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# Making the Connection

Beneficial Collaboration Between Army  
Installations and Energy Utility Companies

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Beth E. Lachman, Kimberly Curry Hall,  
Aimee E. Curtright, Kimberly Colloton

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## Summary

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The Army owns and operates installations across the globe, and these installations consume substantial amounts of energy. The Army wants to reduce its energy consumption for several reasons. First, it is under legislative mandate to do so. The Energy Independence and Security Act (EISA) of 2007 directs military installations to reduce their energy consumption 30 percent by 2015, and the Energy Policy Act of 2005 (EPAct) directs them to increase, by 7.5 percent, their use of energy from renewable sources by 2013.<sup>1</sup> The Army also faces regulatory pressure. Issued in October 2009, Executive Order 13514, “Federal Leadership in Environmental, Energy, and Economic Performance,” directs federal agencies, including the Army, to increase energy efficiency and measure, report, and reduce their greenhouse gas emissions. Additionally, the Army would like to lower its energy costs: the cost of Army installation energy utilities was over \$1.2 billion in 2010.<sup>2</sup> To help meet such goals in fall 2010, the Army announced a new Army energy vision for the Net Zero Energy Installation (NZEI), an installation that over the course of a year produces as much energy on site as it uses, in April 2011 announcing pilot installations that are trying to become NZEIs by 2020.<sup>3</sup>

While the Army has an active energy program to meet these federal energy requirements, conserve resources, and save costs, installations have limited investment options for programs that help achieve energy goals, even those with a net financial benefit. Neither do they have any dedicated funding for energy efficiency or renewable energy projects. One way to reduce energy consumption, lower costs, help meet energy security, NZEIs and other energy goals, and fund projects is for Army installations to collaborate with utility companies, and they have a number of ways to do that. An installation can partner with a utility in a Utility Energy Service Contract (UESC), which is a partnership between the installation and a utility in which the utility pays

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<sup>1</sup> U.S. Library of Congress (U.S. LOC), “H.R.6 Energy Independence and Security Act of 2007,” 2007.

<sup>2</sup> Personal communication with ACSIM staff, August 4, 2011. Note that this statistic does not include any transportation energy, just the installation energy utilities.

<sup>3</sup> For more information, see OASA (Installations, Energy and Environment), “Net Zero Installations Identified,” no date.

for the upfront costs of energy efficiency projects and the installation pays this money back from its energy savings.

## **This Project**

The Assistant Chief of Staff for Installation Management, Headquarters, U.S. Army asked RAND Arroyo Center to recommend ways that the Army's installations could improve collaboration with utility companies to reduce energy consumption and help meet other Army energy goals. The project had four tasks:

- Examine how Army installations currently collaborate with utility companies.
- Identify problems with, or barriers to, such collaboration.
- Identify and assess options for improving collaboration.
- Recommend ways the installations and utilities could improve collaboration.

## **How Army Installations Currently Collaborate with Utility Companies**

Installations have a number of options for how they can collaborate with utility companies. Not all of the options listed below are available in all locations. Generally, in states with strong public utility commissions and a mandate to reduce energy consumption, more options are available. Collaboration can offer mutual benefits. For the installation, it can help reduce energy consumption and save money, tap into a source of expertise and advice, and fund energy projects that would be difficult to finance through traditional sources. Such collaborations help installations meet their energy conservation, energy security, renewable energy, and other energy goals and requirements. We found that some installations and utilities form close long-term partnerships working together on a range of installation energy efficiency and management tasks. For the utility company, good collaboration can help its bottom line, whether by increasing profits or improving its public image. Furthermore, collaboration can reduce demand, obviating or delaying the need to provide additional capacity. It can also help utilities meet their energy conservation, renewable energy, and other goals.

### **Utility Energy Service Contracts (UESCs) Collaboration**

UESCs provide a way to help finance and implement energy efficiency projects at installations. Projects include replacing interior and exterior lighting with more efficient lighting, replacing old electric motors with high-efficiency models, replacing fans and pumps, installing occupancy sensors that turn lights off when rooms are not occupied, installing solar hot water heaters, and so forth. The utility provides the initial

investment, and the installation pays it back over the life of the contract, usually ten years.

