Draft
Environmental Impact Statement

for the

Proposed Abengoa Biorefinery Project near Hugoton, Stevens County, Kansas

Volume 2 - Appendices

U.S. Department of Energy
Golden Field Office
Office of Energy Efficiency and Renewable Energy

DOE/EIS-0407D

September 2009

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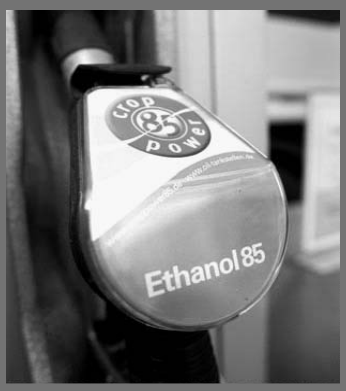

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COVER SHEET

RESPONSIBLE AGENCY: U.S. Department of Energy (DOE)

COOPERATING AGENCY: The U.S. Department of Agriculture-Rural Development is a cooperating agency in the preparation of the Abengoa Biorefinery Project EIS.

TITLE: *Draft Environmental Impact Statement for the Abengoa Biorefinery Project near Hugoton, Stevens County, Kansas* (DOE/EIS-0407D) (Abengoa Biorefinery Project EIS).

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Information about this document is available on the Internet at the Abengoa Biorefinery Project Web site at http://www.biorefineryprojecteis-abengoa.com/ and on the DOE NEPA Web site at http://www.gc.energy.gov/NEPA.

ABSTRACT: DOE's Proposed Action is to provide federal funding to Abengoa Bioenergy Biomass of Kansas, LLC (Abengoa Bioenergy) to support the design, construction, and startup of a commercial-scale integrated biorefinery to be located near the city of Hugoton, Stevens County, Kansas. If DOE decides to provide federal funding, it would negotiate an agreement with Abengoa Bioenergy to provide approximately $85 million of the total anticipated cost of approximately $300 million (2008 dollars). The biorefinery would use lignocellulosic biomass (corn stover, wheat straw) as feedstock to produce ethanol and biopower (electricity) sufficient to meet the needs of the biorefinery and produce excess electricity for sale to the regional power grid. DOE also evaluates an Action Alternative, under which the biorefinery would not produce excess electricity for sale to the regional grid, and a No-Action Alternative, under which the biorefinery would not be constructed. The draft Abengoa Biorefinery Project EIS evaluates the potential direct, indirect, and cumulative environmental impacts from the construction, operation, and decommissioning of the biorefinery.

PUBLIC COMMENTS: A 45-day public comment period on the draft Abengoa Biorefinery Project EIS begins with publication of the U.S. Environmental Protection Agency Notice of Availability in the *Federal Register*. DOE will consider all public comments postmarked or received during the public comment period. DOE will consider comments received after the 45-day period to the extent practicable. DOE will hold a public hearing to receive oral and written comments on the Draft EIS in Hugoton, Kansas at the date, time, and location announced in local media and in DOE's Notice of Availability published in the *Federal Register*. Written comments also may be submitted by mail to DOE at the above address in Golden, Colorado; via the Internet, kristin.kerwin@go.doe.gov; or by facsimile (303) 275-4790.

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APPENDIX F – AIR QUALITY IMPACT ASSESSMENT

ACRONYMS AND ABBREVIATIONS

To ensure a more reader-friendly document, the U.S. Department of Energy (DOE or the Department) limited the use of acronyms and abbreviations in this Biorefinery Project EIS. In addition, acronyms and abbreviations are defined the first time they are used in each chapter. The acronyms and abbreviations used in the text of this document are listed below.

ABBK	Abengoa Bioenergy Biomass of Kansas (also called Abengoa Bioenergy)
AERMOD	American Meteorological Society/EPA Regulatory Model
°C	degrees Celsius
CFR	Code of Federal Regulations
CRP	Conservation Reserve Program
dBA	A-weighted decibels
DOE	U.S. Department of Energy (also called the Department)
EIS	environmental impact statement
EPAct 2005	*Energy Policy Act of 2005*
EPA	U.S. Environmental Protection Agency
°F	degrees Fahrenheit
FR	*Federal Register*
GREET	Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (Model)
K.A.R.	Kansas Administrative Regulation
NRCS	Natural Resources Conservation Service
NEPA	*National Environmental Policy Act*, as amended
PM_{10}	particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 micrometers or less
U.S.C.	United States Code
USDA	United States Department of Agriculture
USGS	United States Geological Survey

TERMS AND DEFINITIONS

In this Biorefinery Project EIS, DOE has italicized terms that appear in the Glossary (Chapter 10) the first time they appear in a chapter.

UNDERSTANDING SCIENTIFIC NOTATION

DOE has used scientific notation in this Biorefinery Project EIS to express numbers that are so large or so small that they can be difficult to read or write. Scientific notation is based on the use of positive and negative powers of 10. The number written in scientific notation is expressed as the product of a number between 1 and 10 and a positive or negative power of 10. Examples include the following:

Positive Powers of 10	Negative Powers of 10
$10^1 = 10 \times 1 = 10$	$10^{-1} = 1/10 = 0.1$
$10^2 = 10 \times 10 = 100$	$10^{-2} = 1/100 = 0.01$
and so on, therefore,	and so on, therefore,
10^6 = 1,000,000 (or 1 million)	10^{-6} = 0.000001 (or 1 in 1 million)

Probability is expressed as a number between 0 and 1 (0 to 100 percent likelihood of the occurrence of an event). The notation 3×10^{-6} can be read 0.000003, which means that there are 3 chances in 1 million that the associated result (for example, a fatal cancer) will occur in the period covered by the analysis.