



Administrative Policy
Municipal Building Decarbonization and Benchmarking Policy

AP No.	AP 3-40
Effective Date:	Upon Approval

1. POLICY STATEMENT

The City of Houston City Council passed the Houston Climate Action Plan Resolution on October 21, 2020. The Climate Action Plan (CAP) is the basis for the goals, strategies, actions, and policies to be used by the City of Houston to mitigate greenhouse gas (GHG) emissions and the associated climate impacts. The CAP includes goals to reduce building energy use and maximize savings, to expand investment in energy efficiency, and to invest in skilled local jobs to optimize building operations. The CAP also sets targets to reduce community-wide emissions 40% by 2030, 75% by 2040, and 100% by 2050. As City building energy use accounted for over 40% of emissions from City facilities and operations in 2019, the City of Houston (City) is committed to operating, maintaining, and improving its building stock and facilities responsibly and sustainably.

2. POLICY PURPOSE

2.1 Greenhouse gas emissions from City buildings stem from both onsite combustion of fossil fuels (primarily natural gas) and consumption of electric power from the grid. Reducing these emissions requires a combination of avoiding onsite combustion of fossil fuels in buildings, reducing building energy consumption, and increasing the installation of onsite zero-emission power generation. This policy offers flexible procedures to reduce City building energy consumption, costs, air emissions, and greenhouse gases, by:

2.1.1 Reducing electric power and natural gas consumption in non-airport City buildings, targeting a 5% reduction year-over-year. This will be accomplished by:

2.1.1.1 Implementing cost-effective measures to increase energy efficiency and decrease natural gas and other fossil fuel reliance through preventative maintenance, capital improvement projects, and other measures.

2.1.1.2 Implementing and maintaining optimized operations, after construction or renovation projects.

2.1.2 Reducing water consumption in non-airport City buildings, targeting a 5% reduction year-over-year. This will be accomplished by:

2.1.2.1 Implementing cost-effective measures to increase water efficiency through preventative maintenance, capital improvement projects, and other measures.

2.1.2.2 Decreasing reliance on potable water through i.e., grey water reuse or rainwater collection.

2.1.2.3 Implementing and maintaining optimized operations, after construction or renovation projects.

2.2 As energy and building maintenance expenses are among the largest expenses for the City government, all stakeholders, including managers, department heads, maintenance and operations staff, buildings staff, and designers of new buildings share the responsibility for implementing this

Approved:

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Date Approved:

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policy, with operating department directors ultimately responsible.

- 2.3 The purpose of benchmarking is to formalize and improve upon current data collection efforts. Benchmarking the energy, water, and waste performance of municipal facilities and making such information publicly available will raise awareness and drive action, among both City staff and the public.

3. SCOPE

This policy applies to all covered City buildings, with benchmarking measures (§6.5) applicable to those properties with sufficient operational history for benchmarking. The Administration and Regulatory Affairs Department is responsible for coordinating benchmarking and reporting efforts, and all operating departments are responsible for implementing the requirements of this policy among the buildings and facilities they operate, maintain, design, renovate, or otherwise manage.

4. DEFINITIONS

Audit or Assessment: a systematic evaluation process to identify modifications and improvements of the base building systems to optimize energy and water use performance of the building and achieve savings. Audits are typically performed by third-party qualified professionals, and they include a report detailing opportunities to achieve energy and water savings.

Base building systems: the systems of a building that use or distribute energy and/or water and/or impact energy and/or water consumption, including:

- (1) The building envelope (including windows, enclosures, materials, etc.);
- (2) The HVAC (heating, ventilation, and air conditioning) systems;
- (3) Conveying systems;
- (4) Electrical and lighting systems;
- (5) On-site power generation systems;
- (6) Domestic hot water systems;
- (7) Water distribution systems;
- (8) Plumbing fixtures and other water-using equipment;
- (9) Landscape irrigation systems, pools, fountains, and spas; and
- (10) Refrigeration systems

Benchmark: to submit the total energy and water consumed for a building, as well as the building's generated waste, for the previous calendar year and other descriptive information for such building as required by the benchmarking tool, as well as compare the building's performance to data from previous years and from buildings with similar descriptions.

