Forest2Market®
Solutions for the Forest and Wood Products Industries

North Carolina Forestry Association
Annual Meeting
October 8, 2009

Bioenergy Companies Tackle the Wood Fiber Supply Chain

How Can Landowners Help Them to Help Themselves

Forest2Market

- Relationships
  - 100% Timberland Investment Management Organizations
  - 80% Large forest products companies
  - Thousands of landowners, consultants and wood buyers
- Market Intelligence
  - Resource studies / Market research
  - Timber price forecasts and economic analysis
  - Proprietary transaction-level sales and cost data
  - Publications

www.forest2market.com

Forest2Market

- Founded in 2000; Headquartered – Charlotte, NC
- Established Western Region Office - 2007
- Core belief:
  - High quality market information improves business performance
- Widely recognized as the industry standard for timber pricing
- Supported by a diverse and loyal customer base
- Proven track record
  - Delivering value
  - Successfully managing tremendous volumes of data
  - Maintaining confidentiality of data and results

Products and Services

- Stumpage Price Service – 2000
- Publications – 2001
- Forecasts – 2003
- Delivered Price Benchmark – 2006
- Northwest Prices – 2007
- Biomass – 2008
- Lumber - 2009

Agenda

- Understand the Market Dynamics
- Hedge Your Bets
- Sizing the Opportunity

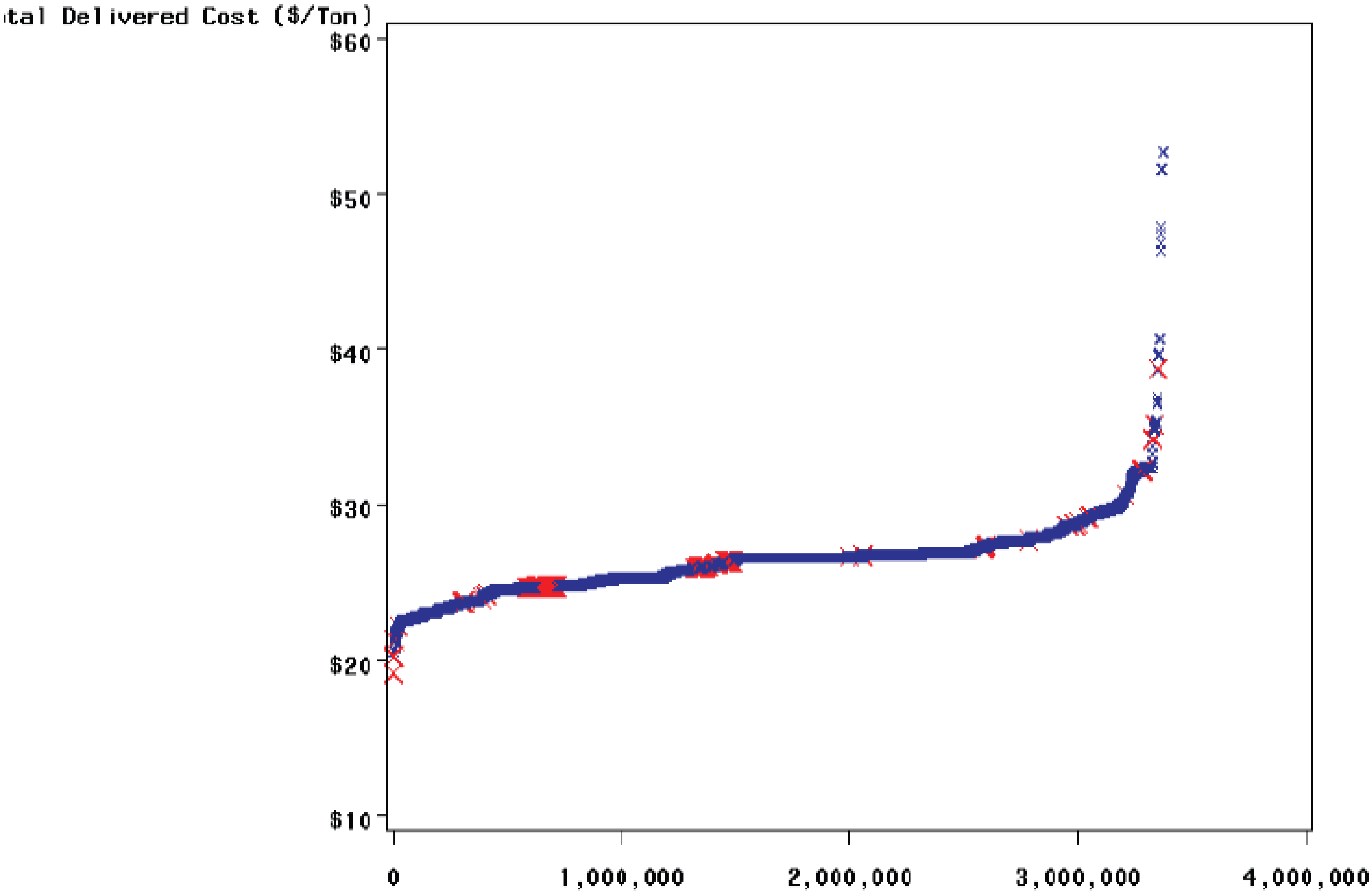
Market Dynamics

- Understand supply chain component pricing
- Understand the resource availability
- Understand the competition

Market Dynamics – Component Pricing

- Don't wash your hands of the component costs
  - Stumpage, cut-skid-load, haul, commissions and overhead
  - Allows one to understand supply chain and extract margins and participate in upside of entire supply chain
  - Managing only a stumpage price doesn't allow
- Believe the right people
  - Single source supplier of pricing information has inherent risk
  - Because they often don't know their relative position in the marketplace

