DOE Technical Assistance Program



Energy Efficiency & Renewable Energy



Energy Management For the Portfolio Manager Initiative

December , 2011 Rob Van Der Like, The Cadmus Group, Inc. in support of EPA's ENERGY STAR Program

ENERGY Energy Efficiency & Renewable Energy

DOE's Technical Assistance Program (TAP) supports the Energy Efficiency and Conservation Block Grant Program (EECBG) and the State Energy Program (SEP) by providing state, local, and tribal officials the tools and resources needed to implement successful and sustainable clean energy programs.



TAP offers:

- One-on-one assistance
- Extensive online resource library, including:
 - ➢ Webcasts
 - Events calendar
 - ➤ TAP Blog
 - Best practices and project resources
- Facilitation of peer exchange

On topics including:

- Energy efficiency and renewable energy technologies
- Program design and implementation
- Financing
- Performance contracting
- State and local capacity building

The TAP Blog



Energy Efficiency & Renewable Energy

Access the TAP Blog! http://www.eereblogs.energy.gov/tap/

Provides a platform for state, local, and tribal government officials and DOE's network of technical and programmatic experts to connect and share best practices on a variety of topics.

Technical Assistance Program Blog ENERGY Charge Charge BLOG HOME SEARCH Local Energy Rebate Programs PAGES Enter search term Jame 11, 2010 11 101 Camperts (1) Seath Maggie frem Florida asia: Anyone inglement as energy rebate program at a local 4 TAP Blug Police Dyckula Corrects in search level7 is it being managed by staff or was it contracted out competitively? Any advice on how to best implement/manage such a program? Calutorite in a reache ABOUT THE BLOG The TAP Team responds: There are guita a few good examples of energy programs. offered at a local level that offer rebates, technical assistance and other incentives. A few CATEGORIES of these include the following the Institute Association Program Brig provide a · Day Admittan The City of Charlotteenile and Albertaria County in Virginia jaintly formed the Local stattory for state, total, and Energy Albance Program (LEAP) which is creating and administering energy tribal government or licials that · Directorian Ad efficiency (EE) programs for the residential sector. The Southeast EE Alliance receive functing than the DOE · Director State Drivings Program and Energy Efficiency set (SEEA) seed funded the creation of LEAP in 2009 and the county and city have · Dietar: Presidentia each allocated EECBG funds for LEAP to take programs to scale. They are Conservation Block Grants b - Bratan currently working on reliates, incentives, and a local contractor network to delive connect with lead nicel and services to the residential sector. LEAP site- www.leap-ra.stp programmatic separtic and prime bent practices should be · The town of Babylan, New York has railed out the Long Island Green Homes ARCHIVES Pragram in which residents can make energy efficient inserviements to their homes manage could will aveil at little or so cost and without assuming new debt through some innovative effetolicy arour and Tank real + 2010 municipality-based financing initiatives. what wante builting for 7 Contract there Talk Bling Torian and Append (1) datew chry al-2 what to suggest a logic or · The Cambridge (Messachasetts) Energy Alliance is a not-fer-profit arganization Max (0) national station rates and that his created to save residents money, while reducing Cambridge's carbon footprint. The + (April (1) Aliance is working with homeowners, businesses and institutions across the city · Month(!) to achieve unprecedented levels of energy savings and to expand clean energy RELATED LINKS January (1); sources. They offer. + 2009 · Comprehensive energy accessments/audits for Cambridge buildings. Treegy internation Cardier · December (1 generally for free Other of Energy Efficiency November (7 Up to 30% reductionic in every bills and Personality Dranger · October (1) · Energy efficiency apprades with no up front cash required - Manual or Distance in · A one-step energy seleten with guaranteed quality · August (7) The growth entry Pop See: http://cambridgeenergyalitatice.org a Africii in Technical Acceptance · The CliniateSmart programs are run by the City of Boulder, Colorado's Office of Program .3.me(1) Environmental Affairs. For internation on Boulder's programs, see Mer(1) · Solder Certer title Owww.hogideepidewicht.gewieden.php? · Apticit) optionn.com/centerd&viewmarticle&id=10588 The management of these programs verses. The manicipalities listed above include both META manicipal staff tasked with running these programs and others that have an extende nonprofit arganization prividing services on behalf of the municipality. There are after . Ser. examples of municipalities that autoource these services to for-profit consulting firms (Charleston, SC is about to put nat an AFP to how one)

