

U.S. EPA Heat Island Reduction Program

September 22, 2009

Second International Conference on
Countermeasures to Urban Heat Islands

Berkeley, California

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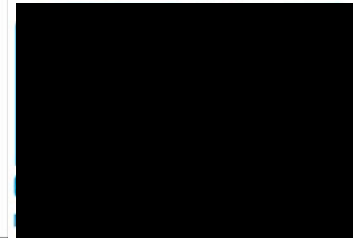
Outline



- U.S. EPA Heat Island Program Overview
 - Program Resources
 - Future Direction and Current Projects
- Federal Initiatives
- Activities for Local Implementation
 - Voluntary Efforts
 - Policy Efforts
- Summary



EPA Heat Island Reduction Program



Program Objective

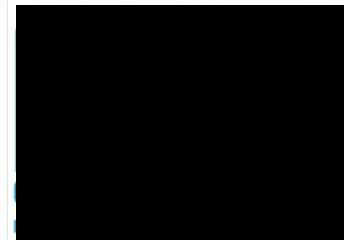
- Communicate policy, programmatic developments, and scientific, technological advancements to heat island community

Program Community

- Policymakers, program designers and program implementers
- Researchers/academia
- Industry, developers of new technology
- General public (e.g., K-12 students and teachers, coaches)
- Media



Messages to Heat Island Community



Topics of Interest to Scientific Community

- Heat island science, modeling, and measurement
- Innovative mitigation technologies in areas such as cool pavements, cool roofs, green roofs, and trees and vegetation

Activities for Programmatic and Policy Community

Voluntary Efforts

- Urban Forestry Programs
- Demonstration Projects (i.e., LBE)
- Weatherization
- Outreach and Education Programs
- Awards

Policy Efforts

- Procurement
- Resolutions
- Tree and Landscaping Ordinances
- Comprehensive Plans and Design Guidelines
- Zoning Codes
- Green Building Standards
- Building Codes
- Air Quality Requirements



Key Program Features

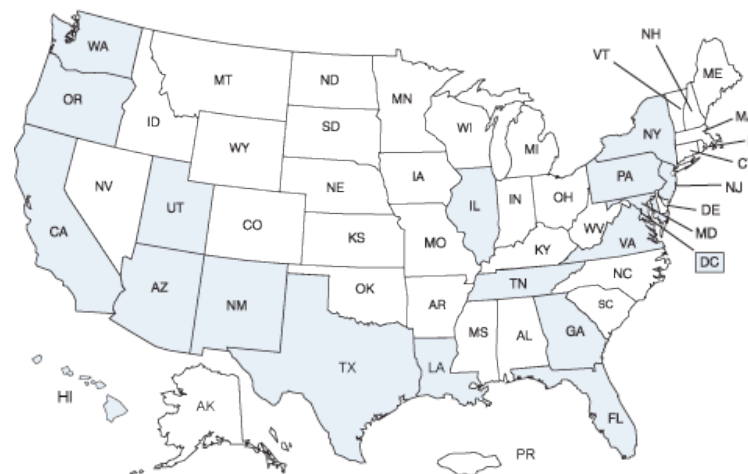


- **Website**, features include user-friendly format, updated content, calendar of events, heat island in the news, featured webcast, updated database
- **Database**, “Where You Live”
 - Provides info on more than 75 local and statewide initiatives to reduce heat islands and achieve related benefits *(more on upcoming slide)*
- **Compendium of Strategies: Reducing Urban Heat Islands**
 - Document describes the causes and impacts of summertime urban heat islands and promotes strategies for lowering temperatures *(more on upcoming slide)*
- **Webcasts**, www.epa.gov/heatislands/resources/webcasts.htm
 - Regular online meetings for our diverse program audience spotlighting local/regional urban heat island programs, new scientific findings, and upcoming meetings
- **Listserve**, www.epa.gov/heatisland/admin/listserv.htm
 - Disseminates info to heat island community, e.g., funding opportunities, conference call for papers, webcasts, and more

