

2020 WOODY DEBRIS MANAGEMENT WORKSHOP

Date – February 7th 2019
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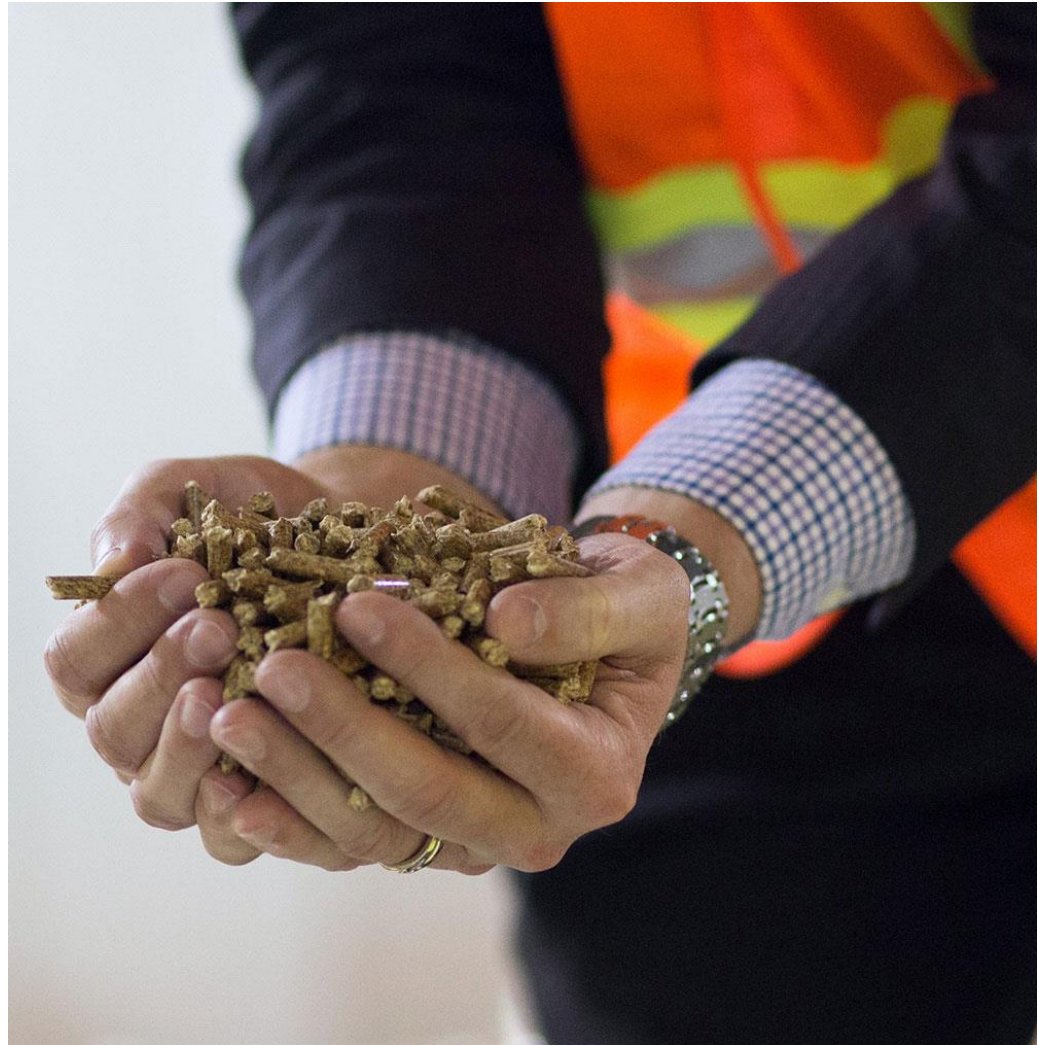


Pinnacle.
RENEWABLE ENERGY



Agenda

- Introduction
- About Pinnacle
- Fibre Procurement
- Innovative Projects
- Fibre Utilization Challenges
- Looking Forward
- Questions



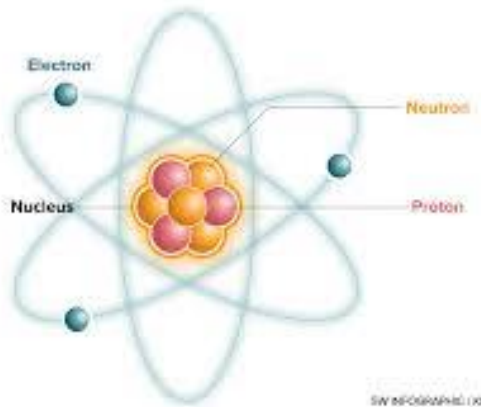
ABOUT US

Pinnacle Renewable Energy (TSX: PL) is one of the world's leading manufacturers and distributors of industrial wood pellets. The pellets are used by large-scale thermal power generators as a greener alternative to coal power, producing a reliable and sustainable form of baseload renewable power.



- Pinnacle Pellet started 30 years ago manufacturing pellet fuel in Kersley.
- Helped support the transformation of the forest sector away from beehive burners. We now want to be part of the next transformation that sees the end of harvest residuals being treated as waste.

