

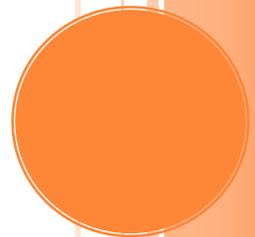
# BIO-MASS SUPPLY ASSESSMENT

*Western Washington Sustainable Energy  
Supply/Demand Overview*

Review the opportunity to create value for the landowner in supplying woody mass to the growing bio-mass energy industry in Western Washington.

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## *Western Washington Sustainable Energy Supply/Demand Overview*

### Key Findings

1. Bio-mass supply and demand are counter-seasonal. Supply is easier to access in the summer when the road and ground are harder. Energy demand is greater during the colder months when bio-mass is wetter and does not generate the same amount of heat per ton of fuel.
2. Overall supply of bio-mass is adequate. Currently only a small percentage of bio-mass is being collected. The material which is non-economic to collect (to far from road, to far from generating plant) is left on the ground, burned or stacked. As economics to collect improve, suppliers can economically access more fuel.
3. There are emerging alternative energy producers in region, many with significant government subsidies. They include:
  - a. Wind
  - b. Water/Hydro
  - c. Ethanol conversion
4. There are currently government subsidies being developed or available to the supplier. They include:
  - a. BCAP-biomass crop assistance program (developed by the US Department of Agriculture, this program is targeted at farmers but there is some opportunity for forest land owners).
  - b. B&O tax (credit from the State of Washington to landowners for every ton of bio-mass that the supplier sells).
5. The economics of bio-mass collection and generation is dependent on strength of housing market and how much the local sawmills are operating. "Hog fuel" from sawmills is more economic than fuel directly from the woods.
6. Revenue and returns are not material to the landowner. Up until now, there is no real economic incentive to the supplier to generate more hog fuel. It is a "come along" product.
7. The small landowners will always be at a disadvantage to the large, industrial landowners. These industrial landowners can demand a higher price in both high and low demand periods while the lone, small landowner has to accept what the buyer will pay, or find another home for his biomass. At current supply and demand levels it doesn't appear there is enough potential price leverage to give the owner more than he is getting now and pay for the brokering fees. As demand increases, potentially with new bio-mass consuming capacity and prices go up, the purchasers will try to keep the small landowners at a lower price. This is because they can afford to lose a small supplier but not a large one. That is when the spread between

what the small suppliers will be paid and what they could get paid will increase and improve the opportunity to pull the small landowners into a brokering plan.

## Geographical Focus

The Western Washington Bio-Mass Market can be broken into 4 regional areas. Since freight is a major limiting factor as to how far this product can be shipped, these regions separate themselves by the distance to the consumers. The 4 areas are:

1. Upper Peninsula (Port Angeles, Port Townsend)
2. The Harbors (Grays Harbor, Sierra Pacific, Cosmopolis, Shelton)
3. I-5 (Tacoma, Everett)
4. Lower Columbia (Longview, Camus)



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## Situational Update

Western Washington fiber-supply industry is currently in balance with supply and demand equalized by seasonal spikes in supply. At this time, the supply is being impacted by the slowdown in construction and US Housing. Currently this is being somewhat offset by the timber demand of Asian Markets. This, however, effects the economics of hog fuel as a higher percentage of the bio-mass comes from the logging site as opposed to the sawmills.

Hog fuel, which is the lowest valued residual, is only being used to a small potential of its availability. This is mostly due to the high cost of freight along with getting the product out of the woods and to the user. Historically biomass is a come-along product for the timber industry - a waste that needed to be disposed of. At one point, it was burned or just left in the woods. Existing consumption of bio-mass in Western Washington is approximately 1,650,000 bone dry tons per year. Over the next few years planned capacity to burn biomass will increase in the region by almost 75%. This will put more pressure on biomass supply and cause prices to increase.

Historically there have been a few buyers and a fragmented supply. Over half of the supply comes from small land owners who view biomass as a by-product of their business, not their core business. Even the large land owners (Weyerhaeuser, Rayonier, Green Diamond, Merrill & Ring, Port Blakely, Longview and Pope Resources) view the revenue from this product as a very small factor in their portfolio.

Additionally, there is an excess of grinding capacity in the region with much of the equipment standing idle or being underutilized.

There are 4 levels in this supply chain. They are:

- Land owners (public and private)
- Contract loggers
- Grinders/Processors
- Consumers (paper mills & power plants)

With the growth in demand, there will be the opportunity to create leverage with the small producers by creating a coordinated mass.

## Assumptions

- Fiber supply in balance with current supply/demand levels
- Only a fraction of bio-mass available is being utilized
- Bio-mass consumption will increase materially over the next 3-5 years.
- Supply is fragmented. Demand is concentrated.

- Average collection is 30 tons of bio-mass/acre. Good collection is 40-50 tons/acre.
- Leaving “piles” reduces planting area 4%.
- State is increasing burn fees this year (from \$.25/ton to \$1/ton).
- There is an excess of grinding capacity in the region.
- B&O Tax credit from State of Washington is \$3/green ton for bio-mass material (this goes to the landowner). It is increasing to \$5/green ton in 2012.
- Federal Government’s BCAP is not clearly defined. The Department of Agriculture has set aside \$191 million for this 2-year program. There are multiple levels of certification and the entire incentive MUST go back to the landowner. It is meant to encourage food crop growth not woody bio-mass generation.

## Conclusion/Recommendation

At this time there is little opportunity to create any additional value within the supply chain. This is a low margin product. The current value to the landowner is in getting rid of the material and clearing more land to grow.

## Interviews

- Dave Nunes
- Bill McTurnal
- Bruce McComas
- Patrick Raymond
- Norm Schaaf
- Rick Dunning
- Bill Hermann
- Court Stanley
- Bob Dressell
- Steve Stinson
- Steve Pedersen
- Tom Fox

- George Cave