

Clean Cut Quarterly

NJARNG Sustainability Newsletter

In collaboration with Rowan University

September 2015 Volume 1 - Issue 1



Welcome to the first issue of the *Clean Cut Quarterly*, a quarterly newsletter designed by student interns from Rowan University for all DMAVA and NJARNG employees. We started the *Clean Cut Quarterly* to keep you up to speed on NJARNG's energy and water efficiency projects and progress towards energy and water reduction goals as well as to encourage you to be green at work and at home. Our goal is to provide useful information in an easily navigated format. The topics that you can expect to see in the *Clean Cut Quarterly* include:

- ❖ Important energy and water policies, updates, and news
- ❖ Progress of the Clean Cut Competition
- ❖ Rowan University interns and partnership
- ❖ Energy audit findings and schedule
- ❖ High Efficiency Lighting Program progress
- ❖ Energy and water projects
- ❖ Energy and water rebates, resources, and tips

Your comments are welcome and necessary in order to ensure this newsletter serves the audience in the best way possible. We encourage you to share this newsletter with your colleagues and contacts who may be interested in the information provided.

Sincerely,

Christopher Moore
Energy Manager
NJDMAVA – CFMO

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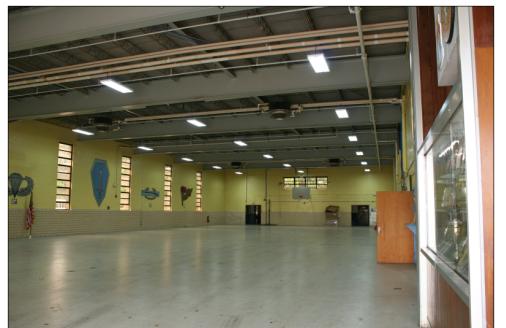
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What is the Clean Cut Campaign?

The Clean Cut Campaign was developed by the Department of Military and Veterans Affairs (DMAVA) Energy Team in collaboration with Rowan University. The goal of the program is to reduce the NJARNG's carbon footprint and impact on the environment by promoting energy and water conservation. Reducing energy and water use will ensure a greener workplace, a healthier environment, and promote a sustainable living culture throughout the community. The main drivers behind such an effort have been the federal requirements listed below.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act (EISA) of 2007 was passed in order to move the United States toward greater energy independence and security, to increase the production of renewable energy, and to improve the energy performance of the Federal Government. Under this act, NJARNG is required to conduct energy audits on 25% of its buildings per year, install advanced meters in its buildings, and to enter energy use data into a benchmarking system.

Executive Order 13693

Executive Order 13693 – Planning for Federal Sustainability in the Next Decade (dated March 19th, 2015) revokes EO 13423 and EO 13514 and sets new energy and water conservation standards. The reason for the order is to continue to build a clean energy economy and better environment for generations to come. Under this act, NJARNG is required to reduce energy consumption per square foot by 2.5% per year compared to FY15, reduce water consumption per square foot by 2.0% per year compared to FY07, and increase renewable energy use to 30% of total electricity consumption by 2025.

Clean Cut Campaign Targets

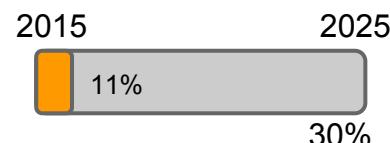
Energy



Water



Renewable Energy



As part of the Clean Cut Campaign, the NJARNG Energy Team has developed various resources for the NJARNG to use and meet the federal mandates and requirements. These resources include the TAG Energy and Water Conservation Policy (2015), Vision 2030, and the Green Building Management Handbook. These documents lay out specific goals and strategies to reduce energy and water consumption and increase sustainability.

TAG Energy and Water Conservation Policy

The **TAG Energy and Water Conservation Policy (2015)** sets forth goals, best practices and measurable targets to help increase the energy and water efficiency of NJARNG facilities. The 3 main goals behind the policy are to:

- Reduce operating costs through energy and water efficiency.
- Increase the use of renewable energy sources.
- Reduce the adverse environmental impact of operations.

