STEP 9: PLAN TO EVALUATE

WHAT: While it may seem early to think about evaluating the outcomes of CESP actions, setting out a clear process for periodic assessment and evaluation up front means that responsibility for these important steps is clear and intentional. In concert with developing an implementation blueprint, identify the process and resources now for monitoring and evaluating progress, as well as providing that information to the public and making necessary adjustments.

WHY: Monitoring and evaluation is vital to the ultimate success of the CESP, as it allows:

- Informed management of activities,
- Adjustment of strategies to correct for or make up for deviations or shortfalls,
- Validation of progress toward goals,
- Progress reports to public and authorities to sustain interest; and
- Celebration of successes.

WHO: Identify someone to develop and oversee the activities involved in monitoring, evaluating, and reporting on the CESP progress. While the responsibility for carrying out tracking of individual actions will be held by the lead for each item, the Plan Manager is a good candidate for the ongoing responsibility of aggregating and synthesizing this information for the whole plan. Be sure to allocate the necessary funding and time resources to the ongoing tracking, evaluation, and reporting functions. This activity should be authorized by the Champion, as a part of the approval of the implementation blueprint (Step 8).

HOW: To maximize the chance of success for the plan, the Leadership Team will need to:

- Establish a Plan for Performance Measurement and Reporting
- Evaluate and Report on the Effectiveness of the Full CESP and Its Components on a Regular Basis
- Update the CESP When Necessary to Ensure the Best Results

CESP Timeline

	Month: 1	2	3	4	5	6	7	8	9	10
Step 1	Form Leadership Team									
Step 2		Identify Stakeholders	Engage Stakeholders							
Step 3			Vision							
Step 4			Energy Profile							
Step 5					Goals and Strategies					
Step 6						Identify Actions				
Step 7					Identify Financing					
Step 8								Implementation Blueprint		
Step 9								Monitoring Plan		
Step 10					Scope and Develop Final CESP					Adopt & Publicize

WHEN: The procedures for monitoring, evaluation, reporting, and update should be an integral part of the implementation blueprint and should be developed in parallel with Step 8. As with the blueprint, this effort may take between 4-8 weeks, depending upon the complexity and breadth of the CESP. Once implemented, the information gathered through these periodic assessments should become a regular component of CESP reporting and public outreach activities (Step 10).

Establish a Plan for Performance Measurement and Reporting

A specific plan for monitoring and progress reporting should be developed for each action in the plan. The Plan Manager and the leads for each action item should be involved in this process, and they will likely want to build partnerships with key data holders at this time (for example, staff in different divisions).

If not done as part of the earlier steps, this is the time to establish or clarify the following necessary **components of a monitoring plan** for each action item:

- **Measurable indicator (metric)** – for example: energy saved, renewable energy projects installed, greenhouse gas emissions reduced, funds leveraged, or jobs created.
    - Types of metrics include:
        - System-level metrics: measure the overall impact of a combination of activities (e.g., total government vehicle fleet fuel usage; total residential energy use).
        - Program-level metrics: measure the impact of a specific activity/program (e.g., number of bike parking stations; city hall energy retrofit savings by building).
        - Milestones/status update: illustrates whether or not a specific action has been taken or achieved (yes/no).
    - The most-useful indicators:
        - Are accessible, reliable, and well-documented.
        - Rely on existing data that are already available when possible – for example: energy use in buildings; number of customers enrolled in EE programs.
        - (For new data) Are relatively low cost and easy to measure, if possible – for example, simple surveys.
        - Provide results that are easy to communicate to others – they are easily understood by and relevant to the key audience.
        - Drive changes in behavior and energy use patterns.
        - Capture a range of factors, such as awareness, actions, and actual energy output.
        - Are scale independent – use % or normalized information when possible, to allow for relevance across time or relationships between two variables.
- **Baseline** – the starting point for each indicator.
- **Method for measuring progress** – for example: survey; data from government budget; data from external organization (number of new ENERGY STAR homes built from homebuilders association).
- **Process to use for collecting data**, including:
    - Who will collect the information – this will often be the lead for that action identified in Step 8, or they may delegate or partner with someone for monitoring.
    - How they will obtain it.
    - Where and how it will be tracked (see tracking system discussion below).
    - How the data will be analyzed.
- **How often data collected will be used to measure progress**, with a clear deadline to attain the goal – plan for regular assessments, so that adjustments can be made if necessary.