### **Utility Service Contracts (USCs)**

Installations can also use USCs, which provide energy-related upgrades that may or may not produce energy savings, such as building utility distribution and transmission systems on the installation. USCs can also be used by installations to make sole-source contracts for efficiency projects. In one example, they were used in this way for solar power street and parking lot lighting.

### **Collaboration in Energy Security and Reliable Service**

Most utilities work closely with their Army installation customers to ensure that they have reliable power. Many utilities also work closely with installation staff when they need to shut off power temporarily because of routine maintenance work so that they can minimize disruptions to the installation's operations. Utilities can also help installations ensure that they have energy security. They may work with an installation on planning for backup power in the event of an emergency. To gain energy security benefits, installations may also allow an on-site power generation plant, as several Air Force bases (AFBs) have done.

### **Energy Audits, Technical and Other Assistance**

Utilities often provide free or fee-based energy audits, in which utility company representatives review individual buildings or groups of buildings and facilities at an installation to identify potential energy efficiency projects. Often these audits examine a large number of buildings and facilities and identify a range of energy efficiency projects. Sometimes they also include water conservation projects.

Utilities can also provide a range of technical assistance for their installation customers, and some become trusted advisors and true partners in improving installation energy management and efficiency. Utility companies sometimes provide free or fee-based assistance for reviewing, identifying, choosing, installing, or operating energy efficient and renewable energy technologies. Sometimes such technical assistance includes studies and installation of the actual technology. Assistance can even include legal, regulatory, and financial advice on project implementation and even Energy Savings Performance Contracts (ESPCs).

### **Training and Education**

Some utilities also offer free energy efficiency and technology training and education. Utilities that are more strongly motivated to save energy offer a wider range of classes and have a wider range of expertise to help their customers reduce energy consumption and improve their energy efficiency and management programs.

### **Collaboration in Renewable Energy**

Installations also collaborate with utilities in exploring, investing in, and operating renewable energy projects and renewable energy credits (RECs). Since many renewable energy technologies are newer and less tested, they often require research, testing, and analysis before they can be installed, especially larger-scale projects. Utilities can and have helped in this process. Utilities also can play an important role in helping to finance, negotiate, and even build and operate on-site renewable energy generation projects. Installations have an interest in allowing on-site renewable energy generation to help meet their renewable energy and energy security goals.

### **Providing Energy Staff**

Utilities may even provide or help pay for experienced energy staff to work at an Army installation. A few years ago, Southern California Edison (SCE) and the Army split the cost of Fort Irwin's resident Resource Efficiency Manager (REM).<sup>4</sup> However, he spent three days a week at Fort Irwin and only two days helping SCE, which was a good deal for the installation. Fort Irwin benefited by having a trained and experienced energy expert on staff who also brought important lessons and experience from the two days he spent working for SCE at other locations.

### **Utility Rebate and Incentive Programs**

Some utilities offer or promote state rebate programs and incentives to motivate their customers to invest in energy efficient and renewable energy technologies. Utilities often want to help their customers save energy so they do not have to build new power generation facilities. In addition, such programs are being implemented because of state regulations, incentives, and public utility commission (PUC) requirements to help save energy and invest in renewable energies, such as solar credits in California.

### **Demand Response**

Utilities like to work with installations in "demand response" programs because they tend to be large users of electricity. In such programs, a customer agrees to short periods of decreased electrical consumption, generally determined and controlled by the utility, because of short-term grid stresses and in exchange for incentive payments.

There are two main program types: (1) reliability-based, which occurs in an emergency situation when the electricity demand is high and about to exceed existing capacity, creating the risk of a brown-out, and (2) price-based, i.e., economic, to reduce demand at high peak times when load is high.

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<sup>4</sup> REMs serve as contractors who work for the government and are effectively paid by the Army through a contracting mechanism, such as a UESC, generally with self-generated energy-related savings as stipulated in the contract.

