



Woody Biomass Fuel Options for the San Juans

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A man wearing a brown hat and a dark jacket is smiling in the foreground. Behind him is a large white wind turbine against a blue sky with light clouds. The turbine's nacelle has the text 'CASCADE COMMUNITY WIND ENERGY' on it.

- Raised on the farm and in the forest
- 20 years renewable energy experience
- Recent experience with digesters, boilers, cogeneration, wood to liquid fuel, gasification.
- Founder and current director of the Washington Woodland Cooperative
- Founding Member of Convivium a collaboration of independent RE professionals.

Washington Woodland Coop

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- Modeled after OWC
 - Founded in 2014
 - Incorporation as a coop this year
 - Mission and Vision
 - Membership
 - WashingtonWoodland.Coop
 - OregonWoodlandCooperative.com

Biomass Energy Options

- On Island
 - Firewood
 - Boilers
 - Chip
 - Pellet
 - cordwood
 - Cogeneration
- For Export
 - Firewood
 - Pellets
 - Liquid Fuel
 - Wood Products



Local use of Firewood

- Renewable and Democratic
- Low barriers to entry
- With dry firewood and EPA stoves clean air is maintained.
- WWC Whatcom County dry firewood bank
- Oregon's clean stove program

Wood Boilers

- A good choice from large house to institutional sized heat loads
- Depending on product can use chips, pellets, or bulk wood.
- Can burn very cleanly
- Don't buy scam/dirty boilers
- District heating



Cogeneration

- Very clean burning
- Electricity as well as heat
- Need a regular large heat load
- Does not make sense if most of the year is only heat or only electricity
- Great option for district heating combined with industrial heat loads
- Technology is pushing viable size smaller

Off Island Firewood Sales

- Top dollar needed to justify transportation.
- WWC Bundled wood
- Standards
- Cooperation
- Facilities



Pellets

- Requires modest capitalization
 - Grinder, pellet mill, storage, bagger.
- It is an international Commodity
 - Lots of competition
 - Marketing the local brand may be necessary

Liquid Fuel

- Requires steady supply of biomass to justify capital investment
- Technology is new and developing
- Market for byproducts?
Biochar, Acetic acid.



Other Wood Products

- Chipboard
- Biochar
- Poles
- Local wood based businesses
- Other ideas?



Challenges

- Transportation cost off, or between, islands
- Air quality, perception and reality
- Chicken and Egg issues
- Infrastructure
- Low Price of most bulk woody products



Solutions To:

- Transportation
 - Use on site
 - Create higher value products
 - Cooperatively carpool product ashore
- Air quality, perception and reality
 - Education
 - Dry firewood and clean burning stove programs
 - New projects meet high standards
- Chicken and egg issues > Just Start

Solutions To: (cont)

• Infrastructure

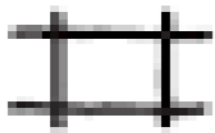
- Cooperative use of existing infrastructure
- Local, state, and federal assistance programs

- DNR Landscape Grants, USDA REAP grants
- Conservation district
- Others (WWC Development Committee is working on this)

• Low Price of most bulk woody products

- Branding
- On island processing for value added
- Local market (schools, facilities, building code)
- Local, State and Federal assistance

- USDA Biomass Producers Grant , Value Add Producers Grant
- State renewable fuel standard



pig pen



pitchfork



lazy nine



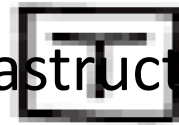
running F



flying U



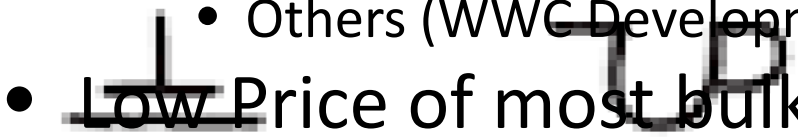
rocking H



box T



O-in-a-hole



T-down



seven up



two-pole



barbecue



W lazy five



circle



spade



turkey track

Terrance what do you think our best options are?

- Keep the discussion alive
 - NNRG, WWC, FFA
- Start small but build quickly
 - Bundled wood, wood boilers, dry firewood program
- Do research on larger projects
 - VAPG funding and other for cogeneration, liquid fuel, pellets, etc.



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Questions and Discussion