

# Wood Biomass Fuel Supply



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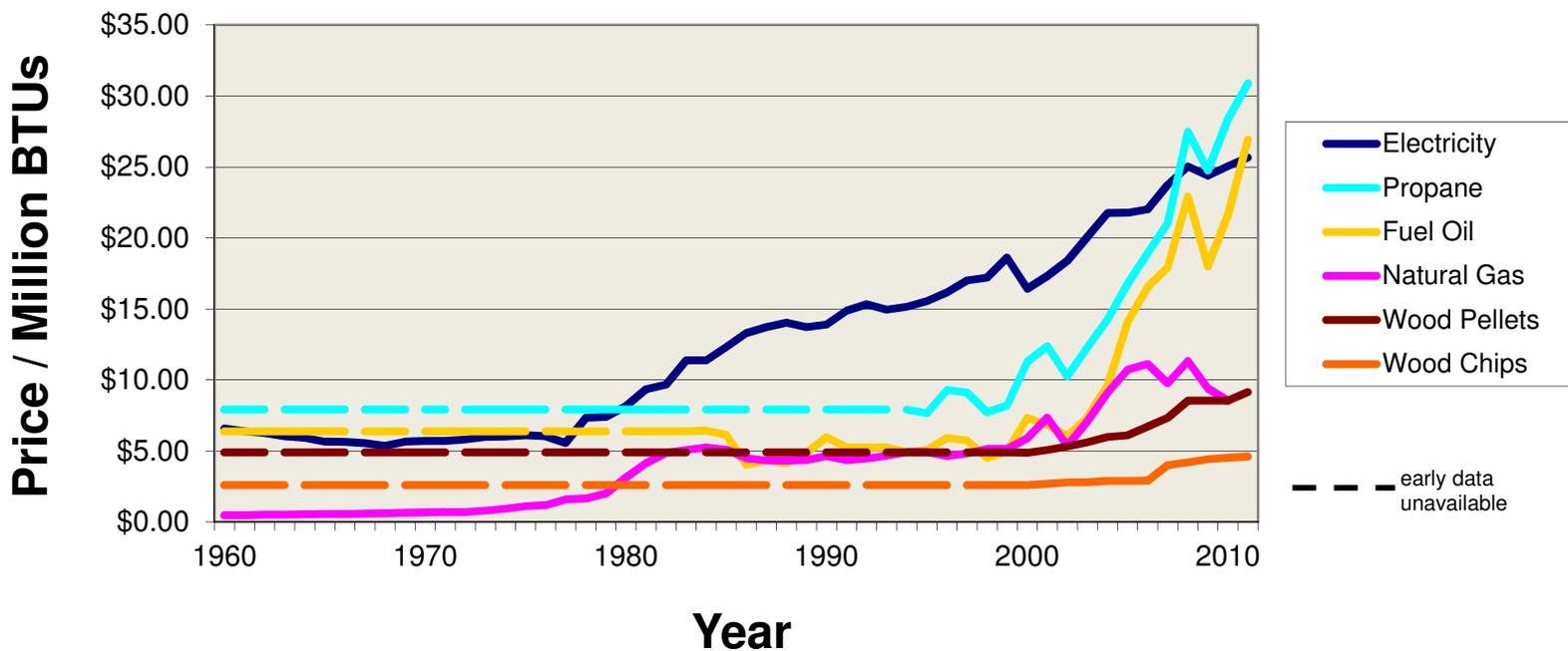
Western Idaho Biomass Energy Workshop

July 29-30, 2014

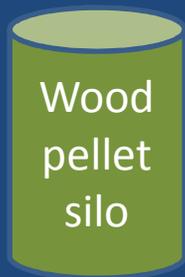
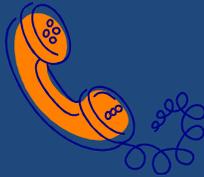


# Fuel Cost Comparison

## Average Prices for Heating Fuels in Montana 1960-2011



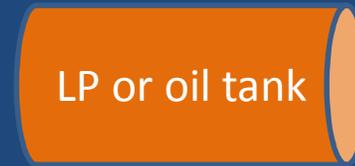
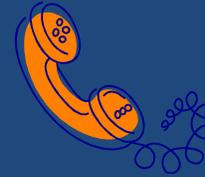
# Wood



OR



# Fossil Fuel



# Overview

- Biomass availability and cost
- Fuel supply sources and quality
- Fuel procurement and contracts
- Fuel delivery, reception and storage

