

Searching for Hidden Opportunities in a Depressed Market

Forest Futures II: Maintaining Healthy and Productive Working Forests on the North Coast Ferndale, California
February 11, 2009

Bill Stewart

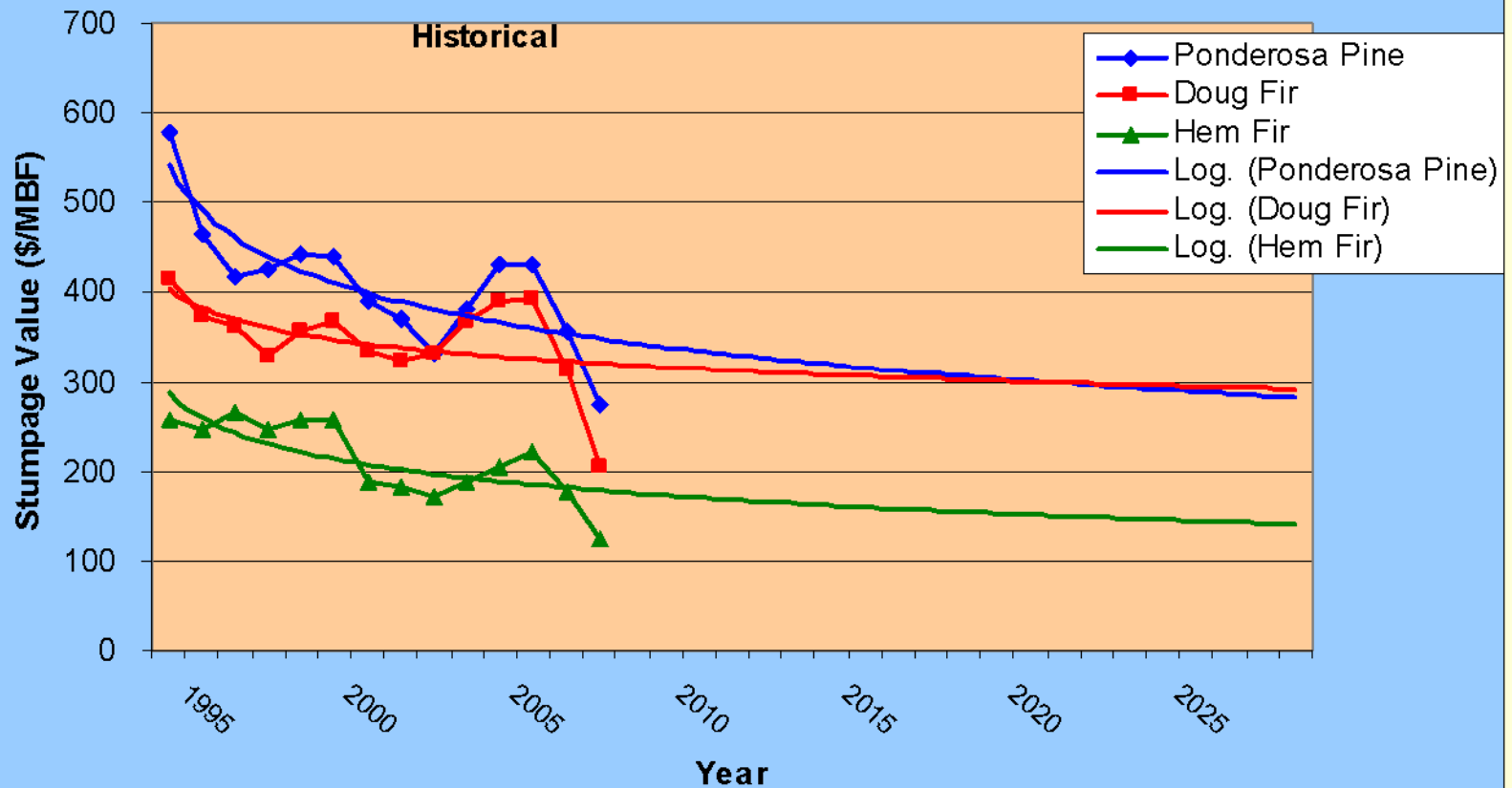
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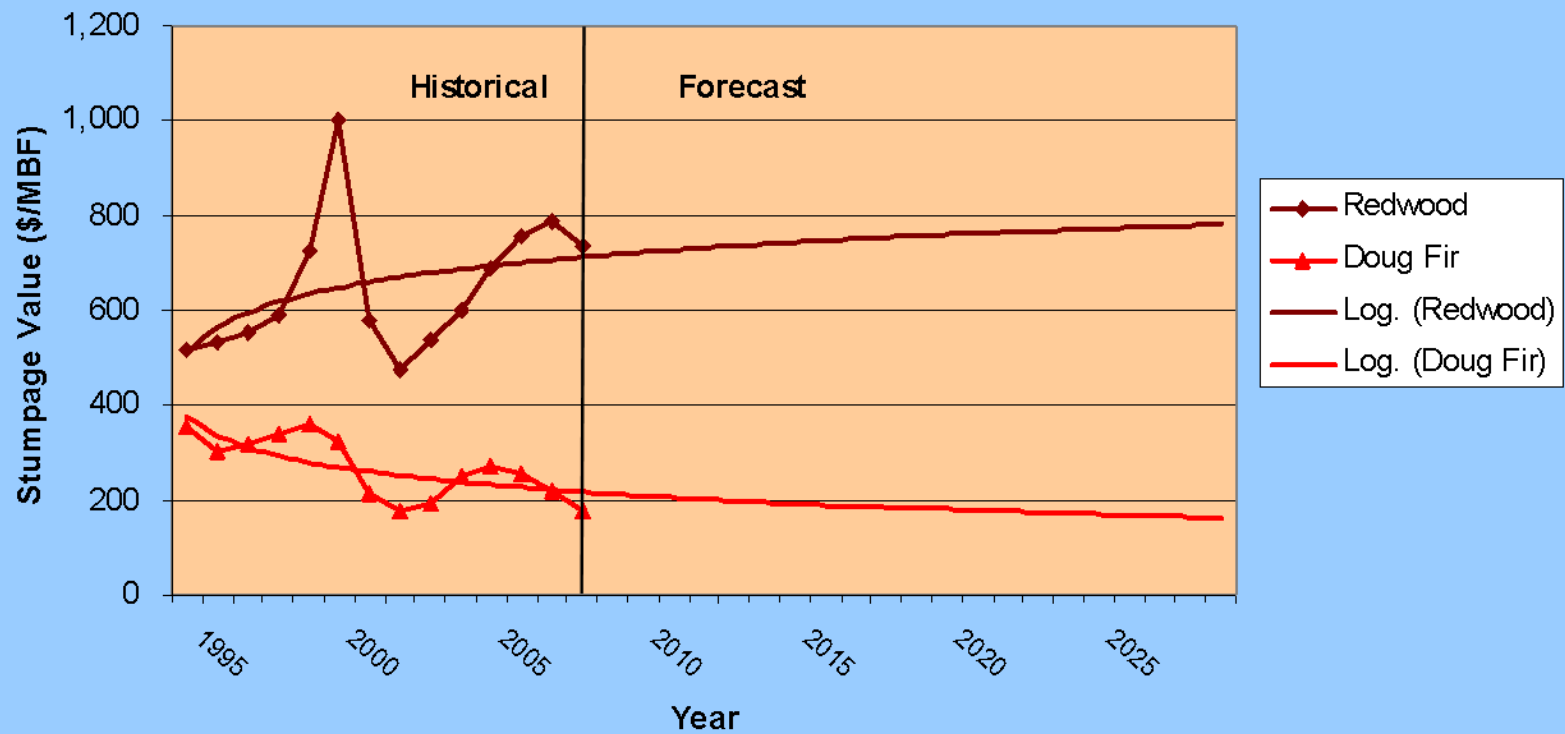
Lets look under some other rocks

