



# DuPage County Government Center Sustainability Indicators Report

July 2015



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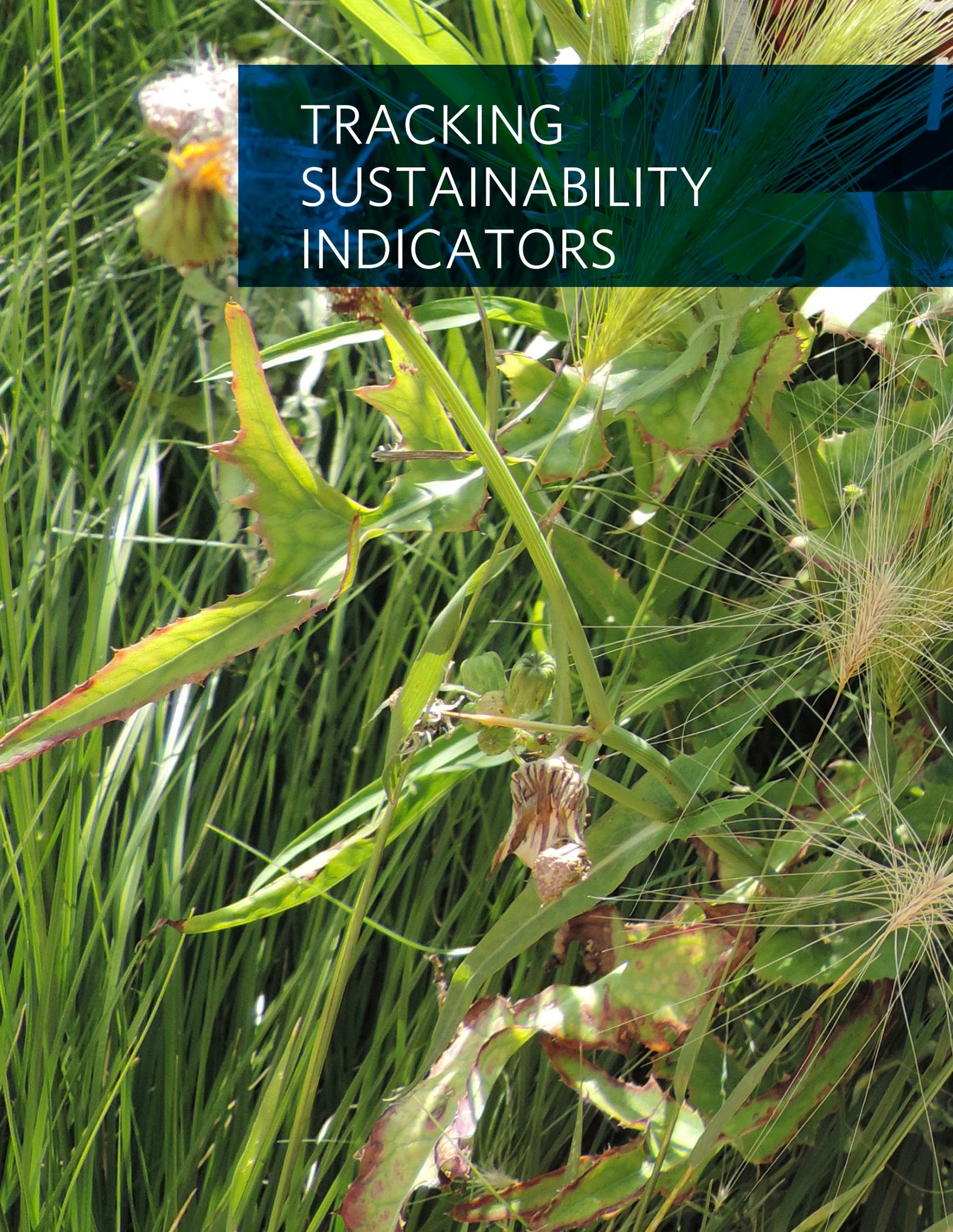
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# TRACKING SUSTAINABILITY INDICATORS

# Introduction

One of the hallmarks of sustainability planning is the ability to measure the environmental impacts of sustainability-related programs, policies, and practices. Sustainability is a long-term endeavor that requires continued diligence. It may take decades to see significant change on issues such as climate change. Indicators help government entities to continuously evaluate whether the strategies put into place are having measurable near- and long-term impacts. Selecting indicators from the outset can help local communities to have consistent monitoring and evaluation standards and practices over a long period of time. In addition to measuring the effectiveness of its sustainability endeavors, indicator tracking can be used to demonstrate returns on investment when the County seeks future funding.