# Traditional Wood Fuels

## Cordwood



**Residential Heating**  
**Small buildings**

## Chips



**Commercial and  
institutional heating**  
**Utility-scale power  
production**

## Pellets



**Residential Heating**  
**Small Commercial  
and Institutional  
Heating**

# Selecting and Procuring Biomass Fuel

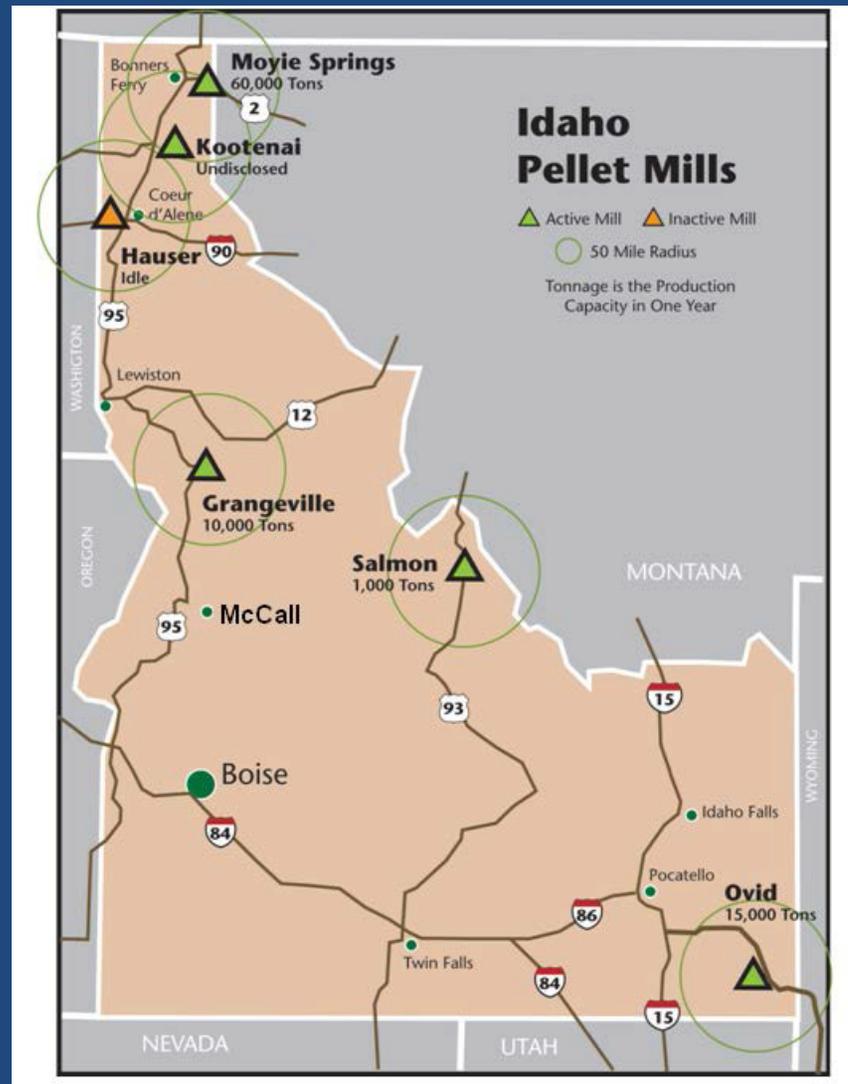
- Price
- Available storage/delivery space on-site
- Available and obtainable fuel
- Available fuel suppliers/delivery trucks

# Fuel Supply Sources

- mill residues
- pellet mills
- Unmerchantable, non-sawlog material from:
  - Mills
  - forest landowners
  - industrial forestlands
  - national forestlands
  - State lands
  - BLM lands
- urban wood waste



# Locations of active and inactive pellet mills in Idaho (2012)



Source: Washington State University Extension Energy Program, *McCall, Idaho Biomass Options: Analysis and Building Readiness*, May 2013. <http://energy.idaho.gov/>