## **Barriers That Impede Collaboration**

In spite of the fact that collaboration benefits both the utility company and the installation, there are barriers that limit such cooperation.

### **Lack of Interest at the Utility Company**

Some utility companies are simply not interested in participating in UESCs and other collaboration projects for a variety of reasons, including lack of interest and knowledge, lack of staff, lack of technical expertise, perception of risk in working with military installations, and perceived slow government bureaucracy. For example, utility companies tend to be risk averse, and some see UESCs with the military as too risky. They have the same issue in collaborating on some renewable energy projects.

### **Lack of Experienced Energy Staff at Installations**

The most significant barrier that we identified was the lack of a qualified and experienced full-time energy manager. The highest personnel level for energy-related installation positions is a GS-12 or equivalent in the new federal government personnel rating system. The lack of room for advancement in the energy field beyond this level is thought to contribute to a relatively high turnover rate of installation energy managers. When an experienced energy manager leaves, often a junior person comes on board, and the Army loses important energy expertise.

Even when there is a full-time energy manager at an installation, there is often not enough other trained energy staff to support him or her. Energy managers have many responsibilities and need additional qualified energy staff to meet installation energy requirements, especially at larger installations.

Additionally, installation energy staff frequently lack the technical expertise or business experience required to implement a UESC and large-scale renewable energy projects. Energy staff are also often not aware of the ways in which utility companies can help them.

### **Legal and Contracting Staff Issues**

The second most significant barrier to collaboration stems from legal and contracting staff issues. Interviews done for this project revealed that legal and contracting staff reluctance to participate in a UESC process can delay a project for months or years, which can completely halt the effort. This reluctance results from a lack of understanding of and familiarity with UESCs. Staff availability also affects the willingness to pursue such contracts. The legal and contracting staff have a full slate of activities, and UESCs must compete with these.

### **Other Installation Support Issues**

Other installation support concerns also act as barriers impeding utility and installation collaboration. First, Departments of Public Works (DPWs) often lack the time or qualified staff to work with utilities and the installation energy staff on collaborative UESCs and other projects. Second, installation commanders frequently do not support—or lack interest in—utility collaboration. This support is often needed to ensure that all relevant installation staff endorse the UESC process or other collaborative effort. Finally, financial and business installation staff are sometimes not interested in UESCs due to a reluctance to make a long-term commitment and to cope with the financial complexities of implementing a UESC.

### **Renewable Energy Investment Issues**

In addition to barriers to energy efficiency projects more generally, there are barriers specific to renewable energy projects. Some barriers are economic. Low utility rates can make renewable energy projects seem like a less attractive financial investment. Also, renewable energy technologies carry more uncertainty and risk than other approaches do. Because these technologies are not as established as those used in more traditional energy efficiency projects, installation personnel may not feel comfortable taking them on, especially given the level of technical expertise needed to assess project details. The availability and reliability of renewable energy resources also pose some concern. Finally, the ten-year payback of a UESC often limits renewable energy collaboration, because renewable energy projects take a longer period of time to show significant savings.

### **Other Barriers to Successful UESC Implementation**

Additional issues that limit successful UESC implementation include measurement and verification (M&V) and operations and maintenance (O&M) issues. Without proper M&V and O&M, UESC (and ESPC) projects will not achieve expected energy savings. If a project does not achieve the expected energy savings or at least get close to it, the project is not successful and can cost the Army a large amount of money without getting much of the anticipated benefit. Lack of building commissioning (a systematic, quality assurance process) is also another issue with respect to achieving energy savings.

### **Other Impediments to Installation and Utility Collaboration**

These issues are other collaboration opportunities where there has been less activity by Army installations but that hold great potential for utility and installation collaboration. The first issue is that there is a lack of knowledge about or interest in other non-UESC collaboration funding mechanisms, such as power purchase agreements (PPAs) and USCs, which could serve as alternative or complementary funding vehicles to UESCs for energy projects at installations. Energy security and on-site power genera-

tion are other areas where both installations and utilities have interests in collaborating more. As is the case with other collaboration possibilities, the main barriers here include lack of interest, information, knowledge, and time by both installation and utility staff to pursue such arrangements.

