Social Marketing in an Unusual Environment – The Military. One Case Study in Ready, Fire, Aim

Lisa A. Skumatz, Ph.D., Skumatz Economic Research Associates, Inc. (SERA), Superior, CO. D. Juri Freeman, Skumatz Economic Research Associates, Inc. (SERA), Superior, CO.

ABSTRACT

The authors evaluated a social marketing program designed and delivered to the United States military. The program, focused on energy conservation, water, and recycling, was piloted and delivered to installations across an entire State. The program was delivered to multiple military installations, including training facilities, headquarters, maintenance, and others. The program's interventions were designed to include feedback, norms, prompts, incentives, contests, and word-of-mouth methods to encourage conservation behaviors. The military environment provided advantages (social environment, authority / compliance, "mission", etc.) and disadvantages (turnover, lack of connection, etc.) for delivery of a social marketing campaign. We provide a summary of the program and examples of collateral employed in the pilot program. We conducted focus groups to assess motivations, barriers, and to refine the program's design. We also conducted an examination of energy usage changes, and conducted surveys to examine the knowledge, awareness, attitudes, behaviors (and behavior change) associated with the program. Our evaluation notes program strengths and weaknesses, and provides suggestions on revising program design elements – which were adapted from other residential and commercial social marketing programs - for better performance in a military environment.

Introduction on Social Marketing

Social marketing combines traditional marketing techniques with sociological and psychological tools as a way to influence a target behavior. Classic social marketing campaigns include efforts to curb teen drug and alcohol use, anti-obesity campaigns, energy efficiency, recycling, and many others. Elements that distinguish social marketing campaigns from traditional outreach campaigns include the identification of barriers and motivations, targeting specific sectors (rather than broad, generic outreach), and the use of tools such as social norms, prompts, and feedback. Community-Based Social Marketing (CBSM) proponents suggest the programs lead to strong, long-lasting impacts (Skumatz et. al. 2009). Briefly, hallmarks of social marketing campaigns in energy include:

- Combining traditional marketing techniques with sociological and psychological tools to influence a target behavior.
- Going beyond the awareness focus of most traditional outreach by incorporating the identification of barriers and motivations, targeting a specific sector, and the use of tools such as commitments to behavioral change, prompts, social norms, incentives, and communication / feedback.
- Working to incorporate multiple "touches" to try to change and habitualize behavior change (Community-Based Social Marketing / CBSM is seldom a one-off effort).
- Working to reach out through social networks (faith-based, neighbors, community partnerships, etc.) to make connections, aid in credibility and transfer, etc.

The list of steps recommended for undertaking a traditional CBSM (McKenzie-Mohr, 1999) program include:

- Background research
- Set goals
- Identify audience/barriers
- Develop message/interventions
- Deliver and monitor (pilot)
- Evaluate
- Go full scale

Background on the Program and Design

To try to reduce energy use in a set of military installations, the sustainability coordinator for the branch (with the aid of a consultant) developed Operation "XYZ¹", designed to use education and social marketing to encourage less wasteful behavior in the array of buildings the military owned or leased. The program was designed as a pilot program, with a three-month pilot test in three facilities prior to full roll-out state-wide. Operation XYZ targeted energy (electricity and gas), water, and solid waste (trash). It was expected that the changes in behavior would result in lower utility bills to meet federal and state mandates on energy and water savings, smaller carbon footprint from the facilities, and greater environmental sustainability for the branch. The program was designed to cover all types of installations for the military branch, including training centers, vehicle repair & painting facilities, including full time staff and day soldiers on periodic outdoor fitness and combat training weekends.

The program's design was introduced to "command" via a handbook that provided background about various rationales for the mandated reductions within the resource area (energy, water, solid waste), and provided a high level communication plan. The design consultant was responsible for preparing and delivering a PowerPointTM presentation that outlined the program to command at each pilot facility, as well as posters that could be displayed around the facility to advertise the program and recommended actions. A website was also available, which provided additional tips and the list of measures, and the link was provided on the posters.

