

GREEN TEAMS: UNIVERSITY-NATIONAL PARK ENERGY PARTNERSHIP PROGRAM

West Virginia University & New River Gorge National River

Partnership Successes

- Thorough assessment of energy use at various buildings at New River Gorge National River.
- Energy conservation measure recommendations for each building's HVAC and lighting systems.

OVERVIEW. West Virginia University and New River Gorge National River created a partnership to conduct energy analyses of various administrative and support facilities at the park. The partnership was an effective use of university resources to develop energy conservation measure (ECM) recommendations for the park facilities. As a result of the partnership, New River Gorge National River will use resources more wisely and more in line with the National Park Service's energy conservation mission.

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ENERGY ANALYSIS. A key part of the project team was the West Virginia University student, who conducted energy analyses of 28 different buildings or groups of buildings in the area of the New River Gorge National River, including: the headquarters building, various ranger stations, visitor centers, maintenance offices, storage and support buildings, public restrooms, and others. The analyses consisted of data collection for each structure's Heating, Ventilation, and Air Conditioning (HVAC) systems, lighting systems, occupancy rates, costs, and operating hours. The report documented ECM recommendations primarily for HVAC and lighting systems. Recommendations for solar power options were also offered.

RECOMMENDATIONS. The report listed specifications, calculations, and ECM recommendations for each building. Suggestions ranged from the simple (switching from incandescent to compact fluorescent lamps) to the complex (bumping a cooling layout from two large systems to three smaller forced air heat pumps with economizers).

Canyon Rim Visitor's Center. The energy analysis of the Visitor's Center provided many ECM recommendations. One of these was a lighting system retrofit that would save an estimated \$1,600 per year. The project team also recommended that fans be installed from the high ceilings to lower the cooling load.

Dun Glen Maintenance Building, Ranger Station, and Dorm. Recommendations for the maintenance building included

sealing and/or insulating overhead doors and reducing or eliminating the use of certain lights. Compact fluorescent lamps, double-paned windows, and a propane heat pump were suggested for the dorm. The team also recommended that a propane heat pump was recommended for the ranger station.

Thurmond Depot. For this large building, the project team recommended draining the water system for winter when the building is not in use. The team also recommended that an unutilized programmable thermostat be put into use, and that a re-lamping of the facility was in order.

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SUMMARY. The partnership provided a comprehensive energy analysis for New River Gorge National River, and resulted in the generation of significant data and ECM recommendations for an entire host of buildings. As important, the partnership was a valuable learning experience for a West Virginia University student. The partnership can serve as a model for similar partnerships between other National Park Service units and universities across the nation.

PERSONNEL. Personnel involved in the partnership included Dr. Ralph Plummer and Dr. B. Gopalakrishnan, Project Directors; Chuck Ross, Energy Coordinator, New River Gorge National River; and Michelle B. Monday (student), Project Investigator.