Residential Utility Billing Program
U.S. Army & Lend Lease Experiences in Saving Energy Through Behavior
THE NATIONS LEADER IN PUBLIC-PRIVATE COMMUNITY DEVELOPMENT

Partnering with the DoD, we’ve created more than 40,000 homes and 14,000 hotel rooms nationwide.
Resident Responsibility Program History

• **DOD Mandated Program (1996) to:**
  • Hold Residents Responsible for their Energy Usage
  • Achieve a 20% Reduction in Energy Consumption

• **Across the Army, most privatized communities either:**
  • Send Mock or No Charge Statements
  • Provide Credits to Residents Below Average and Charge Residents for their Consumption Above Average

• **All homes are metered for gas & electric**

• **SYNERGY (Saving Your Nation’s Energy, Conserving Our Resources) Rewards**
  • a web-based program that rewards families with conservation credits for conserving energy
Resident Responsibility Program History

- **1998**: OSD established mandatory privatization utility policy
- **Apr 2003**: Initial Army Utility Policy Implementation Workshop
- **Jan 2004**: Implementation Session with sites / partners – FHFH part of 5 project pilot
- **Sep 2006**: Official rollout of Army Resident Responsibility for Utilities Program
- **Mar 2007**: Program policy update
- **Aug 2008**: Program policy update
- **Apr 2010**: Rebranded to RCI Energy Conservation Program (RECP), aka, “Live Army Green”
• Saving Your Nation’s Energy, Conserving Our Resources
• Web-based program that rewards families with conservation credits for conserving energy
• The SYNERGY Rewards program is designed to educate residents and encourage a whole-family approach to achieving conservation.
SYNERGY: Saving Your Nation’s Energy

Residents Earn **Conservation Credits** for
- Below Average Consumption
- Reducing their Consumption

Redeem Credits for Popular Merchandise

**Earn Additional Credits by:**
- Conducting Home Energy Audit
- Attending Energy Conservation Workshop
- Kids Energy Conservation Education Activities
- Super Savers
SYNERGY: Two Ways to Earn Credits

• **Earn Credits Compared to Peers:**
  • With energy consumption below average compared to peers’ household energy

• **Earn Credits with Electricity and Natural Gas Reductions**
  • Residents who use above average energy can earn credits by lowering their consumption level
  • Residents who already conserve energy get benefits and have incentive to conserve further

• **As energy prices fluctuate, credits retain their value**
  • With credits based on saving energy, not on saving money
  • Positive approach to encourage conservation
Had you activated your SYNERGY Rewards account, you would have earned Conservation Credits this month. Activate by the 25th of the month to receive your credits, PLUS 150 bonus credits by visiting http://synergyrewards.fortdrummch.com

<table>
<thead>
<tr>
<th>ID</th>
<th>Service Period</th>
<th>Days</th>
<th>Meter No.</th>
<th>Mult.</th>
<th>Units</th>
<th>Present</th>
<th>Previous</th>
<th>Usage</th>
<th>Billing Threshold</th>
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<tr>
<td>GS</td>
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<td>30</td>
<td>2665495.1</td>
<td>1</td>
<td>thms</td>
<td>1393</td>
<td>1272</td>
<td>121</td>
<td>129</td>
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**CURRENT UTILITY REWARDS EARNED**

<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
<th>Usage</th>
<th>Average Usage of Similar Homes/Baseline</th>
<th>Relative Difference</th>
<th>Energy Credits Earned</th>
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<tr>
<td>EL</td>
<td>ELECTRIC</td>
<td>kWh</td>
<td>955</td>
<td>-29</td>
<td>21</td>
</tr>
<tr>
<td>GS</td>
<td>GAS</td>
<td>thms</td>
<td>86</td>
<td>33</td>
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</table>

**CONSERVATION CORNER**

You can save around 5% to 15% a year on your heating bills by setting your thermostat back between 10 to 15 degrees for at least 8 hours during the winter months. This is made possible with programmable thermostats! The best times to lower the temperature in your home during the winter months are while you are sleeping, or when no one is at home. The closer you can comfortably get your inside temperature to the outside temperature, the lower your energy usage will be. This is also true for the summer months when using the air conditioning.