The Program worked to identify resource conservation strategies that would address actions in the variety of opportunity areas covered by the military branch, including:

- Heating and Cooling Systems
- Lighting
- Other Electronic Equipment
- Work Station and Power management
- Construction and Demolition
- Equipment

- Furniture
- Grounds and Landscaping
- Haz Waste
- Industrial Glass
- Industrial metal
- Janitorial Supplies
- Kitchen
- Kitchen Supplies
- Maintenance Shops
- Office
- Office Supplies
- Packaging
- Water Reduction

The core of the handbook was an inventory of several score of the recommended resource-saving actions for the program, listed in Figure 1 below. The recommendations covered the three resource areas.

¹ The program name has been changed to 'XYZ' for the purposes of this paper.

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Energy and Water Saving Actions	Recycling / Waste Reduction Actions		
Close all roll-up bay doors when HVAC	Choose deconstruction and reuse first		
is on	Design for longevity, durability, etc.		
Configure furniture to not hinder air flow	Divert a minimum of 75% of all construction & demolition waste		
thru registers	Establish contracts for recycling in building and demolition		
Dress appropriately for comfort	Design spaces to be flexible		
If you have thermostat access keep it set	Utilize deconstruction practices and reuse maximum amount of materials		
with applicable policy	Utilize lean construction techniques		
Keep blinds closed when extremely hot or	First, determine if purchasing equipment is necessary for job		
cold	Deliver undesired equipment to X facility		
Keep windows closed if HVAC is on	Deliver old furniture to X facility		
Capitalize on daylighting	Purchase furniture made with durable low maintenance materials		
Configure furniture to capitalize on	Compost landscaping materials		
daylighting	Utilize removed trees for mulch on site		
Turn off lights in unoccupied rooms	Dispose in accordance with protocol		
Set fridge to 38 and freezer to 5 degrees	Look for non-hazardous options		
Unplug chargers after charging is	Reduce consumption of hazardous waste		
complete	Recycle on site or bring to X facility		
Purchase ENERGYSTAR [™] labeled	Combine trash from bins into one bag		
equipment	Request supplies be shipped in the minimum number of shipments (janitorial		
Avoid electric space heater use, if a space	supplies, equipment, office supplies)*		
heater is used, provide documentation that	Install low energy hand driers		
a work order / complaint has been filed to	Minimize variety cleaners used on site		
address thermal comfort	Utilize washable cloths in lieu of paper towels		
Set up computer power save	Limit purchase of water bottles		
Turn off computer at end of day and	Compost food scraps		
unplug any unneeded equipment over	Compost single use wares		
weekends	Donate unused food		
Unplug unused equipment (Work station	Bring a personal thermal mug		
and Other Electronic Equipment)*	Use personal non-disposable napkins		
Use laptops as opposed to desktop when	Utilize washable plates, cups, utensils		
possible and LCDs instead of CRTs	Utilize cloth rags in lieu of paper towels		
Use standby instead of screen saver	Consider requesting a free rechargeable battery storage container		
Request CFL for lamp desk and use lower	Recycle metal		
wattage task lighting when possible	Recycle non-classified paper, only place classified in shredders		
Sign up for workspace energy audit	Collect batteries and deliver to X facility		
conducted by local Energy Expert, recruit	If paper recycling is not available, collect on site and bring to X facility		
volunteers to assist in effort	Install recycle bins at all desks		
Water Savings Actions	Recycle all light bulbs and deliver to X facility (unless they are accepted in single		
Always run full loads in dishwashers and	stream locally)		
clothes washers	Reduce size of office trash cans		
Do not irrigate landscaping between 10am	Double sided printing as default		
and 6pm	Print only when absolutely necessary		
Don't leave water running while brushing	Purchase supplies from one vendor when possible (office & janitorial supplies)*		
teeth or washing hands	Reduce print defaults from 600 DPI to 300 DPI		
Keep water bottle in fridge instead of	Utilize electronic documents whenever possible		
running water until it gets cold	Buy in bulk		
Limit time spent in shower	Choose devices that don't use batteries		
Report leaks to building manager	Request minimal packaging (office / janitorial supplies, furniture, equipment)*		
Take combat showers	Keuse onice supplies		
Use broom instead of hose to clean	Unize rechargeable batteries		
sidewalks	Keeyele all plastic; recycle cardboard Store pollete and request driver take them healer an store and deliver to X for ility		
Install water saving shower heads	Store panets and request driver take them back; or store and deriver to X facility		
	Unpack panets and request driver take them back		

