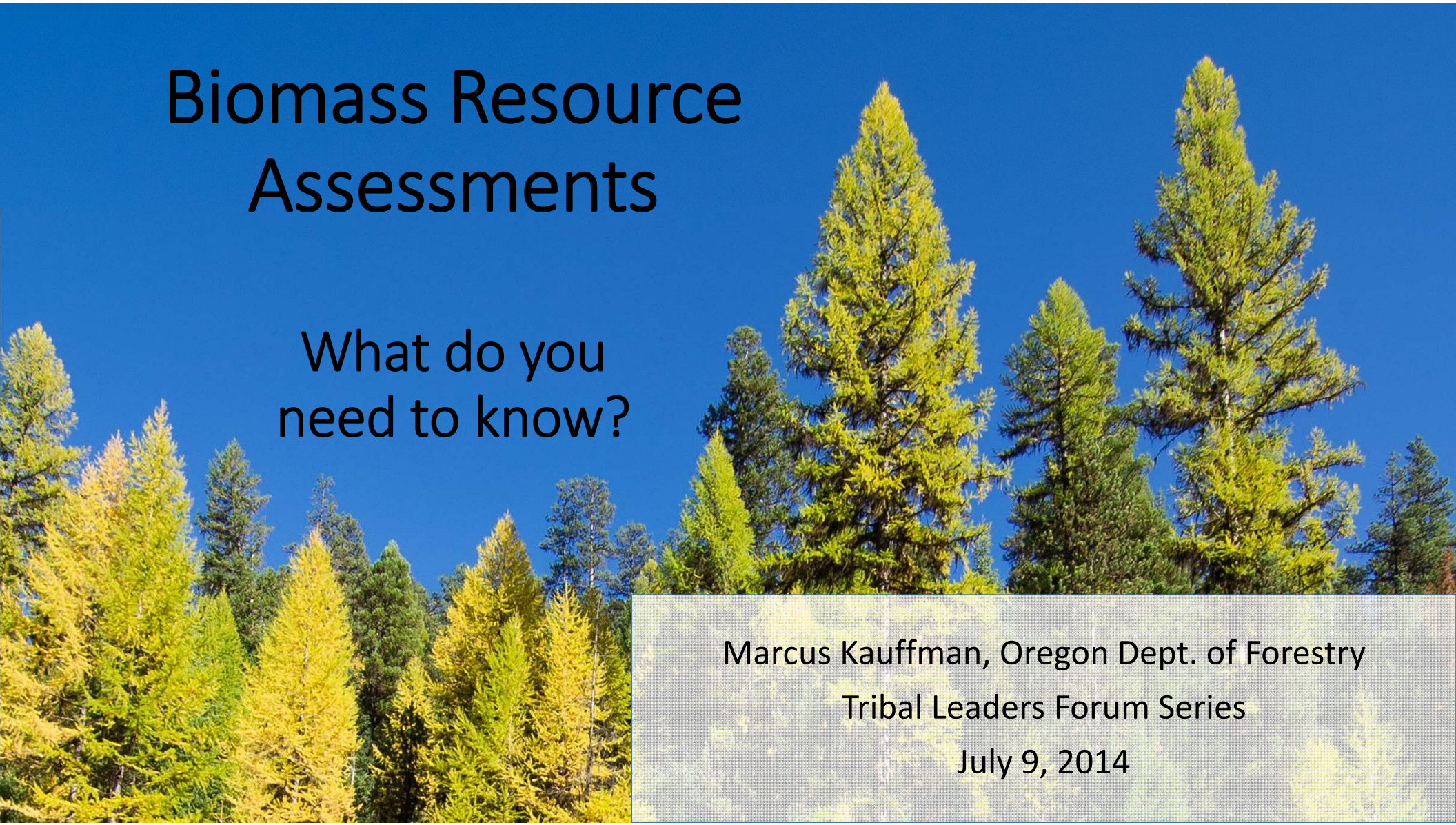


# Biomass Resource Assessments

## What do you need to know?

Marcus Kauffman, Oregon Dept. of Forestry

Tribal Leaders Forum Series

July 9, 2014

# why do we care?

- feedstock and raw materials are central to all biomass projects
- feedstock costs can be a significant operational expense
- securing reliable sources raw materials key to acquiring financing
- most combustion systems are optimized to run on a consistent feedstock
- smaller bio-energy systems are less robust
- larger systems are more robust but present more feedstock risk

# a variety of approaches

from the perspective of…

- initial project viability: are their adequate supplies at reasonable prices?
- efficient operations: can we obtain a consistent supply of preferred feedstock? How robust is the supply chain?
- long-term viability: what is the projected inflation rate? Is there or will there be competition for the resource?