Metering and smart-grid collaboration are other areas of mutual interest. Many utilities want to help installations install meters because it is so important to their business. Utilities have expertise in metering and ways to help installations install meters despite budget problems, but installations are not aware of such opportunities. Utilities also want installations to start thinking about smart grids, which would include monitoring systems that keep track of all electricity flowing in the system.

Lastly, utilities would like installations to participate more in their demand response and other incentive programs. But military installation participation has been low because it can be difficult for installations to receive the proceeds from the demand response participation.

## **Recommendations to Overcome Barriers**

We provide many recommendations on ways to overcome barriers that impede collaboration with utility companies. Some involve providing additional resources. However, the Army can go a long way toward solving the collaboration issue by implementing five recommendations that involve only modest resources. These are our highest-priority recommendations. They are as follows:

- Establish a full-time energy manager at each installation, ideally at least at the GS-13 level for the larger installations.<sup>5</sup>
- Develop and widely distribute a UESC policy and handbook.
- Expand installation staff training on UESC and utility collaboration.
- Provide more technical assistance to installations and utilities.
- Allow a longer payback period for UESCs, as long as 30 years or more, for greater flexibility.

These five recommendations help address multiple barriers.

## **Motivating Utilities to Collaborate with Installations**

Ways to help motivate more utilities to collaborate with installations in UESCs and other projects fall into four main categories: (1) promote more direct outreach and

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<sup>5</sup> It is important to note that since this research was done, IMCOM has made it a priority to have a full-time trained Certified Energy Manager at each installation and has stated this as a specific task in the latest version of the installation community management campaign plan. See IMCOM, “The Installation Management Campaign Plan 2010–2017,” Version 3.0, April 2011, p. 41.

collaboration with utilities, (2) provide more education to utilities, (3) allow a longer payback period for UESCs, as long as 30 years or more, for greater flexibility, and (4) speed up the federal process where possible.

**Promote outreach and collaboration with utilities.** Collaboration would improve simply by having installations discuss their interest in UESCs and other collaboration with utilities. To further this effort, the Office of the Assistant Chief of Staff for Installation Management (ACSIM) and Installation Management Command (IMCOM) should have a policy that installations should engage more with their utilities. Installations are often a utility's largest customer. So an installation just expressing interest in a UESC can help start the process. Also, ACSIM, IMCOM, and other commands should engage more with utility associations to increase UESC awareness. Finally, ACSIM, IMCOM, and other commands should encourage a utility that is working successfully with an installation on UESCs to talk with a utility reluctant to collaborate. A success story from the perspective of another utility may be all it takes to get a reluctant one engaged in collaborating with its local installation.

**Educate the utilities.** ACSIM, IMCOM, and the other Army commands should also do more to provide education about UESCs to utilities by working with the Federal Energy Management Program (FEMP) and Pacific Northwest National Laboratory (PNNL) to help provide such education. One way utilities can become educated on UESCs is through FEMP outreach. If utility companies do not have technical staff to help facilitate UESCs, PNNL can provide technical assistance. PNNL can provide services such as recruiting utilities that have not participated in UESCs in the past, providing sample contract vehicles to help eliminate contracting hurdles, and evaluating the technical viability of a project. IMCOM has already hired PNNL to provide such UESC assistance to Army installations and their utilities. Installations have found this useful in educating utilities and encouraging them to do UESC projects. Such assistance should be continued. The Army should also develop a standard briefing that details the advantages that UESC participation provides to utilities for installations to provide to utility companies reluctant to collaborate.