# Terms and Definitions

In the past, DuPage County has documented many of its sustainability practices, such as fleet fuel conversions and light fixtures retrofitted, through progress reports. While these reports provide excellent summaries of project-specific activities, costs, and returns on investment, they do not track progress on consistent sustainability indicators over time. As DuPage County continues to increase its sustainability practices on its government center, it can supplement its progress reports by tracking a comprehensive set of sustainability indicators.

The Indicators Guide provides an overview of terms and definitions, outlines the process and considerations for selecting and measuring sustainability indicators, and presents a set of indicators that DuPage County can begin to measure to track progress. These indicators were selected with input from County staff and reflect the types of sustainability practices that the County has undertaken or plans to conduct in the near future. The Indicators Guide is accompanied by a tailored Indicator Worksheet for the County to use to track indicators in a centralized location. The Worksheet includes baseline information when existing datasets were available and provides County staff with guidance on how to measure each indicator. The Worksheet is a living document, and DuPage County staff will be responsible for continued tracking and reporting of these indicators.

Ultimately, the Indicators Guide and Worksheet are meant to be used alongside the Best Practices Guide. As the County initiates new sustainability practices identified in the Best Practices Guide, it should make sure that the indicators can measure the effectiveness of those new activities.

The following sustainability-related terms are used throughout this guide:

**Practices:** As discussed in the Sustainability Best Practices Guide, practices are specific activities that the County undertakes — for example, retrofitting appliances to be more energy or water efficient. The indicators included in this Indicators Guide reflect the practices provided in the Best Practices Guide.

**Goals:** Sustainability goals are broad outcomes for which communities strive. Goals are typically framed as overarching aspirations, but do not necessarily define how to do so. Some common sustainability goals, such as reducing waste and energy consumption, are used to frame the practices in the Best Practices Guide. The County can further develop these goals a sustainability plan or planning priorities report.

**Indicators:** An indicator is a “summary measurement that provides information on the state of, or change in, the system being measured.” “Indicator” is an umbrella term that encompasses baselines, targets, and interim measurements between baselines and targets. Sustainability indicators help local governments quantify the impacts of strategies that advance sustainability goals. For example, total vehicle miles traveled (VMT) illustrates a community’s reliance on automobile travel. VMT can also be used to calculate auto-related greenhouse gas emissions.

**Baselines:** A baseline is a type of indicator that communities establish to describe an existing condition related to sustainability — for example, the community’s existing waste diversion rate.

**Targets:** A target is a type of indicator that communities set to meet their broader sustainability goals — for example, achieving a waste diversion rate of 50 percent by a certain year. Because the Best Practices Guide only represents a menu of options rather than a formal sustainability plan, this Indicators Guide does not prescribe specific targets for DuPage County.

There are many ways to evaluate progress, and different types of indicators may be suitable for evaluating different sustainability efforts. Outcome indicators and process indicators are two main categories of indicators that are widely used in local sustainability planning.

**Outcome indicators** track how well a particular goal is being met. If a community has an overarching goal to decrease energy consumption, an outcome indicator might be a 20 percent reduction in electricity consumed in the community by a certain year. The indicator is oriented around the desired end-goal of a quantitative reduction in energy consumption. Other common examples of outcome indicators include water quality, volume of waste generated, volume of stormwater managed, and emissions of greenhouse gases.

**Process indicators** are most appropriate for measuring the progress of actions that can lead to changes in sustainability outcomes. Process indicators, for instance, can be used to measure how well DuPage County is accomplishing a specific strategy, but may not indicate whether a sustainability outcome is met. The number of vehicles converted to compressed natural gas is one example of a process indicator. This measurement indicates the magnitude of the fleet conversion program, but does not directly gauge the reduction in carbon emissions or the increase in fuel efficiency. Other examples of process indicators include number of light fixtures retrofitted, money spent on different practices, and number of staff or residents engaged in a program.

Many process indicators can be used to calculate outcome indicators — for instance number of light fixtures retrofitted (a process indicator) can be used to derive reductions in electricity consumption (an outcome indicator). Process indicators can also be helpful on their own to reveal the effectiveness of a program. For instance, if the County realizes that a program is underutilized, it can use that understanding to assess changes to the way their initiatives are managed or designed. Process indicators also help to ensure that intermediate steps are being taken toward achieving overall sustainability goals.

Together, both types of indicators can help communities to fully understand whether their strategies have been effective in achieving their goals. It is important to note that positive results measured via process indicators do not necessarily correlate with positive results measured by outcome indicators and vice versa. U.S. carbon emissions represent one real-world example of the mismatch between process and outcome indicators. In the last several years, the U.S. has seen such major emissions reductions that as of 2012, the country met emissions targets specified in the Kyoto Protocol. The reasons for this are actually attributed to the reduction in overall resource consumption due to an economic downturn rather than concerted efforts to mitigate climate change. As DuPage County begins to measure sustainability indicators, they should make sure that their indicators demonstrate whether sustainability efforts are directly leading to positive outcomes.