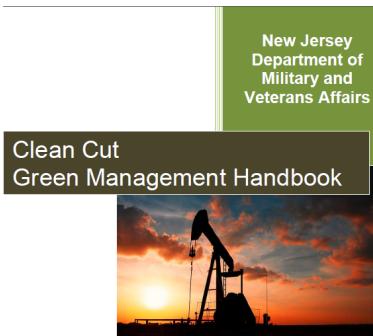
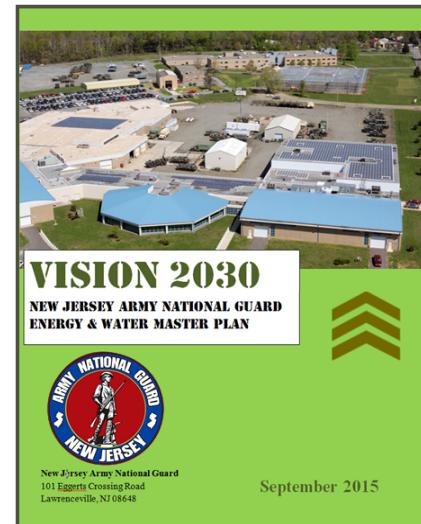
NJANRG is committed to conservation and sustainable facilities and it is imperative that all personnel and facilities conserve energy and water to the greatest extent possible. The NJARNG Energy Team has published the Vision 2030 Master Plan and a Green Building Management Handbook to assist in achieving these goals.

The policy can be found at: <http://www.nj.gov/military/publications/TPL/2015/TPL-15-1-NJARNG-Energy-and-Water-Conservation-Policy.pdf>

Vision 2030 is the NJARNG's master plan for the Clean Cut Campaign through the year 2030. Vision 2030 lays out strategies for the NJARNG to implement in order to meet the goals of the TAG Energy and Water Conservation Policy (2015), the Energy Independence and Security Act of 2007, and Executive Order 13693. The strategies are categorized into three main areas of focus including:

- ❖ Energy and Water Conservation
- ❖ Renewable Energy and Security
- ❖ Education and Awareness

Vision 2030 will be published in early FY16.



The **Green Building Management Handbook** is a comprehensive reference designed to guide NJARNG staff in implementing behaviors that will reduce energy and water consumption while increasing sustainability. The Guidebook includes the campaign's scope, goals, implementation procedures, and staff responsibilities. The manual is not only a response to Federal mandates, but also includes the financial, social, and environmental benefits of NJARNG efforts. The Guidebook will increase the overall health, knowledge, and productivity of NJARNG employees.

The guide can be found at: <http://www.nj.gov/military/installations/docs/CLEAN-CUT-Green-Management-Handbook.pdf>

Clean Cut Competition

Overview

As part of the Clean Cut Campaign, the NJARNG Energy Team has created the Clean Cut Competition for all NJARNG facilities. This competition is a yearlong energy and water reduction program with the purpose of incentivizing participation in energy and water reduction initiatives. Ultimately, the goal is to encourage employee participation and to cut utility usage and costs.

Important Dates

- Competition starts **10/1/2015**
- Competition ends **9/30/2016**
- Checkpoints will be every 3 months
- Progress will be posted in the *Clean Cut Quarterly* newsletter



How it works...

- ❖ Throughout the 2016 fiscal year, energy and water consumption for each NJARNG facility will be tracked and recorded.
- ❖ The progress will be displayed in each issue of the *Clean Cut Quarterly*.
- ❖ Each facility will have a goal of reducing energy use by 2.5% and water use by 2.0% by the end of the year.
- ❖ Facilities that meet their goals will receive a certificate of achievement to display in the facility and will be recognized in the *Clean Cut Quarterly*.
- ❖ The facility that reduces energy and water consumption by the greatest percentage will win the title of "biggest loser" and will be given the Clean Cut Competition Trophy to display at their facility for 1 year.



What to do...

There are many actions that building occupants can take to reduce energy and water use as well as the costs associated with these utilities. For example, turning off lights when leaving a room. Lighting accounts for 25%-30% of a building's energy use and minimizing unnecessary lighting is an easy way to reduce energy consumption. Each issue of the *Clean Cut Quarterly* will contain tips and strategies that occupants can follow to reduce their building's consumption.

In addition, the NJARNG Green Building Management Handbook is available at: <http://www.nj.gov/military/installations/docs/CLEAN-CUT-Green-Management-Handbook.pdf>



The Clean Cut Campaign is a collaborative effort between the NJARNG Energy Team and Rowan University that started in 2007. As part of this relationship, Rowan University trains interns to assist NJARNG in its energy and water reduction initiatives. The interns, known as the Clean Cut Crew, are responsible for energy education and outreach, benchmarking and tracking energy and water use, conducting energy audits, developing the *Clean Cut Quarterly*, and providing other various services as needed such as solar research and energy modeling.

