Bringing it Home: Developing Effective Community Sustainability Indicators for Energy

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ABSTRACT

The primary objective of this paper is to facilitate the development of effective community indicators for energy that educate community members and promote positive change toward long-term community sustainability. This paper discusses characteristics of good sustainability indicators and proposes criteria to assess the quality of data available and usefulness of proposed energy indicators. It provides a detailed example of the evaluation process for selecting possible energy indicators, highlighting tradeoffs in the decision-making process.

Indicators allow complex data to be condensed into a manageable source of meaningful information that can educate citizens, inform decision-making, and promote direct action. There is a nationwide trend toward developing indicators at a community level that address broad concepts, such as quality of life or sustainability. Indicators addressing energy usage, conservation, and efficiency form a critical component of these community sustainability indicator projects.

Policy makers and energy efficiency professionals should seize the opportunity to increase the visibility of energy efficiency and conservation issues by participating in local projects. The information in this paper provides the tools necessary to allow interested parties develop effective indicators for energy, either within the context of a community-based project or separately.

This paper evolved from an analysis completed for the Oakland Indicator Project that included a comprehensive resource document to facilitate the development of effective community environmental sustainability indicators in Oakland. Research included an analysis of literature and interviews addressing previous and current indicator efforts, community organizing, and data quality as well as environmental and sustainability issues.

Introduction

To assess the state of the environment, to identify causes of current problems, or to judge how near a community is to their desired goals, reliable information is needed to help policy makers and community members understand current conditions. Indicators are quantitative or qualitative metrics that simplify, quantify, and communicate information about complex phenomena. When developed within a larger context, such as part of a community "visioning" process, indicators can be valuable tools that facilitate change and help move toward sustainability within a community. Due to the environmental impacts of energy production, current patterns in energy usage, energy conservation, and energy efficiency are a vital component of any community sustainability indicator project.

Indicator projects have been going in and out of favor in the United States since the 1800's.[1] Previous projects often failed to resonate with their intended audience, because they were too complicated, obscure, or large in scale, as in nationwide measures, to be meaningful to local communities. Community-based indicator projects focusing on sustainability first arose in the early 1990's as nation and worldwide sustainability indicator projects gained prominence. Currently, there are hundreds of community sustainability indicator projects active in the U.S. These projects have been successfully educating and motivating citizens to change behavior and advocate for policy changes to move toward long-term sustainability. Well-publicized projects include Sustainable Seattle and Santa Monica Sustainable City.

Recent efforts focusing on sustainability differ from earlier projects by going beyond the primarily descriptive nature of state-of-the-environment reporting toward analysis and proscriptive data that illustrate linkages among environmental, social, and economic issues. While this paper focuses on energy indicators, it is important to recognize that energy is just one component of sustainability. A successful package of indicators will address other environmental, social, and economic issues as well.

Community-based energy indicators can serve an important role in the process of effectively increasing awareness of energy efficiency and energy conservation opportunities. They can complement efforts to improve linkages between positive environmental attitudes and energy-related behavior.

This paper is targeted toward policy makers, energy professionals, and citizens interested in energy conservation and environmental issues. Sustainability indicator projects are already happening across the country, whether or not energy professionals are involved. The objective of this paper is to facilitate the involvement of energy professionals in the development of effective indicators for energy by providing the tools needed to develop effective indicators that will help reduce energy consumption.

Energy professionals may also be aware of the growing body of knowledge regarding indicators for evaluations of market transformation programs, which use a theoretical framework to identify indicators along the causal chain of the program.[2] This can also serve as background and provide examples for developing community based energy indicators.

Characteristics of Effective Sustainability Indicators

Cobb and Rixford examined the experiences of communities that have developed indicators to determine what has and has not worked. A key finding was that indicators should be seen not as an end in themselves, but as a tool to achieve desired community goals, such as moving toward sustainability as defined by that community. Table 1 outlines ten "lessons learned" that address the quality of indicators, the process of developing indicators, the usefulness of indicators, and their ability to influence policy (Cobb and Rixford 1998).

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[1] For a detailed history of the use of indicators in the United States, please refer to Cobb, Clifford and Craig Rixford, 1998, "Lessons Learned from the History of Social Indicators," November, Redefining Progress: San Francisco, Calif.

[2] For an example of the theoretical approach to market transformation in terms of residential customers refer to Hagler Bailly, 1999, *CBEE Baseline Study on Public Awareness and Attitudes Toward Energy Efficiency*, prepared for California Board for Energy Efficiency.