# topics

- types of biomass
- the residual value chain
- when you need a feedstock assessment
- source of public information (free)
- when to hire a consultant (not free but probably worth it)

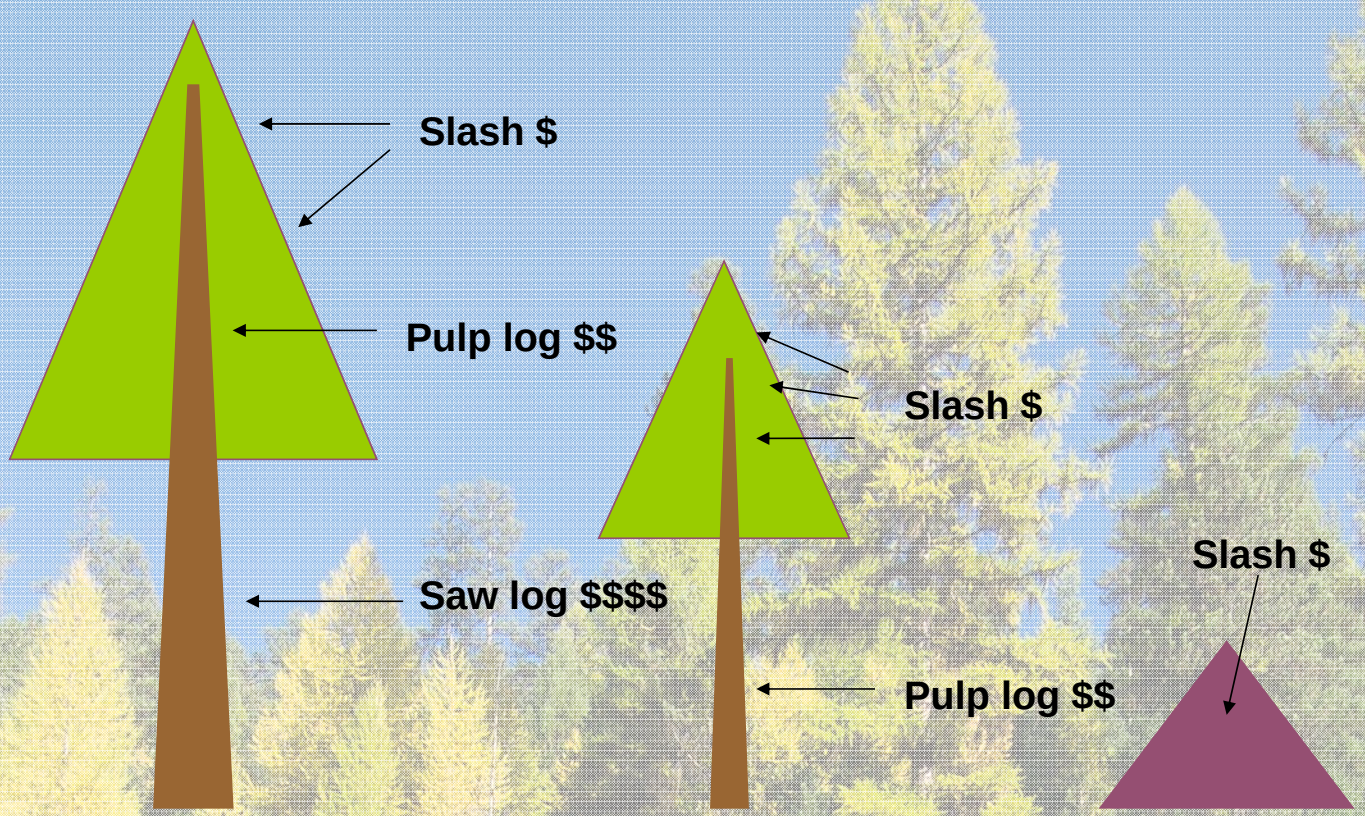
# the wide world of biomass

# What does woody biomass mean to you?

# Key criteria: Raw material form is important

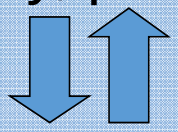
*Every process has a raw material specification*

# Biomass is a by-product
# Value helps to move residuals

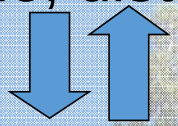


# Value chain considerations

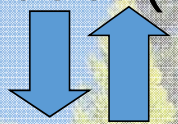
**Resource** : quality, price, availability



