5.0 Evaluating and Reporting on the Campaign

Evaluating the effectiveness of a campaign involves measuring the results against the goals. Evaluation enables you to understand the extent to which the expected results were achieved. Perhaps more importantly, evaluation should also reveal what elements of the campaign were effective and which were not—in other words, what worked, what didn't, and why? The findings can be used for mid-course correction or to design future efforts.

5.1 Mid-Course Evaluation

Persuading people to change their habits is challenging, because so many things influence peoples' behaviors. Thus, even if you've done your homework to tailor a campaign to your base, some surprises are bound to arise along the way. That's where a mid-course evaluation becomes valuable.

A few telephone calls to responsive residents can be used to evaluate a campaign that is under way. Use feedback to make mid-course corrections.

If you wait until the campaign ends before evaluating it, you may discover that certain aspects of your approach were not effective. By that time, however, you've lost the opportunity to make changes or corrections. A mid-course evaluation allows you to fine-tune the campaign in progress to better achieve the desired outcomes. In addition, you can shift resources to areas that are working well, while eliminating or cutting back on activities that are less effective.

A mid-course evaluation need not be expensive or time-consuming. Several strategic phone calls, personal interviews, or a couple of informal discussions with a group of community members can reveal much about what's working, what's not, and what needs to be done differently.

If you are using phone or face-to-face interviews, start with your established contacts—the people who provided input to design the campaign or leaders who are contributing to its implementation. Ask each person if there are others to whom they can refer you who would be willing to answer a few questions. If possible, try to get a diverse group of respondents—men, women, and children from different kinds of houses or different locations on the base. Assure them that their responses will help improve the campaign and that no names will be used.

A mid-course correction should provide answers to the following questions:

- Are residents aware of the key elements of the campaign, including incentives, if any?
- Where are they getting their information about the campaign?
- Do they know what they're being asked to do to use energy efficiently?

- Are they doing anything differently now in their homes as a result of the campaign, and if so, what?
- Is there anything keeping them from doing these things? If so, what?

In phone interviews or group discussions, listen carefully to what residents volunteer when they answer questions. Their comments may indicate misunderstandings that need to be corrected as well as the need for greater emphasis in some areas.

At Fort Lewis, for example, many residents said they didn't need compact fluorescent lights, thinking that they were only for the fluorescent-type tube fixtures. Though the campaign had encouraged the use of compact fluorescents, people didn't understand what they were or that they were available at the base PX. From this finding, future campaign communications placed more emphasis on showing compact fluorescent lights, demonstrating how they fit into various existing fixtures, and reminding people to purchase them on base.

5.2 Final Evaluation

Evaluate two factors as a minimum: (1) the amount of energy saved and (2) the influence of residents' actions on the savings.

As a minimum, the final evaluation should investigate two factors: (1) the amount of energy saved, and (2) the extent of peoples' behavior change that contributed to the savings. Together, these two factors indicate the effectiveness of the campaign. The first factor is relatively straightforward to measure by examining before-and-after energy-use data. The second factor is more interpretative, but just as important.

- **Energy saved.** Energy-use data should be available from Housing, another base organization responsible for base energy, or the provider utility. Depending on how data are gathered, you can calculate and present energy use and savings in various ways that make sense for your campaign. For example, energy savings can be calculated by season, by neighborhoods or parts of the base, by different house designs, by gas versus electricity, and so on.

  Section 5.3 describes factors that should be considered when calculating energy savings.

- **Behavior change.** To understand peoples' behavior change and to what extent the campaign contributed to it, you need direct feedback from residents. The best ways to do this are to conduct small discussion groups and/or survey all residents who were targeted in the campaign.

  The discussion groups and survey process can be similar to those described in Section 4.5 for designing the campaign. When conducting focus groups for this final evaluation, try to convene groups that represent a diversity of people and housing situations. Conduct focus groups until you begin to hear people from different groups repeating the same things, with no significantly different information arising. According to noted focus group expert and Portland State University professor David L. Morgan, a typical number of groups is three to five with six to ten participants, for topics and participants with moderate diversity. When you begin hearing the same information coming up in

various focus groups, you will have confidence that what you are hearing is somewhat representative of the larger population.

At the end of the campaign, you want to understand two fundamental things:

- to what extent people took actions that reduced energy use (including actions taken)
- the effectiveness of various campaign activities and communications in prompting those changes.