Pine Pulpwood Marginal Cost Curve
F2M FOB Delivered Benchmarks - 2Q2006
Area 6



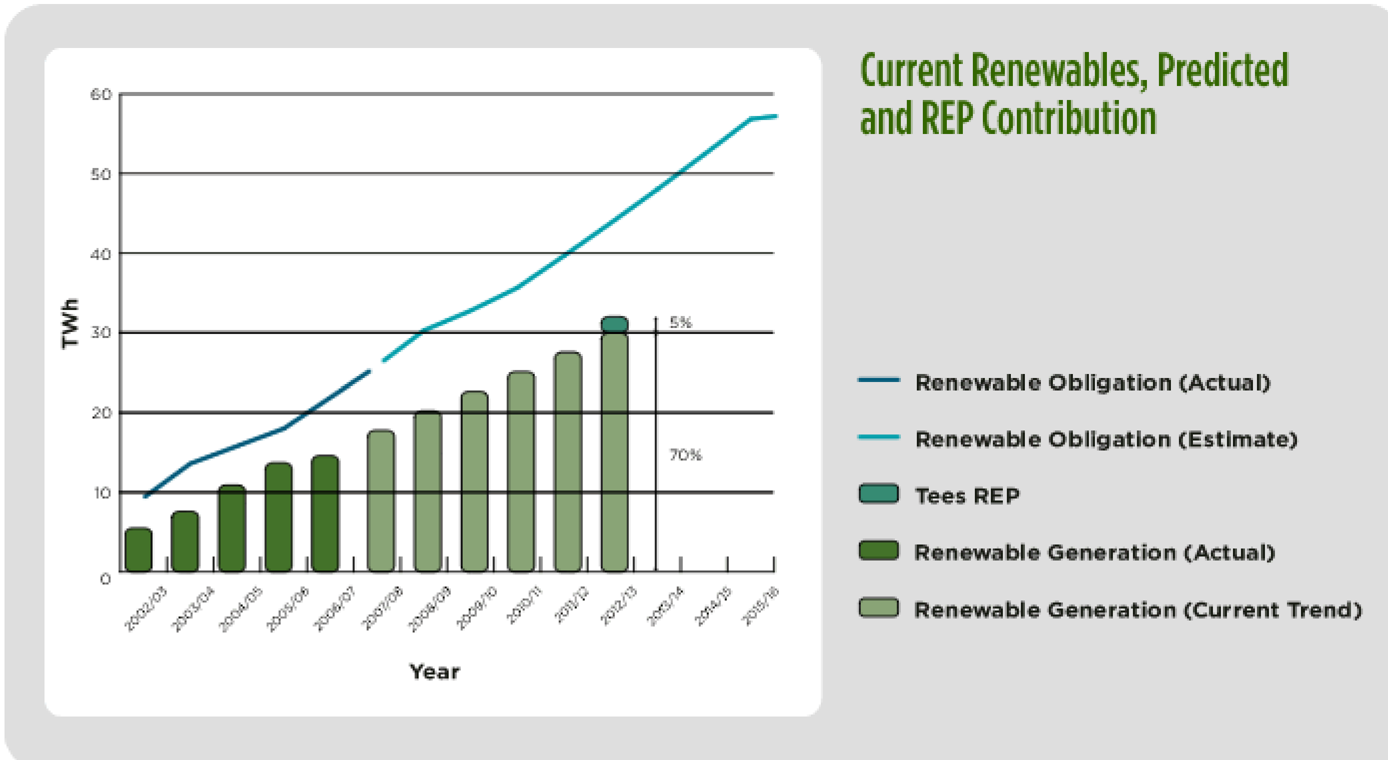
Market Dynamics – Know the Resource

- First Round – Back of the Envelope
  - Within 60 miles of an active wood basket
    - 2-3 million ton market
  - In woods biomass will be a subset
  - If 100% on in woods biomass is picked up ~ 500,000 tons – likely much less however
- Second Round – after realizing that in-woods biomass won't satisfy demand, what is the secondary feedstock source?
  - Full blown market analysis is required
  - Growth/yield, price forecast

Market Dynamics – Know your Competition

- The wood business is a little like politics – its local
  - And there is strong local bonds among producers, sawmills, suppliers
  - Don't discount the strength of 50 year plus relationships
  - Money doesn't always talk
- Don't tug on Superman's Cap
  - For most bioenergy producers, their total consumption is a pulp mills marginal consumption
- Your market may not be local

Consider UK Demand



To meet UK's green energy targets of 20% renewables by 2020; UK must import about 12 million tons of pellets annually. If 1/3 is sourced from eastern US; then 8-12 new pellet plants are needed

Hedging Your Bets

- Transparency through the supply chain
  - If you are new to the supply chain, you never gain from an obscure market
- Creditworthy trading partners
  - Are extremely valuable
  - Most always involve the landowner
- Hedge risk with price dual price indexes
  - Fiber supply changes = to changes in power purchase agreement (product produced)

Hedging Your Bets – Dual indexes

- End product and wood basket price movements are not related
  - So indexing on local wood fiber changes make little sense
  - But makes perfect sense to the supplier or landowner that is supplying fiber in the local market
- Other parts of the supply chain are correlated, however
  - CPI/PPI is a good measure of supply chain labor and capital cost
  - Diesel fuel index is a good measure of energy inputs

Hedging Your Bets – Dual indexes

- Term length conundrum
  - Bioenergy company can't get funding without supply and price assurance – 7-15 year term
  - Bankers don't want to take price risk
  - Supplier and landowners can't afford to (and won't) deliver on an upside down fixed price contract
- This situation begs for timberland ownership or a creditworthy trading partner
  - Involves 7-15 year contracts
  - Caps and collars on stumpage portion
  - Indexing strategy on PPI/CPI and diesel
- In all situations, this will mean a <u>seller premium</u>
  - The premium is not associated with the supply chain services, its more associated with the security of supply