**Transport**: mode, distance, terrain



**Process –** Product (technology)

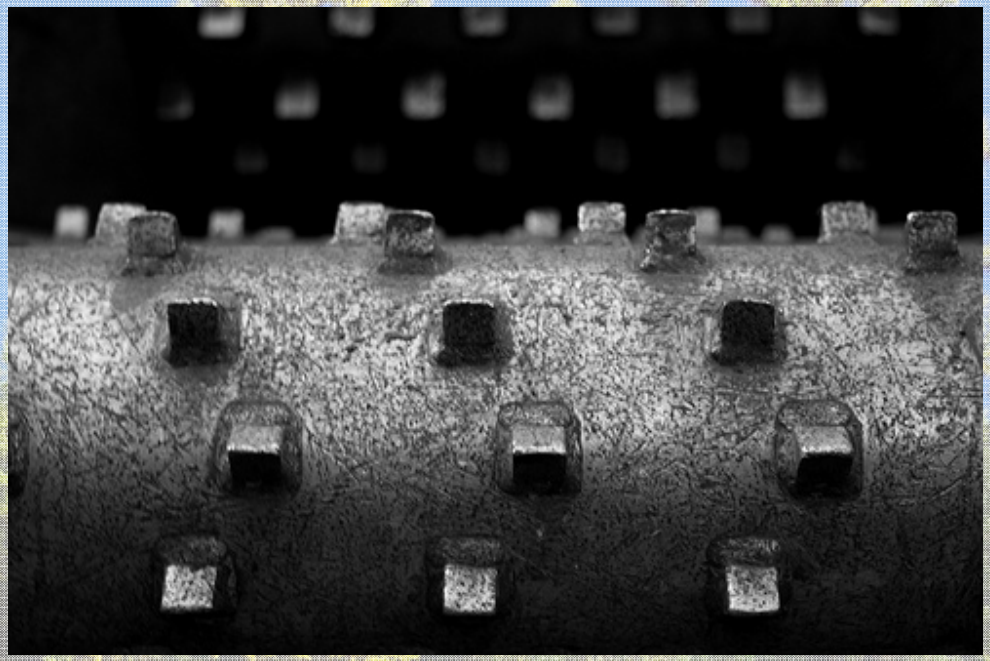


**Transport**

**Market**

# contracts

- Specifications
- Measurement methods
- Testing procedure
- Term
- Delivery schedule
- Payment
- Pricing



# forest biomass aka slash

# Pellets

- Available commercial product
- Several facilities deliver bulk
  - Bear Mtn
  - Pacific Pellet
  - Ochoco
  - Blue Mtn
- Simple contracts
  - Handshake, purchase order
  - One-year contract
- Prices
  - FOB $135-150/ton

# Wood chips

- Sources
  - Forestry residual
  - Commercial logging
  - Fuels reduction
  - Restoration
- Types
  - Hog fuel
  - Paper quality chips
  - “wood fuel chip”
- Prices
  - $80--$100/BDT

