

Resource Economics, LLC

TIMBER SUPPLY & PRODUCT DEMAND SERVICE

Catalog of Services

Spring 2001

TIMBER SUPPLY & PRODUCT DEMAND SERVICE

Our Spring, 2001, catalog of services describes our Timber Supply and Demand Service (now in its second year of production), our new State level wood products production and timber supply reports, GIS mapping products, and our general areas of consulting.

Over the next 16 years, lumber, structural panels, and paper/paperboard producers will be operating in an environment that will become increasingly resource constrained as the diminishing North American softwood fiber supply forces companies to either re-structure or exit the market. Knowing where and when these limiting factors will first emerge and the depth of their impact will provide invaluable assistance in strategic planning, operations management, and financial planning in the wood products industry.

Our economic models for lumber, structural panels, paper and paperboard, stumpage, and operating profit levels are directly related to the actual timber supply by producing state. Only by tying the raw material base to the specific product outputs can accurate supply and demand equilibrium projections be made. In order to assist the wood products and financial community with a clear, unbiased view of these changes and their impact on the industry, Resource Economics offers a service of recurring publications entitled Timber Supply and Product Demand Service. The service includes our **Long Term Outlook**, **Short Term Outlook**, and **Pending Issues**.

- **Long Term Outlook** is offered once per year and projects North American wood products supply and demand for 16 years and is reported at the regional level.
- **Short Term Outlook** is offered once per year and covers a six-year outlook including quarterly projections for the economy, wood consumption, product prices, and stumpage prices. Key wood products producing states are detailed.
- **Pending Issues** is offered twice per year and addresses key North American issues in the wood products sector and includes chapters from guest authors on specific supply and demand issues.

The demand models are fully integrated and flow from our macroeconomic projections through the end use markets for wood products at the regional level to the individual manufacturing location on a state basis.

SUPPLY & DEMAND

Our timber supply models encompass the actual timber inventory on a sub-state level and include the current growth and yield, management activities, fiber type, site class, owner group, and merchantable and pre-merchantable levels of timber volume.

Our product demand and timber supply models are linked to solve for the equilibrium consumption, production, and price levels for the major wood products and stumpage for the industry. The final result is a return-to-log analysis for softwood lumber, plywood, and oriented strand board solved at the average efficiency level for each manufactured product and region.

Our Pending Issues publications address current issues in the forest products sector and have included titles such as the following:

- *Timber Supply Issues (by key states)*
- *Arkansas Timberland Inventory, What Is It?*
- *RPA 2000 Draft Review*
- *Oregon Timber Inventory Survey 1995 And 1986.*
- *An Historical Analysis On Lumber, Stumpage, And Pricing*
- *South American Wood Supplies Increasing-But Still A Small Part Of the North American Market*

Future Pending Issues subjects will include:

- *Timber Size And Product Limitations At A Regional Level*
- *Engineered Wood Products Future Market Share*
- *Isolation Of Canada's Future Timber Supply Contraction*
- *Target Investment Strategies For Timber And Wood Products Production*
- *The Impact Of Corporate Mergers On Small Producers.*

Pricing and terms of Timber Supply & Product Demand Service available upon request.

STATES

INDIVIDUAL STATE PROJECTIONS

Resource Economics, LLC is now offering annual State reports based upon our extensive state level modeling. Our Long Term Outlook supply and demand equilibrium is solved for at the individual state or sub-state level; however, production and timber supply is reported at the regional level only. Because there is a tremendous amount of information and data generated in a solution at the state level that is relative to the competitive situation among and between individual key producing states, we have developed individual state reports that are now available for purchase.

What Is Included?

- Chapter 1: A review of our current macroeconomic outlook for six years.
- Chapter 2: A review of US end use market consumption for six years.
- Chapter 3: The contribution to wood products consumption and production market share generated by each state for six years including:

Softwood lumber, softwood plywood, OSB, paper and paperboard, hardwood lumber, hardwood plywood, and mill residue production.

Timber supply information for each state for six years include:

Softwood and hardwood timber acreage, inventory, growth, and harvest; timber harvest consumed by end use category; and a projection of the timber supply for the next 6 years.

- Chapter 4: Softwood and hardwood sawtimber and softwood and hardwood pulpwood prices for the next six years for the key state.