After the Design Stage: Planning and Launching the Evaluation Work

After the program was initially designed, but slightly prior to planned pilot roll-out, the military hired the authors to plan and conduct the evaluation of the program. In addition to providing a plan for pre-post measurement of both behaviors and energy use, we were quickly able to introduce the need to identify buildings that could be used as "control" buildings to support the estimation of the net impact attributable to the program. We reviewed the handbook and provided initial suggestions, but we most emphatically noted that initial interviews and focus groups with actors that would be touched by the program had not been conducted as part of the design work. We were given permission to conduct three focus groups incorporating three types of users that would be affected by the program; the results and implications of these focus groups are summarized below. We also immediately prepared "pre" surveys for the occupants and users, and roll-out followed very shortly thereafter. Our follow-up round of surveys and our analysis of pre- and post- utility usage data in both control and pilot test facilities were conducted after the end of the three-month pilot. The original schedule calls for full roll-out of the program region-wide three months after the pilot was completed.

The Evaluation Steps

Review of the Handbook: The review of the 200 page draft program handbook made it clear that both the program and the handbook could use refinement to improve the chance of program success. Our notes, while specific to the handbook, are appropriate to recall in reviewing the design of any social marketing program.

- **Goals were not targeted / appealing / motivating**. Goals were expressed in savings per square foot of buildings. These were difficult to track, and were not meaningful to those being requested to make actions and the metrics did not take into account the building function, occupancy, or level of productivity.
- Handbook should be more succinct, targeted, and action-oriented. A shorter reference guide (5-10 pages) would increase readership and provide a handier document for looking up key program elements. The document should have pages targeted for each of the potential actors involved in delivering the program, rather than making each actor have to read 200 pages to find the few actions they are expected to take charge of or do. The appendix of the handbook should have included checklists of actions by actor² and other organization, implementation, and tracking aids. A rewrite was needed to clearly lay out steps for planning, decision-making, and implementation, and the communication plan's audience and actors needed significant clarification. The problems being addressed (barriers) and the solutions (motivations and actions) needed to be much clearer (or in some cases, addressed at all). Provide a checklist at the end of each chapter on the "to do's" to remind readers of the purpose of the chapter, and of the actions they need to take.
- **Prioritize and tailor the recommended activities**. The area of greatest concern was the inventory nature of the recommended activities. The facilities varied dramatically, and very few actions were even relevant in many of the locales. Further, the actions were not prioritized in any way. Social marketing is about modifying target behaviors; nearly 100 behaviors are neither targeted nor recallable by the intended audience. The document needed to cull down the list to the

² Upon review, the actors involved in delivering the program included: Building users, State Maintenance Technicians (SMTs) , Building managers, Leadership, Unit purchasing officer, Architects, and communications team. A 200 page manual would not suit these actors.

few in each building / actor type that would be targeted, with a clear presentation of the associated barriers and motivations.

- **Clarify responsibilities**. Limit responsibilities in the handbook to reduce the work load requirement on full time staff and help build program acceptance.
- **Refine the evaluation plan**. Assure the tracking information suggested is even available in the buildings prior to providing tracking sheets. Add an electronic data tracking option, and if possible, track data automatically through electric and water billing data and solid waste invoices.

Focus Group Findings: Several focus groups were conducted prior to program launch to gather program feedback, get reactions to the program's design and materials, gather information on current behaviors and potential barriers, and suggestions on motivation / messaging. A total of three focus groups were conducted to represent the array of the branch's facilities and to help us understand how they vary in their activities and occupants / users, and "mission". The three focus groups are described as:

- Group 1: Maintenance / Repair facility Full time staff
- Group 2: Armory Training day soldiers
- Group 3: Training facility Full time staff

We discussed appealing motivation in the focus groups. Certainly, there were some differences between the three groups, but the following provides a sense of the types of motivations that were recommended by the focus group discussions.