Table 1. Lessons Learned from the History of Community Indicator Projects

LESSON	DETAIL
Improving the Quality	
Having a numerical measure does not necessarily mean that you have a good indicator.	The most successful indicators tend to reflect qualities in addition to quantities, though they are often more difficult to construct.
Effective indicators require a clear conceptual basis.	It is vital to determine what exactly one is trying to measure when evaluating the appropriateness of the indicator. Assumptions must be clarified in order to assess whether they are appropriate, or merely convenient.
The symbolic value of an indicator may outweigh its value as a literal measure.	The value of the indicator may be more in the message it communicates than the numerical value, per se. A measure that might be less precise, but easier to understand, will likely be more effective.
To make them actionable, look for indicators that reveal causes, not symptoms.	The more an indicator reflects the underlying cause(s) for perceived problems, the more it will motivate to address root causes rather than symptoms; e.g., a single root cause, such as automobile use, influences a wide variety of problems.
Improving the Process	
There is no such thing as a value-free indicator.	Every act of measurement involves some sort of bias and value judgment. The clearer these judgments are, the easier it is to determine if they are aiding or interfering with the overall goal.
Comprehensiveness may be the enemy of effectiveness.	Short lists of representative indicators are frequently more digestible and engaging to community members and therefore more powerful than a long, comprehensive report.
Challenging prevailing wisdom about what causes a problem is often the first step to fixing it.	Indicators should address issues that the community cares about in a way that can challenge current thinking where necessary to achieve change.
Increasing Usefulness	
Indicators need a theoretical context in order to be effective.	Indicators must be presented within a context, such as community goals, and with interpretation in order to help readers understand their significance.
Don't confuse indicators with reality.	As indicators only serve as proxies, it is important that they be presented in a way that makes it clear that they do not represent the entire picture.
Measurement does not necessarily induce appropriate action.	Indicators are tools, not ends in and of themselves. Therefore they only make sense as a tool to the extent that they are signals as part of a larger plan of action.

Useful sustainability indicators should move beyond just describing current conditions and suggest ways to achieve greater sustainability. In other words, they should imply what to *do* to make the situation better. There are four major components of effective sustainability indicators that distinguish them from other indicators. Any single sustainability indicator should possess at least one of these factors, while a package of indicators in a

comprehensive project promoting sustainability should represent all of these factors. As discussed in detail below, sustainability indicators should (Maclaren 1996; Hart 1997):

- Highlight Linkages
- Be Forward Looking
- Examine Distributional Equity
- Be Developed with Diverse Community Input

Highlight linkages. The ability to highlight linkages is an essential component of good sustainability indicators. By illustrating linkages among environmental, economic, and social dimensions of sustainability, indicators can show how these concepts are integrated into the broader concept of sustainability. For example, poor air quality from energy production is related to many factors including increases in population, use of single occupancy vehicles, and sprawling land use patterns. Poor air quality can also increase short- and long-term health care costs and lead to social stress. It may affect other areas of economic activity, especially tourism (Taylor Norris Associates and Redefining Progress and Sustainable Seattle 1997).

Indicators that are multi-faceted, which show a rate or linkage will be more meaningful to the public than those that report a one-dimensional statistic. For example, per capita or per household energy use communicates more useful information to the public than just total energy use, because the public can compare the statistic with their own energy bill.

Another way to address this is to use composite indicators that combine environmental and economic data. For example, an indicator of the cost of recycling a ton of waste integrates economic and environmental concerns (Maclaren 1996).

The Sustainable Seattle project suggests considering one action and the chain of effects it might have. For example, what would be affected if a person walked to the store, instead of driving alone in their car? This action could potentially (Sustainable Seattle 1999):

1. Improve air quality by reducing emissions;
2. Reduce the use of nonrenewable energy by reducing fuel consumption;
3. Save money by reducing wear and tear on the vehicle, the money could be left in the bank as community capital; and
4. Potentially reduce the number of hours the person needed to work due to reduced monthly expenses.

If a person walked or biked regularly, he could also improve health, and reduce health care expenditures, and possibly become friendlier with the local neighbors.