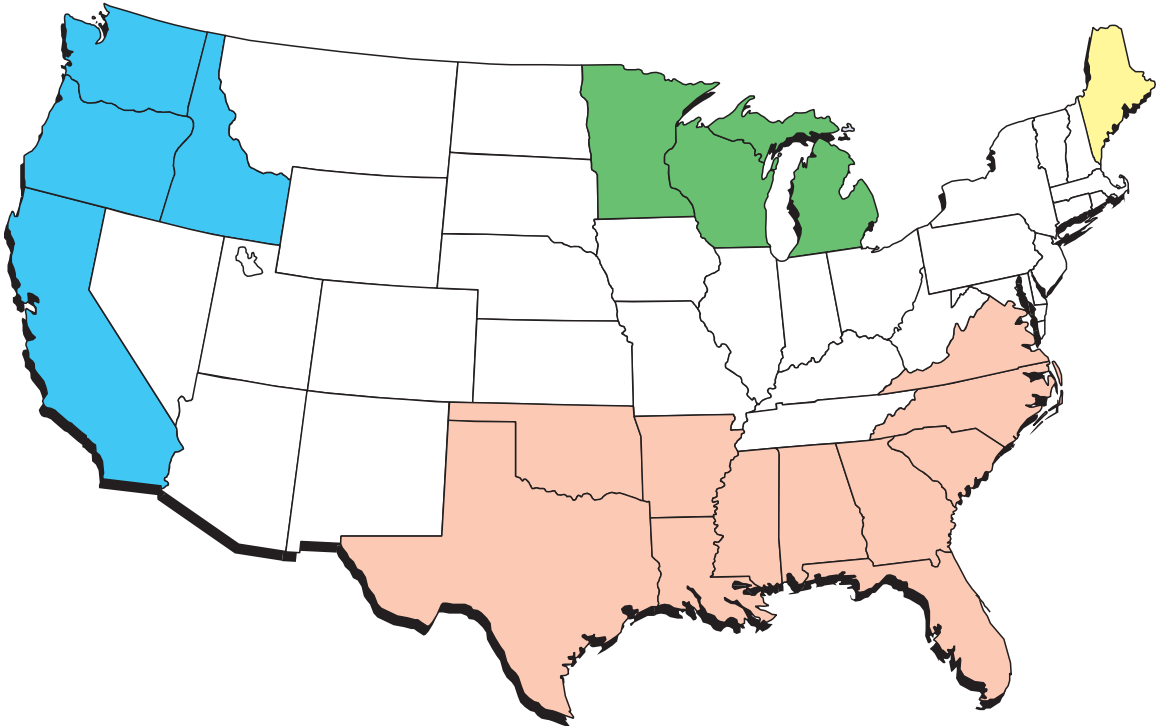
Facilities/Inventory Map: In addition, with each order, an “E” sized map of the state ordered showing all softwood manufacturing facilities and the softwood merchantable and pre-merchantable softwood timber stands in expanded form. A similar map of hardwood facilities and inventory is also available depending upon demand for the product.

Pricing: Because the first two chapters for each state publication contains the same macroeconomic and end use consumption chapters, additional state orders after the first state are at a reduced price.

One State Publication And Map: \$1,950

Additional State Publications And Map: \$1,250

PROJECTIONS



States included:

West:

Western Oregon
Western Washington
Eastern Oregon
Eastern Washington
California
Idaho

South:

Texas
Louisiana
Arkansas
Oklahoma
Mississippi
Alabama
Georgia
Florida
South Carolina
North Carolina
Virginia

Northeast:

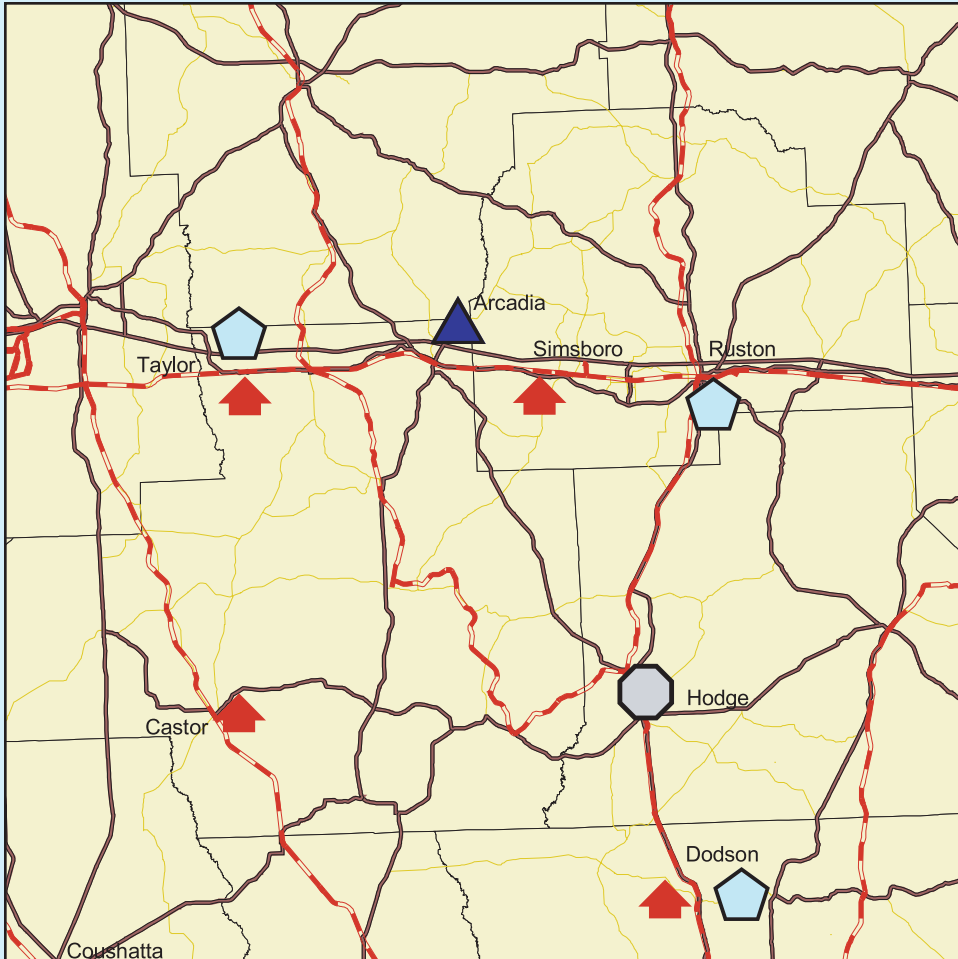
Maine

North Central:

Minnesota
Wisconsin
Michigan

MAPPING

FOREST PRODUCTS MAPPING



Every State report includes a color wall size map showing the locations of all softwood manufacturing facilities in each state along with locations of softwood merchantable and pre-merchantable timber.

STATE FEATURES PROJECTION REPORTS

Our State reports are in full color and include graphs and tables describing the key features below:

Macroeconomic Outlook

- *US GDP*
- *US Consumer Price Index*
- *US Producer Price Index*
- *Mortgage Rate*
- *Population*

Canadian Outlook

- *GDP*
- *Mortgage Rate*
- *Population*

Wood Products End Use Markets

- *Housing Starts, Single, Multi, Man.*
- *Repairs and Remodeling*
- *Maintenance and Repair*
- *Non-Residential Construction*
- *Industrial Production*

Wood Products Production (US and State)

- *Softwood Lumber*
- *Softwood Plywood*
- *Oriented Strand Board*
- *Hardwood Lumber and Plywood*
- *Residues, SW & HW*
- *Pulp, Paper, & Paperboard*

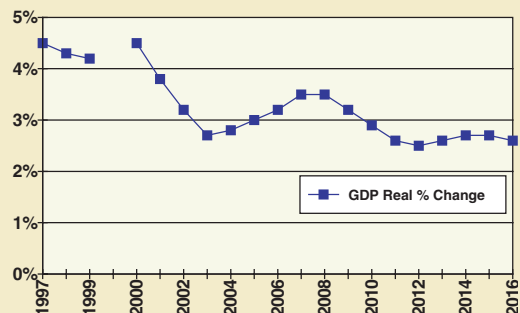
Timber Supply

- *Timberland Area*
- *Softwood*
 - *Harvest*
 - *Growth*
 - *Inventory*
- *Hardwood*
 - *Harvest*
 - *Growth*
 - *Inventory*
- *Harvest by End Use*

Stumpage Prices

- *Softwood Sawtimber (/MBF & Ton)*
- *Softwood Pulpwood (/Ton)*
- *Hardwood Sawtimber (/MBF & Ton)*
- *Hardwood Pulpwood (/Ton)*

US Gross Domestic Product
Real Percent Change
1996 = 100



FINDINGS

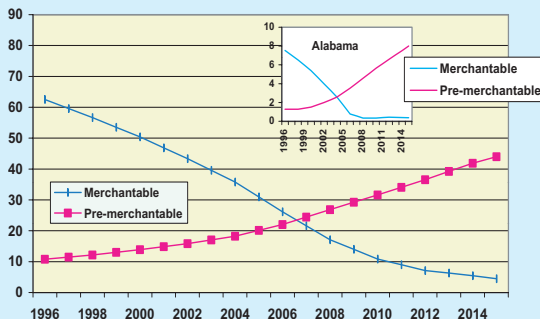
SUPPLY & DEMAND

Our modeling systems have projected increasing demand for forest products in North America that will be severely dampened by the inability to supply the raw timber resource in order to meet this demand. Our analysis indicates future US structural changes in wood use patterns, rising product prices, and higher profitability for some producers and timber owners.