## Biomass Availability in Vicinity of McCall, Idaho

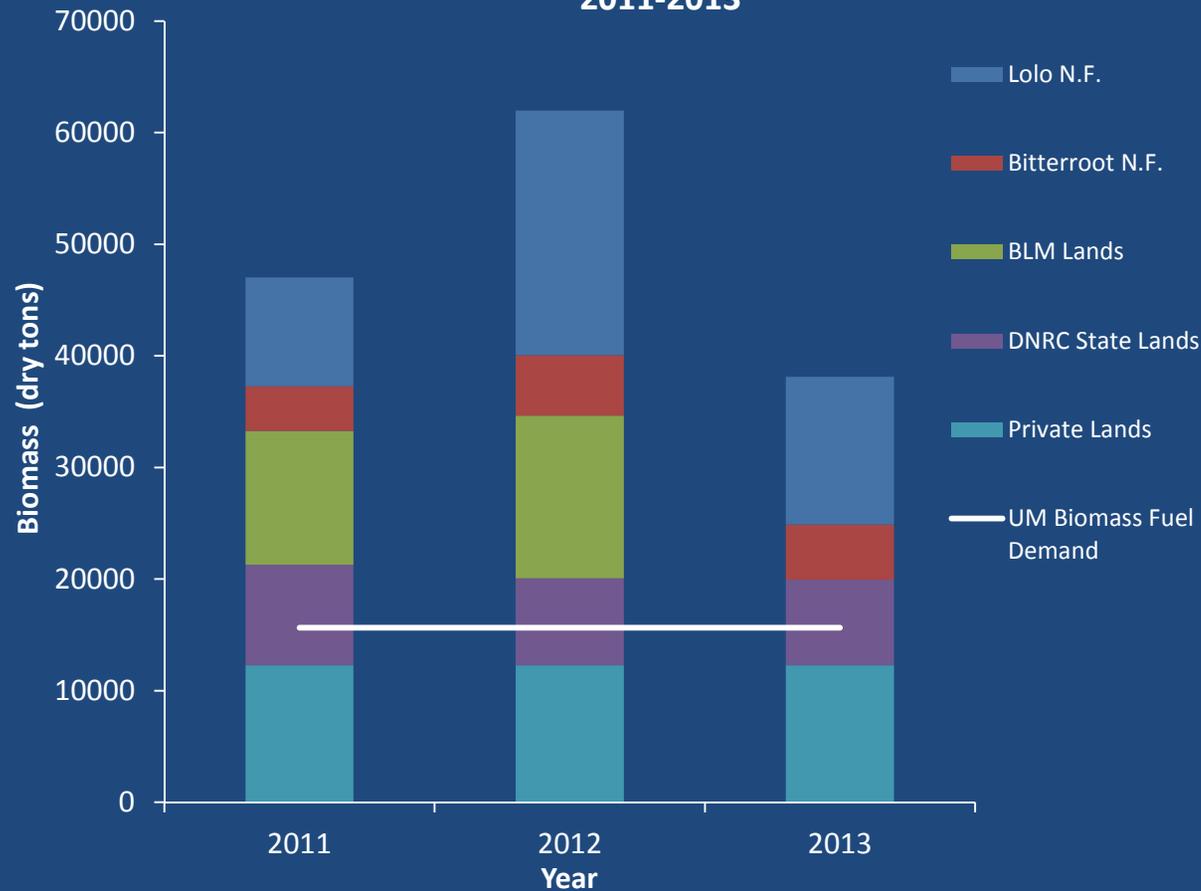
Total mass of woody biomass in dry tons available from several sources within a 40 mile radius of the site (Hustwit et al)

Woody Biomass Source	Estimated Total (1,000 BDT)	Comment
Fuel Treatment Activities, Private Lands	3.0 to 9.1	Most of this material is not profitable at this time and would require subsidy to encourage residue removal.
Fuel Treatment Activities, Public Lands	46.0 to 138.1	
Available Logging Slash, Private Lands	36	
Available Logging Slash, Public Lands	103.8	
Forest Products Manufacturing Residue	~13	8 wood products manufacturers within 50 miles of McCall. The largest uses a significant portion in a 6 MW plant
Land-filled Urban Wood Waste	~0	Relatively little, cost of collection would be too high. Currently being hauled to regional landfill.
Agricultural Byproducts	~0	Very little available and high cost of collection

Source: Washington State University Extension Energy Program, *McCall, Idaho Biomass Options: Analysis and Building Readiness*, May 2013

# Available Biomass Supply in Vicinity of Missoula, Montana

Estimated cumulative volumes of biomass from logging slash residue and small trees (<7" diameter) generated by planned forest treatments and timber harvests in vicinity of Missoula, MT, 2011-2013



# Fuel Quality and Composition



Avoid Clinkers!



# Biomass Fuel Specifications and Contracting

- Size range
- Composition (bolewood vs. bark/needles, minimal sawdust, non-combustibles)
- Moisture range—20-35% MC desired
- Fuel reception and storage
- Deliveries: timing, frequency
- Quality control, surcharges, penalties
- Payment schedule-as delivered, monthly

# Fuel Delivery, Reception and Storage



# Fuel Delivery, Reception and Storage



# Pellet Delivery, Reception and Storage



# Cordwood Delivery and Storage



**Darby School, Montana:  
Fuels for Schools Community Partnership**





## Bulk pellet delivery truck

with on-truck scale to measure each individual delivery.

A new business opportunity?!!



# Parting Comments

- Use local, renewable fuel
- Keep dollars in local economy
- Proven return on investment
- High satisfaction ratings

# Contact Information

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