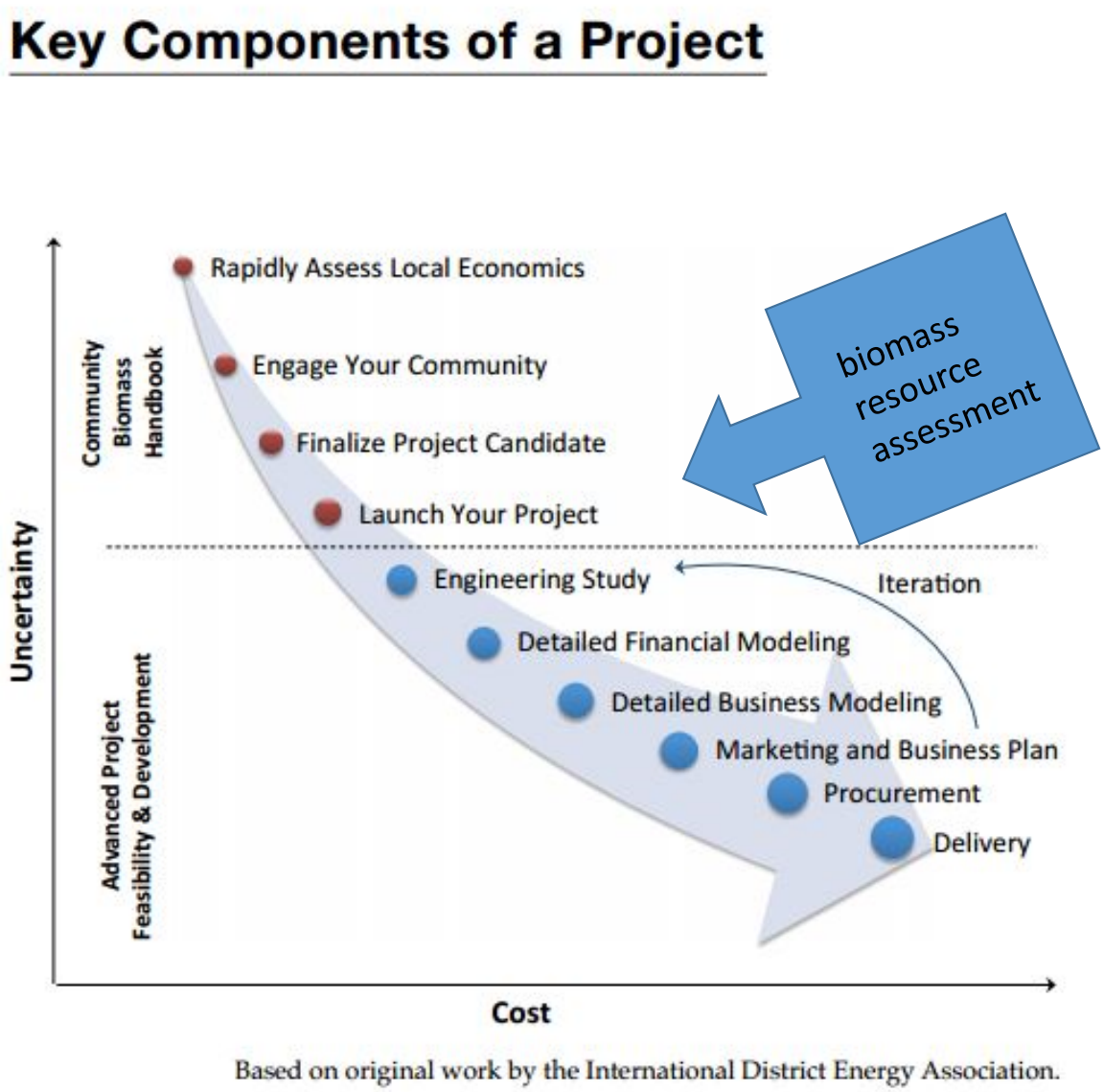
# hog fuel—ground material

# whole logs

# Resource Assessment

- Identifies feedstock needs and specifications
- Answers the questions
  - **How** much is available within a reasonable radius of the proposed project?
  - **What** is the range of prices?
  - **Who** could supply the facility or project?
  - **How**: Identifies transportation and logistical scenarios
    - Standard equipment?
    - New equipment?
    - On the road system?
    - Re-load?
  - Provide confidence to owners that development pathway is sound