Sizing a Plant to the Resource

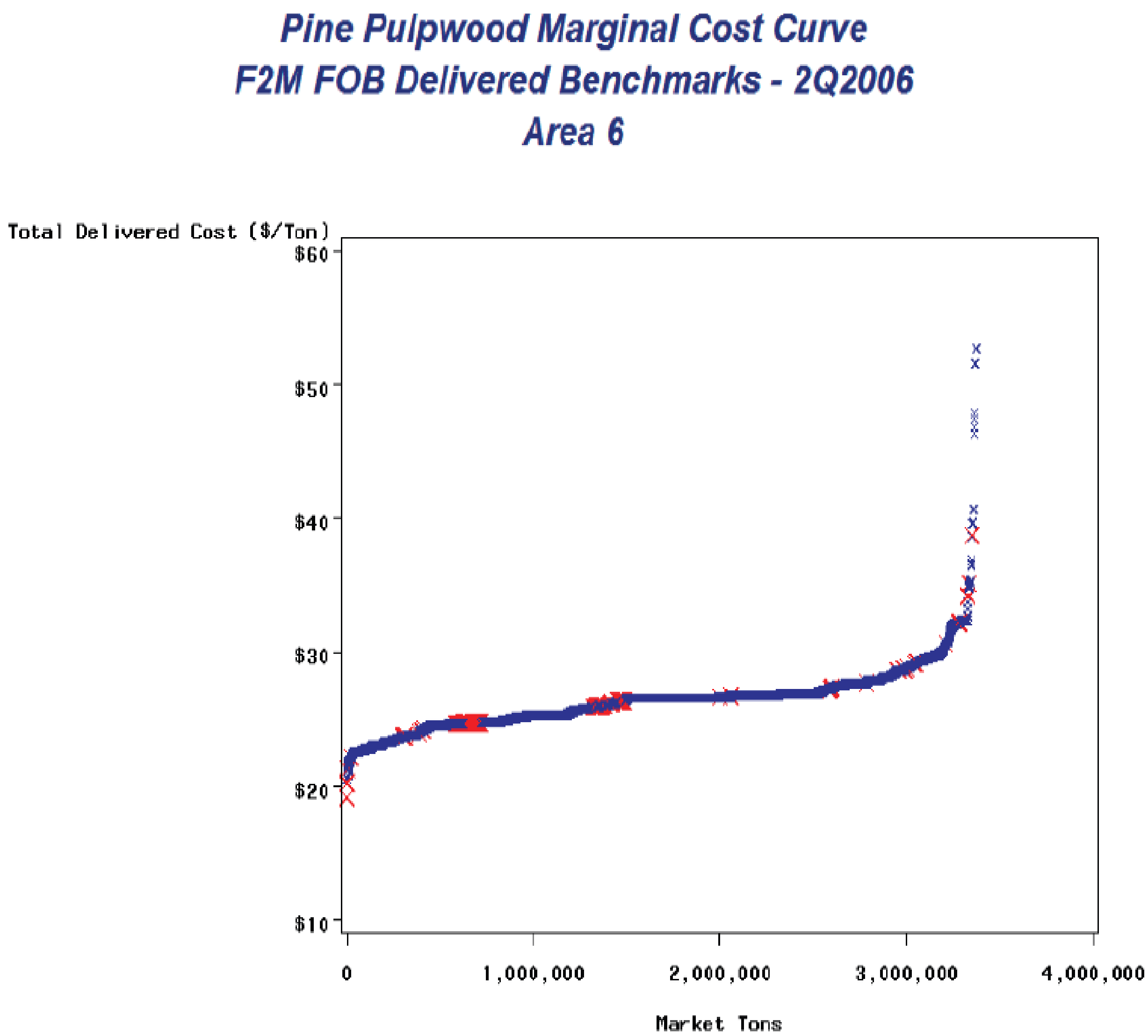
- Logistics business

- Sustainability business

Sizing The Plant - Logistics

- Does the bioenergy facility understand the local resource, are they building an appropriate sized plant
- Their last ton over the scale can (and usually does) cost twice as much as your first ton, where is your biomass relative to their total cost
- Their wood cost assumptions are too low
  - Be prepared to change your contracts
  - A couple recent examples

Market Dynamics



Bio-Energy Update

- Power – Co-generation – National Mandates
  - American Clean Energy Security Act (ACES)
    - 20% by 2020 (net 12% renewable)
    - Expands definition of biomass to all woody material
      - Includes construction debris
    - Expected to be decided after Congress recess
  - Biomass Crop Assistance Program (BCAP)
    - Managed by the Farm Service Agency (FSA)
    - Definition of biomass excludes construction debris
    - $1 match for $1/bone dry ton <u>delivered</u> (cap of $42/bdt)
    - Must be delivered to "designated biomass conversion facilities"
    - http://www.fsa.usda.gov/FSA/webapp?area=home&subject=ener&topic=bcap

