Wake County Sustainability Task Force

Goals:

1. Wake County achieves and maintains EPA's air quality attainment by reducing ozone and particulate matter.
2. Minimize adverse impacts to water, land, and air from the production and consumption of fuel and energy. .
3. Clean technology businesses are a thriving industry cluster in Wake County's economic development strategy.
4. Citizens are independent of foreign fuel sources.
5. Wake County government reduces energy costs from buildings and fleet operations.

DRAFT Energy Strategies

A. Evaluate existing policies and regulations to identify limitations to, and opportunities for, energy efficient building design and both indoor and outdoor lighting design.

B. Educate the citizen, commercial, and industrial sectors about energy conservation and energy efficiency.

C. Partner with others to participate in energy demonstration and research projects.

D. Audit Wake County facilities, including schools.

    1. Implement group relamping process. (based on results of a benefit cost analysis or comparable research findings)

    2. Implement motor management policy. (based on results of a benefit cost analysis or comparable research findings)

    3. Implement and support retrofits. (based on results of a benefit cost analysis or comparable research findings)

    4. Evaluate Energy Performance contracting for installing energy conservation measures.

E. Provide incentives to promote the use of energy efficient appliances and the construction and operation of energy efficient buildings.

F. Buildings built or supported by Wake County should require enhanced commissioning, which is 3rd party verification.

G. Support and encourage energy audits, retrofits, and performance contracting for private & public buildings

H. Support mass transit and multimodal transportation planning & implementation that helps meet EPAs air quality attainment standard.

I. Support Waste Management Recommendation 2.5.4 Strategy No. 3– Maximize the Financial and Environmental Benefits of Other Landfill Resources (parts A, B,& C) see end of this document for text

J. Support development of Smart Grid infrastructure and appropriate information security standards.

K. Develop and support charging stations for electric cars

L. Support development and use of current and future clean and/or renewable energies (e.g. - solar, wind, geo thermal, methane)

M. Support economic development strategies to attract high tech companies and energy-related technology companies to Wake County.

Waste Recommendation

2.5.4 Strategy No. 3 – Maximize the Financial and Environmental Benefits of Other Landfill Resources

The South Wake Landfill (active landfill) occupies a parcel of land in southwest Wake County that totals approximately 760 acres. The South Wake Landfill will occupy approximately 189 acres when it reaches capacity in 2033.

The North Wake Landfill (closed landfill) occupies a parcel of land in northwest Wake County that totals approximately 260 acres. The North Wake Landfill closed in 2008, and in July 2010 the new North Wake Landfill District Park was opened at the landfill site.

Recommendations

The Sustainability Task Force recommends that the County investigate opportunities to maximize the financial and environmental benefits of the County's available landfill resources through either private or public investment.

A. Generate Power from Methane Gas Production. A by-product of waste decomposition at a landfill is methane gas. It is possible to collect the methane gas at a landfill and use the gas to generate electricity through combustion in an engine-generator. The North Wake Landfill and the South Wake Landfill currently produce sufficient volumes of methane gas to produce electricity which can be sold to electric utilities as renewable energy. In addition, environmental attributes associated with renewable energy generation and greenhouse gas destruction may also be marketed and sold under certain circumstances. Wake County staff will work with private sector companies to develop methane gas resources for maximum financial and environmental benefit.

B. Evaluate Other Renewable Energy Options. The South Wake Landfill and the North Wake Landfill have sufficient land resources available to investigate the feasibility of renewable energy using solar and wind resources. Wake County staff will work with private sector companies and university resources to evaluate the technical, financial, and regulatory feasibility of developing solar power and wind power resources at the County's landfill properties.

Page 17

C. Evaluate Opportunities to Attract Private Businesses and Industries to the South Wake Landfill. Incentives could include rezoning adjacent properties from residential use to commercial or industrial use. Companies can benefit from the proximity to the landfill's energy resources and material recovery resources. Wake County staff will work with private sector companies and economic development professionals to identify the features and benefits of the County's landfill resources that can be promoted and marketed to attract private sector investment to locate on, or in close proximity to, the South Wake Landfill.

No need to support D in the Energy Recs

D. Evaluate Opportunities to Develop Park and Recreation Facilities on Landfill Properties. The County's landfill properties provide unique opportunities to preserve open space and develop active recreation facilities. Building on the success of the North Wake Landfill District Park, Wake County staff will work with community groups (public, private, and notfor-profit) to identify opportunities to integrate park and recreation facilities into the County's landfill properties.

Energy Strategies Glossary

Audit (Energy) The process of determining energy consumption, by various techniques, of a building or facility.

Energy Efficiency Increases in energy efficiency take place when either energy inputs are reduced for a given level of service or there are increased or enhanced services for a given amount of energy inputs. Also, energy efficiency is the relative thrift or extravagance with which energy inputs are used to provide goods or services.

Energy Performance Contracting (also called Energy Saving Performance Contracting) A turnkey service, sometimes compared to design/build construction contracting which provides customers with a comprehensive set of energy efficiency, renewable energy and distributed generation measures and often is accompanied with guarantees that the savings produced by a project will be sufficient to finance the full cost of the project.

Enhanced Commissioning A set of best practices that go beyond fundamental commissioning to ensure that building systems perform as intended by the owner. These practices include designating a commissioning authority prior to the construction documents phase, conducting commissioning design reviews, reviewing contractor submittals, developing a systems manual, verifying operator training, and performing a postoccupancy operations review. (US Dept. of Defense requires this in all new buildings)

Motor System Management A set of ongoing policies and practices that help facilities effectively manage their motor populations based on life-cycle costing and proactive planning. Sound motor management helps reduce downtime, decrease energy costs and improve productivity.

Smart Grid a bi-directional supply chain to connect power generation to transmission, distribution, and consumers by using information technology. U.S. Dept. of Energy lists the following (desirable?) characteristics of a smart grid:

- Enables informed participation by the customer
- Accommodates all generation and storage options
- Enables new products, services, and markets
- Provides power quality for the digital economy
- Optimizes assets and operates efficiently
- Anticipates and responds to system disturbances
- Operates resiliently against attack and natural disaster

References for glossary

Harvard Business Review
http://blogs.hbr.org/cs/2010/09/demystifying_smart_grid_security.html
Motors Matter: www.motorsmatter.org
U.S. Army Corps of Engineers:
http://mrsi.usace.army.mil/cos/TechNotes/10%20Enhanced%20Cx%2010-31-10.pdf
U.S. Dept. of Energy Smart Grid introduction:
www.oe.energy.gov/DocumentsandMedia/DOE_SG_Book_Single_Pages(1).pdf
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