

Western State Land Commissioners Summer Meeting

July 13, 2010



***Biomass Energy's Role in Future
Forest Management***

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The Role of Biomass Energy

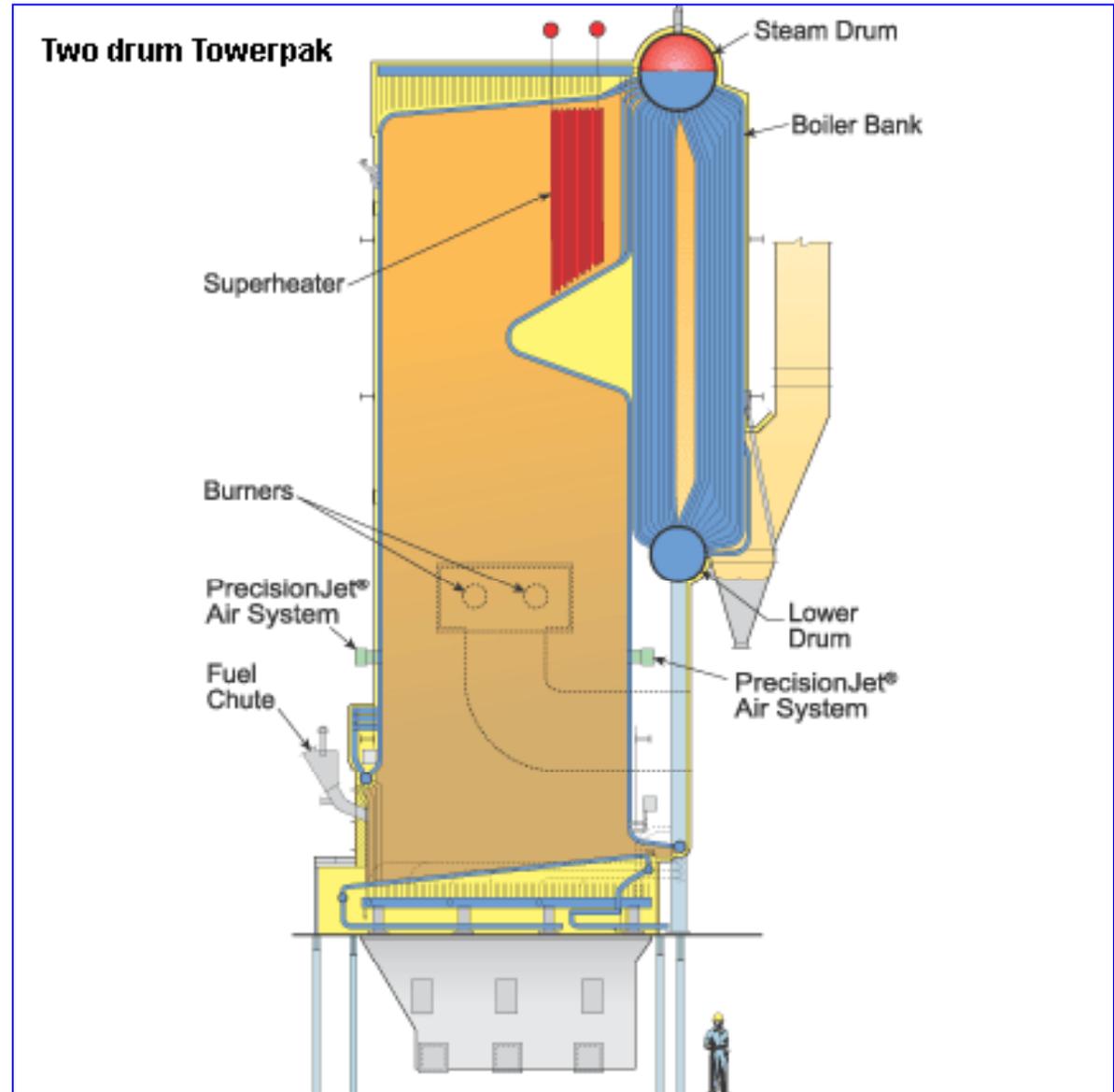
- Create market for slash piles, thinnings, beetle killed material, burned material
- Allow use of more Stewardship Contracting
- Strengthen existing solid wood forest products industry