There is not use best way to go on implementing/instruging municipal EE programs. There are good resource and justifications for each of these three models. If the manusipality is

4 | TAP Webinar



Energy Efficiency & Renewable Energy

We encourage you to:

1) Explore our online resources via the <u>Solution Center</u>



2) Submit a request via the <u>Technical Assistance Center</u>



3) Ask questions via our call center at 1-877-337-3827 or email us at <u>solutioncenter@ee.doe.gov</u>

Agenda



- Guidelines for Energy Management
- Assessment Methods
- The Action Plan
- ENERGY STAR Resources





Opportunities in Buildings

- Commercial buildings and industrial facilities generate about 50 percent of U.S. carbon dioxide emissions
- **30 percent** of energy consumed in commercial and industrial buildings is wasted
- Reductions of **10 percent** in energy use can be possible with little or no cost





energy ENERGY STAR

SEP/EECBG and ENERGY STAR

| DOE Goal | ENERGY STAR Offering |
|---|--|
| EECS Development | Energy Management Guidelines |
| Progress Reporting Energy saved Cost saved Water saved GHG saved | Portfolio Manager |
| Community Outreach | Partner Resources ENERGY STAR Challenge Recognition Programs Change the World, Start with ENERGY STAR |
| Energy Use Reduction | Portfolio Manager (existing buildings) Target Finder (new buildings) ENERGY STAR Products Building Upgrade Manual Service and Product Provider Directory |
| Financial Efficiency | Cash Flow Opportunity (CFO) Calculator |

Guidelines for Energy Management

- 1. Make Commitment
- 2. Assess Performance
- 3. Set Goals
- 4. Create Action Plan
- 5. Implement Action Plan
- 6. Evaluate Progress
- 7. Recognize Achievements





Step 1: Commitment



- Establish a team focused on energy management policy and planning
- Appoint an energy coordinator or sustainability coordinator
- Make a policy statement on energy efficiency as a key business strategy



Step 2: Assess Performance

- Assess your performance to:
 - Identify opportunities for improvement
 - Provide a basis for goal-setting
 - Evaluate progress (Step 6 of Energy Management Guidelines)
- Benchmark your buildings' energy performance using Portfolio Manager
 - Other methods include energy auditing, load profiling, data logging, and BAS trending



Step 3: Set Goals



Set energy management goals that:

- Are reasonable (based on pre-assessment)
- Are measureable/observable
- Connect to existing business plans
- Are specific
 - Numerical reduction goal (reduce by % or an amount)
 - Action goal (create Portfolio Manager account, establish policy, appoint energy coordinator, train staff members, conduct awareness program, complete retrofit project, install monitoring devices, etc.)





Step 4: Create Action Plan

- May include:
 - Policy development
 - Awareness campaigns
 - Training
 - Continuous monitoring
 - Use of control systems technology
 - Operational changes
 - Best practices
 - Maintenance tasks
 - Retrofits







Step 5: Implement Plan



- Develop a communications plan, including:
 - Newsletters, reports, and/or a website
 - Employee/tenant policies and programs
 - Progress updates
 - Recognition opportunities
- Identify unique roles and responsibilities
- Arrange interdepartmental coordination
- Delegate supervision and monitoring responsibilities





Step 6: Evaluate Progress

- Use Portfolio Manager to measure progress
 - Compare energy performance to baselines
 - Compare performance against goals for environmental performance and financial savings
 - Compare energy performance to peer building types using the ENERGY STAR energy performance score (1-100) or Energy Use Intensity index
 - Verify energy savings from optimized system settings, upgraded energy-efficient equipment, and increased occupant awareness





Step 7: Recognize Achievements

Regional and State-Level

 Mayor Abramson and the Kentucky Office of Energy Policy personally recognize all buildings in Louisville/Jefferson County, KY that earn the ENERGY STAR.