Meet the Clean Cut Crew



Zachary Hunt

Mechanical Engineering, Senior

Zach is a mechanical engineering student at Rowan University and plays club ultimate frisbee. He also enjoys playing disc golf and spending time down the shore.

Jessalynn Wright

Civil Engineering, Junior

Jess wants to pursue a career in structural engineering and chose to be one of our interns because of her interest in sustainable building. Jess runs track and plays women's ice hockey for Rowan University. She also enjoys hanging out with friends and going to the beach



Joshua Velez

Electrical Engineering, Senior

Josh is an electrical and computer engineering student at Rowan University who plays club ultimate frisbee. He enjoys programming as well as hanging out with friends.



Energy Audits

Overview

An **Energy Audit** is an inspection, survey, and analysis of energy use in a building. Energy audits can identify strategies to make a facility more efficient, healthy, and comfortable. As part of the Clean Cut Campaign, Rowan University established the "NJARNG-RU Energy Audit Center" with the purpose of providing resources and training to students so that they can conduct energy audits at NJARNG facilities. This program funds a graduate student who oversees and trains undergraduate students each semester and leads them during the audit. In addition, four professors oversee the program and ensure that NJARNG is receiving high quality data and results from the audits. Each year, 25% of NJARNG facilities must be audited.

Components of an Energy Audit

- Analysis
 - Billing Data
 - Billing Documentation and Drawings
- Facility Walkthrough
 - Inventory all lights, appliances, HVAC, meters
- Final Report
 - Recommended Energy Conservation Measures
 - Energy and Cost Saving Analysis
 - Other facility improvements

Why perform an energy audit?

- ❖ Reduce human impact on global warming and climate change
- ❖ Reduce energy and maintenance costs
- ❖ Increase human health and comfort
- ❖ Increase awareness of wasted energy



So far, the Energy Audit Center has...

- ❖ Audited 1,908,373 ft² of space
- ❖ Identified over \$500,000 in savings
- ❖ Trained over 100 students

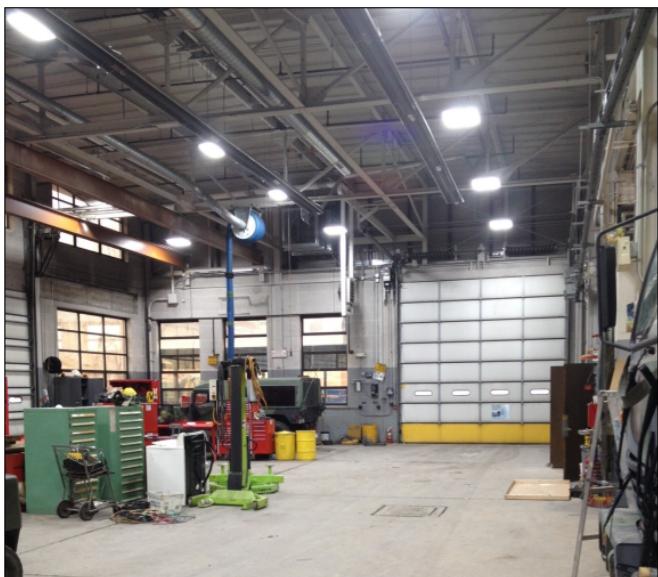
Fall 2015 Schedule:

- Fort Dix
- Bordentown

H.E.L.P.

High Efficiency Lighting Program

The **High Efficiency Lighting Program** (HELP) is a comprehensive effort to replace all the interior and exterior lighting in NJARNG facilities with LED lights within 5 years. Under this program, all NJARNG facilities will be retrofitted with cutting edge LED lights that will not only cut the electricity costs for lighting by up to 75%, but also reduce maintenance costs and improve the light quality within each facility. The HELP program officially kicked off in October 2014 and has already been implemented at the Woodbridge Readiness Center, Atlantic City Readiness Center, Lawrenceville USPFO, and West Orange Readiness Center and CSMS. Stay tuned as we will soon be coming to HELP your facility!



New LED fixtures light up a vehicle maintenance bay at West Orange CSMS.