Benchmarking information: information submitted to or generated by the benchmarking tool or other means and descriptive information about the physical property and its operational characteristics. The information shall include:

- (1) Building characteristics and use attributes;

- a. Property street address;
- b. Type of use or uses;
- c. City operating department;
- d. Tenant City department(s), if relevant;
- e. Gross floor area as defined by ENERGY STAR Portfolio Manager's glossary;
- f. Year built;
- g. Operating hours;
- h. Occupancy;
- i. As applicable, use-specific information such as percent of building area heated and air conditioned, number of computers, uninterruptible power supply usage and characteristics, and number of refrigeration/freezer units.
- j. Individual building financial and cost data will not be part of this data set.

(2) Building energy, water, and waste information;

- a. Site energy use intensity (Site EUI);
- b. Total annual greenhouse gas emissions;
- c. Monthly energy use, by fuel type;
- d. Electric power demand at i.e., hourly intervals
- e. Monthly indoor water use and water use intensity (consumption per gross square foot);
- f. Monthly outdoor water use (where available);
- g. Total monthly water use and water use intensity (per gross square foot);
- h. The ENERGY STAR score, where available;
- i. Monthly waste generation (tons to landfill, tons diverted through recycling or other means);
- j. General comments section, if needed, to explain the building's ENERGY STAR scores or other information as needed.

(3) Compliance or noncompliance with this policy's energy performance targets.

Benchmarking tool: the U.S. Environmental Protection Agency's "ENERGY STAR Portfolio Manager," or any additional or alternative tool adopted by the director of ARA (or the director of an operating department, with approval by the director of ARA), used to evaluate energy and water use and waste generation relative to buildings in Houston and nationwide. This term also applies to any successor system thereto, including any change or addition made to such tool by the United States Environmental Protection Agency.

Building decarbonization plan: a written report to describe 1) if relevant, why a building is not meeting certain requirements of this policy, especially its applicable electricity site energy use intensity target; 2) ongoing and planned efforts to reduce the energy consumption and greenhouse gas emissions of a building, as well as a timeline for doing so.

Building decarbonization staff member: the individual(s) assigned by their department for managing or coordinating that department's responsibilities in meeting the requirements of this policy.

Buildings staff: those City of Houston employees as identified by Operating Department Directors whose daily responsibilities include the design, construction, maintenance, and/or management of any covered City building

Continuous commissioning: a process of comparing data obtained through a building audit or benchmarking with analytic models and expectations based on original design and construction; identifying problematic sensors, controls and equipment; and resolving operating problems, optimizing energy use and identifying retrofits for existing buildings. The intent is to verify that a construction, renovation, or retrofit project continues to meet the design expectations.

Covered City building: a building or facility that is owned and operated by the City of Houston and the City regularly pays all or part of the annual energy and/or water and/or waste collection bills (including wastewater treatment plants and drinking water purification plants for benchmarking requirements).

Embodied carbon: the greenhouse gas (GHG) emissions associated with manufacturing, transportation, installation, maintenance, and disposal of building materials.

Energy: electricity, natural gas, hydrogen, steam, or other product sold to the City of Houston as a customer, or renewable on-site electricity generation, for purposes of providing heating, cooling, lighting, water heating, or for powering or fueling other end-uses.

ENERGY STAR score: the 1-100 numeric rating generated by the ENERGY STAR Portfolio Manager tool.

EUI or "energy use intensity" or "site energy use intensity": total energy consumed (as measured by the relevant meter, often converted to kBtus) per square foot per year.

Fiscally Plausible: an expenditure that is reasonably expected to yield a savings equal to or greater than its amount within ten years (i.e., simple payback of less than or equal to ten years).

Green Stormwater Infrastructure: natural solutions to reduce stormwater runoff and improve rainwater infiltration. These include, but are not limited to, green roofs, permeable pavement, rain gardens and bioswales, and rainwater capture systems.

Major Renovation: any building project or collection of projects commencing after adoption of this policy that decommissions (temporarily) fifty percent or more of the gross floor area, adds to the gross floor area, displaces (temporarily) fifty percent or more of the regular building occupants, and / or costs fifty percent or more of the replacement value of the building.

New or replacement facilities: any covered City building designed and constructed, acquired, or leased after adoption of this policy.

Operating Department: a department whose responsibilities include the design, construction, maintenance and/or management of any given City property. These include, but are not limited to, General Services, Houston Public Works, Parks and Recreation, and the Houston Airport System.

Performance-based contract: a contract for design and construction services in which overall payment to the contractor(s) depends on building energy performance once occupied.