# Indicator Selection Process

The following steps outline the process used to select indicators. The County can refer to this process if they wish to modify or add to the indicators provided.

Communities should take four main considerations into account when selecting sustainability indicators: ability to be measured on a regular basis, usefulness for decision-making, responsiveness to policy change, and clarity and ease of comprehension. These points are meant to provide guidance on indicator selection, rather than impose strict criteria that all indicators must meet.

## **Ability to be measured on a regular basis**

One of the main purposes of collecting indicators is to understand trends of a particular sustainability goal over time. First and foremost, indicators must be measurable. Also, it should be possible to collect data related to the indicators at regular intervals. The ability for a given community to collect data varies based on capacity and resources. For instance, it may be feasible for the County to test water quality at stormwater outfalls, but if the task requires significant staff labor, it may not be reasonable to perform regularly. On the other hand, measuring kilowatt-hours of energy usage can be easily compiled from utility billing on a regular basis. This Indicators Guide is selective in the number of indicators chosen. While it may take some upfront legwork to set up a process for continual measurement of certain indicators, the County should be able to track the indicators in this document regularly and easily.

## **Usefulness for decision-making**

Just because an indicator is easy to collect does not necessarily make it relevant or useful for decision-making. Indicators should not be used exclusively for descriptive purposes; rather, they should be designed to help determine whether a particular strategy is leading toward a desired result. If a strategy is not meeting its objective, indicators should be used to drive or shape any subsequent policy, programmatic, and budgetary adjustments that may be needed to make the sustainability effort more effective. The indicators included here should equip the County with appropriate information to prioritize investments and make policy decisions.

## **Responsiveness to levers of change**

It can be difficult to isolate the impact of campus-level efforts because many sustainability issues cross jurisdictional boundaries. The sustainability indicators that the County uses may differ from indicators used at regional, state, or national scales. The indicators presented here are designed to correspond to the practices included in the Best Practices Guide. As County modifies or selects new indicators, it should take into account whether that indicator measures an outcome that can influence sustainability outcomes in Government Center.

# Indicator Measurements

In addition to geographic considerations, the County should consider the time-scale of indicators. Some indicators, such as ecological restoration or global temperature rise due to climate change, are only observable over the span of several years or decades. Time-scale responsiveness may be a particularly important concern for the County's elected officials or other decision-makers who operate on terms. The ability to demonstrate clear successes in the short-term is also important for maintaining momentum and motivation among municipal staff and residents alike. The County may want to consider a mix of indicators with short- and long-term responsiveness.

## **Clarity and ease of comprehension**

Indicators are not only useful for County staff; they can also be important tools of communication to educate and share progress with residents and community partners. If the County selects indicators that are overly technical or complex, it may be difficult to convey goals or progress to general audiences. For example, reporting total potable water consumption by a community provides an easy to understand picture of how much water the County uses. Other important process or outcome measurements such as surface and subsurface water table heights provide useful internal data, but relevance to the main message of encouraging water conservation may not be as easy for the public to understand. To address that issue, the Indicators Guide has calculations tabs that are meant as interim tables for internal purposes, as well as simpler indicators that are better suited for public consumption.

## **Baselines**

After choosing which indicators should be measured, the next step is to establish baseline indicators that quantitatively describe existing conditions and set a foundation from which to measure future progress toward goals. In order to facilitate assessment of progress on sustainability over time, DuPage County should choose a baseline year from which progress is measured. For example, targets for carbon emissions reductions are commonly based on a percentage of reduction from 1990 baseline levels to be in accordance with the Kyoto Protocol. Because the County initiated significant energy efficiency efforts in 2011, it makes sense to use 2011 as a baseline year. If data is not available to measure a particular indicator, the County should begin collecting data and use the current year as the baseline.

## Target Setting

Once baseline indicators have been determined, the County can set specific targets to achieve their sustainability goals. Setting targets is not a necessary step for tracking indicators, but they can help determine when the County has reached certain goals or benchmarks. If the County wishes to set sustainability targets, it can use the considerations and process provided below.

Target-setting is derived from a combination of ambition, feasibility, constraints, and best estimations that inform a self-determined goal. The County should develop targets that match its priorities, capacity, funding, and political will. The following considerations serve to provide guidance to the County about how to set appropriate targets.