- **Reporting protocol**, including: milestone and reporting dates, what should be reported, and to whom it should be reported.

Determining the results of CESP activities can be difficult because not everything that a local government may want to measure is easily documented, so design for an **appropriate level of detail and rigor**. For example, the level of sophistication of this feedback process should be as rigorous as needed to meet any reporting requirements to funders or decision makers – otherwise, keep cost considerations in mind as a process is developed.

- Evaluation for a **local government CESP** is efficient when integrated into routine annual processes (budgeting, etc.), and communication to the public about progress is important to reflect good stewardship.
- **A community-wide CESP** only requires higher-level feedback to the broader citizenry but should report on the full range of activities – use quantitative values when possible and augment with qualitative outcomes when appropriate.
    - Because of the breadth of activities in a community-wide plan, there will be a lot of information from many sources to gather and track. This will be done most effectively if such data-gathering is coordinated by a single person – the Plan Manager is a likely candidate for this role.
    - Be sure to clearly specify the information needed from those who will be reporting on individual community activities. The collection, integration, and reporting of information from all these activities will be more efficient if the information tracked is the same across activities (as appropriate).
- Evaluating sophisticated efficiency or renewable *program* performance can be an extensive undertaking. Links to more-detailed resources providing guidance on designing such evaluations are found in the Resources section below.

Identify and/or develop **tracking systems** as needed, being sure that the individuals assigned as action leads are involved in their design. IT staff are also a good resource for this step.

- Define the level of detail needed and incorporate the characteristics of good systems.
    - A good tracking system will help identify when a specific activity is performing well, and when it is not meeting its expected performance and is in need of review.
    - Such a system should be centralized and available for all to use in gauging progress toward established targets, milestones, and deadlines.
- If possible, **build on existing tools** rather than developing new ones.
    - Developing a full-scale, internal tracking system to capture frequent and detailed information on every activity will be expensive and more sophisticated than needed for many types of goals.
    - Data from existing sources or simple assessments is often sufficient.
- If the CESP actions include installing equipment, benchmarking buildings, or developing energy-related programs, **using a detailed energy tracking system** at the project, building, or program level will be in order.
    - Benchmarking tools, such as EPA's Portfolio Manager, that have been used for building energy use assessments in Step 4 will provide effective tools for ongoing performance tracking.
    - Other calculation tools for savings in buildings are available here: www1.eere.energy.gov/buildings/betterbuildings/neighborhoods/resource_directory.html
- Note: **a tracking system for data is only effective if the information it contains is current and comprehensive**. Data need to be collected and incorporated into the system at an interval of time effective for the activity. Many organizations perform monthly updates to their tracking systems for data-intensive reviews – annual assessment is appropriate for items with longer-term horizons.

The Plan Manager or other designated lead will organize all of this information into a plan for monitoring and evaluation, which captures overall approach as well as specific decisions for each action item. See the **Monitoring Plan Template** at the end of this chapter for an example of the information that is useful to capture on an action-by-action basis. You can scale how much or little of this information you want to include in the implementation blueprint. For example, include the metric that will be tracked for each action in the overall implementation blueprint (see **Goals, Strategies, and Actions Planning Worksheet**), with the details about how these metrics will be tracked and reported in an appendix.

