smart_growth/parking_seminar/Toolbox-Handbook.pdf)
- Victoria Transport Policy Institute. "Parking Management: Strategies for More Efficient use of Parking Resources". Parking Maximums. http://www.vtppi.org/tdm/tdm28.htm#_Toc128220478
- "Planning for Climate Change in the West." Rebecca Carter and Susan Culp. Lincoln Institute and Sonoran Institute. http://www.lincolninst.edu/pubs/1744_Planning-for-Climate-Change-in-the-West

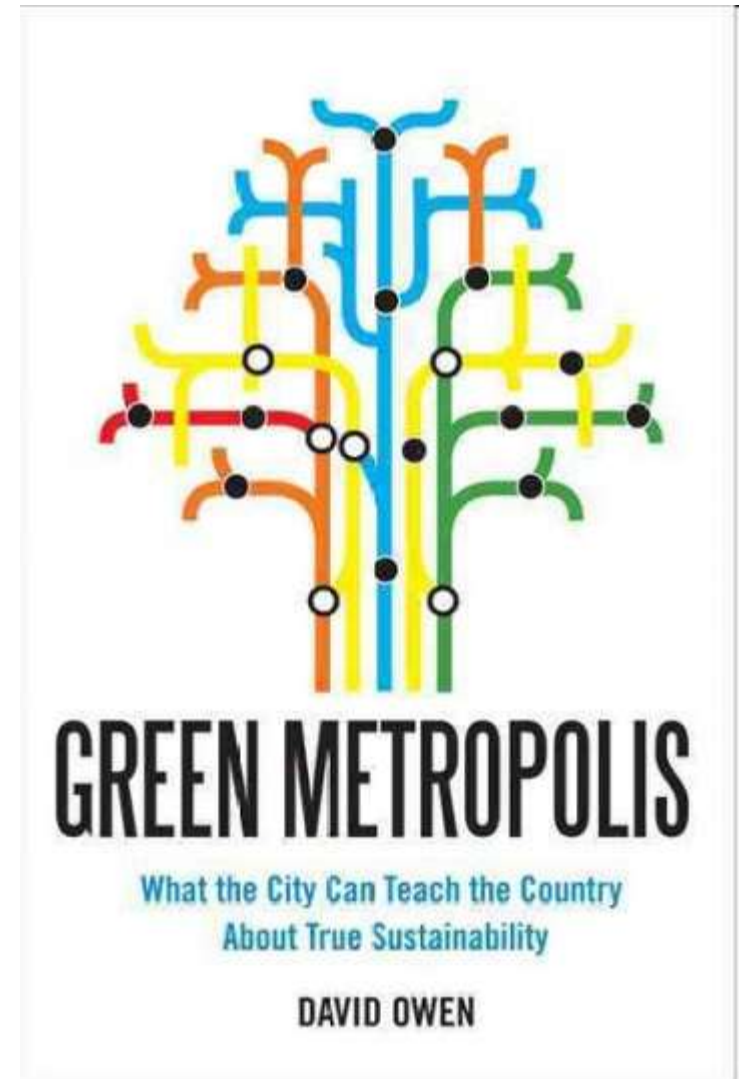
- Planning for Climate Change in the West



Urbanism. Density. Walkability.

- Urban = green?
- “There are two things Americans hate: sprawl and density.”
- ‘Deep Walkability’
 - “The true test of walkability I think is this: Can you spend a pleasant half hour walking or on transit and end up at a variety of great places?”
 - Alex Steffen, Worldchanging

<http://www.worldchanging.com/archives/010931.html>



Looking forward

- 'New Energy Hubs (TOD 2.0)
 - Puget Sound New Energy Solutions
 - Sustainable Communities Grant (HUD/EPA/DOT)
- Green Redevelopment
 - Energy Codes
 - PACE
- Carbon Impact Review