A Logical Development Model

- Look first to existing forest products sites, or other heat using industry
 - Combined Heat & Power best
 - Institutional use too seasonal
- Match to size of available resource
 - “All biomass is local”
- Match to utility needs in terms of size, timing, contract structure
- Long term fuel availability key to financing

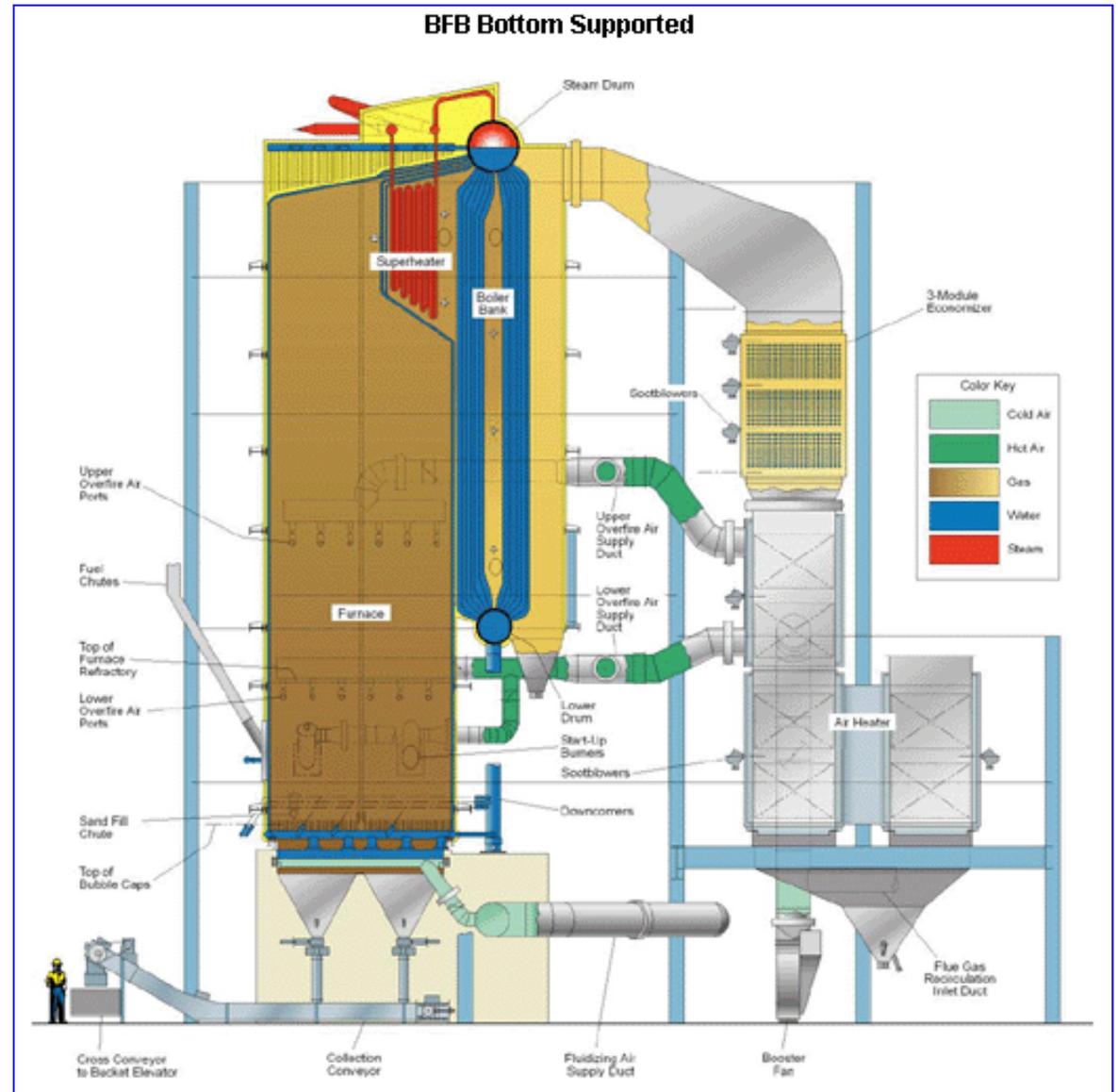
What Are the Technologies?

Stoker
fueled grate
boiler



What Are the Technologies?