**Allow a longer payback for UESCs.** To address barriers related to the short UESC contract and thereby payback limit, the limit should be increased to 30 or even 40 years. This payback extension would allow greater flexibility, such as incorporation of renewable energy projects.<sup>6</sup>

**Speed up the federal process.** In general, the federal process for approving a UESC should be streamlined to speed up UESC implementation. For instance, addressing key roadblocks, such as the often slow path to contracts approval, will help signifi-

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<sup>6</sup> It is important to note that installations could and should still do UESC contracts with shorter lengths, such as a 10- or 15-year contract, as appropriate. For example, in cases where the longevity of a structure is in question, a long-term contract would not be advisable, and a shorter contract term, such as 10 years, would be more appropriate.

cantly in speeding this process. This step helps address utility companies' concerns that the military takes too long to develop and implement UESCs.

### **Alleviate Energy Staff Issues**

Installations have several options to overcome the barriers presented by energy staff issues. These options fall into four main categories: (1) ensure sufficient energy staff and raise the level of the energy manager, (2) provide a UESC policy and a handbook on how to do UESCs, (3) provide more training on UESCs and other utility collaboration opportunities, and (4) provide more technical assistance to installations.

#### **Ensure sufficient energy staff and raise the level of the energy manager.**

Having a full-time energy manager with energy management training and experience on staff at the installation would help solve many issues with lack of staff time and expertise. This position should ideally be offered at least at the GS-13 level for larger installations to lessen the frequency of staff turnover and ensure that qualified people stay in the position. To help address the shortage of energy staffing, installations could also employ one or more Resource Efficiency Managers (REMs) to supplement energy management staff as much as possible. REMs often have good experience, training, and technical expertise that they can bring to energy efficiency projects.

**Provide policy and a handbook on how to do UESCs.** ACSIM should provide installations with a policy and handbook detailing how UESCs are implemented. These aids would facilitate the education of installation energy staff and better prepare them to utilize UESCs. The draft UESC policy that ACSIM developed in 2009 is a good first step.<sup>7</sup> ACSIM and IMCOM in collaboration with other commands should also develop a more detailed UESC handbook that provides detailed installation case study examples of how to successfully implement UESCs, including addressing lessons learned from previous experiences. Detailed case studies are needed to show how utility collaboration helps the installation save money, reduce energy consumption, improve installation operations, and improve energy reliability and security.

#### **Provide more training on UESCs and other utility collaboration opportunities.**

In general, installation energy staff need to receive more training and education on UESCs and how to collaborate with utilities. ACSIM, IMCOM, and other commands should help fund travel so energy staff can attend UESC workshops often hosted by FEMP and the Federal Utility Partnership Working Group (FUPWG) conferences to receive such education; provide relevant GovEnergy conference sessions; and facilitate mechanisms for cross installation information sharing, such as hosting monthly conference calls.

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<sup>7</sup> For presentations by ACSIM on this policy, see Randy Smidt, "Army Policy Guidance for Utility Energy Services Contracts," presented at the Federal Utility Partnership Working Group, May 5, 2009, and Randy Smidt and Amy Solana, "Army Policy Guidance for Utility Energy Services Contracts," presented at the Federal Environmental Symposium, Bellevue, Washington, June 2–4, 2009.

**Provide more technical assistance to installations.** To increase staff knowledge or technical expertise, more technical assistance should be provided to installations through organizations such as PNNL, which currently assists in installation and utility collaboration. IMCOM should continue to sponsor PNNL's assistance to installations in starting, developing, and implementing UESCs.

### **Improve Legal and Contracting Staff Expertise**

Education is needed to overcome the legal and contracting staff issues, and we provide three main recommendations for how to do this.

**Increase time devoted to UESCs in standard Army legal educational curriculums.** UESC training should be included in the Judge Advocate General (JAG) school classes. While the basic JAG school course has a quick overview of ESPC, UESC, and PPA contracting mechanisms, the UESC and other utility collaboration material should be reviewed and perhaps expanded. Other legal training to assist installation contracting staff in UESC implementation could include having UESC training in the annual environmental course, including UESC issues as part of contracting legal courses, or including it at the Government Contract Law Symposium.

