

## Contract Details

### Contract Type:

Energy Savings Performance Contract;  
Guaranteed Energy Savings; Renewable Energy

### Facility Size:

1,500 facilities, 16 million square feet  
1,600 acres campus setting

### Contract Value:

\$101,000,000  
Total of 10 Phases

## Summary

Since 1996, Ameresco and Great Lakes have implemented over \$100 million in facility upgrades. These projects were spread out over multiple phases that included 15 to 20 buildings per phase. In 1997, Ameresco developed a Master Plan for Great Lakes that would provide energy efficient upgrades in all buildings and utilities on the site. The Plan focused on leveraging projects based on savings potential to maximize facility upgrades. This planning would ensure that all building upgrades include energy efficient technologies.



Commanding Officer Captain Malfitano graduated from Stony Brook University with a Bachelor of Engineering degree in Engineering Science in 1986. In 1988, he was designated a Naval Aviator in July of 1988 in Corpus Christi, TX.



Naval Station Great Lakes is the largest military installation in Illinois and the largest training center in the Navy. Since its founding in 1911, the training center has prepared men and women for duty in Naval Service.

## Customer Benefits

A major focus for each phase is building automation. Ameresco has installed over 100 direct digital control systems on the base. These systems use a mix of DDC controllers and sensors and pneumatic actuation to keep costs down while providing optimal control. Some of the control strategies include optimal start/stop, economizers, and night setback lighting upgrades were implemented in all buildings, including energy efficient fluorescent lamps with electronic ballasts and LED exit signs. During each phase, the buildings' heating systems were upgraded, including testing and repair of all steam traps and insulating bare steam and hot water piping. Other projects include direct fired infrared heating, chiller replacements, and evaluation of variable speed drive applications.

The challenge with a long-term energy savings program is to avoid the temptation of implementing all of the quick payback ECMs at the start of an energy program. The same can be said for not including all of the buildings with high energy savings potential in the first few phases. In the GLNTC/AFS Master Plan, all of the buildings on the base were classified as high, medium, and low for potential energy savings. Buildings with high potential were those with year-round heating and cooling, high load factors, and systems running 24 hours per day regardless of occupancy. Medium buildings were those with high heating loads and selective cooling loads, and tended to have one-shift occupancy. Low potential buildings were warehouse and low occupancy buildings with low heating loads and no

cooling. Each phase was developed with 30% high, 50% medium, and 20% low potential buildings to make sure all buildings were part of the program. Commands that owned multiple buildings were part of their own Phases (eg: Phase 7 Hospital Command) and all of the command's buildings were part of a single phase. This allowed for a streamlined approval process.

The latest phase of work includes a major retrofit of the central steam plant, a historic facility. The retrofit includes installation of a 11 MW cogeneration system with heat recovery boilers. Backup diesel generators were installed to provide an additional 4 MW of generating capacity.

With construction complete in over 160 buildings, Ameresco and Great Lakes are in development of additional Phases to complete the remaining buildings on-site. Through this program, Great Lakes has upgraded their facility infrastructure while saving energy. This allows Great Lakes to concentrate on its core mission: training sailors.

## Accolades

*"Since initiating our base-wide improvement plan, we know our energy and operating dollars are going further, because our systems and equipment are now operating at peak performance."*

- Greg Pye  
Superintenden Public Works Center

## About GLNTC

The Great Lakes Naval Training Center (GLNTC) is home to the U.S. Navy's only Recruit Training operations and numerous other Naval units. Great Lakes is the largest military installation in Illinois and the largest Training Center in the Navy. The base is located on 1,628 acres and uses 50 miles of roadway to provide access to the Center's facilities. Since its founding in 1911, the Training Center has prepared men and women for Naval Service.

Learn more at  
[www.cnic.navy.mil/GreatLakes/](http://www.cnic.navy.mil/GreatLakes/)

## About Ameresco

Ameresco, Inc. is one of the leading global energy services providers. We deliver long-term customer value, environmental stewardship, and sustainability through energy efficiency services, alternative energy solutions, supply management, and innovative facility renewal strategies. The company has over 650 employees in regional offices throughout North America. Ameresco, Inc. has constructed billions in energy projects throughout the world.

Learn more at  
[www.ameresco.com](http://www.ameresco.com)



*The upgrades at GLNTC comply with the government's standards as well as drastically improve the living and working conditions for those in service and their families at the base.*

## Environmental Benefits

Through their partnership with Ameresco, the Authority will have the following annual carbon reduction equivalents:

- ▶ the removal of 723 cars off the road
- ▶ the planting 2,768 acres of trees
- ▶ the reduction of 3,300 tons of CO<sub>2</sub> annually
- ▶ the elimination of 380,279 gallons gasoline burned
- ▶ the powering of more than 233 average size homes

The project helps reduce the need for energy from traditional power plants fueled by fossil fuels.

## Services Provided

Phase I of the project initially targeted six buildings in need of water and energy conservation, HVAC upgrades, more efficient lighting, and centralized environmental controls. The second half of this phase addressed the base hospital's need, including aging HVAC, inefficient cooling system and substandard lighting.

Phase II was a multi-facility phase addressing heating, cooling, and mechanical inefficiencies, as well as the need for more precise controls of cooking and refrigeration equipment in the dining facility.

Phase III was a 20 building retrofit focused on needed mechanical and HVAC upgrades; replacement of old, drafty windows; and integrating environmental controls.

Phase IV centered on lighting and cooling retrofits, HVAC upgrades, and adding environmental controls in 30 buildings.

Phase V addressed HVAC inefficiencies in 20 buildings, the need for improved lighting, and environmental controls. The second part of this phase consisted of addressing the need for site-wide control of systems and date-related to electricity, steam water, and wastewater.

## Awareness and Outreach

In 1997, alternative financing through UESCs was brand new to the government. As mentioned earlier, the traditional bid and spec process was in place at GLNTC for decades and changing this process to design/build through the local utility was highly scrutinized.

With the support of EFA Midwest and base leadership, the first phase was developed and implemented. The reaction from the major claimant, Chief of Naval Education and Training (CNET), was excellent and further phases were developed. After the first phase, other claimants such as BUMED; become true partnership. When each phase was developed, AFS would meet with each building's Building Maintenance Supervisor (BMS) to explain the program and make them part of the team to develop ECMs that would lower energy use and solve many of their problems. Once the BMS' were on-board, AFS would meet with the PWC maintenance staff. The process would repeat itself to identify key concerns of the maintenance staff in these buildings. Also, the project focused on installing equipment that was consistent throughout buildings and was easy to maintain.

Upon project completion, the BMS, operating personnel, and PWC maintenance were trained on how to operate the equipment and more importantly how to identify a problem that would reduce energy efficiency. As the phases progressed, the level of training for the PWC staff advanced. This advanced training has resulted in less reliance on outside contractors to maintain the energy efficient systems.