ENERGY STAR Recognition

 Apply for eligible buildings that have achieved a score of 75 or higher in Portfolio Manager to earn the ENERGY STAR. Apply for ENERGY STAR Leaders recognition for portfolio-wide improvements.

National Organizations

- National organizations such as NACo, ICLEI, ACEE, USCM, and others provide awards for achievement in energy efficiency.
- Green Building Rating Systems
 - Consider applying for LEED certification, Green Globes, or CHPS.







The Continuous Improvement Process for Energy Management







The Continuous Improvement Process for Energy Management







Assessment Methods



- Benchmarking
- Load profiling
- Data logging
- BAS trend logging





Benchmarking

- Benchmark and measure the effectiveness of projects and programs
 - Track a building's performance over time
 - Compare similar space types









Benchmarking

- Using Portfolio Manager, you can:
 - Benchmark all of your buildings
 - Track the energy use intensity (EUI) for each building
 - Obtain an energy performance score for eligible buildings
 - Track changes in energy and water use over time
 - Track and report cost savings and CO2 emissions
 - Apply for the ENERGY STAR

www.energystar.gov/benchmark







Benchmarking

| lome > My Portfolio > Courth | ouse Test | | | | | |
|--|--|--|--|--|--|----------------------|
| Court ow do Luse this page? Auilding ID: 1416155 evel of Access: Building Data Adm Electric Distribution Utility: Virginia B Regional Power Grid: <u>SERC Virginia</u> Elect my Power Generation Plant t | Electric & Power (<u>/Carolina</u> | | (| General Information Ed Address: Herndon, VA 20 Year Built: 2003 Property Type: Single F Baseline Rating: 88 | acility Current Rating: 88 | |
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| lectric CO ₂ Emissions Rate (Ibs/M ienerate a Statement of Energy Pe Facility Performance <u>Set Baselin</u> Select View: Summary: Energy | Wh): 1146.386 (w formance for uses <u>a Period Set Energy</u> r Use v c Current Rating (1-100) | that is this?) s other than applying for the El Performance Target reate View Edit View Current Site Energy Intensity (kBtu/Sq. Ft.) | Current Source Energy Intensity (kBtu/Sq. Ft.) | Eligible to <u>Apply for the E</u> Energy Reduction per Sq. Ft. (kBtu/Sq. Ft.) | Adjusted Energy Reduction per Sq. Ft. (kBtu/Sq. Ft.) | |



Load Profiling

A load profile displays the amount of electricity used by an electric meter over a given time period



SEBA



Load Profiling

- 1. Energy use in the middle of the night?
- 2. Is equipment starting up too early?
- 3. Reductions for both demand and consumption?
- 4. Is power demand reducing quickly enough?







Data Logging

- Data logging can measure:
 - Temperature
 - Humidity
 - Light Intensity
 - Current (Amps)







BAS Trend Logging

- The building automation system (BAS) may provide trend logs which indicate:
 - When an item of equipment was in operation
 - System settings
 - Optimization opportunities





Example Questions

- Why is the space temperature maintained at 70°F during unoccupied hours?
- 2. Why do outside air dampers open at 7a.m. when occupants don't start arriving until 8:30a.m.?
- 3. Why is the heating strip on during the time that the space is being cooled?
- 4. Why do outside air dampers stay open until 7p.m. when all occupants have left by 6p.m.?