Bio-Energy Update

- BCAP Qualified
  - KapStone – Roanoke Rapids, NC
  - Norbord – Kinards, SC
  - Smurfit-Stone – Florence, SC
  - American Wood Fibers, Marion, VA
  - Lignetics Pellets, Kenbridge, VA
- Power – Co-generation – State Mandates
  - North Carolina
    - 10-12.5% renewable
    - 7.5% will come from renewable power; balance from savings
    - 1.2% now; need to triple by 2012
  - Caps on “green” surcharge to customer
  - Residential - $10

Bio-Energy Update - NC

- Operational
  - Carolina Wood Pellets, Macon County (68,000 tons)
  - Decker Energy, Craven County (48 MW)
  - Coastal Clean Energy, Duplin County (25 MW)

- Proposed or likely
  - IP Riegelwood – proposed 48 MW CHP (Sterling)
  - Peregrine – 2 or 3 east coast locations
  - Adage – 6 east coast locations – 1 site in FL
  - Duke ?

Bio-Energy Update

- Bioenergy – not terribly competitive in southern market
  - 25-35 MW plant
  - 50 MW plant
  - 100 MW plant
  - 300 MW plant (one in world)
- Wholesale power rates in US South are $0.06-0.08/KwH

Bio-Energy Update

- Black Liquor Credit
  - U.S. – $7 billion
    - Boosted paper companies profits
    - Legislation introduced to close “loophole”
      - Expected to end in December
    - Paper/pulp production & inventories did not increase substantially
    - PIX U.S. NBSK PULP Index up 13% from May’s low of $637/tonne (2008 high of $880/tonne)
    - Movement from recycled to virgin fiber production
  - Canada – $1 billion rebate – must be used in an energy savings program/development

Bio-Energy Update

- Pellets
  - Renewable Energy
    - 370,000 tonnes production
    - Barge pellets
    - European customers
    - Economics not there:
      - $130/tonne at port on ship (CIF)

Delivered Pulpwood:	$	28
+ Chipping ($5):	$	33
Dry Cost (0.5 moisture):	$	66
Metric Ton Cost:	$	69
+ Manufacturing ($50/tonne):	$	119
+ Transportation ($15):	$	134
+ Ship Loading ($7/tonne):	$	141
Loss:	$	(11)

E-Newsletter

- In-depth coverage of the news and trends in the wood bioenergy industry:
    - Economic trends and forecasts
    - Industry trends
    - Legislation and government policies that affect the industry
    - Technological developments
    - Production and consumption updates
    - People and companies involved in the industry

- http://www.forest2market.com/f2m/us/f2m1/free/forest2fuel

Cellulosic Ethanol—Legislation Detail

Environmental Protection Agency (EPA)
- Renewable Fuel Standard

Internal Revenue Service (IRS)
- Volumetric Ethanol Excise Tax Credit
- Small Ethanol Producer Credit
- Biodiesel Tax Credit
- Small Agri-Biodiesel Producer Credit
- Renewable Diesel Tax Credit
- Credit for Production of Cellulosic Biofuel
- Special Depreciation Allowance for Cellulosic Ethanol Plant Property

Department of Agriculture (USDA)
- Bioenergy Program
- Renewable Energy Systems and Energy Efficiency Improvements
- Value-Added Producer Grants Program (VAPG)
- Biorefinery Development Grants (Unfunded)
- Business and Industry (B&I) Guaranteed Loans
- Rural Business Enterprise Grants (RBEG)
- Other USDA Programs