Benefits of LED Lighting

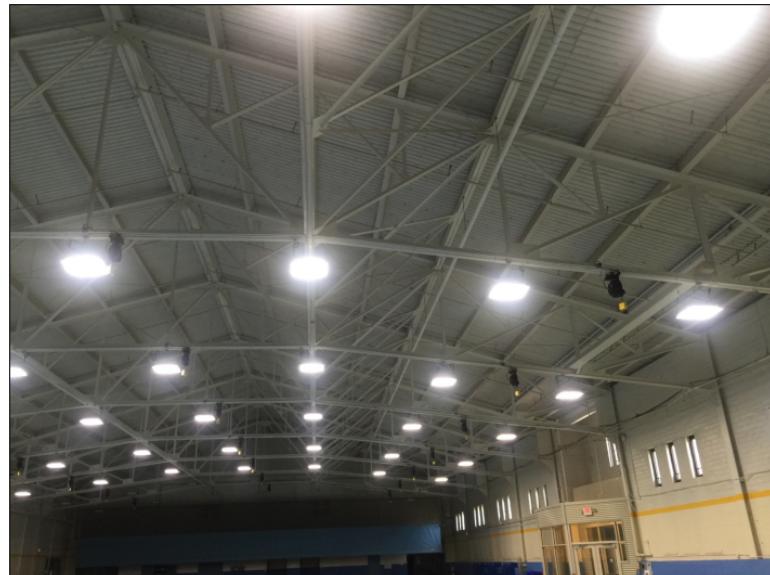
- ❖ Instant on when the switch is flipped
- ❖ Excellent light quality
- ❖ Reduced energy costs for lighting by 75%
- ❖ 100% recyclable and reduces wastes
- ❖ Up to 20 years of life
- ❖ Reduce maintenance costs
- ❖ Safer than mercury-filled bulbs!



DMAVA electrician, Matthew Scudder, replaces an exterior metal halide light fixture with a new LED. The new LED will use 75% less electricity!

Lighting Program H.E.L.P.'s Atlantic City Readiness Center Cut Costs

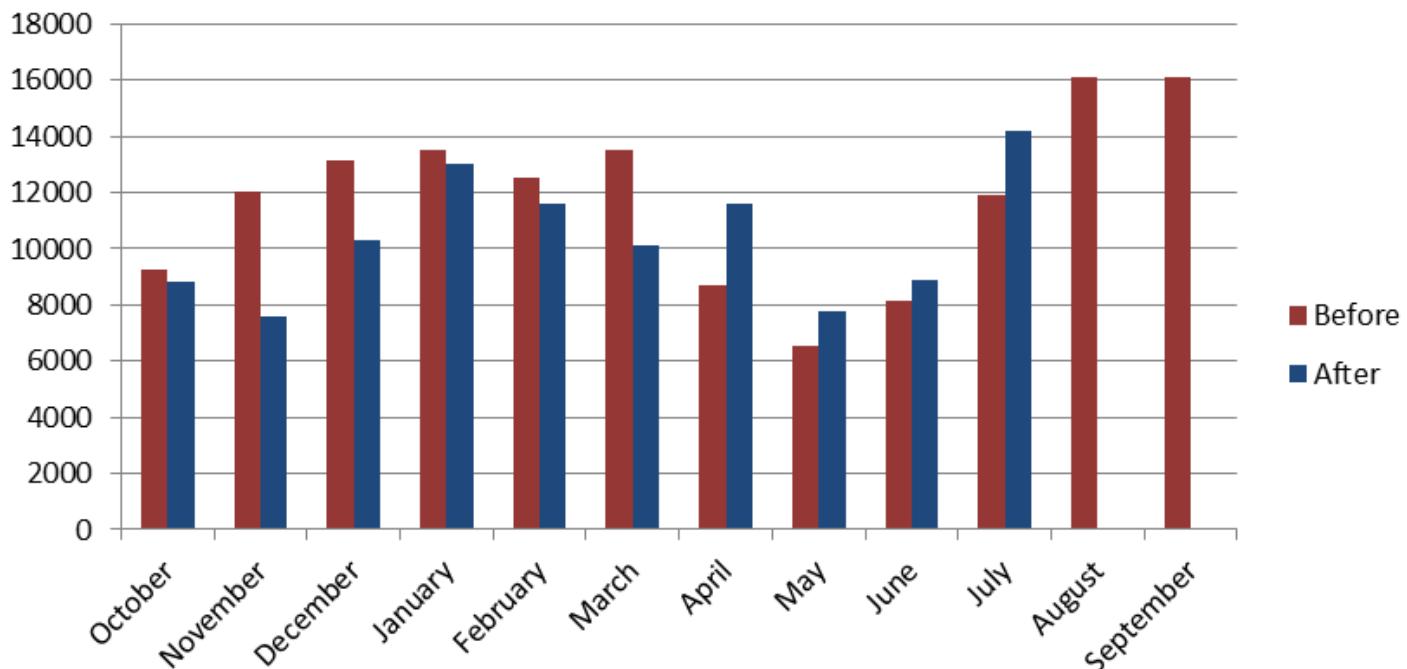
Due to its large impact and quick payback period, lighting upgrades are one of the most popular strategies for reducing a building's energy consumption. This is one of the main reasons why the NJARNG Energy Team has placed such a large focus on implementing the High Efficiency Lighting Program (HELP) to help meet energy reduction targets. In addition to the energy savings, improved lighting has been proven to reduce maintenance costs and improve occupant productivity and health. Multiple studies have shown that better light and more natural light can increase occupant productivity from 0.7 to 23 percent! High efficiency lights, such as LEDs, also last much longer than conventional models, which means that it requires fewer maintenance hours to replace lamps that burn out.