The Action Plan

- People-oriented strategies
- System optimization
- Building retrofits and upgrades
- Action plan phasing





People-Oriented Strategies

- Communication plan
- Awareness campaign
- Staff training
- Energy management roles
- Multi-disciplinary teams
- Occupant surveys
 - See DOE's Peer Exchange Hub on the Solution Center for resources



ENERGY STAR at Your Desk





Communication Plan

- Involve the individuals/teams who will have the greatest impact on your success
 - Communicate with them
 - Train them
 - Motivate them
 - Recognize their accomplishments
- Relay your policies, goals, and plans for action with staff members
- Tailor your communication strategy to fit your organization's specific needs and goals





- Inform, Remind, Encourage, Recognize
 - Use when control of major building systems is in the hands of the occupants
- Monitor, Control, Adjust
 - More aggressive programs include specified tasks that are monitored and tracked





Awareness Campaign

Examples:

- ENERGY STAR Bring
 Your Green to Work
- GreeNYC "Be Cool & Smart" ad campaign
- Louisville Kilowatt Crackdown







WHICH BUILDINGS ARE THE MOST ENERGY EFFICIENT IN LOUISVILLE? WHO CAN TAKE ENERGY MANAGEMENT TO THE NEXT LEVEL?

DOES YOUR BUILDING QUALIFY FOR THE ENERGY STAR LABEL? Take the LOUISVILLE KILOWATT CRACKDOWN CHALLENGE and find out!

WHAT IS THE KILOWATT CRACKDOWN?

The Louiville Energy Alliance challenges building owners and operators in Netro Louiville to retrieve the herefts of energy efficiency by participating in the Louiville Kliowatt Crackdown. It's asys — all you have to do to benchmark your building's energy use with Partfold Maager, PBA's tree online benchmarking tool; make improvements over the cortest period; and submit your final benchmarking score. Top honors will go to the most efficient buildings and the buildings making the greatest energy improvements, but all buildings will be recognized for participating and for striving to improve Louiville's eventorment.





energy STAR

Employee Training

- Identify key job performance skills
- Assess knowledge and proficiency in specific energy efficiency tasks
- Improve skills directly related to job performance
- Target building operations, building services, and food service staff members





Energy Management Roles



- Identify key positions in the organization and assign specific duties
 - Example: Energy Management Coordinator
 - Can be assigned to people at all levels to facilitate communication
 - Tasks could include forwarding information and monitoring building performance



Multi-Disciplinary Teams

- Use the expertise of various staff members in the organization
- Focus on creating approaches tailored to the organization and its buildings
- Teams may include personnel from:
 - Energy and water
 - Facilities management
 - Transportation
 - Safety and health
 - Finance
 - Etc.



HanesBrands Energy Policy Kick-Off Event



Occupant Surveys



- Engage building occupants
- Create an effective follow-up procedure to respond to their input
- Alert building operators to performance issues that may also effect energy efficiency




System Optimization

- Lighting
- Heating and cooling
- Ventilation
- Other



Lighting

- Assign responsibility for lighting control
- Evaluate potential for:
 - Daylight harvesting
 - Task lighting
- Conduct a lighting survey to determine how lights are used
 - A 20 percent reduction in lighting energy could be possible





Heating and Cooling



- Keep outside doors and windows closed
- Keep window blinds closed when daylighting isn't needed
- Set back temperature when space is unoccupied
- Check for simultaneous heating and cooling
- Conduct physical condition survey to ensure good repair
- Heating
 - Flue gas analysis
- Cooling
 - Turn system off if doing so does not affect IAQ





Ventilation



- Ensure return-air registers are not blocked
- Check that exhaust fans are not running unnecessarily
- Repair weather-stripping on windows and doors
- Conduct a leak survey
- Ensure air dampeners are functioning properly



Other



- Turn off office appliances when not in use
- Use power strips for electronic equipment to avoid phantom loads
- Purchase ENERGY STAR qualified equipment
- Reduce need for high-energy portable appliances (space heaters, coffee makers, mini refrigerators, etc.)
- Use patch management software to avoid need for leaving computers on overnight
- Conduct a water-heater control survey
- Create a building operating plan



Retrofits and Upgrades

- Lighting
- Heating
- Cooling
- Ventilation
- Other











Building Retrofits and Upgrades

- Lighting
 - Install higher-efficiency lights
 - Install occupancy sensors
 - Utilize programmable time clocks for outside systems
- Heating
 - Consider adding a water-side economizer
 - Repair steam traps as needed
 - Consider modular condensing boiler system and heat pump systems





