Sustainable Sandhills -- Energy Breakout Group
Tuesday, May 06, 2003

STEP 6 - WHO WE ARE…

Darrell – Fayetteville Area Chamber of Commerce/Community Development/Affairs
- Good liaison to community
- Knows about fuel cells

M. Steve – DENR/Land Resources
- Open mind
- Objective
- Analytical
- Connection to hydroelectric

Walter – Lumber River Electric Membership Corp.
- Knowledgeable of electricity industry
- VP of customer services

G. Steven – Kelly Springfield
- Responsible for Energy Use Act
- Has evaluated alternative energy sources

Wayne – USACOE
- Has been talking about what is a sustainable installation
- Degree in Electrical Engineering
- Unique perspective on sustainability

Thanena – Director of Cumberland County Community Development
- Perspective of real world development issues

Barry – Fort Bragg – Sustainability Trainer
- Has been through this process before

Jim – Executive Director, Mid-Carolina Council of Governments
- Knowledge of electric district system management
- Worked as Town Manager – several sites

Charles – Brown and Jones, Architects
- Background is solar energy
- Interest in design aspect
- Efficient/sustainable building design

Cristina – CTC – Concurrent Technology Corporation
- Consultants to Army/Navy
- Environmental Technology Program Engineer
- Team builder for Environmental Education training
- Have fuel testing and evaluation center at facility

Kristina – Fort Bragg – P2
- Institutional experience

- Detail oriented
- Doing M.S. in Energy Resources and Policy

Dave – Army Environmental Policy Institute

- Facilitator
- Systems thinker

Gary – NCDENR/Div. Of Pollution Prevention

- Pollution prevention
- Conservation

Joan – later arrival

BACKGROUND FRAMING

Where does energy come from?

Atomic – fission/fusion
Oil
Sun
Water power
Wind
Natural gas
Chemical reaction (ex. Hydrogen)
Heat/cold exchange
Trees
Bio-mass
Incineration (waste energy)
Coal
Steam
Geo-thermal
phase change
sound
MHD (plasma energy)
Tidal flows
Kinetic energy
Regenerative energy

What do we use energy for?

Heating/cooling
Communication
Sustaining life
Recreation
Transportation
Manufacturing/production

Waste reduction (material)
Lighting
Cooking
Medical
Water purification
Refrigeration
Water distribution
Sewer distribution
Heat/cool environment
Entertainment
Electro-magnetic radiation

How does energy get to us?

Electronic transmission lines
Pipelines
Radiation waves
Truck batteries
Electronic distribution lines
Rail
Conversion
Food
Airplanes
Ships
Natural earth movement
Gravity

What are the impacts on the environment?

Air pollution
Energy loss/inefficiency
Natural resource depletion
Deforestation
Hazardous waste
Water quality degradation (mercury)
Visual pollution
Waste from production of energy related technology
Noise pollution
EMF – electro-magnetic frequency
Loss of energy to move resources
Habitat fragmentation (loss)
Toxicity

STEP 8 - DESIRED END STATES

RENEWABLE
No pollution
Zero pollution
Abundant, renewable, non-polluting energy
100% green energy
No use of fossil fuels
100% rapidly renewable energy
No petroleum, oil, or lubricant (POL) use
Use of renewable resources for all transportation
Renewable
Renewable energy sources
Recycle and replace all natural resources
Higher efficiency
Minimal use to meet needs; no waste.

RELIABLE

DISTRIBUTED
My car powers my house (fuel cell)
Energy from micro sources
Distribution efficiency
Energy independent
Self-sustaining region (no external energy requirements)
    Fuel independence
    Job opportunity
    Less transmission loss
    Control your footprint! (we choose our fuel source – we choose our destiny)

QUALITY OF LIFE/PROSPERITY
No need for household water purifiers (clean water)
Better health due to improved air quality
Reduction in asthma from reduction in NO
Nature parks, bike trails, greenspace
Cultural equity

LIFE CYCLE COST EFFECTIVE/ABUNDANCE
Cost reflects production and impact and use
Energy cost reflects true costs
Cost effective

NON-INVASIVE
Energy distribution not visible

Alternative Desired End State Statements

A sustainable Sandhills is capable of being independent, using reliable renewable resources. (4)

In a sustainable Sandhills an abundant supply of clean, renewable energy is available to homes, businesses and institutions through unobtrusive means of distribution, contributing to a high degree of prosperity and quality of life. (4)

The sustainable Sandhills has achieved a mutually beneficial relationship between the environment and the prosperity of man through the use of reliable, renewable, non-invasive energy sources that are optimally distributed and life-cycle cost effective. (4)

Energy is derived from renewable resources in a non-intrusive manner that supports a desired quality of life. (3)

In a sustainable Sandhills energy makes the "wheels go 'round" and keeps the environment clean. (3)

Energy in a sustainable Sandhills contributes to a high quality of life by having minimal impact on the environment. (2)

In a sustainable Sandhills, energy is totally self-sustaining. (1)

Energy available to all, in all needed forms, in balanced response to every individual need, without any negative impacts.