Database

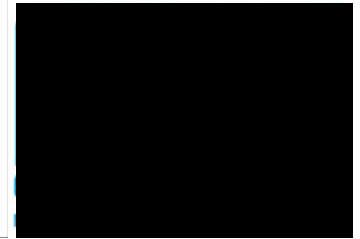


- Actions listed in the database are some efforts underway to cool communities while saving energy, reducing greenhouse gas emissions and improving air quality
- Each entry in the database includes a description of the activity, its current status, and a link to a website (if available) for more information.
- The database can be searched by:
 - Clicking on U.S. map (diagram on right)
 - State and locality
 - Initiative Type
 - Strategy
- If you are aware of heat island initiatives, please submit through our website.



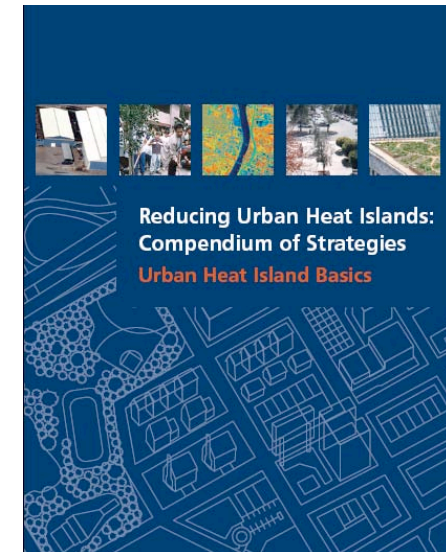
http://yosemite.epa.gov/gw/statepolicyactions.nsf/webpages/HIRI_Initiatives.htm

Compendium



Reducing Urban Heat Islands: Compendium of Strategies

- Provides an overview of latest science, mitigation strategies, case studies, and recommendations for additional resources
- Chapters
 - Heat Island Basics
 - Trees and Vegetation
 - Green Roofs
 - Cool Roofs
 - Cool Pavements
 - Heat Island Reduction Activities



www.epa.gov/heatislands/resources/compendium.htm



Webcasts



- EPA routinely holds free, national, heat island reduction webcasts.
- Stakeholders from around the country inform each other of their heat island-related work.
- Scientists, practitioners, industry representatives, and government officials and staff all participate.
- Webcasts cover topics such as:
 - Measuring and Modeling Urban Heat Islands
 - Heat Island Impacts (e.g., air, water quality)
 - Mitigation (e.g., strategies, technologies, activities)
- Upcoming Webcast: Pavements

<http://www.epa.gov/heatisland/resources/webcasts.htm>



Program Direction

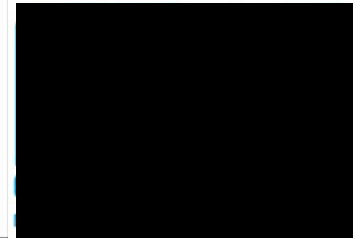


- Fold heat island messages into other EPA programs to promote multiple benefits of mitigation strategies
 - Stormwater Green Infrastructure Program
 - Green Scapes Program
 - Smart Growth, www.epa.gov/hiri/resources/pdf/smartgrowthheatislands.pdf
 - Brownfields Redevelopment

- Link to climate adaptation and health issues
 - Promote mitigation strategies to address heat health for local, regional and state programs
 - Use mitigation strategies to support actions for extreme weather (high rainfall, heat)



EPA Heat Island Supported Projects



- EPA Regional Heat Island Activities – *Sustainable Skylines Initiative*

- Development and implementation of heat island mitigation program Dallas, TX

www.sustainableskylines.org/Dallas



- Development of program, “Parking Lots to Parks” Kansas City, KS and MO

www.epa.gov/region07/citizens/ssi.htm

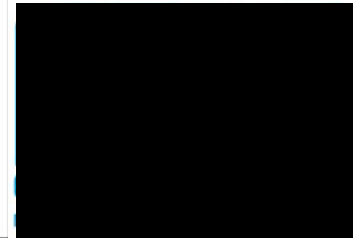


Federal Initiatives



- Economic Recovery related to Energy Efficiency, Climate and Heat Island Mitigation
- Other Opportunities related to Heat Islands

