Practical Biomass Energy Requires
Boilers Designed for Fuels
Not Fuels Designed for Boilers

Conclusion
With the proper equipment now becoming available, cheaper, non-pelletized, non-processed forms of biomass like miscanthus chips, wood chips, grasses, and straw can be used as fuel. These boilers make it practical for those using moderate to large quantities of LP gas to reduce their fuel costs by 50%, while greatly reducing net carbon emissions. In most situations this biomass can be produced locally, on poorer soils and in ways that benefit wildlife, reduce nutrient and chemical run off and prevent erosion.

Reality of Transportation
Cost to move 1 ton of dry MxG from standing crop to boiler

Boilers Designed for Fuels

Replacing LP Gas
Biomass heat can be used successfully for businesses and clusters of homes, although the energy cost savings is not as great when replacing today’s cheap natural gas instead of the higher priced LP gas.

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Message
This technology will encourage smaller, yet scalable markets for biomass; and without markets there will be very little biomass produced. It only takes a few acres of Miscanthus to supply an average farm with its thermal energy needs. Any surplus biomass can be sold to others. As a consumers thermal energy needs grow, additional boilers can be very efficiently added.

Biomass is a new crop and a new fuel for us, but as we gain experience with it, more acres will be planted. Eventually we will gain enough confidence in our production and processing abilities that in some situations large biomass plants can be built. Plants that can produce liquid fuels, electricity and large scale thermal energy.

Harvest & Storage
Economics and efficiency coincide at harvest. Slage choppers, with minimal adjustments, produce a miscanthus chip with less transportable density but with a size consistency ready to burn.

Density
Harvested MxG
600kg/m³

Chopped Baled = 170-200kg/m³

ONE TON of DRY MxG
$85

170 GALS of LP GAS
$340

Biomass systems are becoming so sophisticated and maintenance free that soon the only job of the owner will be to pay the bill for the biomass.

Thermal Demands
The equipment available today that can efficiently utilize multiple biomass fuels becomes economically viable in situations requiring boilers in the 75 KW to 1 MW size. On livestock and grain farms a centrally located boiler could provide the thermal load for:

- Grain Dryers
- Green Houses
- Livestock and Poultry Facilities
- Farm Shops
- Residences

Subsurface and insulated supply and return lines are used to distribute on demand heated water to the various grain bins and other structures.

Green Flame Energy
Field to Flame Biomass Services
Green Flame Energy was founded in 2010 to initiate the idea that fuel can again come directly from the farm. A fuel source grown and harvested locally can be used to heat homes, shops and even large facilities. Eric Rund, a third generation farmer in East-central Illinois, has transitioned from the field. A fuel source grown and harvested locally can be used to heat homes, shops and even large facilities. Eric Rund, a third generation farmer in East-central Illinois, has transitioned from the field. A fuel source grown and harvested locally can be used to heat homes, shops and even large facilities. Eric Rund, a third generation farmer in East-central Illinois, has transitioned from the field. A fuel source grown and harvested locally can be used to heat homes, shops and even large facilities. Eric Rund, a third generation farmer in East-central Illinois, has transitioned from the field.

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