**Provide UESC training to installation staff.** ACSIM, IMCOM, Mission and Installation Contracting Command (MICC), and other relevant commands should help installation legal and contracting staff receive more information and training about UESCs. Four activities could help. First, legal contracting staff could attend UESC workshops to learn more about utility collaboration. Second, the new UESC policy should include a section that explains the role of installation contracting officers and mention the specific legal language and documents that authorize UESCs. Third, a more detailed UESC handbook should also be developed and provided to legal and contracting staff. Fourth, FEMP has developed contractor training regarding UESCs, and installation contracting staff should attend this training.

**Assist reluctant and overworked contracting staff.** A Center of Expertise on UESCs should be established within the Army Headquarters contracting office, i.e., at MICC headquarters. This center would serve as a resource to installation staff and could refer inexperienced installation contracting staff to other installation contracting staff with UESC experience. Another suggestion is to have UESC-trained contracting staff available at Defense Logistics Agency–Energy (DLA–Energy)<sup>8</sup> and USACE Huntsville, the organization that administers ESPC contracts. A third option to help address this issue is to refer installation contracting staff to contracting staff members from another installation who have UESC experience. A fourth option is to refer contracting staff to ACSIM/IMCOM energy offices or PNNL to get technical assistance. ACSIM/IMCOM energy offices might also be able to refer contracting staff to appropriate MICC staff to help out as well.

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<sup>8</sup> Formerly the Defense Energy Support Center (DESC).

### **Other Installation Support Issues**

To overcome the other installation staff support issues, we have grouped these options into four main categories: (1) increase education on and visibility about UESCs, (2) have UESC/utility collaboration/energy training in commander's courses, (3) provide DPW staff with more resources and knowledge, and (4) educate financial and business staff about UESCs. Since this first category focuses on the need for a UESC policy and handbook and since these recommendations were already discussed, we only discuss the other three categories here.

**Have UESC/utility collaboration/energy training in commander's courses.** Interviewees also stated the importance of getting basic energy, UESC, and utility collaboration information into garrison commander and installation and other senior commander classes. Such education would not have to be extensive, but should help expose such senior leaders to the basic concepts and why they are important. For example, such commanders should be taught about the importance of installation energy goals, and how UESC and other utility collaboration can help meet such goals, can save money, and can be important to the continued operation and sustainability of the installation mission by ensuring long-term reliable power.

**Provide DPW staff with more resources and knowledge.** Key DPW staff, such as the DPW director, should be encouraged by ACSIM and IMCOM to attend UESC workshops, FUPWG conferences, and relevant GovEnergy sessions to gain UESC and utility collaboration knowledge. ACSIM and IMCOM can also help provide collaboration technical assistance, such as leveraging PNNL's UESC assistance activities. PNNL should also provide relevant DPW staff with technical assistance, as they do with the energy manager and other installation staff. DPW staff shortages in areas with energy responsibilities should be addressed to allow ample staff time for UESC implementation and other utility collaboration activities.

**Educate financial/business staff about utility collaboration.** Financial and business staff need to know more about UESCs and other utility collaboration opportunities. ACSIM, IMCOM, and other relevant commands should encourage and help provide travel funds so such staff can attend UESC workshops, FUPWG conferences, and GovEnergy sessions. Working with FEMP to locate UESC training near large installations would help in this process. ACSIM, IMCOM, and the other Army commands should also provide training about energy financing mechanisms and provide staff with business case studies regarding utility collaboration. In addition, financial and business staff should be involved earlier in the UESC and other utility collaboration processes so that they more fully understand and become a part of the processes.

### **Renewable Energy Investments**

The Army needs to deal with the barriers to expanding the use of renewable energy and take better advantage of these opportunities. Recommendations to do that fall into the following categories: (1) encourage, support, and document more renewable energy

experiments at installations, (2) expand installation staff education and training, (3) allow a longer payback period for UESCs, as long as 30 years or more, for greater flexibility, and (4) improve collaboration with utilities in renewable energy through Army policies and guidance. Since we already discussed the advantages of the 30-year payback for UESCs, we only discuss the other three categories.