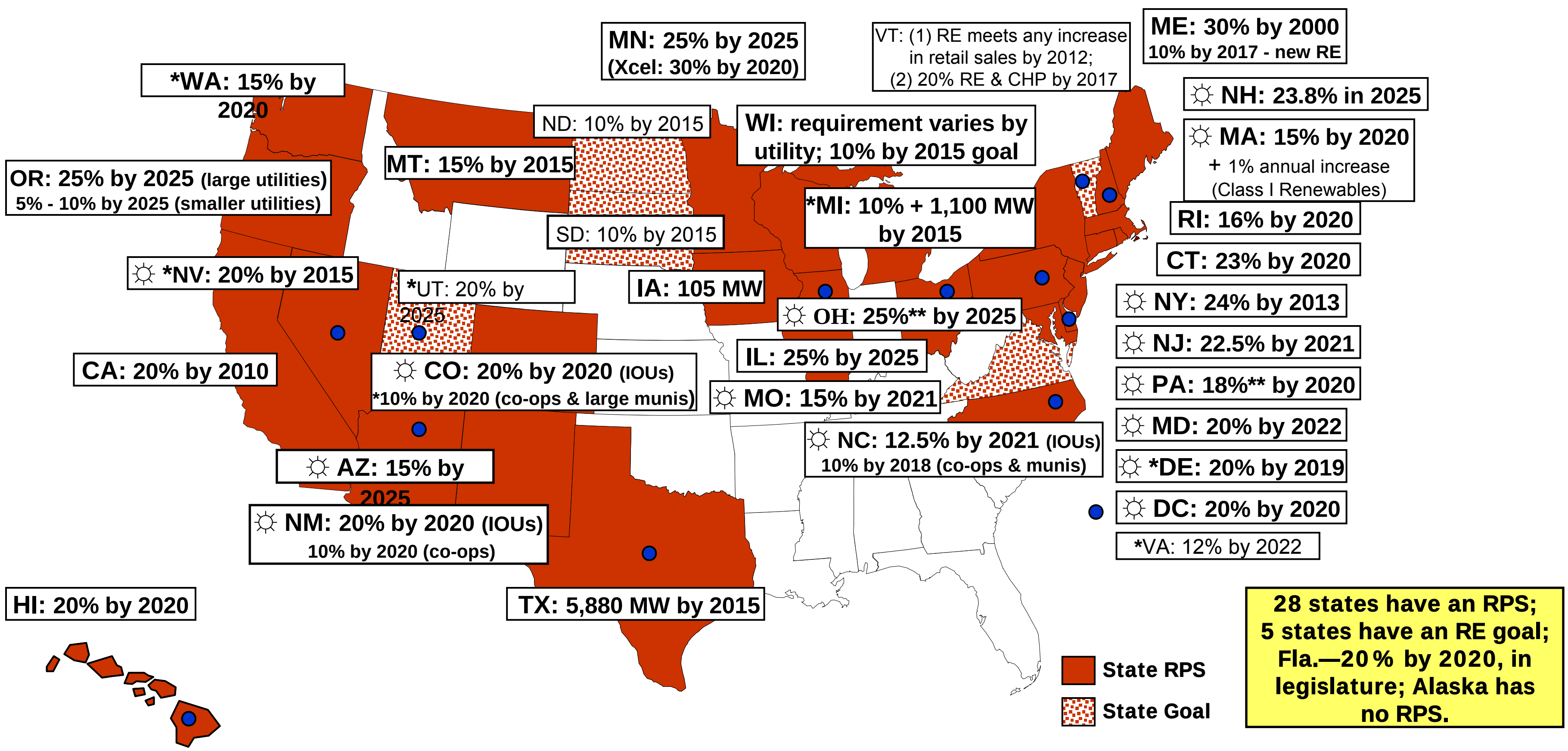
New Farm Bill Programs Under USDA
- Biorefinery Assistance
- Repowering Assistance
- Bioenergy Program for Advanced Biofuels
- Feedstock Flexibility Program for Producers of Biofuels (Sugar)
- Biomass Crop Assistance Program (BCAP)

Department of Energy (DOE)
- Biomass Research and Development Initiative
- Biorefinery Project Grants
- Loan Guarantees for Ethanol and Commercial Byproducts from Cellulose, Municipal Solid Waste, and Sugar Cane
- DOE Loan Guarantee Program
- Cellulosic Biofuels Production Incentive

U.S. Customs and Border Protection
- Import Duty for Fuel Ethanol

Source: Brent D. Yacobucci. CRS Report for Congress. Biofuels Incentives: A Summary of Federal Programs, July 29, 2008.