**HISTORICAL**

The Baseline is the average usage for homes that are similar to yours. The zero on each graph represents the baseline (regardless of the Baseline value) and the bars represent the amount of energy consumed that is above or below the Baseline on a monthly basis. The amount of Reward points earned are based on 1) the difference between the actual usage and baseline (actual minus Baseline) and 2) conservation habits. The Threshold represents the uppermost 2.5% (two standard deviations above the baseline) of usage for homes similar to yours. Meeting or exceeding the Threshold will result in receipt of Excess Use invoice for all usage above the baseline for the statement period.
Building Energy Management System (BEMS)

- Provides the platform to have 100% of residents active in Synergy. Our current enrollment is 65%.
- Utilizes existing synergy statements data and provide real time feedback to resident thus maximizing the credits obtained.
- Provides opportunity for daily communication on Synergy redemption opportunities thus increasing the rewards for our residents.
- Provides 100% of thermostats programmed.
- Allow residents with shared boiler systems to understand their gas consumption and provide opportunity to gain Synergy credits.
- Gives residents real time feedback on baselines, profiles and billing thresholds. Greater understanding = Motivation for behavior change.
Building Energy Management System (BEMS)

In Home Dashboard
- Residents can track usage &
- make adjustments to daily activities to increase energy savings
Building Energy Management System (BEMS)

Usage Scorecard
- The SYNERGY Score helps to create competition and drive community level conservation.
Current Results

• Over 70K RCI homes (87%) now in live or mock billing (41 of 44 RCI Projects)

• Army RCI Cumulative savings over $60M to date – funds reinvested into projects to add/maintain homes and to improve quality of life

• Lend Lease homes have achieved 15-23% average reduction in energy usage over the program life

• Typical Statement Distribution:
Extra Slides
Peers determined by Profiles

Homes of same:
– Size
– Age
– Floor plan
– Position within building,
– Heating/air conditioning systems

*The highest users (approx. top 3%) will be held financially responsible for their energy consumption
Resident Engagement

Programs in place to Engage Residents
- RSC’s at sign in and then follow-up a week after move-in.
- Quarterly Utility Workshops
  • Personalized invites to high energy users and new residents.
- Home Energy Audits (Resident Request)
- Synergy presence at all major resident functions
  • Earth Day – Drawing for Washer / Dryer among 12 super saver winners.
- Extreme XS User emailing's
- Social Media (newsletter, facebook, synergy website)
Lessons Learned

- High Resident Turnover
  - Logistics of handling move overs and maintaining resident credits.
  - Ensuring new residents get adequate program training upfront and follow-up from community center staff.
- Difficult to quantify gas savings in Legacy product due to shared boiler systems and aging HVAC systems.
- Enduring low occupancy period difficult to maintain target active residents.
• Billing program commenced in January 2013.
• Excess use calculated as consumption > than 2 sigma > than baseline.
• Billing amount calculated as consumption minus baseline multiplied by utility rate set by the DPW.
### Compare kBtu / Sq. Ft Wx Corrected Data

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013*</th>
<th>2014</th>
<th>Actual Reduction</th>
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<tr>
<td>Legacy Gas:</td>
<td>55.997</td>
<td>60.759</td>
<td>62.373</td>
<td>61.944</td>
<td>10.6 % increase *</td>
</tr>
<tr>
<td>New Electric:</td>
<td>19.351</td>
<td>18.964</td>
<td>18.208</td>
<td>17.583</td>
<td>9.1 %</td>
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<tr>
<td>New Gas:</td>
<td>41.531</td>
<td>42.800</td>
<td>40.059</td>
<td>40.882</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

**Notes:**
1. 2013 was the start of live resident billing.
2. Legacy Gas trends can be contributed to shared boiler systems, leaky homes and aged HVAC equipment. These numbers support the impact of the Green Retro project.
3. New Gas uptick in CY 2014 may be attributed to aging equipment, and a poor regression correlation due to polar vortex.
Fort Drum Data

Active vs. Inactive Gas

Profile 1  Profile 2  Profile 3  Profile 4  Profile 5  Profile 6  Profile 7  Profile 8  Profile 9  Profile 10  Profile 13  Profile 14  Profile 16  Profile 18  Profile 20  Profile 21  Profile 22  Profile 23  Profile 24  Profile 25  Profile 26  Profile 27  Profile 28  Profile 29  Profile 33  Profile 34  Profile 35  Profile 36  Profile 38

Average Consumption Active  Average Consumption NA
Fort Drum Utility Infrastructure Facts

- Electric meters call in every 2 hours and Gas meters every 12 hours.
- Consumption data transferred to Web via cellular service with Verizon.
- Resident utility statements run from the 25th of each month.
- Resident bills and statements mailed separately arrive at residence second week of following month.
- 100% resident homes equipped with programmable thermostats.

Issues

- Takes 30 – 45 days for a resident to understand they have a consumption issue.
- A large majority of residents do not program their thermostat
- Residents do not understand the profiles, baselines and billing thresholds and thus are blind to making changes to start earning credits.
- Residents with shared boiler systems don’t know their gas consumption
Questions?