Atom anatomy



- We currently supply 1.5% of the UK's power needs and are supporting Japan's search for alternatives to nuclear power.

Our Mission

Our mission is to safely produce quality, renewable energy while returning the greatest value to stakeholders.

Our Vision

Our vision is to be the leading supplier of biomass products to the global renewable energy market.



Our Values

Seeded Through Innovation

- Resourcefulness | Ignite creativity and challenge the status quo
- Stewardship | Challenge carbon every day
- Excitement | Embrace change and celebrate success

Sustained Through Passionate Integrity

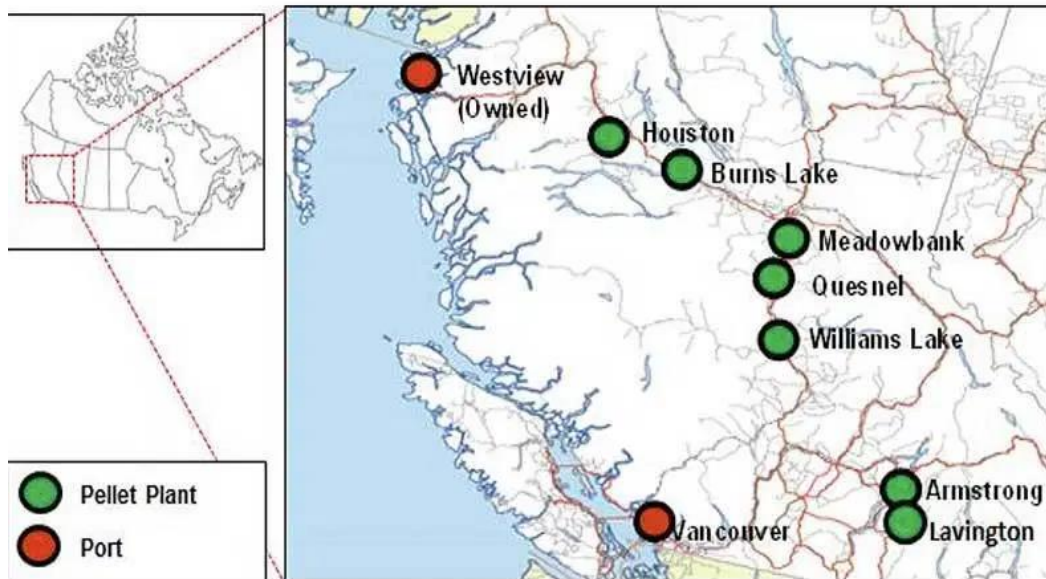
- Safety | Own it - at home, at work and everywhere
- Empathy | Care for each other, our customers and our planet
- Excellence | Reach for best in class

Energized By People

- Commitment | Deliver on time, as promised, every time
- Team | Build partnerships, relationships and take the long view
- Honor | Listen, speak the truth and follow through



- Pinnacle has entered into long-term take-or-pay contracts with customers in the UK, Europe and Asia that represent 109% of its production capacity through 2026.
- With the very recent addition of a plant in High Level Alberta, the Company now operates nine wood pellet production facilities throughout western Canada, and one production facility in Alabama – with another just being very recently being announced.
- Pinnacle's Canadian production facilities are all located on major rail lines allowing for efficient rail transport to one of two shipping terminals on the B.C. coast:



<https://youtu.be/RvJI3p0rRTM>



Environmental Benefits of using pellets vs non-renewables

- Wood pellets are an economical and sustainable energy source, growing in use around the globe because of their low cost and low environmental impact.
- Pellet production is a growth industry that creates good jobs, especially in rural areas, and boosts regional economies. Renewable pellet fuel burns cleaner than fossil fuel.
- Regular firewood can contain up to 48 per cent moisture, which means nearly half of what you pay for with wood heating fuel ends up as steam.
- Pinnacle wood pellets are made from compressed waste wood, with less than six per cent moisture. They burn cleaner, longer and produce more heat.



Production Capacity and Consumption Requirements

- In 2017, Pinnacle produced roughly 1.5 million metric tonnes of pellets – the capabilities today are well over 2 million metric tonnes
- In BC with the 7 plants, Pinnacle consumes roughly 600 000m³ per plant (4 200 000m³) of fibre in the form of sawdust, shavings, hog, and wood chips (directly produced from logs in our storage yards)
 - Some of these plants are pushing an average log consumption rate of 40% and this must be procured in log of grind form directly from the forest



Shavings

<10% moisture content



Sawdust

40-50% moisture



Hog

>45% moisture

Pinnacle Fibre Sources?

- Pinnacle purchases **100%** of the fibre it consumes
 - Do not have forestry licenses such as TFL's or NRFL's
 - Do not employ logging contractors directly
- Major Licensees and other tenure holders are an asset to gap-fill volume
 - (WF, Hampton, CFP, BCTS, Dunkley)
 - Community Forests
 - Woodlot Owners
 - Private Land



What Kind of Fibre do we Target?