You may also wish to gauge residents' willingness to continue their energy-efficient lifestyles.

To learn about these things, ask questions similar to those described in the mid-course evaluation (Section 5.1), tailoring them for the end of the campaign. The goal of the evaluation is to understand the effectiveness of the campaign well enough to be able to use or adapt its activities for longer-term efforts, eliminating or replacing activities that were ineffective.

When asking about the target behaviors, ask which things residents were already doing before the campaign began and which ones they began doing after the campaign started (see the MCAS Yuma survey in Appendix C). Asking the question this way has three benefits: (1) people like to "get credit" for the positive things they're already doing, (2) it more clearly shows which activities were caused by the campaign, and (3) it shows which activities may need more or less emphasis in ongoing efforts.

A mail survey can ask similar questions and give you more confidence of having representative results, though you won't get the insights or depth of responses as in oral discussions. With an adequate response rate, a mail survey adds somewhat more rigor to an evaluation because it goes to the entire target population and shows the percent of respondents who said certain things. Appendix C shows examples of mail surveys sent to all residents for final evaluation of a campaign.

A telephone survey can also be conducted, though it can be very time-consuming if you are trying to hear from a large population of residents. In addition, people who are "cold-called" (as from a telephone list of all residents) may resent the intrusion.

The information received from residents, combined with other information you may have access to, helps you put the energy-use data in perspective. You may discover, for example, that one area of residential housing saved considerably more than others, but not know why until you hear from its residents. You may learn from them that their members were the only ones who received a certain newsletter or had educational projects involving children. You may also discover that they had the highest percent of home visits or signed the most commitment forms promising to take certain energy-saving actions in their homes.

On the other hand, you may discover that residents who moved to the base after a certain date were unaware of the campaign and consequently did nothing to change. Or perhaps people were enthused at the beginning of the

campaign, but as time went on, enthusiasm waned and behaviors reverted. Or perhaps certain behaviors, such as turning down a thermostat, proved uncomfortable or inconvenient over time.

These kinds of findings, both positive and negative, help shed light on the effectiveness and timing of certain campaign activities in contributing to the overall result.

With adequate resources and time, the best evaluation uses several methods, quantitative (involving numbers such as energy amounts saved, how many people said what, or number of energy home visits requested) and qualitative (interpreting the meaning in what people have said or done). Once the combined data are analyzed and compared, the key findings about the effectiveness of the campaign will rise to the top. It helps to have various team members conduct this evaluation together and discuss the combined findings, to reach a consensus of perspectives.

5.3 Factors that Affect Energy Use Results

Several factors can make energy-use results appear artificially high or low. You need to acknowledge and account for the factors that apply to your campaign.

Account for temperature-related weather conditions when comparing energy use from different time periods.

- **Account for temperature-related weather conditions.** Let's say, for example, that you launched a campaign for summer and winter 2000, and you are comparing it with summer and winter energy use from 1999 to calculate savings from one year to the next. If the year 2000 happened to have an unusually cool summer or warm winter, people would likely not use their cooling or heating systems as much, thus saving energy. However, this reduced use alone would not be a result of informed behavior change, but of weather conditions. The resulting energy saved could appear very positive, but artificially so. By the same token, if the year 2000 happened to be an unusually hot summer and cold winter, the energy results could look particularly bleak because people would have used their cooling and heating more than usual. In fact, even if residents did take actions to save more energy, the results could be masked by weather-related increases in heating and cooling.

  What you really want to measure is, did residents save even more energy beyond that associated with weather-related heating and cooling? For the answer, correct energy data for weather effects by using a mathematical calculation. Appendix F describes the process.

- **Account for physical upgrades in housing**. If the base is upgrading certain physical features of base housing during the time of your campaign, it may affect campaign results. Upgrades such as installing double-pane windows, insulation, programmable thermostats, and sealing door and window frames should improve energy efficiency and reduce energy use. Yet most of these upgrades do not require behavior change by residents. (An exception is the programmable thermostat, which residents must program and not manually override.) To account

for the effect of upgrades on energy savings, subtract the expected upgrade-related savings from the energy-use data. Estimates of savings from upgrades are available from analysis that the military or its contractors must conduct to justify housing modifications.