Be forward looking. One way to facilitate consideration of future conditions as well as current conditions is to present indicators over multiple years to allow trends to be examined over time. Combining these with reasonable thresholds or targets can help the public assess progress toward sustainability by providing attainable interim goals.[3] A downside of thresholds is that citizens may focus on the threshold itself and fail to act until it is too late to stop a negative trend. Targets are often a better motivator for action because they provide a context with which to gauge progress toward goals. However, unrealistic targets can have the effect of de-motivating action if citizens feel the situation is hopeless, and then not act at all.

[3] Thresholds are levels that should not be exceeded, while targets are levels that should be met.

Just as positive targets help provide a context, "asset-based" indicators highlighting desirable qualities are often more empowering to the community and inspiring action than indicators based on problems or deficits that may cause a feeling of hopelessness. For example, in order to encourage resource conservation, a community could measure the percent of "renewable energy used" rather than "non-renewable energy used." However, some indicators can be framed positively, but, in practice, others cannot due to how the data are collected for that particular issue. Also, it is important to consider what will convey the underlying message most effectively. For example, when communicating problems with poverty and energy use, it is more powerful to say, "one in twenty does not have electricity" than to say, "nineteen in twenty does have electricity."

When considering forward-looking indicators, it is also important to note that indicators relying on sophisticated mathematical models projecting future conditions that are fully understood only by scientists and policy makers are often too complex to be trusted by the community as a whole.

A resolution to the problems inherent in providing forward-looking indicators that motivate action, is to have broad community goals rather than targeting specific numbers, such as promoting transit-oriented mixed-use development, to help provide an appropriate context for gauging community sustainability. Sustainable Seattle for example, evaluates indicators as to whether the trend is moving toward, or away from this community goal.

Examine distributional equity. Another component of community sustainability is the equitable distribution of conditions. This has been a major factor in the movement toward neighborhood indicators, which breaks down measures into smaller geographic areas in order to identify those that need the most attention. Also, neighborhood indicators can then be aggregated to form a citywide measure.

When possible, indicators should distinguish between local and nonlocal sources of environmental degradation, and between local and nonlocal environmental effects (Maclaren 1996). For example, a polluting factory within city limits may be affecting air quality in communities downwind, while the local air quality remains good. In this case, an indicator on amount of pollutants released into the air would provide very different information than a local measure of air quality in terms of the sustainability of the community.

Be developed with diverse community input. A final factor that distinguishes sustainability indicators from other types of indicators is the manner in which they are developed (Maclaren 1996). As community sustainability needs to be defined by the community itself, it is important that the community also determine what measures are useful in measuring progress toward its definition of sustainability. Therefore, a broad community process with representation from diverse groups including representation from citizens, government, businesses, and the scientific community is needed to develop relevant indicators for the community. This process also serves to educate and inspire the public and generate long-term interest in community sustainability and the indicator project.

The most successful sustainability indicator projects tend to focus on developing indicators within a larger framework, such as a community "visioning" process, which provides needed context for public understanding of the indicators. In addition, indicators

reflecting community concerns have been more successful in generating public interest than those designed primarily for scientists or policy makers.

Criteria for Indicator Selection

The consistency found in criteria used by existing community indicator projects as well as the characteristics of good sustainability indicators discussed earlier suggests several important criteria to use when selecting among proposed indicators. Table 2 presents 14 criteria to address the quality of the data to be used, and to emphasize sustainability and usefulness to the community. (Criteria terms adapted from Taylor Norris Associates, Redefining Progress, and Sustainable Seattle 1997).

Table 2. Criteria for Evaluating Sustainability Indicators

Questions for Assessing Data Quality	Questions for Assessing Usefulness
Accessible & Affordable *How easily can the data for each indicator be obtained and how much does it cost?*	**Balance Local and Nonlocal Sustainability** *Is it focused on local sustainability at the expense of sustainability elsewhere?*
Comparable (standardized) *How easily does this compare with indicators used for other local projects?*	**Compel, Interest, Excite** *Does the indicator resonate with the intended audience? Is it attractive to the media?*
Consistent & Reliable *Is the information source likely to produce high quality data over a number of years?*	**Focus on Resources and Assets** *Does the indicator focus on problems or assets in the community?*
Credible *Is the indicator believable to the community as a whole?*	**Lead by Focusing on Causes** *Does it help to forewarn of future problems and focus on causes rather than symptoms?*
Measurable *Does the data exist for the indicator, or is there a practical way to obtain it?*	**Make Linkages and Relationships** *How does this indicator link to Economic, Social, and other Environmental Issues?*
Relevant *Does it help to communicate what is important about the issue to the community?*	**Relate to the Whole Community** *Does the indicator affect the community as a whole or only one narrow group?*
Valid *Is the measure truly measuring what it is intended to measure, and not a by-product?*	**Understandability** *Is the indicator simple and clear enough to be understandable to the whole community?*