- Timber and the Humboldt Advantage
 - High quality redwood
 - Lots of biomass per acre per year
- Climate Benefits, Biomass and the RPS Goals
 - Energy Planners endless hope for very cheap power at the end of the rainbow
- Private and Public Open Space
 - Regional Open Space Districts – Revenue Sources

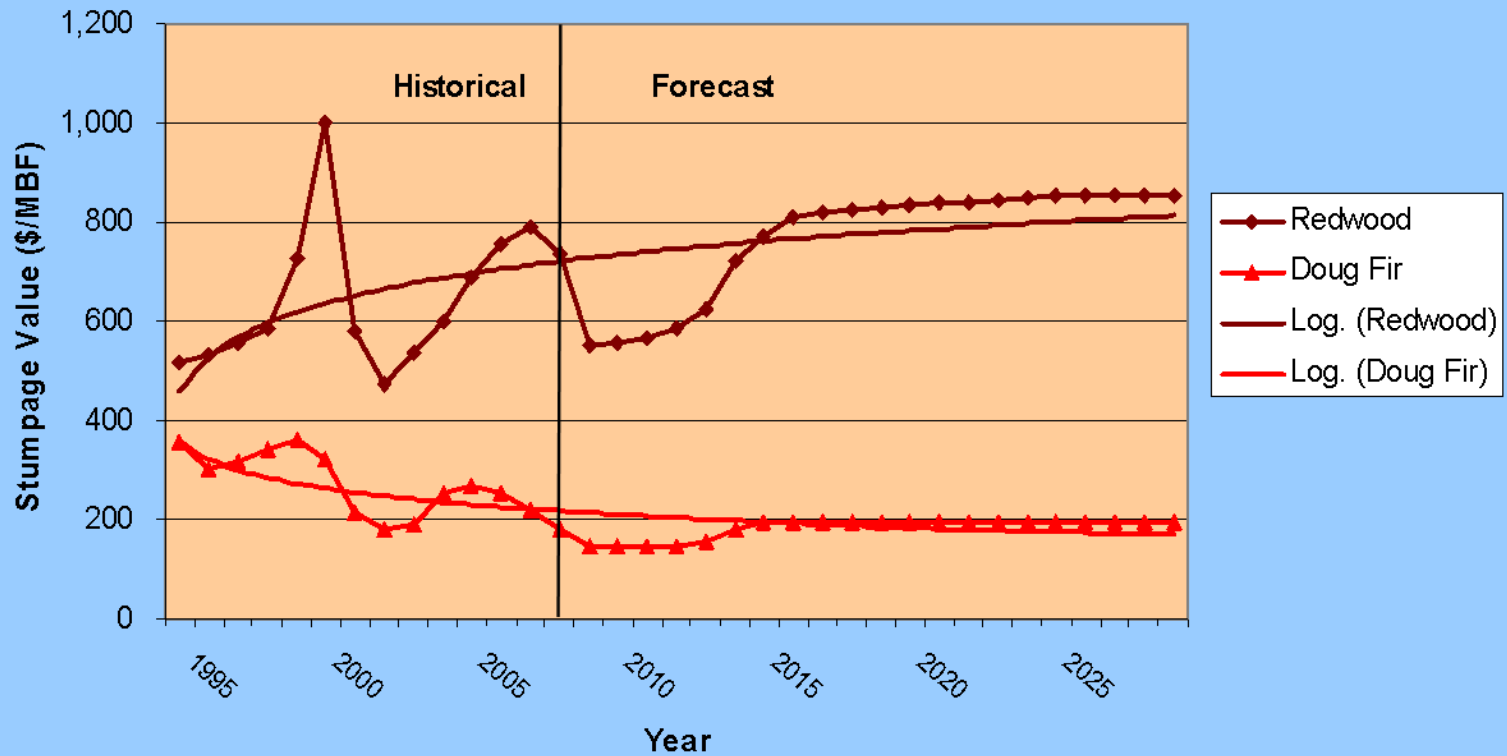
TVA 7 (SHASTA) STUMPAGE PRICE TREND (BOE Data, Net of Inflation, 2008 Dollars)