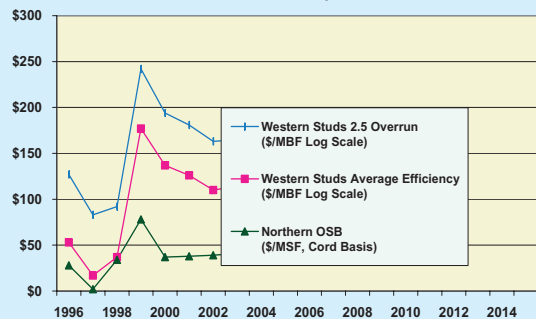
Key Findings

- Past relationships between the solid wood consuming sectors, such as housing starts, and key macroeconomic demand drivers, such as GDP, will change as wood products prices become a significant factor in solid wood products consumption.
- US softwood timber harvest will decline significantly over our projection period due to diminishing resource availability. Hardwood timber harvests will increase.
- Canadian timber harvests will reduce, wood products consumption will increase, and lumber exports to the US will decline.
- Paper and paperboard producers will experience increased real costs of virgin fiber input while more efficient solid wood consuming competitors will find increasing returns per unit of raw material input.
- The US South’s merchantable softwood timber inventory declines from current levels to harvesting only merchantable growth. Merchantable hardwood timber inventory in both “soft” and “hard” hardwoods will also decline.
- Southern pre-merchantable timber inventory will tripple over our projection; however, this volume is not a significant factor in explaining stumpage prices.
- Softwood sawtimber, pulpwood, and wood products prices will increase significantly in real price during our projection period.

US South Private Softwood Inventory
- Billion Cubic Feet -



Real Net Profit Per Unit Of
Raw Material Input



MORE FINDINGS

- Lumber production will be resource constrained at levels substantially below current output levels. Softwood plywood production will drop to less than one-half current production levels.
- Raw material real break even margins, calculated at the average efficiency and not pre-set margins, will reach historical highs. Efficiency bands for raw material break even provide payback and present value justification for financing capital improvements

MAPPING

FOREST PRODUCTS MAPPING

Now available! Maps of mill locations in the five Western states. If you have ever wondered about a mill location, here's your answer!

Resource Economics LLC and Paul F. Ehinger & Associates are pleased to announce the completion of the Western Wood Products Facilities maps. These maps, seven in total, locate and list each wood products facility (lumber, plywood, veneer and board) in the five Western states. The maps are divided as follows:

- Western Washington
- Eastern Washington
- Western Oregon
- Eastern Oregon
- Idaho
- Montana
- Northern California

Each map is an "E" size map (36" by 48"), printed in full color on photographic paper. Each wood products facility is represented by an icon depending upon the nature of production (ie., stud lumber, dimension lumber, MDF, etc.). The legend, which is printed in a large font, indicates the name of the facility and the city in which the facility is located. Major highways and rail lines are also depicted.

The price per map is \$150.00 USD. The entire set can be purchased for \$800.00. If you purchase 4 sets, you will receive one set free.

In testing the market for this new product, prototype maps were shown to two corporate customers. On seeing the prototype maps, the customers immediately purchased the entire set commenting that they had never seen maps such as these.

These maps are current for the year 2001 and will be updated each year. We can also provide various mill data summaries to supplement these maps, depending on your individual needs for information.

PRINCIPALS

Philip L. Tedder

Dr. Tedder's background in the forest products industry spans work as an academic, consultant, and forest products executive. For ten years, Dr. Tedder was Professor of Forest Economics at the University of Arkansas and Oregon State University teaching forest economics, management, operations research, and markets. Research activities covered economics and North American timber supply. Dr. Tedder and Richard La Mont constructed the US government's timber supply projection model. Dr. Tedder has published over 60 articles relating to timber supply, forest products management, econometrics, and operations research.

As a consultant, he specializes in timber and timberland appraisals for large acquisitions, multi-client supply and demand studies for the forest products industry, and development and application of turnaround strategies.

As an industry executive, Dr. Tedder was Senior Vice President and General Manager for the Seneca group of companies which included two of the most efficient sawmills in the World along with 170,000 acres of timberland. Most recently, he was President and Chief Operating Officer of Pacific Lumber & Shipping Company, a \$400 million dollar (gross) US forest products company. His task was to develop a business plan for company restructure, refinance current debt, achieve profitability, and sell the company, a goal achieved for the shareholders. He also holds the designation of Accredited Senior Appraiser in timber and timberland from the American Society of Appraisers.