**Encourage, support, and document more renewable energy experiments at installations.** ACSIM, IMCOM, and the other Army commands should encourage and support efforts for renewable energy experiments at installations. Such support needs to include research and financial and technical assessments regarding what are the most feasible, productive, and cost-effective renewable energy resources for an installation given its location and available renewable resources. All successes at actually implementing renewable energy projects—both small- and large-scale examples—should be documented so that the installation can try renewable energy projects on a larger scale or so that other installations can try similar projects. Such documentation, especially for the larger and more complex projects, should include in-depth case studies. These case studies should discuss the process of assessing and implementing the renewable energy project and lessons learned, including barriers encountered and how they were overcome. ACSIM/IMCOM should help installations document these successes.

**Expand installation staff education and training.** ACSIM, IMCOM, and other Army commands should increase staff education and training with regard to renewable energy and how to implement projects. More conferences and workshops should be planned, funded, and attended by installation energy staff. For instance, the Army funded PNNL, which hosted an Energy Summit in Richland, Washington in July 2008 with the theme “Moving Forward with Renewable Energy.” Installation energy managers and other staff attended the summit and increased their awareness of renewable energy options. Helping fund installation energy staff’s travel to such workshops and other relevant Department of Energy, regional, and national conferences, such as GovEnergy, is another important role for ACSIM and IMCOM given installation funding limitations.

ACSIM/IMCOM should also facilitate more networking across installations so that energy managers can exchange information on renewable energy technologies. In addition to conferences, they could have conference calls, SharePoint sites, or other Internet-based collaboration forums to help installation staff network regarding renewable energy. Additionally, ACSIM or IMCOM should provide in-depth “how-to” case studies for renewable energy projects. Installation energy managers have expressed a need for real implementation help on a step-by-step basis.

**Improve collaboration with utilities in renewable energy through Army policies and guidance.** Army policy and guidance should encourage more on-site power generation, power purchase agreements (PPAs), and enhanced use leasing (EUL) deals regarding renewable energy technologies. ACSIM should be developing installation

renewable energy policy guidance, like the draft UESC policy, that includes a discussion of the importance of such tools for collaborating with utilities in renewable energy projects. Besides helping improve utility collaboration with installations in renewable energy, such policy guidance is needed to help installations reach the Army's renewable energy goals. Additionally, through policy and guidance, ACSIM, IMCOM, and other relevant commands should encourage more energy security collaboration that takes advantage of renewable energy technologies where they can. Army policy should also state that installations should take advantage of federal, state, and local renewable energy incentive programs where they can, even if only for initial pilot experiments.

### **Dealing with Other Issues That Limit UESC Implementation**

We have identified two main options to address problems where the lack of sufficient M&V, O&M, and building commissioning limit successful UESC implementation: (1) the new UESC policy should ensure appropriate M&V, O&M, and building commissioning; and (2) the UESC handbook should provide examples of successful M&V, O&M, and building commissioning.

**UESC policy should ensure appropriate M&V, O&M, and building commissioning.** In terms of M&V, ACSIM should ensure that the new UESC policy requires M&V planning that goes beyond the first year to ensure UESC project success over time. Installation staff or the utility should do periodic M&V assessments. Appropriate M&V can be built into the UESC contract or conducted by the installation.

Additionally, ACSIM needs to ensure that the new UESC policy will include appropriate planning that ensures effective O&M. An installation can provide some independent external O&M oversight that helps improve O&M; it can involve installation O&M staff in the UESC project technology selection and implementation process and ensure that they have proper training; or it can outsource O&M to a qualified contractor as part of the UESC contract. Regardless of which approach is used to ensure effective O&M, the new UESC policy should require that installations develop a maintenance plan.

The new UESC policy should also recommend that installations include building commissioning as part of their UESC. Where possible, a third-party independent commissioning agent should be employed for the building commissioning.

Since this study was done, in October 2010 the Army issued an updated Sustainable Design and Development Policy stating that "facility construction projects will use total building commissioning practices."<sup>9</sup> However, it is still unclear if such building commissioning is happening in the field given the extra costs and tight construction budgets.