NORTH COAST STUMPAGE PRICE TREND (BOE Data, Net of Inflation, 2008 Dollars)



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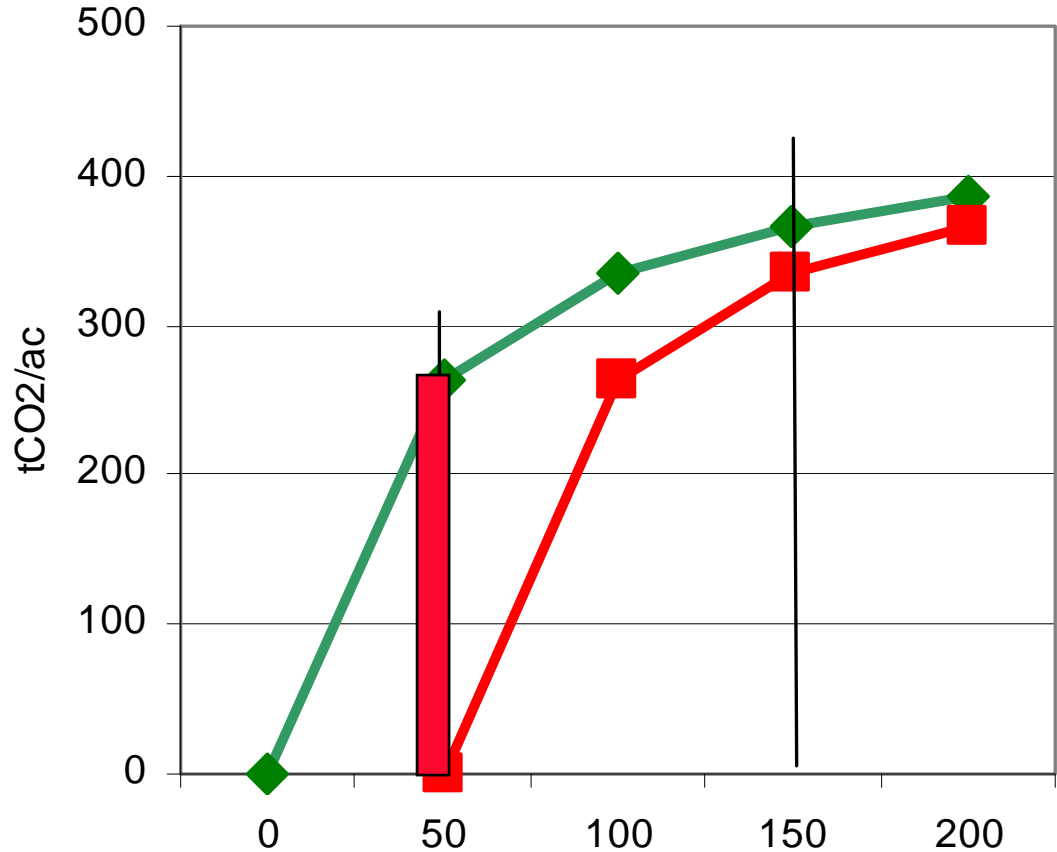


The Western Price Premium

1x8 Boards (v \$195/mbf for kiln dried dimensional 2x8)

Grade	Sugar Pine	Ponderosa Pine	Southern Pine
C&Btr	\$2400	\$1900	\$810
D	\$950	\$850	\$715
#2&Btr	\$390	\$370	\$380
#3	\$250	\$235	\$225
#4	\$185	\$185	