Building Retrofits and Upgrades

- Cooling
 - Conduct a motor survey to determine retrofit opportunities
 - Install programmable thermostats
 - Install variable frequency drives (fans, pumps, etc.)
- Ventilation
 - Evaluate building automation system controls
 - Consider Demand Control Ventilation System





Action Plan Phases

- Phase 1: No cost
- Phase 2: Low cost
- Phase 3: Capital Investment





- Measures which can significantly improve the efficiency of building performance
 - Facility managers can accomplish them quickly with little or no funding
- Operational changes include adjustments to:
 - Temperature settings
 - Setbacks
 - Start and stop times







- Low-cost services that evaluate, analyze, and adjust large energy-consuming systems
 - May require some budgetary programming
- Service providers can provide detailed information on savings impacts of follow-on projects
 - Energy audits
 - System inspection and evaluation





Action Plan: Phase 3

- Efforts with great potential to improve building energy performance
 - May require design, engineering, and construction
- Requires capital project planning and programming
 - It may be possible to pay for most or all of the improvement project with the savings it generates (e.g. energy performance contract)





Building Upgrade Manual

- Plan and implement profitable energy saving building upgrades utilizing five stages:
 - Retro-commissioning
 - Air distribution systems upgrade
 - Lighting upgrade
 - Load reductions
 - HVAC upgrade

ENERGY STAR® Building Upgrade Manual



http://www.energystar.gov/buildings





CFO Calculator

- Helps answer three critical questions about efficiency projects:
 - How much new equipment paid for using savings?
 - Should we finance now or wait for a future budget?
 - What is the cost of delay?







ENERGY STAR Training Sessions

Introduction Create, Edit, and Login Training Add and Edit a Property Add and Edit a Space Add and Edit Energy Meters sessions View & Interpret Results A Step-by-Step Guide to Webinars Benchmarking Using EPA's Portfolio Manager Recorded presentations Learn more at energystar.gov

energystar.gov/businesstraining



For More Information:



Visit: <u>www.energystar.gov/benchmark</u> E-mail: <u>buildings@energystar.gov</u>

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| Facility Name 🖬 | <u>Baseline Rating</u> (1-100) | <u>Current Rating</u> (1-100) | <u>Change from Baseline: Adjusted Energy Use (%)</u> | Current Site Energy Intensity (kBtu/Sq. Ft.) | Baseline Energy Period Ending Date |
|--|-----------------------------------|----------------------------------|--|--|------------------------------------|
| | 0 | 0 | 0 | | |
| Bakersville School | 60 | 82 | -22.1 | 56.4 | 12/31/2009 |
| Beech Street School | 35 | 58 | -18.6 | 83.1 | 12/31/2009 |
| Central High School Complex | 77 | 90 | -20.3 | 64.4 | 12/31/2009 |
| Gossler Park Elementary School | 22 | 48 | -20.3 | 63.2 | 12/31/2009 |
| Green Acres School | 25 | 48 | -18.3 | 63.6 | 12/31/2009 |
| Hallsville Elementary School | 43 | 64 | -17.9 | 67.1 | 12/31/2009 |
| Highland Goffe's Falls Elementary School | 52 | 78 | -22.9 | 42.3 | 12/31/2009 |
| Hillside Middle School | 40 | 71 | -25.4 | 52.5 | 12/31/2009 |
| Jewett Elementary School | 35 | 53 | -14.8 | 65.7 | 12/31/2009 |
| Modonough Elementary School | 59 | 85 | -28.2 | 50.8 | 12/31/2009 |
| Mclaughlin Middle School | 24 | 31 | -8.5 | 70.2 | 12/31/2009 |
| Memorial High School | 77 | 89 | -18.9 | 55.8 | 12/31/2009 |
| <u>MST</u> | 59 | 72 | -12.5 | 64.3 | 12/31/2009 |
| Northwest Elementary School | 50 | 46 | 3.7 | 54.5 | 12/31/2009 |
| Parker Varney Elementary School | 46 | 54 | -7.1 | 51.8 | 12/31/2009 |
| Parkside Middle School | 46 | 72 | -21.8 | 52.8 | 12/31/2009 |
| Smyth Road School | 51 | 59 | -8.7 | 59.6 | 12/31/2009 |
| Southside Middle School | 46 | 72 | -22.1 | 49.7 | 12/31/2009 |
| Webster Elementary School | 38 | 43 | -5.5 | 68.4 | 12/31/2009 |
| West High School | 80 | 91 | -18.9 | 59.8 | 12/31/2009 |
| Weston Elementary School | 48 | 70 | -20.5 | 41.6 | 12/31/2009 |
| Wilson Elementary School | 45 | 45 | -0.1 | 61.5 | 12/31/2009 |