Ultimately, project coordinators will need to determine the most appropriate criteria for local needs and interests. These criteria serve as guidelines that can then be translated or added to as needed. Indicators should be evaluated using all of the criteria, as it will be difficult to find very many indicators that will meet every criterion listed. However, any package of community indicators as a whole should represent all themes. There will likely be tradeoffs among the criteria for some indicators. Project coordinators will need to decide the relative weights they give to each criterion as this may vary by the issue being addressed. Table 2 also provides example questions relating to the criteria proposed for use when evaluating indicators.

Criteria Assessing Data Quality

Accessible & affordable. The availability of data is perhaps the most fundamental criterion for indicator selection. There needs to be accessible information that is affordable to obtain or a viable alternative. Even where data on the issue are available, it may require extensive manipulation to make them appropriate for use.

Comparable (standardized). Standardizing indicators to allow comparisons with similar indicators from other communities allows comparisons across communities. It also facilitates aggregation to a regional or statewide level. The assessment may require tradeoffs with 'relevance' criteria assessing how well the indicator reflects community interests.

Consistent & reliable. For it to be useful, the community must be able to trust what the indicator communicates. Therefore, it is important that the indicator be based upon consistent data that provide a reliable picture of the issue it is measuring. Another factor to consider is whether the necessary data will be available over time.

Credible. The indicator needs to make sense and be believable to the audience for which it is intended. Credibility may depend on the reputation of the data source. However, an indicator can be reliable or valid without being believable to the community.

Measurable. In order to obtain data for an indicator, the indicator must be framed in a way that is measurable using numerical data. Secondarily, it needs to be framed in a way for which data already exists, or there is a practical method of collecting the needed data.

Relevant. A possible indicator may be very sound in terms of other criteria, but be virtually useless because it does not actually address the question being posed, e.g., the number of acres of wetlands does not communicate how much pollution is seeping into them. Continually striving to connect the indicators to community goals should aid in determining relevance.

Valid. Indicators should be valid in that they should actually measure what they are intended to measure. This is subtly different from using a proxy indicator, which then relies on a theoretical model relating the proxy measure to the question being asked.

Criteria Assessing Usefulness to the Community

Balance local and nonlocal sustainability. Indicators should measure local sustainability in a way that recognizes the community's place in the regional and global community. They should not inadvertently promote local sustainability at the expense of other communities.

Compel, interest, excite. It is important that the indicator communicate information in a way that inspires interest, which is the genesis of action. Also, it is useful to develop indicators that are straightforward enough to be easily reported by the media.

Focus on resources and assets. To the extent possible, indicators should highlight community assets and resources that could be enhanced rather than problems or negatives.— Exceptions include situations where the negative view is more gripping to the community.

Lead by focusing on causes, not symptoms. As sustainability is rooted in the notion of future conditions, the indicators that are chosen should represent a long-range view that helps to forewarn of future problems. Also focusing on causes rather than symptoms can inspire a proactive approach to addressing issues.

Make linkages and relationships. As discussed earlier, an essential component of effective sustainability indicators is that they illuminate the linkages and connections among environmental, economic, and social aspects of the community. It is also important to include a discussion of linkages in the presentation of the final report.

Relate to the whole community. A diverse group of community members should select indicators that examine the equitable distribution of problems and assets reflecting the full range of citizens in the community.

Understandable. An indicator should be reasonably clear and simple enough to be understandable to the community it is intended to reach. A good measure in terms of statistical methodology risks being ineffective if the community as a whole does not understand it.

Choosing an Indicator for Energy

This section outlines the process for evaluating an indicator for energy against the 14 criteria recommended above for sustainability indicators. This example illustrates what the evaluation process might look like for a group developing sustainability indicators.

Indicators for Energy Consumption, Conservation, and Efficiency

Of three common types of sustainability indicators for energy being used by indicator projects across the country, the most common approach utilizes measurements relating to fuel consumption including electricity, natural gas, oil, and gasoline. The second type focuses on energy efficiency activities. The third type focuses on energy costs. Many indicators are simply communicated in counts, energy units, or percentages, while others attempt to describe a more complex picture through metrics such as ratios. Table 3 illustrates examples of each of these types of indicators that are currently in use in indicator projects across the country.