# where does a resource assessment fit in the process?



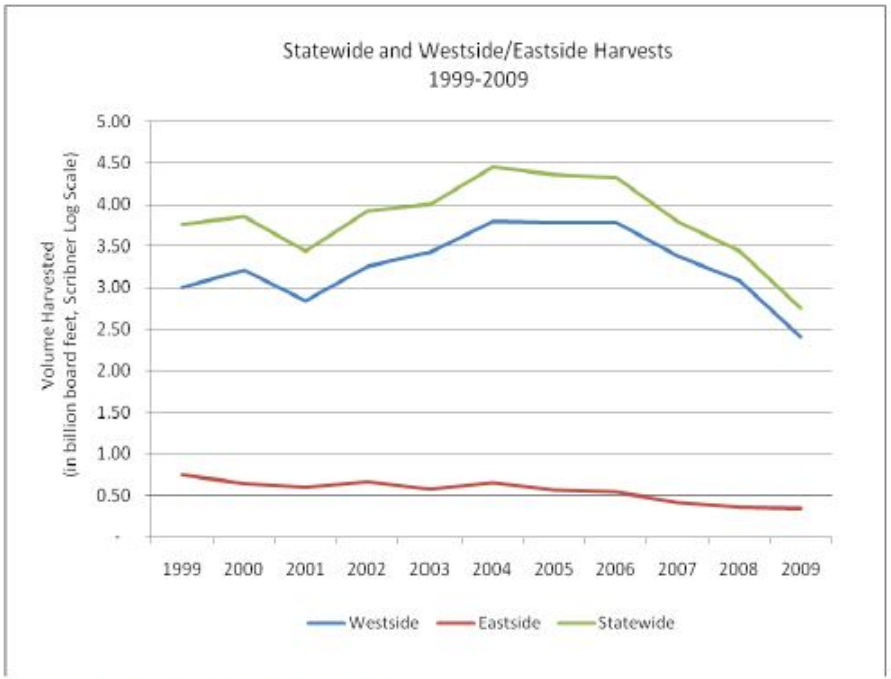
# Data costs money

- uncertainty, novelty, risk require more robust information
  - Need to analyze options and complexity
- feedstock assessments usually not required for small projects
  - Sometimes a handshake will do
- secondary data free to less expensive but not tailored
  - Might not be asking the right question or is not specific geography
- primary data
  - expensive (surveys, telephone, interviews)
  - timely and accurate
  - changes over time

# Data sources

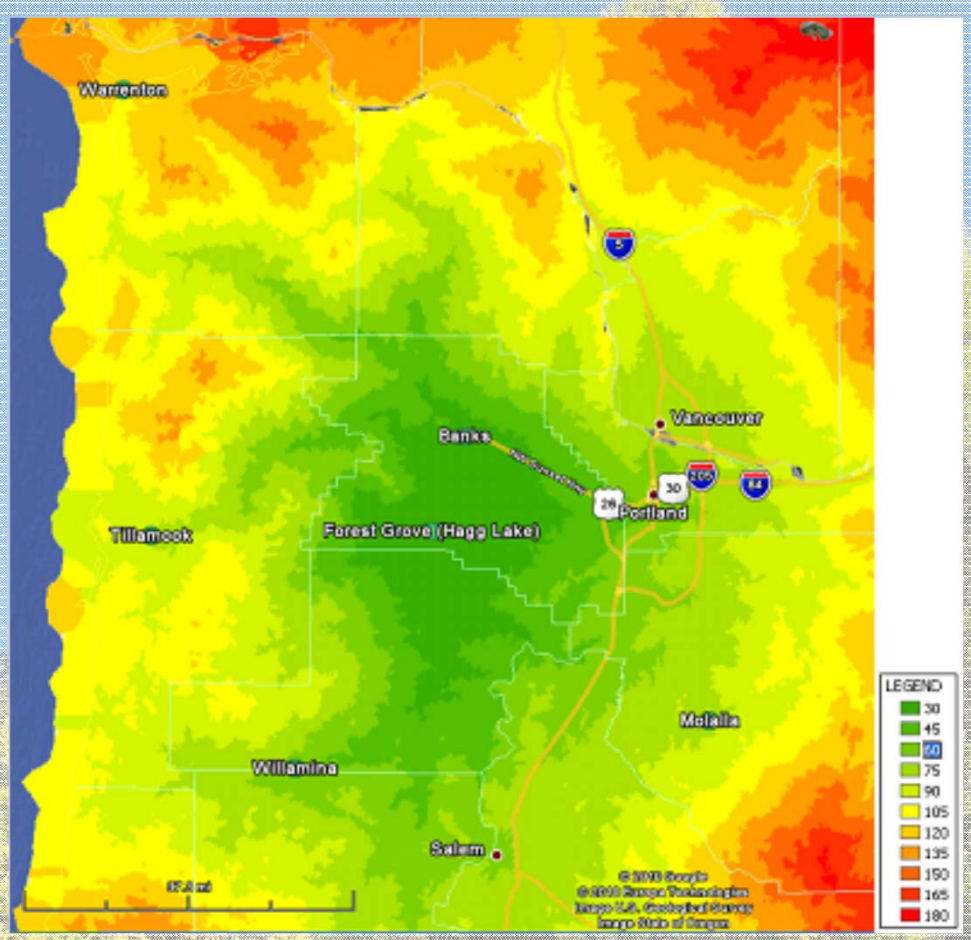
- State natural resource agencies
  - ODF timber harvest data
  - WA DNR biomass harvest calculator
- Publically funded feedstock assessments
  - What is the shelf life?
  - What has changed?
- Public and private landowners
- Forestry contractors
- Researchers and consultants

Table 1: Oregon Timber Harvest by Region 1999-2009




Source: Oregon Department of Forestry, http://www.oregon.gov/ODF/STATE_FORESTS/FRP/annual_reports.shtml, accessed October 15, 2010.

# building a supply curve



# Questions?

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