Solar Ready: prepared for the future installation of solar energy equipment, piping, and wiring, as defined in the 2018 International Energy Conservation Code appendix CA – “Solar-Ready Zone—Commercial”, as amended or updated from time to time.

Tenant Department: a department without responsibilities for maintenance and management of a given City property, which instead works with an operating department such as the General Services for its building needs.

5. ROLES AND RESPONSIBILITIES

5.1 Administration and Regulatory Affairs (ARA) Department director, who may delegate some responsibilities to the Chief Resilience and Sustainability Officer (CRSO)

- 5.1.1 Fulfilling their department’s requirements outlined in this policy and its associated procedures, including designating a Building Decarbonization staff member and outlining their responsibilities in the associated procedures.
- 5.1.2 Reporting progress toward *Climate Action Plan* and *Resilient Houston* goals and targets, in partnership with the operating departments responsible for data collection and analysis.
- 5.1.3 Reporting on this subject as defined by the Texas legislature if not covered by this policy’s reporting requirements; and annually to all departments, Mayor, and City Council.

5.2 Operating department directors

- 5.2.1 Fulfilling their department’s requirements outlined in this policy and its associated procedures, including designating a Building Decarbonization staff member and outlining their responsibilities in the associated procedures.
- 5.2.2 Implementing this policy and associated procedures in their relevant strategies, projects, procurements, operations, etc.

5.3 Houston Public Works Director

- 5.3.1 Collecting and verifying wastewater treatment and drinking water purification facility information to support annual benchmarking; developing an associated energy and greenhouse gas emissions reduction policy within one (1) year of adoption of this policy, as described in section 6.7.

5.4 Houston Airport System Director

- 5.4.1 Seeking Airport Carbon Accreditation from Airports Council International within eighteen (18) months of adoption of this policy, as described in section 6.8.

5.5 Finance Department Director

- 5.5.1 Working with ARA and the operating departments to fund and finance the requirements of this policy as needed and as funding is available, as well as to consider reforms to City funding and financing structures with the goal of better aligning operating and tenant department interests with building energy efficiency and decarbonization.

5.6 Houston Information Technology Services (HITS) Director

- 5.6.1 Working with ARA and the operating departments to facilitate compliance with equipment use requirements in existing buildings (i.e., powering down or putting into sleep mode computers, printers, etc. outside operational hours; decreasing use of personal printers; etc.).

5.7 Chief Procurement Officer (CPO)

- 5.7.1 The CPO or his designee shall review all procurement requests and associated scopes of work from City departments related to the procurement of energy or water consuming equipment or waste for compliance with the procedures of this policy.

6. PROCEDURES

- 6.1 While this policy sets high-level requirements, ARA and the operating departments shall in parallel adopt one combined set of detailed procedures to guide implementation.
- 6.2 Unless otherwise stated, operating departments shall view the standards and measures in this section as requirements. Operating or Tenant Department staff may seek an exemption or variance (i.e., a modified target and requirements) on the basis of cost, health, or safety. For a building exemption or variance, the operating or tenant department staff shall submit a waiver form developed by ARA and receive confirmation from the director of the operating department that manages the building and the director of ARA. Waivers shall be submitted to, and kept on hand by, the property's Operating Department. Collectively, facilities with exemptions or variances should not exceed ten percent of all covered City buildings (as measured by gross square footage, gross energy consumption, or absolute number of buildings). If this ten percent threshold is crossed, ARA and the operating departments shall reassess exemptions, variances, and requirements to develop a plan to improve compliance.
- 6.3 Operating departments of existing covered City buildings shall strive for the following energy performance targets and adhere to the following operational requirements.
- 6.3.1 Energy performance targets
- 6.3.1.1 Operating departments shall adopt one set of site energy use intensity (EUI) targets for electricity to promote improved operational efficiency and inform capital expenditures and prioritized maintenance among existing City buildings.
- 6.3.1.2 Operating departments of existing covered City buildings shall strive to achieve agreed-upon site EUI targets for electricity, based on building type, which lower the City's electric power consumption. For covered buildings not achieving the target EUI based on their building types, the operating department buildings staff (with coordination led by the department's Building Decarbonization Staff member) shall submit a building decarbonization plan to the CRSO and the ARA Director, who will then share these building decarbonization plans with the Mayor and Council as part of the annual reporting process (see §6.4.2). Efforts outlined in the building decarbonization plan can include, but are not limited to, changes to building operation, the installation of onsite zero-emission power, retrofits to reduce energy consumption, and retrofits to replace equipment that generates onsite emissions. A building's operating department leads development of the plan, in collaboration with the Mayor's Office of Resilience and Sustainability and with its tenant department(s), if relevant. The plan may build directly on audit reports.
- 6.3.1.3 At least every three (3) years, as City building energy performance improves, ARA and the operating departments shall lower EUI targets such that about twenty percent of buildings remain above specified targets. In no case shall EUI targets be raised, even if overall building energy performance in a category worsens.
- 6.3.1.4 In future updates, the City shall consider replacing these targets with greenhouse gas intensity targets (in metric tons of CO₂-equivalent per square foot). Greenhouse gas intensity targets are most effective when paired with granular (i.e., hourly) energy consumption data and grid information, not when calculated annually.