Incentives: Renewable Energy Standards



Source: : www.dsireusa.org; Interstate Renewable Energy Council; NC State University—Solar Center

Incentives

American Recovery and Reinvestment Act of 2009

The extension of and alternatives to the production tax credit. Companies producing electricity from biomass can either:

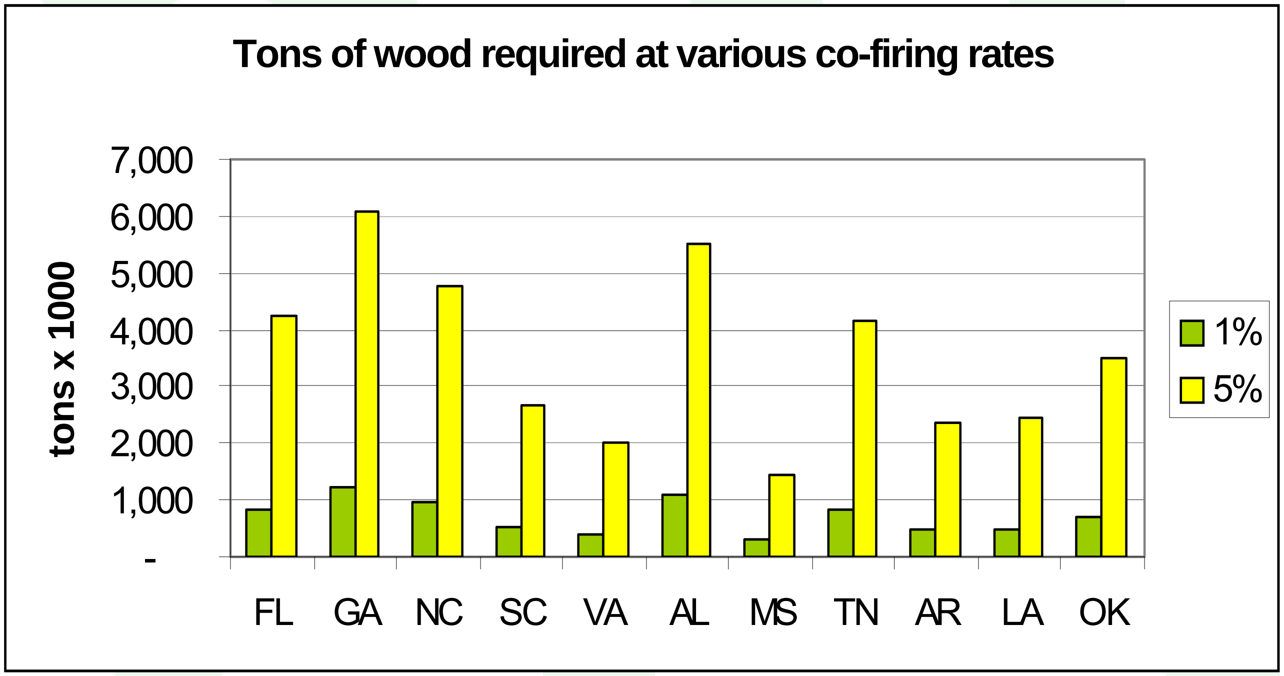
- Take a production tax credit (PTC) through 2013, OR
- If placing a facility in service between 2009 and 2013, they can elect to take an investment tax credit of 30 percent instead of a PTC, OR
- If they begin construction in 2009 or 2010, they can opt for an up-front grant from the government in the amount of 30 percent.

Among the other provisions targeting renewable energy and the associated job creation:

- A first-year bonus depreciation schedule for property place in service in 2009; 50 percent of the cost could be depreciated the first year and the remaining 50 percent would follow the regular depreciation schedule.
- A tripling of funding for Clean Renewable Energy Bonds to finance projects that produce electricity from renewable sources, to $1.6 billion.
- An additional $6 billion in loan guarantees for renewable, biofuels, and electricity transmission projects.
- A 30 percent tax credit for manufacturers of advanced energy machinery equipment and technologies.
- Research and development funding, including $800 million for biomass projects.
- $50 million leading to increased use of biomass from federal and non-federal lands.

Renewable Portfolio Standards

- 28 states – most standards range of 10-20% renewable over next 10-20 years
- Southern states are next?; Federal?



South total (excluding TX); 10 million (1%); 50 million (5%)

Realities: Future

- President Obama has identified the nexus between energy and the environment as a high priority
  - Renewable standard is likely
  - Carbon has long odds
- Early success with the stimulus bill will likely buy political capital – waning
- Clear that Obama Administration is happy to heap support on cellulosic ethanol and electricity producers
- Much can be done outside of congressional approval through DOE

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