High Efficiency, High Speed, Whole Tree Harvester

2012 SRWC Operations
Working Group Conference

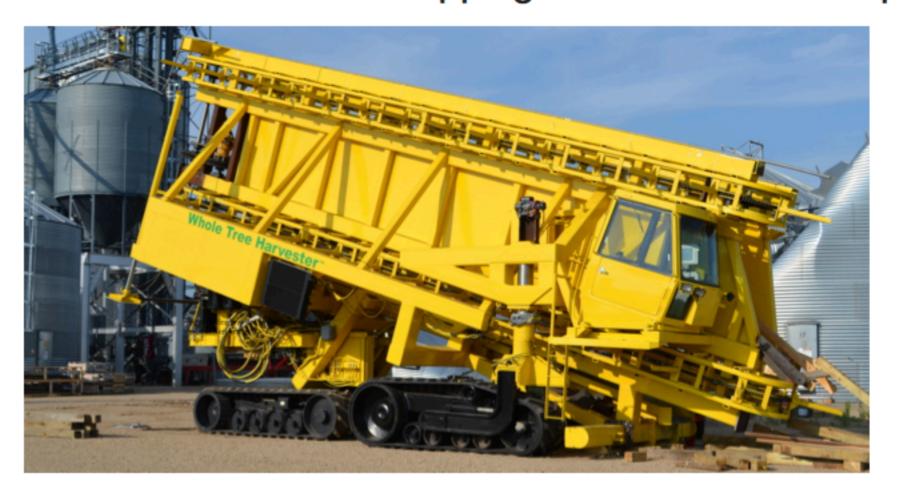
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Oak Ridge, TN 7 Nov 2012

Energy Performance Systems, Inc. designed and built a harvesting machine to increase whole tree harvesting efficiency; that continuously cuts, handles and loads trees without stopping at a rate of 6 miles per hour.

Harvester Features:

- World's fastest Whole Tree Harvester™
- Cuts more than 500 tons per hour
- 900 HP has twin diesel engines
- Four rubber Cat tracks, 200 HP each
- 16 ft wide, 52 ft long, 28 foot ht
- Weight 135,000 lbs
- Disassembles into 5 sections
- Cuts within 2" of Ground
- Cuts and handles up to 30" trees



Moving Tracks and PWR Plant with HydroPac



From Fabrication to Harvesting on Tree Site:

Harvester Birthing



Ready for 160 mile Haul



Over the Road



Moving Front Tracks into Place



Drive to Tree Site



Whole Tree Harvester™ Potential Costs vs Revenue

| Tree Size (inches) | Harvest Speed (fps) | Tree Spacing (ft) | Cut Rate (trees/sec) | Dry wt/tree (lbs) | lbs/s | Oven Dry Tons Per Hour | Oven Dry Tons Per Year | Annual Rev \$/yr | Harvesting Cost \$/Yr | Harvesting Cost per ODT | Net Before Taxes (NBT) |
|-----------------------|------------------------|-------------------|-------------------------|----------------------|-------|------------------------------|------------------------------|---------------------|-----------------------------|-------------------------------|---------------------------|
| 8 | 4 | 10 | 0.4 | 250 | 100 | 180 | 119,808 | \$539,136 | \$579,300 | \$4.84 | -\$40,164 |
| | 6 | 10 | 0.6 | 250 | 150 | 270 | 179,712 | \$808,704 | \$606,700 | \$3.38 | \$202,004 |
| | 8 | 10 | 0.8 | 250 | 200 | 360 | 239,616 | \$1,078,272 | \$635,600 | \$2.65 | \$442,672 |
| 12 | 4 | 10 | 0.4 | 750 | 300 | 540 | 359,424 | \$1,617,408 | \$591,900 | \$1.65 | \$1,025,508 |
| | 6 | 10 | 0.6 | 750 | 450 | 810 | 539,136 | \$2,426,112 | \$625,600 | \$1.16 | \$1,800,512 |
| | 8 | 10 | 0.8 | 750 | 600 | 1,080 | 718,848 | \$3,234,816 | \$660,800 | \$0.92 | \$2,574,016 |

Cutting Head



Harvesting 1.6 trees per second



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