Add a Property Import Facility Data Using Templates

Work with Facilities Update Multiple Meters

Reporting and Analysis <u>New!</u>
<u>Generate</u> Reports and Graphs
<u>Request</u> Energy Performance Report

Apply for Recognition Apply for the ENERGY STAR ENERGY STAR Leaders

Automated Benchmarking Get Started Now

You have been granted access to Shared Facilities!

PORTFOLIO MANAGER

Home > My Portfolio

 Group Averages

 Baseline Rating: 56
 Current Rating: 72

 Fadilities Included: 22
 Fadilities Included: 22

 Change from Baseline: Group Adjusted Percent Energy Use (%): -17%
 Fadilities Included: 22

 Averages are weighted by Total Floor Space.
 More about Baselines

 More about Baselines
 More about Change from Baseline: Adjusted Energy Use

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| Facility Name 🛙 | <u>Baseline Rating</u> (1-100) | <u>Current Rating</u> (1-100) | Baseline Energy Period Ending Date | <u>Baseline Site Energy Intensity (kBtu/Sq. Ft.)</u> | <u>Current Site Energy Intensity (kBtu/Sq. Ft.)</u> | % Difference from National Median Source EUI |
|--|-----------------------------------|----------------------------------|------------------------------------|--|---|--|
| | 0 | 0 | 0 | 0 | 0 | |
| Bakersville School | 60 | 82 | 12/31/2009 | 72.2 | 58.4 | -29.5 |
| Beech Street School | 35 | 58 | 12/31/2009 | 104.8 | 83.1 | -7.2 |
| Central High School Complex | 77 | 90 | 12/31/2009 | 78.2 | 64.4 | -39.3 |
| Gossler Park Elementary School | 22 | 46 | 12/31/2009 | 74.7 | 63.2 | 3.3 |
| Green Acres School | 25 | 46 | 12/31/2009 | 71.4 | 63.6 | 2.8 |
| Hallsville Elementary School | 43 | 64 | 12/31/2009 | 80.8 | 67.1 | -12.8 |
| Highland Goffe's Falls Elementary School | 52 | 78 | 12/31/2009 | 57.0 | 42.3 | -24.9 |
| Hillside Middle School | 40 | 71 | 12/31/2009 | 71.4 | 52.5 | -18.8 |
| Jewett Elementary School | 35 | 53 | 12/31/2009 | 75.5 | 65.7 | -2.6 |
| Modonough Elementary School | 59 | 85 | 12/31/2009 | 65.1 | 50.8 | -32.3 |
| Mclaughlin Middle School | 24 | 31 | 12/31/2009 | 73.1 | 70.2 | 17.9 |
| Memorial High School | 77 | 89 | 12/31/2009 | 69.0 | 55.8 | -38.9 |
| MST | 59 | 72 | 12/31/2009 | 74.8 | 64.3 | -19.7 |
| Northwest Elementary School | 50 | 46 | 12/31/2009 | 52.7 | 54.5 | 3.1 |
| Parker Varney Elementary School | 46 | 54 | 12/31/2009 | 55.0 | 51.8 | -4.3 |
| Parkside Middle School | 46 | 72 | 12/31/2009 | 69.3 | 52.8 | -19.5 |
| Smyth Road School | 51 | 59 | 12/31/2009 | 62.9 | 59.6 | -7.9 |
| Southside Middle School | 46 | 72 | 12/31/2009 | 67.6 | 49.7 | -19.6 |
| Webster Elementary School | 36 | 43 | 12/31/2009 | 65.6 | 66.4 | 6.2 |
| West High School | 80 | 91 | 12/31/2009 | 73.4 | 59.6 | -40.7 |
| Weston Elementary School | 46 | 70 | 12/31/2009 | 51.8 | 41.8 | -17.8 |
| Wilson Elementary School | 45 | 45 | 12/31/2009 | 58.2 | 61.5 | 4.3 |