In addition to those listed here, there are many other possibilities for energy indicators depending on project needs. For example, possible indicators at the municipality level, include the percent of street lights or interior lighting in municipal buildings that are energy efficient, a ratio of city energy cost and tax dollars per capita, or the percent of community facilities that have had energy audits.

Table 3. A Sample of Energy-Related Indicators in Existing Community Projects

Relating to Fuel Consumption	Relating to Energy Efficiency Activities
• *Total or average annual residential electricity consumption by city*	• *Number of offices and homes that have energy audits*
• *Percent energy consumption from nonrenewables*	• *Heat loss of residential buildings*
• *Renewable energy consumption (percent or kWh)*	• *Percent of buildings using low energy lighting*
• *Annual commercial energy consumption*	• *Average energy efficiency rating of homes*
• *Annual electricity and/or natural gas consumption per capita*	• *Number of new homes that are energy efficient using an existing rating method*
• *Residential electricity and/or natural gas consumption per household*	• *Percentage of new buildings designed by 'green' architects*
• *Gasoline consumption per capita*	**Relating to Energy Cost**
• *Households per residential MWH consumed*	• *Cost of electricity*
• *Ratio of renewable to nonrenewable energy consumption*	• *Energy and machinery expenses as a percent of gross farm income*
• *Commercial/industrial natural gas therms or MWH consumed per employee*	• *Energy cost per tax dollar*

When considering indicators for energy, it is also useful to keep in mind the variety of environmental, economic, and social issues that energy is linked to including:

Environmental	Economic	Social
Air Quality	Agricultural productivity	Health
Biodiversity	Commercial activity	Outdoor & recreational activity
Land use & density	Industrial activity	Population
Resource Use	Tourism	Public Safety
Transportation		Housing
Water quality		

Analyzing an Indicator

In terms of long-term sustainability, most communities are concerned with reducing consumption of energy. However, communities most often use to indicators measuring usage rather than energy efficiency or conservation due to the relative ease of obtaining data on consumption. To illustrate the process of analyzing a proposed indicator, I consider the most common energy-related indicator—annual residential electric consumption per household. Table 4 summarizes how this indicator rates on the 14 criteria for data quality and usefulness in terms of promoting reduced consumption. Overall it rates moderately well, scoring high on criteria for data quality but less well on the criteria for usefulness to the community. I also discuss ways to adjust the measure to improve its effectiveness at meeting community needs.

Data quality. Historically, the data have been easily accessible and affordable since the information is already collected by the local utility. Specialized data collection or analysis has been rarely necessary. However, it is unclear how the current utility deregulation and restructuring activities will affect the future availability of the data. Communities will most likely need to rely on the local distribution utility for reliable data rather than attempting to

collect data from each of the energy suppliers to the area. If necessary, the institution of reporting requirements may be required to ensure that the data continues to be available.

The measure is also easily comparable to other communities and can be adjusted to reflect per capita or citywide consumption. It is consistent and a reasonably reliable measure of energy use. It is credible in that it is widely accepted as a measure of electricity consumption. It is measurable and is in fact based on existing numerical data, which meets scientific standards for validity.

It is only somewhat relevant however, because this measure only represents a portion of total energy consumed by community members, as it does not factor in other fuels or the relationship of industrial and commercial or municipal activities in the community. This is balanced by its relatively easy comprehensibility by community members and the large percentage of fuel consumption it represents.

Table 4. Evaluating Indicators: Annual Electricity Consumption per Household

CRITERION	ASSESSMENT
Data Quality	
Accessible & Affordable	Probably; data historically available at low or no cost, unclear how deregulation will effect this; minimal data manipulation needed
Comparable (standardized)	Yes; standardized and easily comparable to other communities
Consistent & Reliable	Yes; high quality data that will be available indefinitely
Credible	Yes; already widely accepted as a measure of electricity consumption
Measurable	Yes; framed in a way that easily lends itself to numerical data
Relevant	Somewhat; does not directly indicate efficiency efforts or consumption sources
Valid	Yes; meets scientific standards for measuring what it is intended to measure
Usefulness to the Community	
Balance Local and Nonlocal Concerns	Somewhat; does not indicate where the electricity is produced or substitution factor
Compel, Interest, Excite	Somewhat; motivates and is easily used by the media
Focus on Resources and Assets	No; focuses on consumption, resources saved by reduced consumption more positive
Lead by Focusing on Causes	No; does not imply causes or the solution directly
Make Linkages and Relationships	No; does not show linkages, e.g., to transportation, air quality, or resource use
Relate to the Whole Community	Yes; covers the entire community who uses electricity
Understandable	Yes; clear what information it communicates