- **Account for occupancy.** Occupancy that is significantly lower than usual during the time of the campaign or during the comparison period may affect energy results. In such cases, it could appear that residents saved more or less than they did when the energy use actually reflects fewer occupants in the homes.

  Which occupancy situations probably are not cause for concern? Most bases have slightly fluctuating occupancies as people move in and out and routine maintenance is performed. These constant, slight fluctuations won't affect energy results because they are the same in both time periods of comparison.

  Another cause of occupancy is deployment. Deployments usually don't affect energy use significantly, however. Though one parent may be deployed away from the home, most energy use continues at the same rate, especially heating and cooling. What about when both parents are deployed at the same time? According to the DoD's DefenseLINK web site, only about 6% of service members are married to other service members. Though some bases may have higher rates of married service members, the military makes an effort not to deploy both parents at the same time to prevent children from temporarily moving elsewhere, meaning few homes are completely unoccupied during deployments.

  A situation that could affect energy rates, however, would be if the base were performing major upgrades on a significant percentage of homes, leaving them empty for a time. To determine how much this situation would affect energy results, you would need to "normalize" the data on a per-house or per-square-foot basis. This involves dividing total energy consumption by the number of homes to get the consumption per residence. Then, a ratio using the percent of unoccupied homes could be compared with the same ratio from the time period when homes were occupied, to determine the difference in energy use. A more general way to do this would be to estimate the energy use from the unoccupied homes and subtract that from the energy used when the homes were occupied. This would become your new energy baseline.

- **Account for changes in energy rates.** One of your campaign goals may be to reduce the base's energy bill for family housing. Be aware, however, that changes in costs of gas, oil, and electricity rates will also affect costs. In other words, if electricity rates dropped significantly during the year of the campaign, the base could show energy cost savings from the previous year even if the same, or even more, energy was used by residents. The reduced costs would be the result of reduced energy rates, not necessarily behavior changes by residents. By the same token, if rates increased substantially, energy savings could look artificially negative even if residents had saved more energy from the previous year.

This situation is not a problem if your cost savings are based on energy units used (such as therms) that you multiply by a constant dollar amount. If you're using the energy bills the base received from the utility, however, you should also examine actual energy use and not just what the base was charged.

5.4 Reporting on and Publicizing Results

In reporting on a campaign, be prepared to discuss findings, recommendatins, future plans, and how the campaign contributed toward federal energy goals.

Residents, base officials, and sponsors have the right to know the results of the campaign in some form. Base community leaders who participated in the campaign may appreciate a separate briefing. Higher-level military officials, U.S. Department of Energy organizations, local utilities, professional scientific societies, schools, and energy coalitions may also be interested in the results. All of these people will also want to know about any follow-up or ongoing efforts.

Reporting can take many different forms, but should be tailored to the audience for which it is intended. For example, communications with residents may emphasize incentives won, pride, and celebration, as well as the need for ongoing action. Base officials may be interested in how to extend or improve on the results to meet future energy conservation goals. The base's public affairs office may wish to send press releases to local news media, emphasizing local angles such as school or utility involvement. Scientific societies and coalitions may be interested in new or corroborative findings and implications for future studies.

In reporting on campaign results, be prepared to provide or discuss the following:

- Data, visuals, other information, and quotes in various formats and for various audiences
- Why the campaign was or was not successful, and, more importantly, what will be done in the future as a result
- How the campaign fits into a broader context, such as meeting federal and military energy goals
- Implications of upcoming changes that could affect future energy use. Examples are privatization of military housing and increased use of Energy Saving Performance Contracts, where contractors upgrade facilities to make them more energy efficient and are paid from the resulting energy cost reductions.

5.5 In Summary: Evaluating and Reporting on the Campaign

Keep these guidelines in mind when evaluating and reporting on the final results of the campaign:

- Evaluating the effectiveness of a campaign involves **measuring the results against the goals.** Evaluation should also reveal what elements of the campaign were effective and which were not—in other words, what worked, what didn't, and why.

- A **mid-course evaluation** allows you to change or correct your approach and activities to help achieve the final goals more effectively.
- A **final evaluation** should be more extensive and representative. A combination of methods is helpful. As a minimum, the final evaluation should investigate two factors: (1) the amount of energy saved, and (2) the extent of peoples' behavior changes that contributed to the savings.
- In calculating the amount of energy used and saved, account for factors such as **weather conditions, physical upgrades in houses, occupancy, and changes in energy rates.**
- **Report the campaign results** to residents, base officials, and sponsors, at a minimum. Convey information about the effectiveness of the campaign and any follow-on efforts in forms tailored to the intended audiences.