- The right thing to do (and that is respected) but there is a lack of observed or direct benefits from doing more. They weren't sure where the savings would go, and were concerned their facility would lose funds, benefitting "headquarters" in some other location.
- Facility-level / local rewards (even fairly token rewards that would be visible to facility users) would provide motivations. (suggestions included gym equipment, t-shirts, pizza parties, or other items)
- Feedback would be a good motivator, especially for full-time staff, but the metrics need to make sense.
- Recognition might be a motivator; however, simple metrics might not be meaningful given the variety of activities on the site. Others wondered *why there should be a reward when you get paid to do a job. They were concerned that recognition of strong performance, when shops, functions, duties, and "scale" are all different, would be hard to assess.*
- The best way to motivate is making it easy / convenient to undertake the activities.
- A link to the environment might motivate some, especially TrainingDay soldiers who spend part of their time in outdoor training activities.
- Mandates were thought to be the strongest motivator. However, enforcement of the mandates is important and some attendees felt it would be difficult.
- Other motivators mentioned included: personal responsibility, savings a soldier's job, safety, and others.

Barriers mentioned included:

- The concept of split incentives or lack of incentives was a recurring theme; those taking the actions don't see incentives.
- Two important factors to remember is that doing more work and the associated greater production increases energy use and that metrics based only on resource conservation per square foot may not accurately reflect progress for facilities that train more soldiers, have more staff, or have higher

productivity levels. Comparisons across facilities do not make sense because of their size, productivity, and mission.

- The program's actions must make sense and be viable in the scheme of the overall unit's mission.
- Some of the equipment (or processes / requirements) don't respond well to conservation; there may not be enough flexibility to achieve savings (e.g. machinery that needs a certain amount of energy to function or that must be 24/7).
- Lack of convenience is also a barrier (simple example was more trash bins around than recycling bins).
- Attitudes about the relevance and importance of green issues may be a barrier (lots of natural resources in the US and green is overrated / unnecessary).
- Training Day Soldier buy-in is an issue, as they only spend a few days a month at the facility, they do not see bills, and do not think about it in-between / the message is lost.
- Other barriers mentioned included the fact that some of the strategies suggested would be illegal (concentrating orders to one vendor / shipper), inability to change contracts, security restrictions on window size that would limit daylighting opportunities, etc.

We asked the attendees to note which of the activities that were suggested in the manual they "already do regularly in the facility", and which had "high suitability" for the facility. This provided an abbreviated list of potential priority activities for recommendation for different facility types. The respondents said they already undertake the vast majority of the strategies;³ however, a truncated list of the actions with the highest likelihood of adoption and those without institutional or physical barriers was established. The shortened list is displayed in Figure 2.

Figure 2: Short Listed Conservation Behaviors with Best Potential Identified During Focus Groups

Turn off lights in occupied rooms						
• Avoid space heater use						
• Turn off computers at end of day / set up computer powersave						
Lower-ranked strategies included: Capitalizing on daylighting and closing rolldoors when HVAC is on						
ranking water conservation strategies						
Don't leave the water running while brushing teeth or washing hands						
Limit time spent in shower						
Report leaks to building manager						
Take combat showers (tie).						
Highest ranking waste reduction strategies						
Double sided-printing as default						
Recycling plastic						
Utilizing electronic documents when possible						

Review of poster collateral and appealing slogans and messages. As the final portion of the focus group work, the attendees were asked to review the poster collateral prepared as a key part of the program delivery. Figure 3 displays examples of the posters. The comments on the posters were clear, succinct, and uniform.

- Poster 1 implied the actions are already done / fixed and did not specify certain actions.
- The accompanying graphics and photos do not reinforce the targeted behavioral modifications.

³ The manual was developed by staff first; these focus groups were conducted afterward and noted that many recommended actions were already in place; however, as mentioned, neither the manual nor training and program roll-out were adjusted to incorporate this information.

- The poster graphics, logos, and photos should be localized for each facility type and location in order to resonate with the audience.
- They felt the pictures were random.⁴ They wanted to see pictures of soldiers saving resources / doing the recommended / targeted actions, and would have liked a local logo.