Usefulness to the community. The indicator only somewhat balances local and nonlocal concerns in that it does not address where the electricity is produced or the potential for substitution for other energy sources or consumption reduction through products and services that then affect industrial or commercial consumption. It is relatively understandable and easily used by the media, but kW and kWh measures can be too abstract to compel community members. It focuses on energy consumption itself rather than resources and assets. An asset-oriented indicator might focus on resources saved from consumption reduction activities.

It does not directly focus on causes or imply solutions in that the by-products of energy production are a more fundamental concern than consumption of energy itself. It also

does not directly make linkages to other issues such as air quality or resource use. However, the discussion of the indicator could highlight these linkages and other indicators in the package could more directly address related issues. The indicator does relate to the whole community in that virtually every household uses electricity distributed by the local utility.

Improving the effectiveness. Household energy consumption varies greatly by factors such as number and age of residents, work and recreational activities, and size of home and yard, as well as any energy efficiency measures taken. Setting a goal depending on the current state, for example a 10% reduction of 1999 per capita would provide additional context. This would allow community members to gauge the impact of their consumption reduction activities, though would not imply savings from existing efficiency measures. A related indicator could report the number of households that met the goal.

Another way to improve the usefulness would be to promote "self-benchmarking" by community members. For example, reporting household consumption on a monthly rather than yearly basis would allow community members to compare the indicator against their household utility bill. It is critical to help community members understand how their actions affect the whole community. Self-benchmarking is private, easy to use and will help bring the message home in a way community members can easily understand and will be motivated to act. The self-benchmarking process could be further enhanced with a chart adjusted by number of household members, seasonal energy use or other factors affecting household consumption patterns (e.g. use of electric heat or water heaters).

The indicator report should also include examples of ways to decrease energy usage, and references to local energy efficiency resources, such as those commonly found in residential energy audits. Therefore, if a household finds it has a high rate of energy usage compared to the community average reflected in the indicator, suggestions for solutions will be readily available. This will facilitate action by helping the household understand the activities that contribute to energy consumption and steering household members toward further information.

Recommendations & Conclusions

While there is no single best approach when developing community sustainability indicators for energy, the following recommendations are designed to aid efforts to develop effective indicators for energy. They focus on developing indicators within the context of a broader community-based process, however the recommendations are also transferable to projects focusing solely on indicators for energy. Policy makers, energy professionals, and citizens interested in energy conservation and environmental issues can use these recommendations to promote the development of effective indicators for energy in their local communities. Since projects are already active throughout the country it is imperative that people knowledgeable in energy issues be involved in these indicator projects in order to ensure that useful energy indicators that will promote consumer education and behavioral change are developed.

- **Tie indicator selection to community goals.** They should be seen as tools to be used in order to meet community goals rather than ends in themselves. The indicator project should have a clear purpose and fit into a larger community empowerment strategy.

- **Customize the 14 recommended criteria to evaluate proposed indicators.** Each project should customize and determine relative weights of the following criteria:

Data Quality	Usefulness to the Community
▪ Accessible & affordable	▪ Balance local and nonlocal concerns
▪ Comparable (standardized)	▪ Compel, interest, excite
▪ Consistent & reliable	▪ Focus on resources and assets
▪ Credible	▪ Lead by focusing on causes, not symptoms
▪ Measurable	▪ Make Linkages and relationships
▪ Relevant	▪ Relate to the whole community
▪ Valid	▪ Understandable

- **Set goals, targets or thresholds for the indicators.** This will provide necessary context for the target audience to understand the issue in order to galvanize community action.

- **Make the indicators as personal as possible.** Citywide measures will be less effective than indicators reported on a smaller scale. Use ratios and per person or per household measures, such as per capita measures of energy use to resonate with citizens.

- **Highlight linkages and interpret results in presentation of indicators.** Identifying linkages within and among environmental, economic, and social issues is a fundamental principle of sustainability indicators. The presentation of the indicators in the report should highlight the linkages identified during the selection process. In addition to naming the linkages, it is useful to show how one affects the other. It is also important to interpret the results of the indicators in terms of progress toward or away from community goals, explain reasons for the trend, and propose actions for improvement.

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