6.0 Sustaining the Effort

Studies have shown that the most challenging aspect of energy-efficiency programs aimed at changing behavior is sustaining new behaviors over time. For a variety of reasons, it is very difficult to change ingrained habits and underlying attitudes. (As evidence, recall how many years it took to get people to recycle, wear seatbelts, and exercise regularly—and many people still don't do these things, despite the obvious benefits!)

Added to this challenge is residential turnover on military bases, which makes it difficult to sustain messages and interest. (On the other hand, people who take changed attitudes and behaviors with them can spark changes on other bases.) The most significant challenge, of course, is the need to maintain motivation in the absence of individual utility bills.

Despite these barriers, federal mandates for energy reductions in federal facilities are becoming more stringent. Every tool must be used to meet energy conservation goals and drive costs down. That is why technology and upgrades proven effective in achieving long-term savings must be augmented with enduring efficiency actions by people if continuing energy goals are to be met.

One campaign, regardless of how effective, is not much help if people revert to their former behaviors when the campaign ends. The following sections give some guidelines for sustained behavior change, based on research findings and programs found to be effective.

6.1 Reaching Newcomers

Newcomers to base housing, including children, should be targeted to keep resident awareness high as personnel move in and out. Newcomers typically receive a package of many different kinds of information materials, but many don't take the time to read all of them. Thus, don't rely on printed materials in the orientation package to carry the message about the base's energy programs.

More effective would be a requirement, as part of housing orientation, to view an energy-efficiency video that models the desired behaviors. Newcomers could receive a personal visit or phone call from an energy manager describing the base's energy-efficiency program and offering assistance. Energy managers could work with schools where the base's children attend to offer repeatable educational materials and curricula; each year could focus on a new action or theme.

6.2 Self-Motivation

A long-term effort should remind residents of the self-satisfaction associated with using energy wisely.

Financial incentives have been shown to have some effect on short-term behavior, but are less effective in maintaining that behavior when the incentive ends. In addition, studies have shown that weak or small incentives, including those not involving money, seem to be as effective, or sometimes even more effective, than large incentives. This is apparently because people who receive smaller "prompts" are more likely to feel that they are acting out of their own desires rather than simply doing what someone else told them to do.

The underlying principle is that motivation from within (self-directed, or intrinsic) has been shown more effective in changing energy-use habits than from an outside source (external), including money. Studies have shown that people obtain a great deal of satisfaction from being frugal, participating in a worthwhile endeavor, and behaving in an ecologically responsible fashion. In addition, environmental programs have found that parents often are motivated to take actions that will make a better world for their children.

These are exactly the attitudes that a long-term effort must capitalize on to succeed. A long-term efficiency effort, therefore, could include reminding residents of the self-satisfaction associated with using energy wisely. The importance of passing along energy-efficiency values to children should also be emphasized.

Non-financial, ongoing incentives might include such things as certificates of achievement, public recognition such as having names of energy savers listed in the base newspaper, recognition of military personnel by chains of command, the opportunity to be held up as an energy leader or mentor on base, and school award programs. To identify effective non-financial incentives, get feedback from residents. Test the effect of the incentives by evaluating savings and behavior change after incentives are made available.

6.3 Commitment

Personal commitment to take certain energy-efficiency actions seems to be one of the best techniques for lasting behavior change. In one study, for example, participants who agreed to have their names published as part of the conservation study used 15% less natural gas and 20% less electricity than the control group. The most encouraging finding is that the differences were still significant 12 months later.

Again, considering that military families move an average of every three years, commitment should be requested periodically. Residents should be provided with feedback (energy or dollars saved) that shows the effect of their actions.

6.4 Feedback through Mock Billing

It has been argued that the most effective long-term motivator may be to charge individual residents directly for their utilities, perhaps through a housing allowance that includes a "cap" for energy use. Residents would pay out of their own pockets for any energy over the cap. However, individual services, in particular the Army, have been extremely reluctant to adopt such an approach for base housing, despite DoD encouragement to do so. Understandably, this reluctance stems from an unwillingness to penalize the families of military personnel and risk reducing morale and retention.