6.3.2 Building operational requirements for meeting performance standards

6.3.2.1 In general, each operating department shall manage its facilities to meet optimum energy, water, and waste efficiency and shall implement energy, water, and waste conservation measures to the extent fiscally plausible. When conducting non-major renovations or replacing existing mechanical, electrical, or plumbing (MEP) equipment, procurement choices shall default to the requirements agreed upon by the operating departments.

6.3.2.2 Agreed-upon operational requirements shall align with the purposes of this policy, and shall include:

6.3.2.2.1. Heating, cooling, and general operation of HVAC system, including temperature setpoints and hours of operation

6.3.2.2.2. Ventilation and humidity control, including minimizing the introduction of outside air

6.3.2.2.3. Lighting, including occupancy/motion sensor and scheduled controls

6.3.2.2.4. Domestic water, including efficient water heating

6.3.2.2.5. General operations and maintenance, including continuous commissioning and participation in demand response programs

6.3.2.2.6. Equipment use, including better management of plug loads and the prohibition of space heaters and personal printers in most cases

6.3.2.2.7. Occupant behaviors and amenities, including the installation of safe bicycle parking and safe and visible access to stairwells

6.3.2.3 Agreed-upon procurement requirements shall align with the purposes of this policy, and shall include:

6.3.2.3.1. Lighting, including efficient lighting technologies

6.3.2.3.2. Domestic water, including low-flow water fixtures

6.3.2.3.3. General operations and maintenance, including contracting landscape services companies with zero-emission (typically all-electric) equipment

6.3.2.3.4. Equipment purchasing, including alignment with Energy Star's "Most Efficient" list or Energy Star rated otherwise, and upgrading to equipment and appliances that do not generate onsite greenhouse gas emissions for space and water heating and cooking

6.4 Standard for new or replacement facilities and major renovations

6.4.1 The ARA Director, CRSO, and the operating departments shall adopt one set of stringent and ambitious standards for new or replacement facilities and major renovations in line with the purposes of this policy.

6.4.2 Unless otherwise noted, all equipment requirements outlined in section 6.2 for existing buildings (i.e., lighting, equipment purchasing, etc.) also apply to all new or replacement facilities and major renovations once operational.

- 6.4.3 Agreed-upon procedures shall align with the purposes of this policy, and shall include:
- 6.4.3.1 Energy efficiency and renewable power: new or replacement facilities and major renovation efforts shall strictly limit onsite energy consumption and seek to cover that consumption with renewable power.
 - 6.4.3.2 All equipment and appliances for space and water heating, cooking, and other relevant end uses in new or replacement facilities and major renovation efforts shall be electric (but not electric resistance for space and water heating) or otherwise not generate direct onsite greenhouse gas emissions.
 - 6.4.3.3 New or replacement facilities and major renovation efforts shall have Solar Ready infrastructure.
 - 6.4.3.4 New or replacement facilities and major renovation efforts shall seek to minimize the environmental and greenhouse gas footprint associated with backup power, where backup power is needed. Designs shall achieve this both by limiting intended power consumption to only critical loads that support health and safety during emergency situations where the electric grid is unavailable, but also by seeking sources of backup power with limited or no onsite emissions (i.e., battery storage with onsite solar power or zero-emission fuel cells).
 - 6.4.3.5 New or replacement facilities and major renovation efforts shall be designed and built to support electric vehicle charging.
 - 6.4.3.6 Design and construction divisions shall work to minimize embodied carbon from construction materials and activities, prioritizing renovations over tear-down and new construction, requesting Environmental Product Declarations for high-impact materials, tracking and reducing construction-related emissions, and diverting construction and demolition waste. ARA and the operating departments shall incorporate specific embodied carbon reduction targets in a future iteration of this policy.
 - 6.4.3.7 Design and construction divisions shall perform whole building life cycle assessments, including end-of-life decommissioning, for both cost and greenhouse gas emissions, minimizing both as possible.
 - 6.4.3.8 Separately meter all utilities (energy and water) coming into the building by significant use types.
 - 6.4.3.9 Design buildings for demand response / grid interactivity.
 - 6.4.3.10 Reduce indoor and outdoor water use, both through high-efficiency, low-flow features and through minimizing irrigation using potable water. Prioritize native plants, identify opportunities to incorporate onsite Green Stormwater Infrastructure, and avoid turf grass where it is not necessary for recreation.
 - 6.4.3.11 LEED Certification: In addition to the other requirements and standards laid out in section 6.3 of this policy, operating departments shall continue to achieve the U.S. Green Building Council's LEED certification for new or replacement facilities, and major renovations of covered City buildings (as required in Resolution 2004-0015); all capital improvement projects shall use the sustainable principles of LEED; and each project shall be assessed for the appropriate certification level. Operating Departments managing a design and construction process should specifically prioritize credits from the "Energy & Atmosphere," "Indoor Environmental Quality,"