American Recovery & Reinvestment Act (ARRA) 2009 - \$787 B



Recovery Act

- One-time, unprecedented level of spending
- Transparency & accountability



Strategic Energy

- Invest funds to stimulate economy now **and** meet long-term energy goals
- Create comprehensive energy programs/strategies with aggressive goals and benchmarks of current performance
- Develop programs and projects that will persist beyond grant period
- Leverage funds with public and private sources
- Coordinate across regions, states and local jurisdictions

ARRA 2009 Funding - DOE



DOE Energy Efficiency and Renewable Energy Office received \$16.8 B



- **Weatherization** **\$5.0B**
- **State Energy Program** **\$3.1B**
- **EECBG Program Formula** **\$2.8B**
- **EECBG Competitive** **\$400M**
- Appliance Rebate Program **\$300M**

ARRA Tax Credits - Roofing



- Under ARRA 2009, a 30% tax credit (with the limit of \$1,500) is available for Energy STAR labeled metal and asphalt roofs.
 - Installation costs are not covered.
 - Material must be expected to last 5 years or have a two-year warranty.
 - Note: \$1,500 applies to all energy efficiency improvements combined.

Other Opportunities



- **Federal Grant Funding on Climate and Energy**
 - **Climate Showcase Communities Grant** - goal is to achieve documentable, replicable GHG reductions from a range of activities- **includes Heat Island Management**

- **Legislative Activity -**
American Clean Energy and Security Act 2009 (ACESA)
 - Title I – Clean Energy
 - Title II – Energy Efficiency
 - Title III – Reducing Global Warming Pollution
 - Title IV – Transitioning to a Clean Energy Economy

Heat Island Reduction Activities



Part of energy, air quality, water, or sustainability effort

- Voluntary Efforts
- Policy Efforts

Heat Island Reduction Activities



Voluntary Efforts

- Demonstration Projects
- Incentive Programs
- Urban forestry Programs
- Weatherization
- Outreach and Education
- Awards



Heat Island Reduction Activities



Policy Efforts

- Procurement
- Resolutions
- Tree and Landscape Ordinances
- Comprehensive Plans and Design Guidelines
- Zoning Codes
- Green Building Programs and Standards
- Building Codes
- Air Quality Requirements

Demonstration Projects



- Local governments, universities, other organizations
- Demonstrate mitigation strategy, quantify benefits in controlled environment
- Most effective when
 - target high visibility projects
 - measure benefits
 - convey lessons learned

Demonstration Projects



Chicago City Hall Green Roof

- 20,000 plants, shrubs, grasses, vines, trees
- Expect to save 9,270 kWh/yr, 740 Btu/yr
- Save \$3600 annually
- Dept. of Environment given frequent presentations.

Incentives



- Effective way to spur individual actions
- From governments, utilities, other organizations
- Below-market loans, tax breaks, product rebates, grants, and giveaways

Incentives



- Sacramento Municipal Utility District partnered with Sacramento Tree Foundation
- Provided more than 350,000 free shade trees
- Encourages strategic planting
- Eligible homes are those with eastern, western, and southern exposure

Policy Efforts



Resolutions

- Document stating a group's awareness of and interest in effort
- Generally issued by city or county council, air quality board, planning commissions
- First step in starting initiative, not always funded

Resolutions



Austin City Council adopted heat island mitigation resolution

- Committed city managers to review recommendation for heat island reduction activities
- Council awarded \$1M toward implementation
- Activities included increasing enforcement of city's tree saving ordinance

Summary & Conclusions



- U.S. EPA Heat Island Program is a communication infrastructure connecting the heat island community.
- Program resources convey scientific information to program designers and implementers at state and local level.
- Federal support for heat island reduction programs is growing.
- Local action leads the way for heat island management.

Contact Info



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Main Website:

www.epa.gov/heatislands

Listserv Sign-up:

<http://www.epa.gov/heatisland/admin/listserv.htm>

