

2007 Innovations Awards Program APPLICATION

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ID # (assigned by CSG): 07-MW-14INBIOTOWN

Please provide the following information, adding space as necessary:

State: **Indiana**

Assign Program Category (applicant): **Energy**

1. Program Name
BioTown, USA
2. Administering Agency
Indiana Office of Energy & Defense Development (OED), Indiana State Department of Agriculture (ISDA)
3. Contact Person (Name and Title)
Eric Burch
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8. Web site Address
www.biotownusa.com,
9. Please provide a two-sentence description of the program.
BioTown, USA is a model project where one town's energy needs will be met through homegrown renewable sources. This project leads the nation in finding new ways to take previously considered "waste" products and use them in an environmentally-friendly way, while developing independence from foreign sources of energy.
10. How long has this program been operational (month and year)? Note: the program must be between 9 months and 5 years old on April 2, 2007, to be considered.
September 2005
11. Why was the program created? What problem[s] or issue[s] was it designed to address?
The program was created to provide a model environment for energy change. Through BioTown, USA, we learn that it is possible for Hoosiers to use homegrown energy and previous "waste" products to offset our dependence on foreign energy sources. While

it's not yet feasible for all communities to use waste and renewable sources to satisfy all their energy needs, the BioTown, USA project confirms that alternative energy theory can be put into practice.

12. Describe the specific activities and operations of the program in chronological order.

May 17-20, 2005—Indiana State Department of Agriculture rolls out a strategic plan, which includes bioenergy. The bioenergy goal is to maximize Indiana's competitive advantage in agriculturally-derived energy and lead the development of new technologies and sources of that energy. Part of the initiative is to develop a pilot community where all of the energy needs are met through biorenewable resources.

September 13, 2005—Governor Mitch Daniels and Agriculture Director Andy Miller unveil the first BioTown, USA in Reynolds, Ind.

November 18, 2005—Lt. Governor Becky Skillman declares Extreme Energy Makeover Day, where 20 Reynolds residents receive a free GM flex-fuel vehicle for two years.

May 16, 2006—Plans for the BioTown Technology Suite are announced. This three tiered approach is the mechanism for turning waste products into usable energy.

August 25, 2006—Test burns using corn stover and paper fluff in a gasifier are conducted to verify energy potential and emissions data.

September 25, 2006—A Chilean delegation of farmers, academia and journalists visits BioTown, USA. This is just a small sample of the worldwide interest in this program.

September 29, 2006—Lt. Governor Becky Skillman announces the opening of the BioIsland at the local BP station in Reynolds. Biodiesel and E85 are for sale.

October 10, 2006—The BioTown Development Authority is formed.

October 23, 2006—Senator Lugar visits BioTown, USA and shows his support.

March 21, 2007—Ground is broken for the Phase II Technology Suite. Governor Mitch Daniels, USDA Secretary Johanns, and other state and local officials take part in the ceremony.

13. Why is the program a new and creative approach or method?

Never before has a community attempted to supply all its energy needs from renewable sources. By 2008, the BioTown Technology Suite will not only provide all the electricity for the town of Reynolds, but will produce excess electricity that will be sold back to the local electric utility. At that point, BioTown becomes the first community to go “off the grid” by replacing traditional electricity and natural gas supplies with energy generated from waste products.

14. What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)

Town of Reynolds (Grant for BioTown startup) —\$200,600

BioMass Rules (Creation of Biomass Source Book) —\$36,000

Good Oil Company (Grant for installation of BioIsland Ethanol/Biodiesel pumps) —\$50,000

BDMD Architects (Technology Suite design) —\$16,000

BioTown Exhibit (ongoing exhibit about BioTown at Indiana State Museum) —\$31,047
Rose Energy (Low interest loan for corn stover purchase) —\$86,215

15. What are the program's annual operational costs?

No additional public funds are expected to be used. Rose Energy, which owns the Technology Suite will recoup its investment through utility rates.

16. How is the program funded?

Public funds for the BioTown, USA project came through the State Energy Program (SEP) sponsored by the U.S. Department of Energy.

There have been private contributions as well, including General Motors, which made flex-fuel vehicles available to town residents. The companies involved in the Technology Suite construction are investing millions of dollars in this program.

17. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.

No.

18. What equipment, technology and software are used to operate and administer this program?

The BioTown Technology Suite consists of three complementary systems: an anaerobic digester, a gasifier and fast pyrolysis. A nearly self-sufficient system, the Technology Suite will take animal waste, municipal waste, corn stover and other wastes and turn them into electricity, fertilizers, thermal energy and biodiesel.

These three technologies take waste products such as livestock manure and municipal waste and recycle them into usable energy for the town. Housing the three systems together under one roof makes the processes even more efficient, because the "waste" from one process can be used as an input for another.

- **Anaerobic digestion is the breakdown of organic liquid by bacteria waste in the absence of oxygen to form biogas, similar to natural gas.**
- **Gasification is the breakdown of organic wastes in a reduced oxygen environment (allows some burning to provide heat for gasification), which produces syngas and ash.**
- **Fast pyrolysis is the breakdown of organic wastes by heating them in the absence of oxygen (to keep it from burning), which produces bio-oil and char.**

The final phase of the process focuses on producing synthetic natural gas or syngas from agricultural waste and biomass. That syngas will be used to power electrical generating equipment, supplying power to residential and business customers in the town of Reynolds. Excess electricity produced by the system will be sold back to the local electric utility.

19. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.

This program is another example of Governor Daniels' vision for Indiana. It originated as a part of the Bioenergy Strategy within the Indiana State Department of Agriculture's Strategic Plan. ISDA developed the concept in partnership with the Indiana Office of Energy & Defense Development. Brandon Seitz is the current program manager and can be reached through the OED office listed above. His email is bseitz@oed.in.gov

20. Are you aware of similar programs in other states? If YES, which ones and how does this program differ?

To the best of our knowledge, BioTown, USA is the first biorenewable community.

21. Has the program been fully implemented? If NO, what actions remain to be taken?

Ground has been broken on the Technology Suite. This facility must be completed. It is anticipated that the facility will generate electricity by the fall of 2007 and be fully operational in early 2008. There are also plans for a visitor/education center, but it is not yet determined when construction will begin.

22. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.

This program has to be considered a phenomenal success. With Governor Daniel's vision of taking a leadership role in reducing our dependence on foreign energy sources, the BioTown, USA project proves that it can be done. Within a year, all the energy needs of this one Indiana community will be satisfied through the use of technology that turns waste into energy. This program has been featured by regional and national media, including ABC and CBS Television. Regional and national agricultural media have done numerous stories on the project. International media, including the BBC and Australian Television have also taken an interest in this project. That ongoing coverage is tangible proof that this project has caught the attention of a nation and a world looking for alternatives to our current energy use practices. The message of turning challenges into opportunities is being delivered, and heard through BioTown, USA.

23. How has the program grown and/or changed since its inception?

The BioTown, USA project continues to move along on a prescribed timeline. The biggest change occurred in March, when ground was broken for the Technology Suite.

24. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?

The only limitations are logistics, financing and public will. This project took the willingness of an entire rural community to seek an environmentally sound avenue of change. It took the willingness of private energy partners, both in terms of infrastructure and operations to assist in taking this community "off the grid." It took the vision of both local leaders and state officials to keep this project on target and on time.

2007 Innovations Awards Program Program Categories and Subcategories

Use these as guidelines to determine the appropriate Program Category for your state's submission and list that program category on page one of this application. Choose only one.

Infrastructure and Economic Development

- Business/Commerce
- Economic Development
- Transportation

Government Operations

- Administration
- Elections
- Public Information
- Revenue

Health & Human Services

- Aging
- Children & Families
- Health Services
- Housing
- Human Services

Human Resources/Education

- Education
- Labor
- Management
- Personnel
- Training and Development
- Workforce Development

Natural Resources

- Agriculture
- Energy
- Environment
- Environmental Protection
- Natural Resources
- Parks & Recreation
- Water Resources

Public Safety/Corrections

- Corrections
- Courts
- Criminal Justice
- Drugs
- Emergency Management
- Public Safety

Save in .doc or rtf. Return completed application electronically to innovations@csg.org or mail to:

CSG Innovations Awards 2007
The Council of State Governments
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This application is also available at www.csg.org, in the Programs section.

Deadline: April 16, 2007