# 4. Sustainability

## 4.1 Current Status

The Horn Point Laboratory continues to implement practices that enhance the environmental sustainability of its operations. HPL is seriously committed to the reduction of greenhouse emissions and its overall climate footprint. The HPL site on the Choptank River and with its large amount of acreage, wetlands and different ecosystems is a truly unique environment. As the largest research laboratory and as the home of Center Administration it has a unique opportunity to play an important role in educational outreach and expanding the public's understanding of sustainable practices through a hands on approach. HPL has been an important part of the overall UMCES sustainability efforts and a significant contributor to the Climate Action Plan's greenhouse gas reduction efforts.

The following are current initiatives and HPL's future sustainability goals and actions in relation to Capital Project and Facility Renewal Project planning.

## 4.2 Sustainable Approach

With continued monitoring of emissions, HPL's goal is to keep emissions on a downward slope as reflected in FY10. The most important step toward reducing the HPL climate footprint must focus on the use and consumption of energy within the buildings. This will require continued close monitoring and better maintenance of equipment to gain as much energy efficiency as possible from existing equipment, replacement of non-energy efficient equipment, and continuation of recycling and conservation efforts already in place.

HPL will need to set aggressive energy efficiency targets for any new construction, equipment or systems being implemented in the next 10 years. In addition to setting high goals for LEED certification levels, (Silver certification should be a minimum, with Gold being the target), separate targets should be set for energy efficiency, (minimum of 35% savings over a similar code compliant building). HPL has a number of larger aging facilities (Morris Marine and Coastal Estuarine Science Lab) that should benefit from major renovations in the next ten years and yield significant energy savings over current operations.

The dispersed buildings of the HPL campus present unique challenges to achieving greater energy and transportation efficiency. One simple but important goal would be to substantially improve the walking and biking paths on the campus so that once one arrives at the campus, all further movement can be either on two legs or two wheels.

1. New buildings and renovation to consider roof-top garden for better stormwater management

2.Solar hot water technology is a viable opportunity


3. Recycling Programs.

The planning approach for HPL proposes creating a greater density of building in selected areas to take advantage of the proven sustainable benefits of greater density of facilities.

## Focus on Water Conservation and Quality

As an academic institution that focuses on research and teaching related to Environmental Science, all attention related to environmental issues should not be focused upon energy efficiency and carbon reduction only. Issues related to water quality and water security, which are an integral part of the UMCES and HPL research mission, also play an important role which may have little direct affect on carbon emissions and energy use. Water use within the facility and on the site along with associated issues related to storm water runoff should be focused upon with a goal of implementing best practices in these areas. Some specific actions in this area would include:

- Reduce storm water runoff by providing more bioswales and other similar storm water mitigation strategies especially along areas that feed into marshes and wetlands.

- Consider alternate uses for some of the large fish ponds that have been reduced in use or abandoned. Discussions centered around either allowing these to become wetlands or investigating options to grow algae to convert it into a biofuel that could be used on campus. The Wikipedia article is a good primer http://en.wikipedia.org/wiki/Algae_fuel .

- Collect rainwater on site and use it for any local landscape irrigation needs.

- When new parking lots are planned as part of the capital project, consider permeable paving to allow water to be recharged into the ground. Currently parking occurs in unpaved areas and so oil and other fluids from vehicles are not being captured. Specific plants and permeable paving should be implemented to demonstrate best practices for the parking areas on the campus. (geotechnical investigations will be required to make sure that the underlying geology is suitable for ground water recharge).

- Reduce water use in the facility through the use of:

    - Reduced water use devices for the labs.
    - Recapture water from wash down areas for reuse.

1.New low-E windows were installed in the DuPont building

2. Geothermal system at Center Administration

3. Interactive Video Network

### Refuse and Recycling

HPL/CA's recycling and waste minimization program currently includes all mixed office paper, cardboard, paperboard, magazines, toner cartridges, plastics #1 & #2, batteries (alkaline and rechargeable), CPUs, cell phones, monitors, printers, mixed metals and used motor oil. Center Administration paper purchases for all copiers and printers currently are 100% post-consumer recycled. CA is in the process of replacing all paper products used in the break-rooms and kitchens with 100% compostable products such as stalk plates, glasses and cups and utensils.

## 4.3 Sustainable Actions

UMCES Horn Point Laboratory has and will continue to implement strategies that reduce and lessen its potential climate footprint. Primary targets will begin with addressing the emissions from the buildings and working outward. Below is a list of current and planned courses of action for reductions. These are defined in greater detail in the Climate Action Plan with strategies and suggested policies to implement them.

### Capital Projects

Coastal Dynamics Laboratory linking AREL and Coastal Science Lab:

- Set higher than conventional LEED certification goals, (LEED Gold minimum).
- Set ambitious energy efficiency targets, (40% savings over a similar energy code compliant building).
- Seek all passive and renewable energy savings through the design and configuration of the building envelope itself.
- Design a building that relies on daylight to save energy.

Since the facility will be a major draw for the rest of the Horn Point campus, the facility should seek to make sustainable systems "transparent" and visible to the day-to-day users of the facility. Use them as an opportunity to teach occupants and users about the energy efficient strategies at work in the facility.

1. Small scale wind turbine