CESP IN ACTION: WATERBURY LOCAL ENERGY ACTION PARTNERSHIP: HOW THEY ARE MEASURING PROGRESS				
	Transportation	**Heating Fuel**	**Electricity**	**Renewable Energy**
Homes	**Residential Fuel Efficiency and Practices** • Average residential fuel efficiency population (Department of Motor Vehicles data)	**Heating Efficiency of Residences** • % of households aware of fossil fuel heating index (school survey) • Average BTU/sq. ft. (fuel supplier survey)	**Electrical Efficiency of Residences** • % of households aware of electric use index (school survey) • % of low-energy lighting in households (school survey) • Total kW/population (utility data)	**Residential Renewable Energy Production** • % of homes w/ renewable energy (Vermnot Energy Atlas) • Total kW produced per population (VT Energy Atlas) • % students exposed to education about renewables
Businesses	**Business Fuel Efficiency and Policies** • Average fuel efficiency of business vehicles (business survey) • % of employees with low-impact transportation (business survey)	**Heating Efficiency of Businesses** • % businesses who have conducted heating audits (business survey) • Avg. heating BTU/ft2 of businesses (business survey)	**Electrical Efficiency of Businesses** • % of businesses aware of energy use (business survey) • % of businesses having energy audit (business survey) • % low-energy lighting used (business survey)	**Business Energy Production** • Total kW produced by renewables on business infrastructure (VT Energy Atlas)
Public Buildings	**Public Fuel Efficiency and Policies** • % school bus ridership (direct survey) • % pop. served by public transport option (Department of Transportation) • Avg. fuel efficiency of public vehicles (direct survey)	**Heating Efficiency of Public Buildings** • % of public buildings with heating audits (direct survey) • Avg. heating BTU/ft2 of public buildings (direct survey)	**Electrical Efficiency of Public Buildings** • Total kW use/ft2 of public buildings (direct survey) • % public buildings with electric energy audit (direct survey)	**Public Energy Production** • Total kW produced on public infrastructure (schools, tow offices, dams, etc.) (VT Energy Atlas)

Evaluate and Report on the Effectiveness of the Full CESP and Its Components on a Regular Basis

Assessing progress toward all the goals together provides insight into how the CESP is faring, so develop a plan for aggregating and evaluating performance information for the full CESP (all component parts) as well. Doing this overall evaluation has a number of advantages; it:

- Brings to light the dollars saved and other success stories as a means of building support for initiatives moving forward.

- Creates insight for new actions.

- Avoids repeating failures by identifying activities that are not as effective as expected.

- Assesses the usefulness of the tracking system and other administrative tools and processes, to better manage the plan.

- Provides staff and the public the opportunity to contribute to and understand the process.

As part of the planning for monitoring and evaluation, define and assign responsibility for developing periodic overall CESP reports. This should be a centralized activity, undertaken by the Project Manager or other manager of the implementation phase of the CESP (see Implementation Team discussion in Step 8). Planning for aggregated reports should include:

- Who the audience(s) is.
    - One objective of this periodic review is to assess how the plan is progressing overall to build support and adjust and adapt as necessary, so one key audience should be decision-makers.
    - Another objective is to obtain feedback and build support from the public, so this is another key audience.

- What the report(s) will look like – Use appropriate and relevant means of connecting with each audience. Detailed reports will be helpful for decision-makers, while summary reports are more effective for reporting to a broader audience (see more information on this in Step 10).

- What information should be included – Reports should include:
    - Reviews of progress toward meeting milestones, actions, strategies, and goals.
    - Review of the process – for example: Are the operational components of the plan continuing to work well? Were the right people assigned responsibility for each component? Are there adjustments that need to be made in the way the plan is monitored?

- Frequency of reports, depending upon the audience.
    - Reviews of progress toward meeting milestones and actions will be most effective if carried out at least quarterly by the overall Implementation Manager and/or Project Manager. This does not necessarily need to be shared as a report but could be, for example through online reporting.
    - Tying the more-detailed review to regular, institutionalized processes, such as the city budgeting process, can be efficient.
    - Summary reports can be less frequent – for example: an annual report card. Tying public progress reports to existing events also provides motivation for getting the work done on a timely basis.