Appealing slogans and messages were also explored.

Figure 3: Sample Posters Prepared for the Program (Poster Credit: Flashy Green Communications)



The timing between the focus group research and the planned rollout was considered too tight, so despite the focus group recommendations, the program was rolled out as designed. Some of the suggestions from the focus groups and handbook and collateral review would be considered for incorporation into the full program roll-out, depending on the outcome of the Beta test (this evaluation).

Pilot Program Evaluation Results – Surveys of Reported Behavior Adoption

⁴ In other comments they wanted to know what is a HumVee doing on the ice? Why is it stuck in the mud? What does it have to do with the program?, and another said "Our facility just spent time last week cleaning off 10 years of posters – Posters in general, are "a joke", "no one takes them seriously."

In order to evaluate Operation XYZ's impact on behaviors, attitudes, and awareness, three separate surveys were conducted (Pre Beta Test, Post Beta Test, and Control group⁵).

Selection of Control Group: The control group buildings were selected from an inventory of the wide variety and sizes of facilities around the region. The control group buildings were selected based on their similarity to the pilot test facilities in terms of their facility purpose (repair facilities, office, etc.), and size (square feet and occupancy / employees). Data on control groups were not available prior to the survey; information on energy use was not available until the end of the project. The reader may compare patterns in "pre-program" energy use by month (along with three months post-program) by studying Figures 6 and 7. We selected about twice as many control facilities as test facilities.

The survey findings are summarized below:

- The survey results indicate that Beta test program had the largest positive impact on the following six behaviors (displayed in decreasing order):
 - 1. Took a combat shower or a shower that was less than five minutes long.
 - 2. Set thermostats down one degree (one degree cooler in winter).
 - 3. Capitalized on day-lighting (open blinds in day and turn off lights)
 - 4. Used electronic documents instead of paper.
 - 5. Used a recycling container in the office area.
 - 5. (*Tied*) Used washable plates, cups, utensils as opposed to single use disposable options.
- Conversely, it had little impact on
 - Recycled paper and cardboard.
 - Used a broom instead of a hose to clean sidewalks.
 - Turned off lights in unoccupied rooms.
 - Kept water off when brushing teeth/ shaving
 - Closed all roll-up bay doors when HVAC is on (*note: the Beta test was run in the winter making this behavior change fairly moot*).

Overall, the pilot respondents were familiar with the Operation XYZ program. The majority of participants (72%) reported that they felt the program has helped save energy/ water and reduce their waste. However, only 35% of the pilot respondents thought that the program had caused them to personally change their behaviors. It is important to note that about half the control group reported that they had increased recycling and reduced their energy over the last three months, without the influence of the Operation XYZ program. Posters (both energy and recycling related) and the training sessions were the most recalled elements of the program. Reading or seeing feedback on the amount of energy saved or amount of materials recycled were the least recalled program elements. The program was very effective at getting staff and the State Maintenance Technicians (SMTs) to talk to soldiers, staff, or SMTs about resource conservation. Figure 4 summarizes the key findings from the surveys.

The survey identified several potential shortcomings in the Beta test program:

• The program did not have a positive impact on attitudes related to conservation and may have in fact caused some respondents to adopt a less favorable attitude toward resource conservation.

⁵ Data to select control buildings in time for a pre-survey were not available. This presented problems in design and evaluation. It is reflected in the differences between control and test (pre-) behaviors reflected in the survey results, and other evaluation results in the paper. This is another reason for the title "Ready, fire, aim", but it reflects some of the complexities in real-world evaluation, particularly, as the literature indicates, in behavioral programs (Skumatz 2009)

There was a perception among respondents that the program unnecessarily and negatively impacted their workload. The program increased the perception that "*Resource conservation is not part of our mission*" and participants were more likely to agree with the statement that "*Resource conservation is contrary to greater production*" than non-participants. Some of the open ended responses include: "*It is a complete waste of time and resources*", "*It's probably costing us more money than we are saving*" and "*We don't need another state mandated mandatory training for our soldiers*."