- We are looking for fibre that nobody else can accept, prices reflect that
- Benefit is that Pinnacle can accept virtually any kind of fibre
 - Burnt
 - Checking
 - Rot
 - Forks/Crooks etc.
 - Deciduous – Coniferous preferred



Pinnacle Log Spec:

- All logs must be processed, limbs, needles and stumps must not be present.
- Nothing over 24 inches at the butt. Will accept any top size.
- All logs will be clear of mud, rock and other debris.
- Log loads must not be spliced together, each bunk must be able to be unloaded safely and efficiently
- Logs certified by (ISO, SFI, CSA, FSC, Other)

Benefits to Tenure Holder

- **Cost recovery**
 - Grade 4 cut control credits
 - a crown wood tenure holder can apply to the government annually for a credit applied to their cut control, and therefore cut and sell more sawlog within their 5 year cut control
 - Waste survey burden reduced
 - If a tenure holder applies to have wood scaled under new **Concurrent Residual Harvest System**, wood can be hauled to our facility prior to waste assessment
 - District assumes a full stumpage rate on 3% of the volume hauled into a Grade 4 facility (e.g. (\$4.00 sawlog stumpage x 0.03) + (\$0.25 SFP permit x 0.97) = **\$0.36**)
- **Increased fibre utilization**
 - Little to no burning required
 - Sorting species is not necessary
 - Initial costs of logging offset

Cost vs Profit

- Margins are slim – we are not producing lumber, creating a product that needs to be broken down, dried, put on a train, shipped to the coast, put on a barge, sent across the ocean and then eventually is burned for energy
- Cost of logging and trucking are high – profitability for suppliers is lower than what suppliers and contractors typically see vs. saw log market
- Stumpage increases implemented recently to bio-log / hog

Major licensee commitments and partnerships

- Under pressure from the government and the public to abate the hazard ASAP
 - Government promotes utilization but burning obligations still a priority to deal with in a timely manor (12 months or less)
- Grinding delays trickle down to Silviculture delays, Free-to-grow obligations
- Road deactivation / reactivate
- Expiring licenses require applying for a timber license

Log Storage

- Pinnacle not set up to store as many logs across the company as what has recently been required in the last year to meet consumption

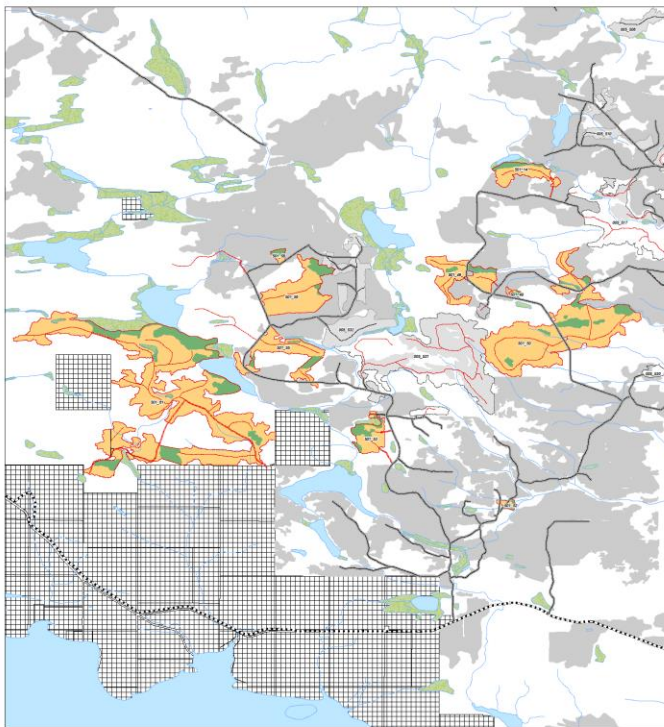
Innovation

“Outside the box thinking” critical to finding ways to not only getting people on board, but also to make projects successful

Project example

Francois Lake South Side

- Massive Area heavily ravaged by 3 major fires since the early 2000's, heavily affected by mountain pine beetle
- 2 community forests (Cheslatta and Chinook) have majority of the tenure
- 7 hour cycle to PBL – not economically feasible for Pinnacle
- Restricted by ferry wait times
- Offsite storage yard identified and utilized– re-load onto super B's to cut trucking costs
- FESBC



Current Grinding Contractors

Ledcor, Chemco, Groot – Westline

Tsi Del , ARM Huska - Williams Lake

Frazer - Lavington

Critical elements to a successful grind program

Licensee communication

Fibre security

Contractor commitments

Fibre quality (dirt, rock, moisture, needles)

Distance to mill,

Production target minimum high

Road upgrades

Cycle times



Moving Forward

Need to continue to engage with government to try and harmonize objectives

- Scaling
- Stumpage
- Utilization
- Silviculture Obligations
- Burning Regulations
- Waste Penalties
- Harvest Cost Reduction Initiatives



Best way of approaching biomass utilization?

- Different methods (round log vs. bush grind)
- Long term strategies with licensees, contractors and other various stakeholders



Questions?