For military installations where residents do not pay their own bills but where homes are metered individually, a mock billing process could help promote behavior change. A simulated "bill" would show each family its energy use and cost to the base in a clear, understandable way.

Nevertheless, there may be a way to capitalize on the benefits of individual feedback that billing provides, without actually charging residents. One approach is a mock billing process.

If the base has the ability to meter individual houses for energy use, a mock "energy bill" could be sent to each resident monthly or quarterly. The "bill" would show the family's energy use and cost to the base in a clear, understandable, meaningful way. Studies have shown that descriptive energy bills work because they make obvious what is usually invisible and vague to most people.

For best success, feedback through "billing" should be coupled with a commitment to a challenging conservation goal or other strong reason to try to conserve. That way, residents can see the effects of their actions, thus powerfully reinforcing behavior change.

A mock billing approach should be accompanied by an educational effort that assures people that they are not actually being billed for energy use, but that the "bills" are being provided for their information only, and teaches people what to look for on their "bills" and how to read them.

Studies have shown that the most effective energy bills contain the following information:

- costs that reflect weather-corrected energy use, so that savings are not masked by temperature-related effects
- a cost comparison to the same month or quarter, in the previous year, preferably in a graphic form such as a bar graph
- a summary of annual energy costs from residential housing, describing savings opportunities
- an occasional breakout of estimated use by source (to counteract peoples' tendency to estimate appliance energy use incorrectly, such as overestimating the contribution of lighting and underestimating water heating)

- plain language that helps residents understand how to interpret their bills, what to look for on them, and how their energy-use habits (and perhaps the base's housing upgrades) influence costs
- tips on how to lower costs.

6.5 Institutionalization

Several government initiatives are paving the way for institutionalized energy efficiency in military housing.

The foundation for fostering enduring energy-efficient behavior must be built on institutionalization throughout all DoD bases. This means that regulations, policy, decisions, and behaviors incorporate energy efficiency as a fundamental value, rather than being imposed or added on. The ultimate outcome is that residents incorporate energy efficiency into their daily lives by habit and because it's important to them—like keeping their lawns mowed and their children immunized.

The government already has several initiatives in place that are helping institutionalize energy efficiency in military family housing. A 1999 Presidential Executive Order reaffirmed and extended previous energy reduction goals for federal facilities. The DoD's Military Housing Privatization Initiative, signed into law in 1996, is paving the way to increased private funding of construction, operations, maintenance, and management of military housing units. Existing, inadequate family housing is expected to be eliminated by 2010.

Department of Defense Reform Initiative Directive #49, issued December 1998, directs military departments to award privatization contracts, if cost-effective, for all utility systems by September 30, 2003. Solicitations are to be released in 2001.

The DoD has its own Federal Energy Management Program and Energy Conservation Investment Program to implement energy conservation measures. Energy Savings Performance Contracting also is being used to cut energy costs. These contractors can make energy-efficiency investments in housing and obtain a portion of the energy savings in return.

The DoD's working group on sustainable design, under the White House Climate Change Task Force, is integrating energy-efficiency and environmental sustainability principles into facility design, construction, and management. The DoD is implementing sustainable design in all new buildings and facilities planned for construction after FY 2000, for a planned 30 to 50% increase in energy efficiency.

Most of these efforts are focused on better facility design, upgrades, new technology, and improved management of housing and utilities. Once institutionalized, these kinds of changes produce tremendous gains in energy efficiency. In partnership with these efforts, however, we must continue to harness the power of peoples' values—values that translate into ongoing actions by residents in their homes. These combined efforts, supported and institutionalized by military bases and their partners, ultimately will result in long-lasting efficiencies.

6.6 In Summary: Sustaining the Effort

To sustain long-term energy-efficiency behaviors, consider the following guidelines and principles:

- Target base **newcomers** to keep awareness and interest high.
- Tap into **self-directed motivation**, rather than financial incentives or external awards.
- Ask residents to **commit** to specific actions, preferably in writing.
- Consider a **mock billing process**, combined with a commitment to achieve certain energy goals, that shows residents the results of their actions. Teach them how to understand and interpret these informative "bills."
- Use the power of **institutionalization** to foster enduring behavior change.

7.0 Reference Materials and Resources

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