“Water Efficiency”, and “Sustainable Sites” categories, in addition to meeting specific LEED credit requirements outlined elsewhere in the procedures.

6.4.3.12 Operating Departments managing a design and construction process shall consider performance-based contracts with design and construction contractors to encourage high performance on energy and water, piloting a performance-based contract for at least one new design and construction project within five (5) years of policy adoption. Typically, a building not meeting design specifications for energy performance would lead to lower payment for the contractor, a building meeting design specifications for energy performance would lead to expected payment for the contractor, and a building outperforming design specifications for energy performance would lead to higher payment for the contractor.

6.5 Energy, water, and waste benchmarking requirements for all buildings

6.5.1 Each year, ARA and the operating departments shall collect and enter all benchmarking information for all covered city buildings for the previous calendar year into the benchmarking tool. Total energy and water consumption shall not include separately metered uses that are not integral to building operations, such as broadcast antennas and electric vehicle charging stations. The tracking of benchmark data shall include access upon request to electric power demand at hourly, or shorter, time intervals as available based on meter technology.

6.5.2 For every covered city building subject to this policy, ARA and the operating departments shall annually prepare an energy, water, and waste benchmarking report to submit to the Mayor and City Council and share with departments.

6.5.3 Beginning at most one (1) year after policy adoption, ARA shall make a high-level benchmarking summary available to the public on the internet.

6.5.4 ARA and the operating departments (for the buildings they manage) shall perform or cause to be performed audits for all covered city buildings at minimum every 5 years. ARA and the operating departments shall also evaluate existing free or low-cost third-party programs that conduct building audits, where available.

6.6 Increased education, training, and incentives for buildings staff

6.6.1 Operating departments are encouraged to offer professional development, education, and training opportunities for buildings staff related to topics in this policy. The CRSO shall compile, maintain, and share a compendium of related resources.

6.6.2 Operating departments are encouraged to identify performance factors that contribute to improvements in building performance on energy, water, and waste which may serve as a basis for an award of performance-based salary increase in accordance with Administrative Procedure 3-13, *Performance Pay Zone (PPZ)* or incentive pay in accordance with Administrative Procedure 3-8, *Performance Incentive Pay Plans for Municipal Employees*.

6.7 Emissions reduction requirements at City wastewater and drinking water facilities

6.7.1 In this Policy, requirements for wastewater and drinking water facilities only include those related to data collection and benchmarking (as outlined in §6.5.1).

6.7.2 Within one (1) year of policy adoption, the Houston Public Works Director shall develop and adopt a related policy to specifically address its facilities. The policy can be stand alone or adopted as an amendment to this one, and it shall include:

6.7.2.1 Energy and/or greenhouse gas emissions performance targets for existing

wastewater and drinking water facilities;

- 6.7.2.2 Operating requirements to decrease energy consumption and reduce greenhouse gas emissions at existing wastewater and drinking water facilities;
- 6.7.2.3 Design and construction standards to decrease energy consumption and reduce greenhouse gas emissions at new wastewater and drinking water facilities; and
- 6.7.2.4 Reporting and disclosure requirements to increase transparency of energy and/or emissions data both within the City and for the public.