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| Facility Name 🖬 | <u>Baseline Rating</u> <u>(1-100</u>) | Baseline Energy Period Ending Date | <u>Current Ratinq</u> <u>(1-100)</u> | <u>Baseline Site Energy Intensity (kBtu/Sg. Ft.)</u> | <u>Baseline Source</u> Energy Intensity (kBtu/Sq. Ft.) | <u>Current Source</u> Energy Intensity (kBtu/Sg. Ft.) |
|--|---|------------------------------------|---|--|---|--|
| | 0 | 0 | 0 | 0 | 0 | |
| Bakersville School | 60 | 12/31/2009 | 82 | 72.2 | 110.9 | 86.4 |
| Beech Street School | 35 | 12/31/2009 | 58 | 104.8 | 181.1 | 147.5 |
| Central High School Complex | 77 | 12/31/2009 | 90 | 78.2 | 131.4 | 104.7 |
| Gossler Park Elementary School | 22 | 12/31/2009 | 46 | 74.7 | 141.0 | 112.5 |
| Green Acres School | 25 | 12/31/2009 | 46 | 71.4 | 121.8 | 99.6 |
| Hallsville Elementary School | 43 | 12/31/2009 | 64 | 80.8 | 128.6 | 103.9 |
| Highland Goffe's Falls Elementary School | 52 | 12/31/2009 | 78 | 57.0 | 88.6 | 68.3 |
| Hillside Middle School | 40 | 12/31/2009 | 71 | 71.4 | 116.7 | 87.2 |
| Jewett Elementary School | 35 | 12/31/2009 | 53 | 75.5 | 125.6 | 107.0 |
| Mcdonough Elementary School | 59 | 12/31/2009 | 85 | 65.1 | 111.0 | 82.0 |
| Mclaughlin Middle School | 24 | 12/31/2009 | 31 | 73.1 | 128.9 | 120.6 |
| Memorial High School | 77 | 12/31/2009 | 89 | 69.0 | 121.5 | 101.0 |
| MST | 59 | 12/31/2009 | 72 | 74.8 | 134.4 | 118.9 |
| Northwest Elementary School | 50 | 12/31/2009 | 46 | 52.7 | 90.7 | 93.7 |
| Parker Varney Elementary School | 48 | 12/31/2009 | 54 | 55.0 | 94.6 | 87.7 |
| Parkside Middle School | 48 | 12/31/2009 | 72 | 69.3 | 114.4 | 89.3 |
| Smyth Road School | 51 | 12/31/2009 | 59 | 62.9 | 95.0 | 88.4 |
| Southside Middle School | 48 | 12/31/2009 | 72 | 67.6 | 104.8 | 81.2 |
| Webster Elementary School | 38 | 12/31/2009 | 43 | 65.6 | 102.3 | 96.3 |
| West High School | 80 | 12/31/2009 | 91 | 73.4 | 123.6 | 100.2 |
| Weston Elementary School | 48 | 12/31/2009 | 70 | 51.8 | 88.3 | 70.0 |
| Wilson Elementary School | 45 | 12/31/2009 | 45 | 58.2 | 94.6 | 94.2 |

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 - 202-287-1857 or pam.mendelson@ee.doe.gov
- For tools and resources see the Solution Center at: <u>http://wip.energy.gov/solutioncenter</u>
- To place a request for TA, see either the Technical Assistance Center website: <u>https://tac.eecleanenergy.org/</u> or call 1-877-EERE-TAP (1-877-337-3827)

THANK YOU!





ENERGY Energy Efficiency & Renewable Energy

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