In a sustainable Sandhills energy production and use will contribute to a high quality of life for every citizen.

First attempt at desired end state statement

In a sustainable Sandhills, energy contributes to a high quality of life while being reliable, renewable, non-invasive, and distributed in a life-cycle, cost effective manner.

******FINAL DESIRED END STATE STATEMENT******

The sustainable Sandhills offers an excellent quality of life through reliable, affordable, and renewable energy.

STEP 9 - CURRENT REALITIES

The current energy market is: monopolistic, multi-layered, regulated and capital intensive

- Energy regulated by many different laws/regs with incompatible interests
- Change is costly
- Too much acreage invested in energy generation/supply
- Energy marketing and production not coordinated
- Energy cost structure does not support efficient use
- Energy markets controlled by a few powerful producers/suppliers

There is a lack of incentives/rewards to reduce energy consumption

- Increase dependence on energy in day to day activities
- Lack of awareness for the need to change (causing people to resist a new way of thinking)
- There is a focus on reduction of consumption
- Too many "idling" appliances
- No incentive to reduce use
- No crisis-no incentive to change because the sky is not falling yet
- Lack of (incentives to) conservation
- No "pain" for energy waste

Current alternative energy sources are cost prohibitive or not readily available

- Alternate fuel sources are costly
- Lack of commercial off the shelf alternative technologies
- Lack of infrastructure
- There is a…reliance upon inefficient technology
- Ineffective use of alternative energy sources (i.e. solar)
- Lacking the flexibility to select alternative energy sources

Major energy sources pollute the environment

- Harmful methods of waste disposal (i.e. burning, discharge into water supply)

Dependence on fossil fuels

- Lacking reliability of resources e.g. ice storms vs. electricity
- Dependence upon non-reliable sources
- Depletion/stripping of resources

Miscellaneous

- Basic energy needs priced beyond some % of population means
- Move from energy dependence to independence
- Approximately 80% of power is fossil fuels
- Use large quantities of fossil fuels that pollute

STEP 1O - DEFINING CATEGORIES

Strategies by Category

Community and partnership strategy
- Bring together major energy producers to address S.S. energy needs

Investment strategy
- Generate all power from renewable resources
- Building and facilities have dedicated green power generation on site
- Develop self-contained energy sources for industry

Regional strategy
- Change regulatory framework to allow Sandhills to have renewable, reliably efficient energy sources

Conservation strategy
- Increased awareness/education on benefits of energy conservation (Action: Develop programs and curriculums to do outreach.)
- Implement conservation programs to minimize per capita increases in total energy consumption

Efficiency strategy
- Require all new construction to be built to LEED standards, maximizing energy efficient technologies

Pricing strategy
- Subsidize the use of renewable energy by taxing non-renewable energy
- Adopt tax or other incentives to encourage conservation and development/use viable energy alternatives
- Price energy to reduce consumption

Three Strategies

1. Designate capital resources to develop regionally based alternative energy sources.

2. Develop conservation incentives to maximize resource efficiency.

3. Modify distribution systems and infrastructure to support emerging technologies.

Strategies and Objectives

Strategy #1: **Develop regionally based alternative energy sources.**

Objective A: By 2004, county leaders establish a regional alternative energy working group to develop and facilitate the implementation of a plan for green power.
Objective B: By 2008, the "Sandhills Partnership" will secure funding to support pilot programs using alternative energy sources in residential, commercial and industrial applications.

Strategy #2: **Develop conservation incentives to maximize resource efficiency.**

Objective A: By 2008, the North Carolina Utilities Commission will adopt market-based incentives to foster energy conservation and renewable energy technologies.
Objective B: By 2008, Sandhills governments will provide economic incentives to all developers who build to LEED (or similar) standards.

Strategy #3: **Modify distribution systems and infrastructure to support emerging technologies.**

Objective A: By 2008, a map of all existing energy distribution and infrastructure in the Sandhills will be developed.
Objective B: By 2008, all power distributors will utilize net metering to promote the use of alternative energy systems.

Group Team Members

Military – Bragg/Pope
County/City Government representatives
EMC's (4)
Progress Energy
Public Works Commission

NC Sustainable Energy Association
State Energy Office
Piedmont Natural Gas
NC/Local Home Builders Association
Local Developers
Real Estate
Kelly Springfield
Cargill
Cooperative Extension Service
Cutler Hammer
NC Utilities Commission
Chambers of Commerce
Economic Development Commissions
League of Women Voters
Sandhills Family Heritage Association
Other interested parties

Team Leader from ENERGY SIFA to Steering Committee

Walter White – Lumber River EMC