6.8 Accreditation for the Houston Airport System

- 6.8.1 The Houston Airport System Director shall seek [Airport Carbon Accreditation](#) from Airports Council International for all HAS-managed airports within eighteen (18) months of adoption of this Policy, in pursuit of aligning its decarbonization efforts with best practices from other airports globally.

7. MAINTENANCE OF RECORDS

- 7.1 ARA shall retain all information tracked and input into the benchmarking tool for a minimum of five years beyond the date on which benchmarking was required, unless a longer period is required by law or regulation.
- 7.2 ARA shall maintain a copy of each audit and audit report on site for a minimum of five years from the required submission date, unless a longer period is required by law or regulation.
- 7.3 A copy of the latest up-to-date equipment manuals shall be maintained at every covered City building at all times.

8. CONTINUOUS IMPROVEMENT

- 8.1 Every five years or fewer, ARA and the operating departments shall revisit this policy, revising as necessary to maintain a comprehensive set of requirements, incentives, and initiatives to promote improved energy, water, and waste efficiency that support goals in the *Climate Action Plan* and *Resilient Houston*.

9. CONFLICT AND REPEAL

This policy rescinds and supersedes Administrative Procedure 7-1 Revised, City Energy Efficiency Policy, effective December 31, 2011.

10. RELATED DOCUMENTS AND INFORMATION

- ASHRAE Standard 211, Procedures for Commercial Building Energy Audits – <https://www.ashrae.org/technical-resources/bookstore/standards-180-and-211>
- Building Performance Standards: A Framework for Equitable Policies to Address Existing Buildings - https://www.usdn.org/uploads/cms/documents/bps-framework_july-2021_final.pdf
- City of Houston *Climate Action Plan* – <http://greenhoustontx.gov/climateactionplan/>
- City of Houston *Resilient Houston* – https://resiliencitiesnetwork.org/downloadable_resources/Network/Houston-Resilience-Strategy-English.pdf
- City of Houston Resolution 2004-0015 – <http://www.greenhoustontx.gov/pdf/ordinance-greenbuilding.pdf>

- Embodied Carbon in Buildings - <https://rmi.org/insight/reducing-embodied-carbon-in-buildings>
- Energy Star - www.EnergyStar.gov
- Energy Star Energy Use Intensity by Property Type - <https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf>
- Energy Star Eligibility Criteria for the 1-100 Energy Star Score - https://www.energystar.gov/buildings/benchmark/understand_metrics/score_criteria
- Federal Sustainability Progress, Plans, and Performance – <https://www.sustainability.gov/performance.html>
- Fuel Cells for backup power - https://www.energy.gov/sites/prod/files/2014/10/f19/ftco_early_mkts_fc_backup_power_fact_sheet.pdf
- Harvard Green Building Requirements Innovation Points - <https://green.harvard.edu/sites/green.harvard.edu/files/HarvardGreenBuildingStandards2017.pdf>
- Marin County Low Carbon Concrete Requirements - <https://www.marincounty.org/-/media/files/departments/cd/planning/sustainability/low-carbon-concrete/12172019-update/low-carbon-concrete-code.pdf?la=en>
- National League of Cities – www.nlc.org
- National Institute of Building Science Whole Building Design Guide - <http://www.wbdg.org/project/buildingcomm.php>;
- New Buildings Institute Building Decarbonization Code - https://newbuildings.org/wp-content/uploads/2021/02/DecarbonizationCodeOverlay_20210217.pdf;
- Performance-based contracts example - https://www.architectmagazine.com/technology/performance-based-contracts-put-money-behind-the-promise-of-green-design_o
- Pittsburgh Ordinance on Sustainable Development for City-Owned Facilities - https://library.municode.com/pa/pittsburgh/codes/code_of_ordinances?nodeId=PIZOCO_TITNINEZ_OCO_ARTVIDEST_CH915ENPEST_915.08SUDECINEFA
- Smart Energy Cities - www.smartenergycity.com
- Solar Ready definition from IECC - <https://codes.iccsafe.org/content/iecc2018/appendix-ca-solar-ready-zone-commercial>
- U.S. Dept. of Energy/Environmental Protection Agency - www.eere.energy.gov
- U.S. General Services Administration Facilities Standards – https://www.gsa.gov/cdnstatic/2018%20P100%20Final%205-7-19_0.pdf
- USGBC LEED Credits overview – <https://www.usgbc.org/credits>

11. POLICY SPONSOR

Department: Administration and Regulatory Affairs