Fluidized Bed Boiler

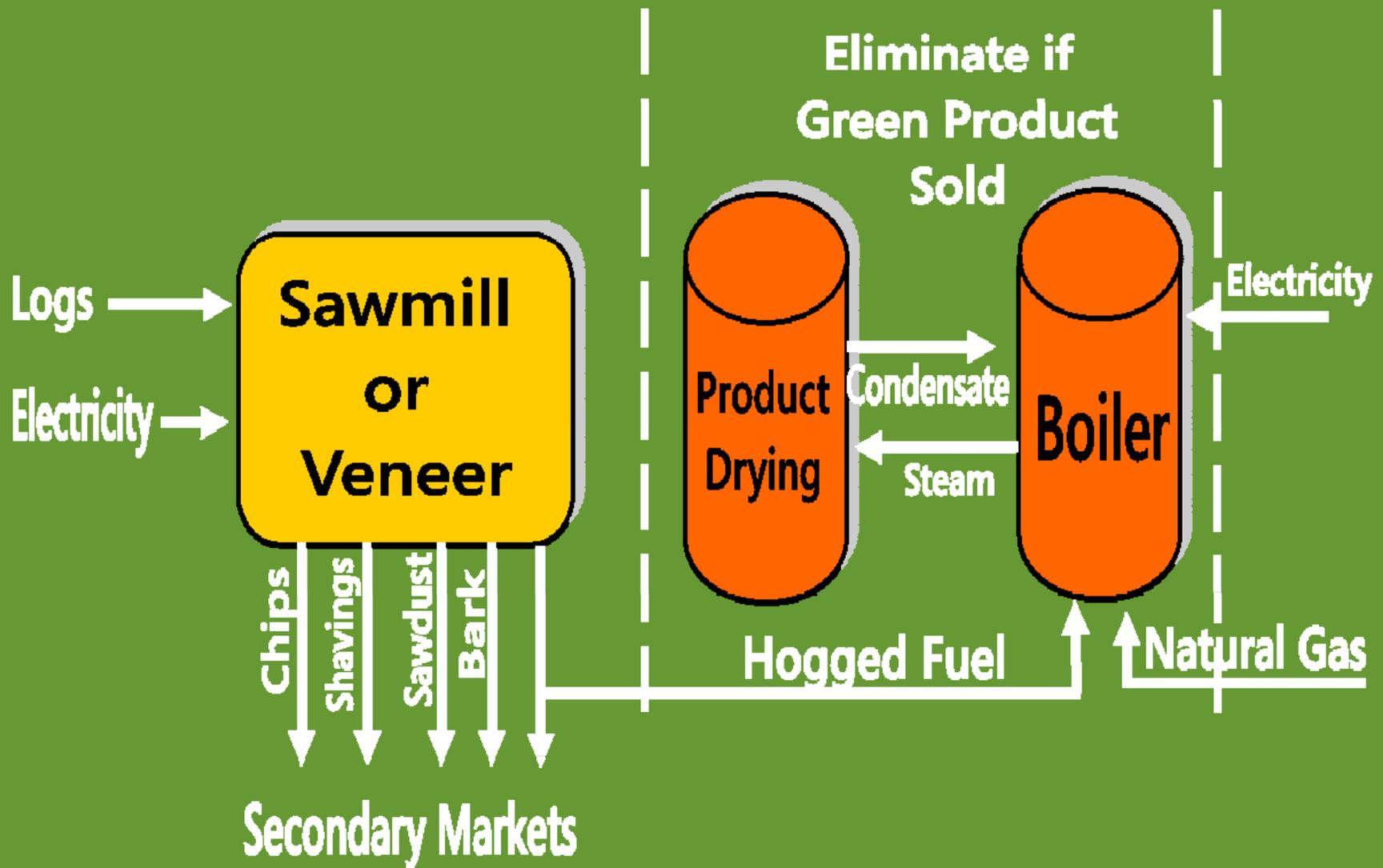


What Are the Technologies?

