

Green Jobs and Bioenergy: What we know and don't know

David Sjoding

Pacific Regional Biomass Energy
Partnership Team Leader

Beyond Waste Workshop

June 23, 2009



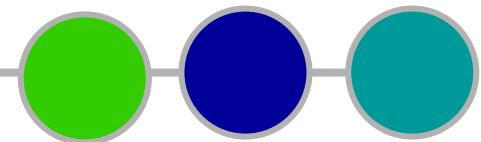
Pacific Region – A six state-based team of AK, HI, ID, MT, OR & WA www.pacificbiomass.org

\$Over \$100 Million in biennial state funds

Functions as a team since 1983

Taken together: A “Complete Program” – Near, mid and long term research; development; demonstration; deployment; policy analysis & legislation; information; outreach

Strong ties to USDA.





Northwest CHP Application Center

Combined Heat and Power for the states of
Alaska, Idaho, Montana, Oregon and Washington
in cooperation with the U.S. Department of Energy



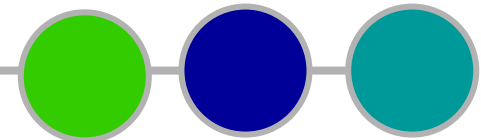
Northwest CHP Applications Center

- **A multi-state effort – AK, ID, MT, OR & WA**
 - **WSU Extension Energy Program serves as lead**
 - **98 Regional CHP projects total 1,218 MWc**
 - **Combination of industrial and agriculture projects**
 - **Technical assistance information, reports and case studies**
 - **Problem solving & trouble shooting**
 - **Support of regional & state CHP initiatives**
 - **www.chpcenter.org**

Bioenergy is the most complex of our renewable energy sources

The same feedstock can go in a wide variety of directions, products, co-products and technologies

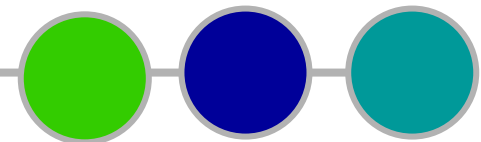
- **This makes the green job analysis much more difficult**
- **Having a solid feedstock inventory is crucial**
- **Beyond Waste funded Washington's inventory, assessment and chemical characteristics**
- **The inventory is an economic development tool**
- **We have efforts underway to increase feedstock supply – Organic Waste to Resources, agronomy, & healthy forests/logging slash recovery**
- **Policies are increasing the competition**



Feedstock & Policy Competition

Which policy tectonic plate will win? Do we maximize

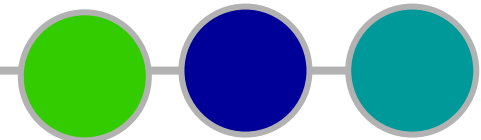
- Biofuel production – 36 or 60 BGY? – Get out of middle east
- Biopower/CHP production – Renewable electricity standards
- Pellets and torrefaction cubes for Asia and Europe – Kyoto
- Biochar – Carbon negative and healthy soils
- Maximize rural economic development – Which end use yields the most rural jobs, And, who owns?
- Or, are we trading one set of green jobs for another?
- Sustainability is an overriding key value – Right?
- What about compost and beauty bark?
- Renewable gas into pipelines
- Petrochemical offsets



Green Jobs – The Washington Study

The first of its kind in the country

- Broad survey with 9,500 employers responding
- There is no agreed upon definition of green jobs
- Defining the range of bioenergy green jobs will be a challenge
- We have more green jobs in Washington than we expected – approximately 47,000
- The study could not provide much detail on the broad category of renewable energy green jobs
- 2008 Washington State Green Economy Jobs
<http://www.energy.wsu.edu/workforce/>

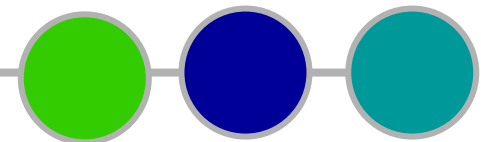


Washington's Definition

The *green economy* is rooted in the development and use of products and services that promote environmental protection and energy security. It is composed of industries and businesses engaged in:

- Energy efficiency
- Renewable energy
- Preventing and reducing pollution
- Mitigating and cleaning up pollution

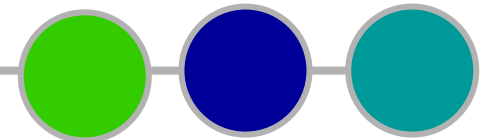
- 2008 Washington State Green Economy Jobs Report, page 4



Work in Progress – Renewable Green Jobs Study

Follow-on work from the broader study

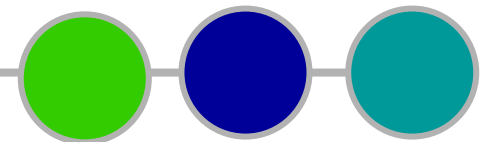
- **Focus on Trends and Workforce Development issues in:**
 - Solar
 - Wind
 - Biopower
 - Hydro Efficiency Upgrades and Micro Hydro
- **Sector research and limited employer interviews**
- **Report available in July**



Bioenergy Green Jobs

What do we really know? – Not much in bioenergy

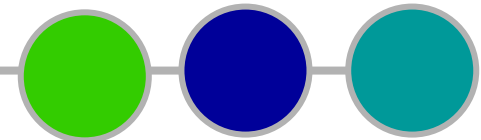
- **Survey work is needed – Build data from scratch and analyze it**
- **Forest products is one of the biggest biomass collection systems in the state economy**
- **The risk of losing a pulp & paper mill (many jobs) for biopower (fewer jobs)**
- **Big thanks to Forest Resource Association for the survey – About 4,700 direct pulp an paper mill jobs - Box facilities are additional**



Bioenergy Green Jobs – What we don't know

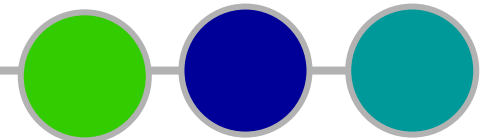
Welcome to the land of a lot of homework

- There is not a good list of bioenergy job classes throughout all of bioenergy's variations
- Each product and technology has a different list of job classes
- Without a list, what exactly are we counting?
- Some ground up surveys are beginning to be done in selected targeted areas
- Example: In 2008, 4,456 private sector recycling jobs in Washington



Washington Biomass Inventory and Bioenergy Assessment

- Very strong inventory and assessment with feedstock characterization
- 44 sustainable feedstocks inventoried
- 16.9 million dry tons of underutilized biomass
- 1,769 MWc of potential power
- Growing energy crops would be additional
- www.pacificbiomass.org has an interactive map and database at county level
- Better forest data would add 3 to 13 million more tons sustainable
- Update is needed



An Economic Development Tool - Biomass Inventory and Bioenergy Assessment

- Project developers get a very quick, detailed and inclusive look at the county level of all biomass opportunities – Answers the “How much?” question
- The second question with diverse feedstocks is “What are the chemical characteristics of each feedstock?”
- Report: Biomass Inventory Technology and Economics Assessment, Report 1. Characteristics of Biomass
http://www.ecy.wa.gov/climatechange/2008CATdocs/IWG/bw/071108_bitea.pdf
- Is there below county level data? – This is where the state hands off to the developer

