Choosing the Most Suitable Conversion Technology (continued)

Gasification is another technology being used where the biomass resource is more restricted. Woody biomass is the preferred resource.

Gasification is a process that uses heat, pressure, and steam to convert materials directly into a gas composed primarily of carbon monoxide and hydrogen. The three primary products are:

1. Hydrocarbon gasses (syngas).
2. Hydrocarbon liquids (oils).
3. Char (carbon black & ash).

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Mission Statement:

Establish and consult for customers the economic viability of Biomass conversion technologies in the Western United States that can be used by public and private developers and consumers.

RURAL NEVADA HAS IT!

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- **Renewable Sustainable Energy Resources**
- **Plenty of Space for Expansion**
- **A Willing Work Force**
- **Access to Markets via Interstate Highway, Rail and Air**
- **A Friendly Nevada Business Climate**

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Alternative Energy Development

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Converting indigenous biomass resources into energy and other marketable products

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∞ SEDA ∞

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The Members of the

∞ SEDA ∞

Are qualified to assist Commercial and Industrial consumers of energy to reduce their energy costs by developing local biomass energy resources.

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SEDA's Members:

Dean Borges, Engineering, Environmental Requirements
Gail Munk, Ag Production, Economic Development
Matt Frolich, Conversion Technology, Biomass Application
James Brown, Marketing, Program Management
JoEtta Brown, Finance, Regulation Management
John Shank, Applications Specialist

What is Biomass?
"Solid Sunshine"

Biomass is a living plant or its byproducts that in time become a source of economic energy used to reduce or displace our dependency on fossil fuels and improve our environment. Accumulations of woody waste represent a viable resource for energy or energy rich products.

Biomass Converts to:

1. Transportation Fuels, Alcohol, Bio-Diesel, and Liquid Synthetic Hydrocarbons and can be made from sugars, lignocellulosic and fatty biomass feed stocks.
2. Thermal and Mechanical Energy. Man has used wood and other biomass as fuel throughout history. Even today there is a resurgence of interest in wood fired power plants.
3. Building Materials. Waste wood and straw are now being used in combination with waste plastics and/or Portland cement to make versatile building materials.
4. Chemicals….two hundred years ago many of our chemicals came from biomass. Wood alcohol, acetone acid dyes pharmaceuticals are examples.

Choosing the Most Suitable Conversion Technology.

The choice of technology will depend on several factors. The quantity and quality of the biomass available, anticipated energy demand, potential for waste heat utilization and community and environmental limits to name just a few.

The versatility of the conversion system will also have a prominent influence on choice.

Some technologies are limited to a narrow range of biomass materials while others produce only one product.

Where the biomass resource contains a wide variety of material; wood waste to manures and sludges and the quantities of biomass warrant, liquification often proves to be the technology of choice.

Liquification of biomass can be carried out in a fluidized bed reactor using partial combustion followed by rapid cooling of the reaction vapors.

A different system uses pressure, heat and friction to reduce solid biomass to the liquid known as biocrude. It is this system that lends itself well to the wide range of biomass resources that are found scattered across the Intermountain West.