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<sup>9</sup> Department of the Army, OASA (Installations, Energy and Environment), "Sustainable Design and Development Policy Update (Environmental and Energy Performance)," Washington, D.C., October 27, 2010.

**UESC handbook should provide examples of successful practices.** As an additional resource, ACSIM should develop a UESC guidance handbook that provides detailed examples of successful M&V, O&M, and building commissioning practices so that these can be implemented at other installations. Again, these should include a detailed “how-to” for the practices so that they are more easily implemented. IMCOM should develop detailed case studies for this handbook.

### **Addressing Other Impediments to Installation and Utility Collaboration**

We recommend five key activities to address these broader collaboration issues in the following categories: (1) provide information and training on non-UESC collaboration mechanisms to installation staff, (2) increase information exchange and collaboration with utilities and utility associations, (3) take more advantage of utility interest in key areas, (4) provide more information and training on such opportunities in these key areas, and (5) ensure that installations can use incentives for energy program investments.

**Provide information and training on non-UESC collaboration mechanisms to installation staff.** ASCIM, IMCOM, and other commands should provide information and training to installation staff on non-UESC collaboration mechanisms such as EULs, PPAs, and USCs, through conferences, classes, and documented case studies. For example, presentations at the GovEnergy conference are an effective method to get some of this information across to installation staff. Detailed installation case studies could provide a step-by-step “how-to” for installation staff to implement these non-UESC collaboration mechanisms. Such case studies should include lessons learned, barriers that were encountered and how to overcome them, and sample contracts and contracting language. In general, information and training that is provided to installation staff by ACSIM and IMCOM needs to have more emphasis on these non-UESC collaboration mechanisms. They should also encourage installations that have successfully used such mechanisms to network with energy managers at other installations.

**Increase information exchange and collaboration with utilities and utility associations.** Additionally, ACSIM, IMCOM, and other commands should increase the information exchange and collaboration with utilities and utility associations. ACSIM should schedule regular meetings with utility associations and major utilities to discuss key areas of interest including on-site collaboration, financial mechanisms, energy security, metering, smart grid, and demand response. ACSIM already started such a process when it had a meeting with Edison Electric Institute (EEI) representatives in June 2008 to discuss areas of mutual interest. ACSIM and IMCOM also need to ensure that they participate in relevant meetings and working groups that utilities are taking a leading role in.

**Take more advantage of utility interest in key areas.** Utilities already have interests in certain key areas that installations should be taking more advantage of, including on-site power generation, energy security, metering and smart grid deployment,

and demand response and other incentive programs. ACSIM, IMCOM, other commands, and installations should be pursuing more collaboration in such areas. ACSIM and IMCOM should help encourage and fund installation pilots in such areas. They have already done some of this in supporting the Forts Carson and Irwin on-site solar power generation projects and pursuing net zero energy use buildings on installations. More of these activities need to be pursued. For example, more installations should try to participate in demand response programs.

**Provide more information and training on such opportunities in key areas.** Another recommendation is for ACSIM, IMCOM, and other commands to provide more information and training on such opportunities regarding on-site collaboration, energy security, metering, smart grid, demand response, and other incentive programs to installation staff. The Army should help encourage and provide special sessions on these topics at key conferences, such as GovEnergy and FUPWG. ACSIM and IMCOM should also consider providing special workshops and conferences on these topics. The Department of Defense, other Services, and the Department of Energy also could be potential partners in helping with such workshops. For example, FEMP could help provide training to installations about participating in demand response programs. Once installation staff are more informed about and equipped to address these areas, they should be able to more easily pursue collaboration opportunities with utilities.

**Ensure that installations can use incentives for energy program investments.** Lastly, ACSIM should try to ensure that installations can use incentives for energy program investments. A main reason installations do not participate in demand response and other utility incentive programs is because the installation energy program has difficulties in accepting or getting the rebate checks. Often, the money goes back to the federal government general fund rather than to the installation energy program. Some installations have found ways to address this issue, such as taking discounts on utility bills, but the Army needs to streamline some of the red tape required to make this happen so that installations can more easily take advantage of incentives.