CESP IN ACTION:

ILLUSTRATING PROGRESS TOWARD GOALS

Here are some good examples of ways to communicate the progress made toward CESP goals:

- Baltimore provides information on their Sustainability Plan's goals and progress toward achieving them, in periodic reports available on their website: www.baltimoresustainability.org/metrics/2010/Resource-Conservation-Goal-1.pdf

- The website for the Omaha Energy Plan provides information on the metrics they are tracking and reports of progress: www.omahaenergyplan.org/index.php/measuring-success-menu

- Pittsburgh Climate Action Plan, Version 2 is a progress report issued 5 years after the initial plan: http://pittsburghclimate.org/wp-content/uploads/2011/12/Pittsburgh-Climate-Action-Plan-Version-2-FINAL-Web.pdf

Update the CESP When Necessary to Ensure the Best Results

As a CESP is implemented and evaluated, it may become necessary to make adjustments. This should be done by the implementation lead and Leadership Team (or other decision-makers), in coordination with the Implementation Team and other stakeholders who can provide information on the particular area that needs adjustment.

If changes to the plan are needed because targets are not being effectively met:

- Start by identifying the contributing factors, both controllable (e.g., mismatched resources) and uncontrollable (e.g., weather abnormalities).
- Assess whether there should be changes to the implementation strategy. For example, milestones may need to be adjusted or leadership for plan components changed.
- Then take into consideration the actions and strategies. Resist the temptation to back off of the goals themselves.

If changes are needed because targets have been exceeded or new resources are available:

- Again, start at the lowest level. Add actions that ranked slightly lower than those that made the final cut in the original CESP, or accelerate timelines.
- Then consider expanding or ramping up existing strategies or goals, or even expanding the scope of the plan.

Note: if changes are made to the plan elements (i.e., goals, strategies, or actions), be sure to also adjust implementation components, including timeline, staffing, monitoring and evaluation, and financing as well.

Tools

Tool 9.1: Monitoring Plan Template (.docx)

Tool 5.1: Goals, Strategies, and Actions Planning Worksheet (revisited) (.docx)

Resources Recommended for More In-depth Guidance

Overall Plan Monitoring and Evaluation

- EPA Climate Action Plan Evaluation *(see 12/7/11 webinar)*
  www.epa.gov/statelocalclimate/web-podcasts/local-webcasts-by-date.html#a120711
- EPA EM&V Webinar Series
  www.emvwebinar.org/
- DOE/EPA Model Energy Efficiency Program Impact Evaluation Guide
  www.epa.gov/cleanenergy/documents/suca/evaluation_guide.pdf

M&V for Buildings

- DOE Developing an EM&V Plan for Municipal Building Energy Efficiency Projects (Webinar)
  www1.eere.energy.gov/wip/solutioncenter/pdfs/developing_an_evaluation_measurement_and_verification_plan_for_your_energy_efficiency_project-program.pdf
- DOE Portfolio Manager: Communicating Success: Measuring Improvements, Sharing Results (Webinar)
  www1.eere.energy.gov/wip/solutioncenter/pdfs/communicatingsuccessmeasuringimprovementssharingresults.pdf

M&V for Programs

- DOE State and Local Energy Efficiency Action Network (SEE Action) Energy Efficiency Program Impact Evaluation Guide
www1.eere.energy.gov/seeaction/index.html

- DOE/ NREL Uniform Methods Project
www.nrel.gov/extranet/ump/

Examples of Municipal Plan Evaluation Metrics

- Report: Key Metrics for Implementing Arlington County's Community Energy Plan
http://freshaireva.us/wp-content/uploads/2012/01/Metrics-Report.pdf

- Omaha Energy Plan
www.omahaenergyplan.org/index.php/measuring-success-menu

- 2010 Annual Report: Baltimore City Office of Sustainability, Energy Use metrics
www.baltimoresustainability.org/metrics/2010/Resource-Conservation-Goal-1.pdf

- City of Boulder – Office of Environmental Affairs – Climate Action Program Assessment
www.bouldercolorado.gov/files/LEAD/climate%20and%20energy/City_of_Boulder_ALL_SECTIONS_FINAL_072809_v9.pdf