Richard N. La Mont

Mr. La Mont is a leading consulting authority in the supply of the world's timber resources and in the design and construction of complex timber inventory management programs. He also has completed an in-depth study titled Pacific Rim Wood Supply and Demand: A Global Perspective, An Analysis of Chilean and New Zealand Radiata Pine Products in International Markets. Mr. La Mont's computer programs span the length and breadth of timber inventory collection and data management providing complete integration into the appraisal, end-of-year accounting, development of taxation strategies, and overall strategic planning associated with the owning of fee timberland. His programs, TRIM Plus, TIMS and CRZ are the most widely used timber inventory systems in the Western US.

Mr. La Mont, over the last 10 years, has appraised in excess of \$9 billion USD of timberland. He is an appraiser in the American Society of Appraisers with the specialty of timber and timberland.

BIOGRAPHY

COMPANY BIOGRAPHY

Founded in 1982, Resource Economics is an international consulting company that provides quantitatively based resource economic analysis and state of the art timber and timberland appraisal services to the forest products industry. Our client base has grown to over 100 corporations, associations, and government agencies located in the United States, Canada, Chile, New Zealand, Australia, and Asia. Resource Economics' areas of expertise include:

- Timber supply and harvest scheduling forecasts
- Development of turnaround strategies and implementation
- Forest products demand modeling and forecasting
- Timber and timberland appraisal
- Foreign investment analysis and review
- GIS planning and implementation
- Habitat conservation and environmental planning
- Timberland inventory software
- Third-party due diligence analysis
- Expert witness strategy, testimony, and research

Selected Past Projects

- Resource Economics has completed a global timber supply and demand study subscribed to by multiple clients. The Pacific Rim Wood Supply and Demand: A Global Perspective examines the wood fiber supply and demand in each of the Pacific Rim countries. The study is the first of its kind to evaluate all the countries from a resource base and compare them in the same units of measure.
- Resource Economics has completed three regional US timber supply and demand studies subscribed to by multiple clients. The first study The Timber Situation in the Southern United States predicted a substantial change in the timber supply resource in the Southern US. The second, Supply, Demand, and Prices of Pacific Northwest Timber projects the Pacific Northwest timber supply and demand situation, and key countries in the Pacific Rim market area. The third study was the Southern Timber Study. This study evaluated the timber supply and demand situation for the 12 Southern U.S. states while updating the situation in the Pacific Northwest.
- Resource Economics has appraised for purchase timber and timberland ranging in value from US \$5 million to over US \$1.5 billion. These appraisals have included inventory layout and design with coordination of inventory sub-contractors. During the appraisal process, Resource Economics has worked with purchasers to develop bidding strategies and provided due diligence for lending institutions.
- Resource Economics has completed numerous confidential timber supply/ demand/valuation studies for national and international clients. The goals of these confidential evaluations include mill expansion/ location, timberland expansion, corporate takeover defense (valuation of corporate timberlands and their strategic importance), and corporate takeover. Timber and timberland valuation and the strategic supply situation is an integral portion of each study.

States Available & Order Form

South	Check
Arkansas	_____
Alabama	_____
Florida	_____
Georgia	_____
Louisiana	_____
Mississippi	_____
North Carolina	_____
South Carolina	_____
Texas	_____
Virginia	_____
North And North Central	
Maine	_____
Michigan	_____
Minnesota	_____
Wisconsin	_____
West	
California	_____
Idaho	_____
Western Oregon	_____
Western Washington	_____
Eastern Oregon	_____
Eastern Washington	_____
Order Total * (see note below)	Number Total
First state @ \$1,750	_____
Additional states up to 4 total @ \$1,250/state	_____
Six states or more @ \$1,200/state	_____
Total	_____

Please make checks payable to: **Resource Economics, LLC**

Each order will be supplied with three copies of each forecast and one "E" sized wall map.

Company Information:

Company Name _____

Individual Name (Please Print) _____

Title _____

Address (1) _____

Address (2) _____ E-mail _____

City _____

State _____ Zip _____

Telephone _____ Facsimile _____

Signature _____ Date _____

Make Checks Payable to: **Resource Economics, LLC**

Address: **Resource Economics, LLC**
5855 NW Vineyard Drive
Corvallis, OR 97330

Phone: **541-745-7131**
 Fax: **541-745-7907**
 Web Page: **www.ResourceEconomics.com**

* **Note:** Minimum subscription level needed for the production of individual state reports. Hardwood manufacturing facility maps available upon request at additional cost.

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