• There may be some program overlap with other existing programs and initiatives. Over half of the Control group respondents (non-participants) reported that they saw prompts to turn off lights and saw posters for recycling and / or energy conservation. Additionally, 69% of the Control group reported seeing a 'new' recycling container in January, February, or March.

Figure 4: Frequency of Behaviors Undertaken Over the Last Month (100%=all the time, 0%=never)



Examination of Energy Usage Data

Limited energy bill data were available for the pilot and control group buildings, including data from January 2011 through December 2012 ("Pre" program implementation period) and January 2013-March 2013 (the program was implemented January 2013). We were able to conduct a "pre-post vs. control group" analysis of electricity and gas usage of electricity by the buildings. To make the data easier to compare, all usage data were normalized to a value of "1" for the usage in January 2013, the end

of the "pre" period. This allows the graphs and analysis to better illustrate similarities in energy use patterns, and helps abstract from the differences in building size that were unavoidable in picking the control group.

Figure 5 shows the patterns of electricity usage for the control and pilot buildings for the first quarter of 2011 (pre), 2012 (pre), and 2013 (post). Figure 6 shows the same information for gas usage. Figures 7 and 8 show the monthly usage data (electricity and gas) for the combination of the control buildings, and the combination of the pilot buildings from January 2011 through March 2013; given the normalization routine, the data passes through "1" in December 2012. Usage patterns across the months are similar, but note that the matching of control and test buildings is not perfect. The data show anomalies and mis-matches in gas usage in Quarter 1 for both 2011 and 2012. Electricity usage, even normalized, in pilot buildings tends to be higher than usage in control buildings. Figures 7 and 8 show the net impacts (post minus pre, net of the change in control) for electricity and gas usage. Figure 9 provides three comparisons of "net change", matching Quarter 1 of 2013 (post) compared to: Quarter 1 of 2011; Quarter 1 of 2012; and the average of Q1 2011 and 2012. The computed results indicate that there are no net savings associated with electricity use, but net savings associated with gas use, from the pilot program as currently designed and implemented.



Figure 5: Comparisons of Quarter 1 Electricity Usage by Control and Test Buildings (normalized)

Figure 6: Comparisons of Quarter 1 Gas Usage by Control and Test Buildings (normalized)





Figure 7: Gross Electricity Usage Pre v. Post (Jan 2013) – Aggregated Pilot and Control Usage – normalized

Figure 8: Gross Gas Usage Pre v. Post (Jan 2013) – Aggregated Pilot and Control Usage - normalized



Figure 9: Comparison of Quarter 1 "Net" Electricity and Gas Usage Changes – Net of Control Group Changes

Pre-Post vs. Control Pre-Post Results.	Post compared to	Post compared	Post Compared
Q1 2013 (Post) Use compared to ==>	Average Q1, 2011&2012	to Q1 2012	to Q1 2011
Net Pre-post change in Electricity Use	7.6%	13.4%	2.8%
Net Pre-post change in Gas Use	-9.7%	18.2%	-23.4%

Recommendations for Program Improvement

The following program recommendations are based on the survey, focus group, and energy use analyses.

- Capitalize on peer to peer conversations: One of the most exciting impacts was the increase in SMTs and Staff talking to other SMTs, Staff (*tripled from Pre to Post*), or soldiers (*doubled from Pre to Post*) about resource conservation. Peer influence is a powerful tool and should be one of the key program elements leveraged moving forward.
- Focus on the Operation XYZ brand: Participants were familiar with the Operation XYZ brand and perceived the program as having a positive impact on resource conservation. The Operation XYZ brand should take center stage in the full scale program deployment and the program acronym should not be focused on.
- **Reduce the time and workload related to the program:** The amount of effort required of staff and SMTs to participate in the program (perceived or actual) may dilute or impede the program's future impact. The surveys indicate that the perceived impact on workload is one of the largest

negative aspects of the program. The program should be simplified and streamlined to build support among these key stakeholder groups.