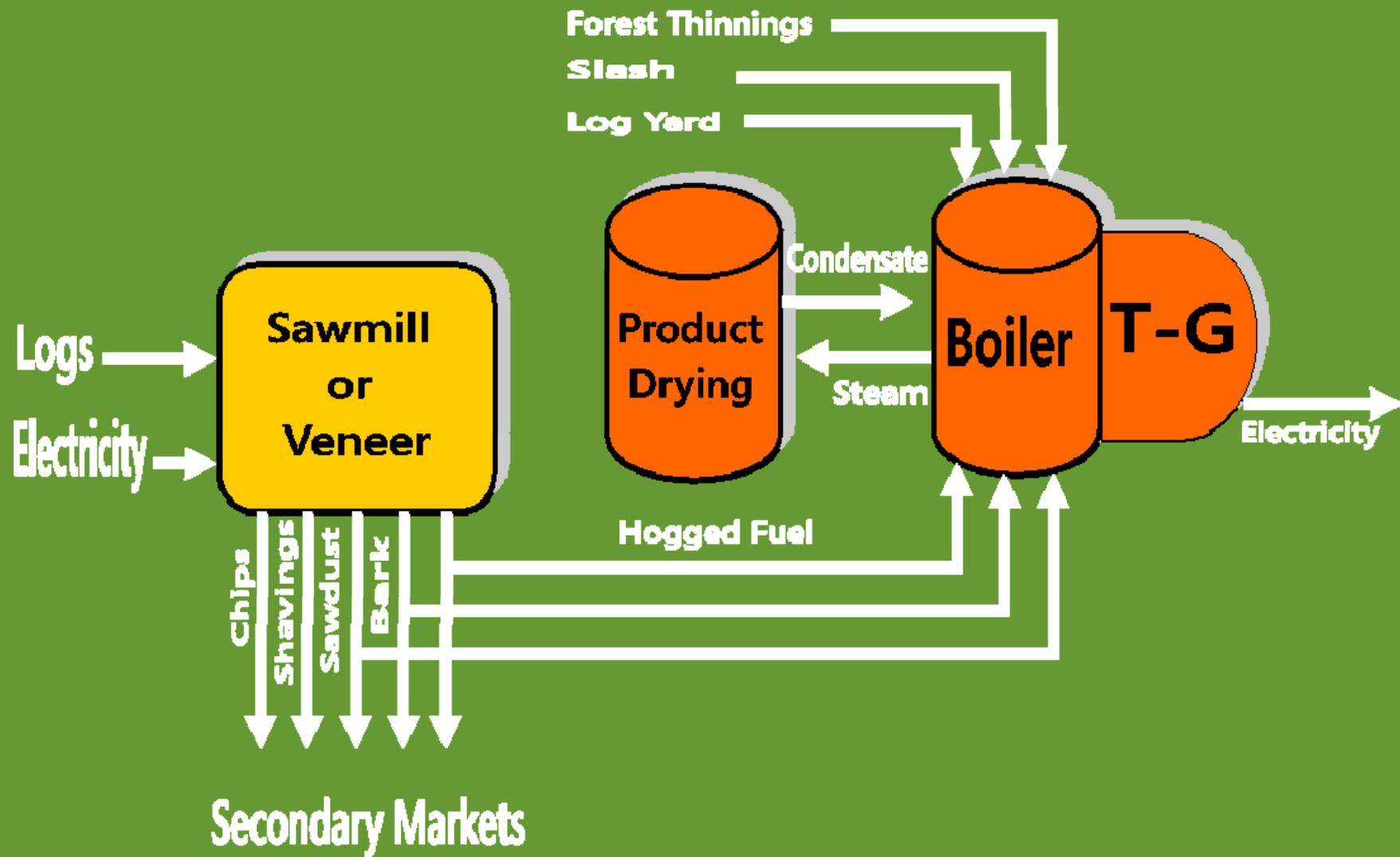
Biomass Gasification



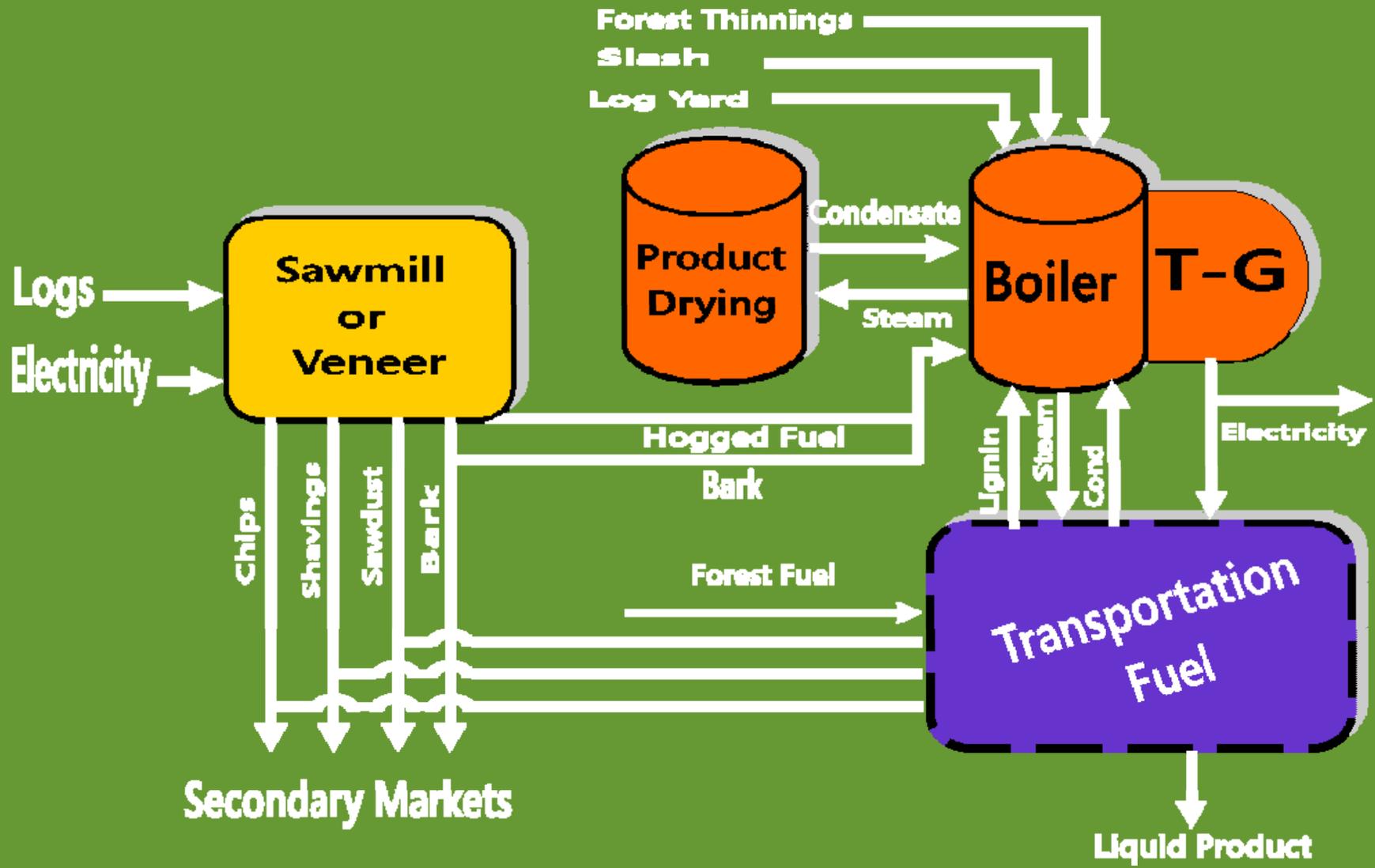
Traditional Mill



Addition of Combined Heat & Power



Final Arrangement (Another User)



Making it Work Around the West

Requirement #1

- Tie to existing forest products infrastructure
 - Study for USFS (\$108 vs. \$87/MWh)
 - Study of Montana sawmills (\$88/MWh)



