When All Things Can Be Made New:
Greensburg, Kansas

May 4, 2007  9:40 PM
Lynn Billman – August 3, 2008

(This presentation reflects the opinions of the author only, and does not represent the views of the Department of Energy or the National Renewable Energy Laboratory)
When All Things Can Be Made New:
Greensburg, Kansas

May 5, 2007
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Before and After

Greensburg High School
Greensburg, Kansas

- Typical midwestern farming community
- Settled 1888, declining since 1960. Population 1,400.
- Low income population: $18,054 average per capita
- About half the community committed to returning
Becoming New: The First Year

- My project: Leading a team to assist Greensburg in all energy aspects of its rebuilding after the tornado.
- People of Greensburg: Amazing cultural transformation, embracing of a new self-image.
- Christ sightings: Amazing grace.

August 13, 2007
Vision: A Sustainable Community from the Ground Up
Work Scope

- High-Performance Homes
- High-Performance Public and Commercial Buildings
- Renewable Energy – Community Scale
- Renewable Energy – Distributed Scale
- Alternative Transportation
- Onsite Coordination / Project Mgmt
LOTS of people had the same vision:

City of Greensburg, Kansas
Accomplishments – Residential Buildings

- Counseled many homeowners
- Formal and informal training for 10-15 local builders
- 154 new house permits; 48 measured for energy efficiency: average 44% less energy than code
- 23 renovated houses average 25% less energy than code

- Prairie Point – 32 units, ½ low-income; 40% energy savings
- 50 homes by Mennonite Housing; all ~50% energy savings
- Builder from Wichita building 5-10 spec houses, 50% savings
Accomplishments – Public/Commercial Buildings

• City resolution: All city buildings will be LEED Platinum
• Others following suit: 31 commercial, public, non-profit, and multi-family buildings publicly reaching for at least LEED certification levels
• Important national impact from John Deere, Hospital
Accomplishments – Renewable Energy Generation

- Pursuing a 10-MW wind project: grid connected, biodiesel generator backup, $22 million investment
- Extensive studies; working on power purchase agreement; many players; turbulent political environment

First turbine (4.2 kw) in Greensburg, at John Deere dealership model for community wind

Lamar, Colorado community-scale example
Accomplishments: Other

- Distributed generation:
  - Developed net billing policy, interconnection agreement, wind and solar ordinances
  - Did studies in solar, district heating and cooling, biomass; dealt with questions on ground source heat pumps, solar hot water

- Alternative Transportation
  - Study and recommendations completed

- Formalized 24 energy recommendations in summary report; 500-page appendix

- Starting Year Two activities
Cultural Change: Before

- May 2007: Only a handful of residents believed in the vision of a new kind of community
  - Not sure about this “green” idea
  - Not a big deal anyway
  - Will slow down rebuilding

- Why?
  - Concern with immediate survival, life decisions
  - Tradition
  - Older population
  - Isolation
  - Self-sufficiency
  - Individual rights
Cultural Change: After

May 2008: Most residents embrace the “Green Initiative”
- Reason for young people to stay in town
- Foundation of future economic development
- New town “brand”
- Hope

What happened?
- Key early believers with credibility: the new Mayor, a city councilman, a well-positioned advocate (lived 35 mi away, so less immersed in the immediate tornado drama)
- Influence of credible outsiders (experienced master planning firm brought in by State; DOE/NREL)
- Discovery / Planet Green
  - Skeptical of the Hollywood hype, but….
  - Promise of donations to the City
  - GreenBuild conference Nov 2007 in Chicago
  - Publicity; national/international response
The Future of Greensburg

Needed a job – now trained as an energy rater

New High School Green Club

Three generations – staying put

Learning about wind energy
The Discovery Experience
Amazing Grace

- Incredibly strong faith community
- Nine churches for 1400 people
- Started all public meetings with prayer
- Embraced the “outsiders”
- Discovery crews learned a lot!
- Community vision: Greensburg residents see themselves as:

  Blessed with a unique opportunity to create a strong community devoted to family, fostering business, working together for future generations.
Signs of Grace
Signs of Grace

Struck down, but not destroyed... Rising from the rubble with Christ
For More Info

  http://www.nrel.gov/docs/temp/43014_vol1_draft.pdf
- Volume II: Supporting Studies, Presentations, and Ordinances (Draft, May 2008)
- Greensburg Sustainable Comprehensive Plan (BNIM Architects, 5/19/08)
- Planet Green 13-part series on Greensburg, beginning Sunday June 15 9:00 ET, continuing weekly
  http://planetgreen.discovery.com/tv/
  (has a channel finder link)
- Lynn Billman, Project Lead
  Lynn_billman@nrel.gov  303-275-3048