- **Continue using posters and prompts but consider redesigning them**: The energy and recycling posters and prompts were commonly recalled elements. However, some of the respondents thought the poster designs were not geared toward the appropriate audience. Redesigned posters and outreach tools that resonate with the intended audience may be more effective moving forward.
- Focus on a reduced number of behaviors for the initial launch: Focus on the top 5 or 6 most frequently changed behaviors indentified by survey. The decreased number of behaviors is easier to remember, easier to track, will allow for more targeted outreach, and can reduce the negative perception of time and effort discussed above. As the program progresses include additional conservation actions.
- **Provide feedback on progress** and local benefits: The most common program recommendation among participants was to provide feedback on how much energy or water has been saved or how much has been recycled. The 75% completion implementation manual (the one used for the Beta test) included feedback elements that were not successfully incorporated into the Beta test. Feedback will help encourage participants to continue their efforts and give them a metric for success. Likewise, the goals of the program should be measureable and gel with the feedback provided to participants. A high priority should be placed on providing this feedback and identifying some clear local benefits to participants. Focus group attendees were skeptical of continual rounds of new programs that get delivered and dropped without any feedback or information on their success (or failure).
- "Localize" the Recommendations List: The program includes too many recommendations / actions which can confuse participants and limit the program's impact. Consider limiting⁶ the number of actions and placing the remaining actions in a matrix, with checkmarks for relevance to different key facility types or activities. This is the simplest way to demonstrate a consideration of what is suitable in different locations, and mitigate the perception of "laundry list". More is not always better; clarity, focus, suitability, and expected actions are better.
- **Reflect Credibility in Mission**: Clearly and publically recognize that greater production may use more energy / water or create more trash and that is mission critical. If the program is perceived to interfere or detract in any way with the agency's mission, the program will likely not have many participants. A top-down mandate, or crafting the program as part of the mission, will increase participation, but if potential participants feel there is a tradeoff with the main mission, the program will likely get lower priority.
- **Consider additional metrics beyond savings per square foot:** Different facilities have different purposes that require varying levels of resource use. Comparing savings per square foot between the different facility types may not be appropriate even though it is the metric designated at the state / federal level. The number of full-time staff and soldiers training directly relates to resource use and the current metrics do not take occupancy and function into account.

⁶ Conduct a review through the recommendations / actions, eliminate those in which the authority to do the recommended behavior is held at headquarters or elsewhere (thermostats, procedures, computer shutoff), remove those that are not appropriate, and focus on the actions identified in the surveys and focus groups

We had especially strong recommendations for the Handbook and rollout. As an alternative, we recommended considering adopting a more localized approach that builds on the strengths of the local organization, leveraging what support there is for resource conservation among staff and soldiers, and allowing for localized program adaption:

- Local champions: We recommend an adaption of other successful programs that use <u>local facility</u> <u>champions</u> (both staff and training-day soldiers). Recruit one or more local champions at each facility and in each Company (or Platoon) who will be given control of the program for their facility / company and is charged with keeping attention focused on program, tailoring the strategies for what works at their facility / in their unit, and developing locally-appropriate actions (promotion, contests, recognition, etc.). The local champions approach will allow each facility to have more of a say in the program and increase the buy-in on whether or not the program is successful.
- *Local actions:* We found that discussion of locally-tailored options engendered excitement and creativity and discussion / involvement. Consider including elements in the program that encourage (and potentially reward) locally-suitable options and give the local champions the authority to adopt and implement innovative conservation measures on their own. The options may encourage participation in the whole program, especially if the local options are recognized, visible, and effective.
- Design for, and incorporate recommendations from, evaluation: We recommended that evaluation be incorporated into the design of the pilot, rather than appended after the pilot design was nearly complete. This would have allowed improved design of the program, focusing the program's manual and training on subsets of actions that the staff felt were most appropriate and high-impact. It also would have supported better selection and validation of control group buildings that had more similar staff "pre" behaviors (and potentially energy use), among other evaluation improvements. It may be that incorporation of an improved (and streamlined) program design and training might have resulted in improved energy savings results from the program.

Our overall recommendation was to delay roll-out by a month to revise the program and improve its likely ultimate uptake both regionally and nationally. We hope that real-time evaluation of pilot programs can be similarly implemented and used to help enhance design of full-scale roll-outs in this and other agencies.

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