Making it Work Around the West

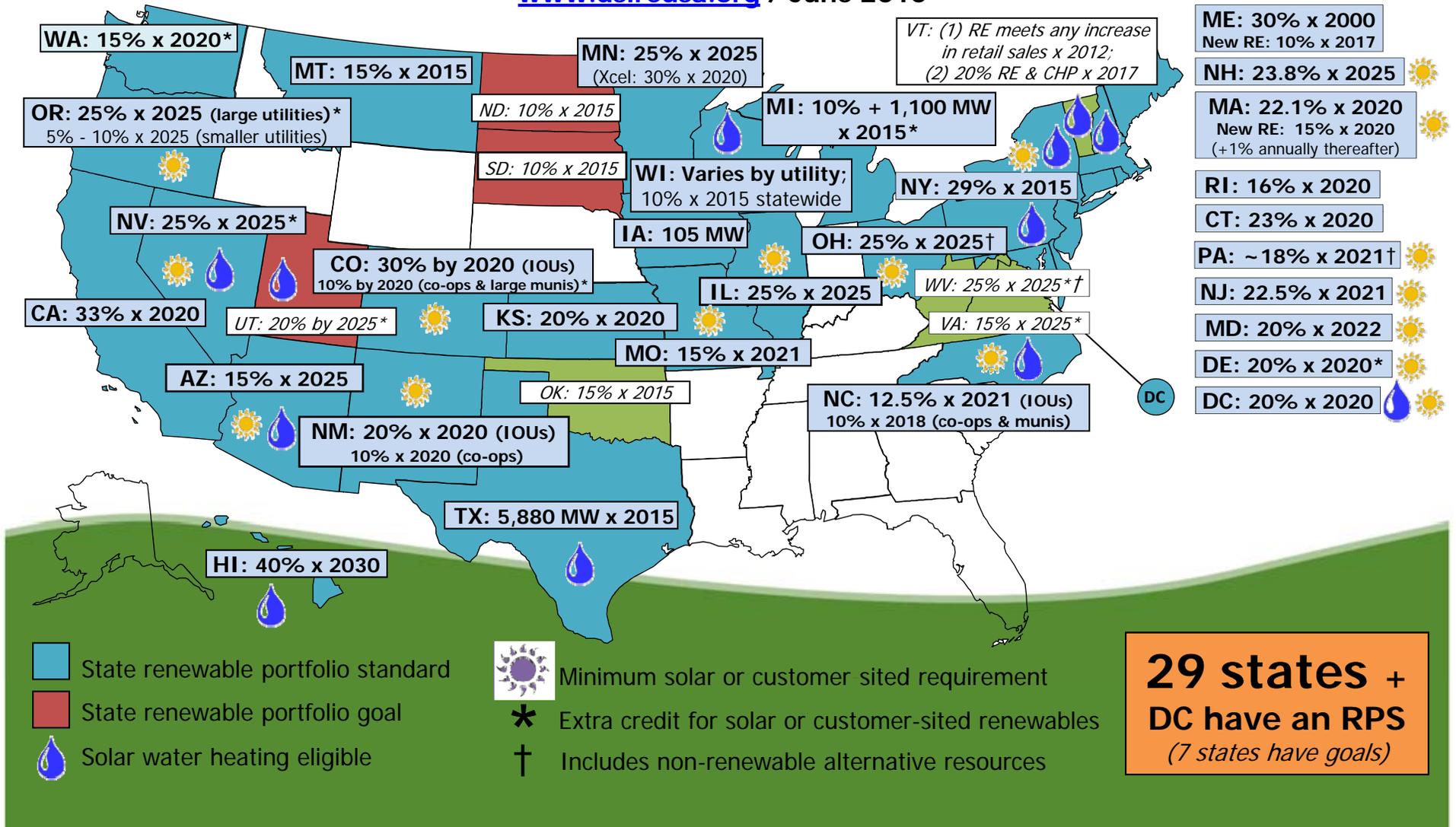
Requirement #2

- Vibrant renewable power market
 - Driver is Renewable Portfolio Standard (RPS)
 - Use of Renewable Energy Certificates (REC's)
- Wide variety of potential purchasers
 - Investor owned utilities
 - Rural electric Co-op's/PUD's
 - Municipal utilities
 - Federal power marketing agencies
- Utility bias to build vs. buy

Making it Work Around the West

Renewable Portfolio Standards

www.dsireusa.org / June 2010



Making it Work Around the West

Requirement #3

- Reasonable transmission availability
 - Actual interconnection rarely a problem
 - Forest products sites have good transmission
- High voltage transmission as a common carrier
 - Some transmission paths fully subscribed
 - Montana situation
 - South to California
 - North to Seattle

Making it Work Around the West

Requirement #4

- Need for incentives in most markets
 - Federal
 - Stimulus grant program
 - Federal loan guarantees
 - Low cost financing (NMTC, RUS)
 - Confusing carbon situation
 - Federal RPS
 - State
 - Biomass specific programs
 - Public purpose programs
 - Sales/income/property tax programs

Common Myths Around Biomass Energy

- Bigger is always better
 - Fuel cost/availability, risk
 - Public perception
 - Levelizing effect of state programs
- Fuel supply is secure from federal lands
 - So far, feds cannot create infrastructure (AZ exception)



Western Summary

- Lots of good project sites/situations
- Transmission upgrades needed to move power around
- Federal incentives need to be extended to match utility timing
- Utilities reluctant purchasers due to recession/RPS timing
- Probably 5 years before RPS's drive market across region
- Clearing up the California muddle