The Atlantic City Readiness Center was one of the first NJARNG facilities to complete a lighting retrofit under the HELP initiative. The existing lighting consisted of fluorescent light tubes, HID high bay fixtures, and incandescent lights. The project kicked off July 2014 and took approximately 3 months to complete. At completion, 254 light fixtures were replaced with brand new LED fixtures. The total cost of the project came in at just under \$99,000 including a \$15,400 energy efficiency rebate from the NJ Clean Energy Program. It is estimated that the Atlantic City Readiness Center will see an energy cost reduction of \$8,500 per year due to the new lights. In addition, another \$3,500 will be saved per year in maintenance costs associated with buying and replacing new lamps as the old ones burn out.

The figure below highlights the actual electricity bills before and after the lighting retrofit was completed.

Atlantic City Readiness Center Electricity Usage





LEED stands for Leadership in Energy and Environmental Design and is a program used to certify that building projects are efficient and green. To receive a LEED certification, a project must receive enough points based on LEED's rating systems and satisfy specific prerequisites. There are different levels of certification that can be achieved based on the number of points earned.

Did you know...

...that in accordance with the G.I. Bill, veterans will be covered if they want to take the LEED Green Associate and LEED AP credential exams? The U.S. Department of Veteran Affairs (VA) reimburses 100% of both tests, whether you passed them or not. Also, if you have taken the test after December 3, 2008, you can still be reimbursed. By receiving the LEED Green Associate credential, it will show that you are up-to-date with understanding the most current green building principles and practices. The LEED AP credentials on the other hand, will show that you will have advanced knowledge in green building and have expertise in one of LEED's rating system. Both of these credentials will help you push ahead when trying to secure a job in the building design, construction, and operations field.

Federal Building Requirements

According to the U.S. General Services Announcement (GSA) all federally owned buildings required to achieve a minimum of a LEED Silver certification. To receive a Silver certification, a score of 50 points is required.

To certify a project, you must register your project with the U.S. Green Building Council (USGBC) online through their website: <https://www.usgbc.org/leedonline/>



CERTIFIED
40-49 points



SILVER
50-59 points



GOLD
60-79 points



PLATINUM
80+ points

NJ Clean Energy Program



New Jersey's *Clean Energy Program* (NJCEP) was created by the Board of Public Utilities (BPU) and offers energy efficiency incentives, programs, and services statewide. The goal of the program is to help residents, businesses, and local governments reduce energy consumption and costs while protecting the environment.

Residential Programs

- **Home Performance with ENERGY STAR**
 - *Home Performance with ENERGY STAR* offers "whole house" solutions to reduce both your energy costs and carbon footprint. Installing energy efficient upgrades in your home can save you up to 30% on energy costs and increase the comfort, safety, and durability of your home. New Jersey homeowners now have until **June 30, 2016** to receive **up to \$4,000** in financial incentives. You may also qualify for **0% interest financing** to help pay for the energy-efficient upgrades!
- **Refrigerator/Freezer Recycling Program**
 - You can responsibly recycle your refrigerator and/or freezer and receive a \$50 incentive. You'll be glad to know that approximately 95% of each appliance is recycled! You can also receive an additional \$50 rebate when purchasing a new qualified ENERGY STAR certified refrigerator.
- **Energy Efficient Products**
 - New Jersey's Clean Energy Program actively works with manufacturers and retailers to increase the availability of Energy Efficient products in the Garden State to help you save money, reduce energy use and protect the environment. You can receive up to \$500 in rebates if you participate in all of our energy efficient product rebate programs including clothes washers, clothes dryers, appliances, and lighting!
- **COOLAdvantage and WARMAdvantage**
 - The *COOLAdvantage Program* provides rebates for energy efficient central air conditioners or heat pumps.
 - The *WARMAdvantage Program* provides rebates for high efficiency home heating systems and/or water heaters.
- **Lighting Store**
 - New Jersey's *Clean Energy Program* offers information and resources to help you make decisions when purchasing lights for your home such as CFLs, LEDs, and energy efficient lighting fixtures.
- **Comfort Partners**
 - The *New Jersey Comfort Partners Program* is a free energy saving and energy education program for qualified low-income customers.