First and foremost, targets should be ambitious, but feasible. Targets should not simply be set by extrapolating previous trends; they should motivate action on sustainability issues. On the other hand, targets should not be so ambitious as to be impossible to meet. Often times, target setting may be a combination of guesswork, logic, or math. For example, the Green Infrastructure Portfolio Standard, developed by the Center for Neighborhood Technology, proposes a target reduction of 1 percent of the baseline stormwater volume per year for the first five years. It is up to the County to define an appropriate level of ambition for each target based on local needs, constraints, and goals. Electoral and budget cycles are also factors to consider in target-setting. Elected officials may want targets that can be achieved within their term of office. The availability of funding may also dictate how ambitious a target can be.

Targets can also be determined by establishing incremental targets that lead up to an overarching goal. For instance, the state of California's policy goal for communities to achieve 75 percent recycling rates was based on an assessment of the current diversion rates (65 percent average in 2011), an assessment of the capacity to capture more recyclables, the volume of food scraps within the waste stream, and the potential to build viable markets for recyclables and compost.

Many existing plans, regulations, and policies at regional, state, federal, and even international levels can inform the targets that the County can adopt or use as starting points to determine its own targets. The County may align with the targets identified in GO TO 2040 — if those targets are applicable at a campus scale — for a consistent regional approach to a particular issue. There are other instances where external factors can help to determine targets. For example, the Clean Water Act defines standards that the County can use as their own targets for pollutant load reductions. DuPage County also adopted a resolution to become a Cool County, which defines a greenhouse gas emission target for its members.

## Progress Tracking

The County environmental staff should work closely with the Steering Committee to set regular intervals for tracking indicators and publishing progress reports. As the County monitors its progress, it should consider modifying strategies or targets as needed to be more realistic, aggressive, or relaxed as the situation merits. The Environmental Coordinator and Facilities Maintenance staff will likely serve as critical leaders of the monitoring efforts.



# SUSTAINABILITY INDICATORS FOR DUPAGE COUNTY GOVERNMENT CENTER



The following indicators were selected with input from County staff and reflect the types of sustainability practices that the County has undertaken or plans to conduct in the near future. The County may wish to begin tracking those indicators for which data is readily available, such as waste generation and energy and water consumption. Certain indicators, such as commuting mode, require data collection to establish a baseline before tracking can begin. More information on how to measure each indicator can be found in the Indicator Worksheet.

**Table 1. DuPage county government center sustainability indicators**

INDICATOR	DESCRIPTION	PURPOSE
<b>Green Building</b>		
Sustainable product purchasing	Percent of procurement budget dedicated to the purchase of sustainable products per year.	To track progress toward integrating sustainability standards into Government Center procurement and retrofit, reconstruction and new construction projects.
Sustainability-focused bids	Number of bids awarded with a sustainability component per year.	
<b>Transportation and Mobility</b>		
Fleet efficiency	Vehicle miles traveled, average miles per gallon, and emissions for the County's vehicle fleet.	To evaluate the impact of fleet efficiency practices on reducing greenhouse gas emissions.
Commuting Mode/Mode Share	Primary commuting mode of staff surveyed.	To track progress toward improving access to the campus and encouraging employees to take alternative transportation modes to work.
Environmentally friendly snow and ice operations*	Percent of snow and ice operation budget dedicated to environmentally friendly products or services.	To track progress toward expanding environmentally friendly snow and ice operations on campus.
<b>Waste</b>		
Total waste generated	Total amount of waste generated, tracked on a building- and campus-level.	To evaluate the effectiveness of waste prevention efforts.
Waste diversion rate	Total amount of waste diverted from a landfill through recycling or composting activities, tracked on a building- and campus-level.	To evaluate the effectiveness of waste diversion efforts.
<b>Open Space and Ecosystems</b>		
Landscape restoration	Acres of campus landscape restored to native vegetation or converted to low-mow area per year.	To track improvement in ecosystem health, biodiversity, and water quality.
Abundance of key native species	Variety of native species planted per year.	
Trees planted	Number of trees planted to trees lost per year.	
<b>Water</b>		
Consumption of potable water	Annual water consumed (in 100 cubic feet), tracked on a building- and campus-level.	To evaluate the effectiveness of implemented water conservation practices.
Stormwater runoff reduction	Volume of runoff generated from campus impervious surfaces.	To track improvement in stormwater management, localized flood mitigation, and water quality as a result of implementing stormwater best management practices.
<b>Energy and Climate</b>		
Energy consumption	Annual energy consumed in MMBtu for the entire campus.	To evaluate the impact of energy efficiency practices.
Mix of energy supply	Energy supply breakdown by type (coal, natural gas, nuclear, petroleum, and renewables).	To track advancements in renewable energy generation and purchase.

\*Indicator is considered to be optional.

# Resources

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