Commercial Programs

- ❖ **Direct Install**
 - Direct install makes it easy and affordable to upgrade lighting, HVAC, and outdated operational equipment with energy efficiency alternatives. The program pays up to 70% of retrofit costs, helping reduce the payback on the project.
- ❖ **Smart Start**
 - *New Jersey SmartStart Buildings* helps achieve energy savings whether you are starting a project from the ground up, renovating existing space, or upgrading equipment through rebates for energy efficient equipment.
- ★ *DMAVA has received over \$260,000 in incentives for energy efficient projects through the Direct Install and Smart Start programs...*

National Energy Awareness Month

The Obama Administration has organized clean energy events and activities for this upcoming National Energy Awareness Month in October. *National Energy Awareness Month* was created to show how essential central energy is to our nation's prosperity, security, and environmental well-being. Senior administration officials of the federal government will also be explaining the decisions our country is making for a sustainable future, create new clean energy jobs, and lay the foundation for our long-term economic security.

ENERGY STAR

ENERGY STAR provides many products that can save energy without missing any features or functionality. Adding or replacing products in your home with *ENERGY STAR* ones can improve your home's efficiency and comfort. Reducing energy consumption helps the environment and can cut energy bill costs. Overall, *ENERGY STAR* products help improve financial performance and reduce carbon emissions. *ENERGY STAR* products include...

- appliances
- heating & cooling systems
- office equipment
- electronics
- lighting & fans
- water heaters
- building products
 - windows, doors, insulation, etc.

For more information, please visit:
<http://www.energystar.gov>

WBDG

The goal of the *Whole Building Design Guide* is to create a high-performance building by applying an integrated design and team approach to a project during planning and programming. *For additional information, please visit:* <http://www.wbdg.org>



Look for the
**ENERGY
 STAR**
 label!



Look for the
WaterSense
 label!

Energy Conservation Tip

Many homes only need water heater temperatures to be set at 120 degrees for proper operation. If your water heater is set to 140 degrees, be sure to turn it down to save \$36 to \$60 per year in water heating costs and reduce the chance of scalding.

WaterSense

WaterSense is an Environmental Protection Agency (EPA) program created to promote water efficiency in the United States. Even though more than half of the Earth's surface is covered by water, less than 1% is available for human use. *WaterSense* has developed products and tips that help you save water, energy, and money. Since the program started in 2006, over 1.1 trillion gallons of water and \$21.7 billion in energy and water bills has been saved. You can make a difference and help the environment by choosing *WaterSense* labeled products and performing easy tasks.

WaterSense products include...

- sinks
- toilets
- showerheads
- irrigation systems

For more information, please visit:
http://www.epa.gov/watersense/about_us/index.html

NJARNG Energy Team

Want to know more?

- ❖ Contact the Energy Team!



Christopher Moore
DMAVA Energy Manager

Chris received his Bachelor's Degree in Civil Engineering from Rowan University and his Master's Degree in Sustainable Design from the Boston Architectural College. He has over 5 years of energy management and sustainability consulting experience with non-profit, private, and government organizations. Chris enjoys biking, drawing, and recently started a flag football team. He lives with his wife and 17 month old daughter.

Please contact Chris if you would like to learn more about the *Clean Cut Campaign* at:
christopher.moore@dmava.nj.gov

Samantha Valentine
NJARNG Energy Intern Manager

Sam received her Bachelor's Degree ('12) and Master's Degree ('14) in Civil Engineering from Rowan University. Her academic interests include sustainable design, low impact development, and climate science.

Sam enjoys cooking, boating, and adventuring in the great outdoors.

If you would like to learn more about how Rowan University is helping NJARNG's sustainability efforts or to make suggestions for future issues of *Clean Cut Quarterly*, please contact Sam at:
valent80@rowan.edu