Grow/Hold v Harvest/Replant/Grow Ponderosa Pine Stand in Sierra



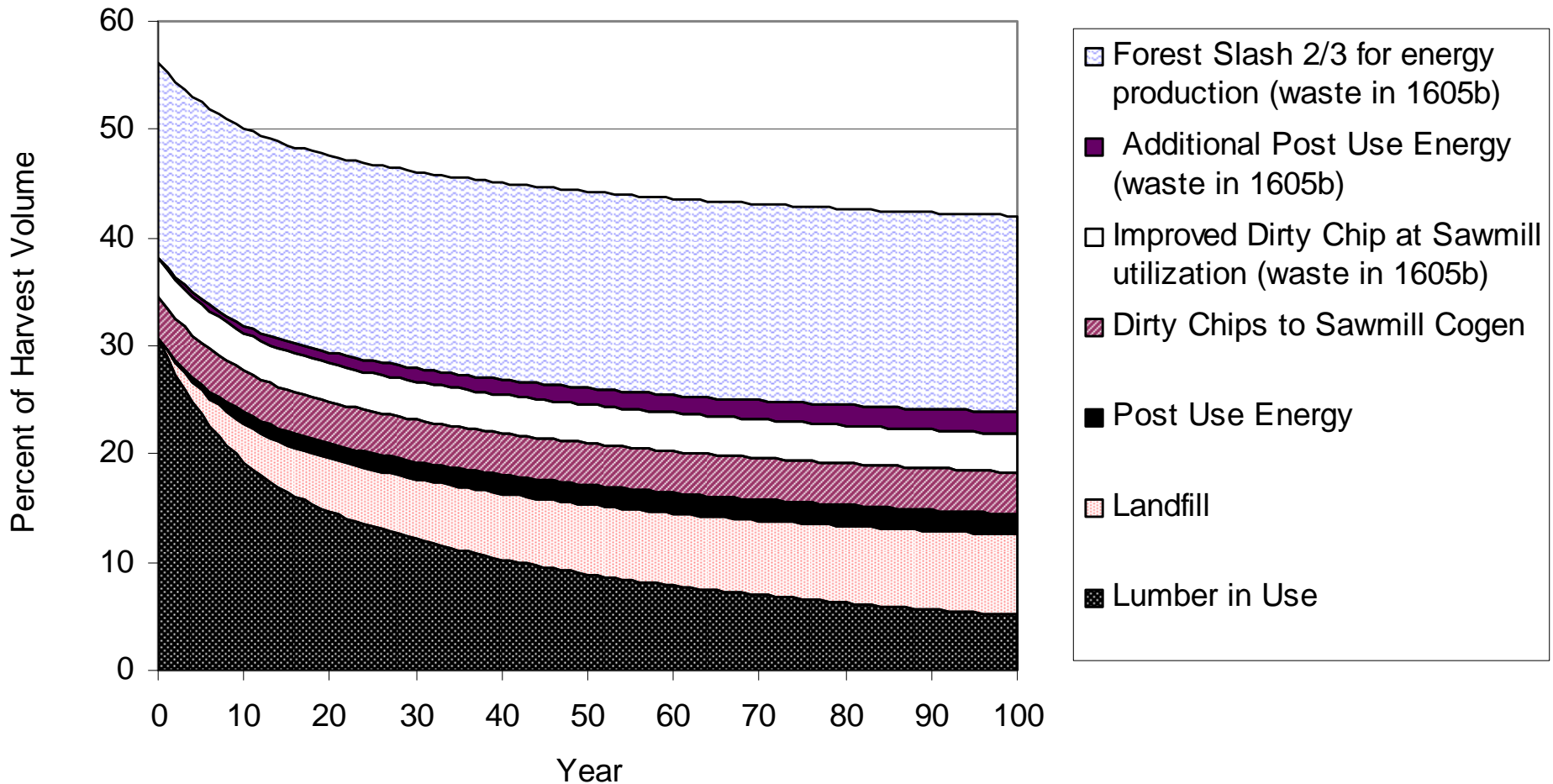
Grow & Hold: Growth
Slows down from 50-150

Harvest/Replant/Grow:
Climate Benefits in
Forest from 100 year old
stand and following the
harvested products

Age

Products

Climate Benefits from Working Forests: Biomass Energy is the Key



Carbon Inventories + Energy Substitution for a Sierra Ponderosa Pine stand

	Grow without Harvest	Harvest/ Plant/ Thin	Harvest/ Plant / Thin	Harvest/ Plant / Thin
In tCO2e/acre		Historic 1605 (b)	Best Practices 1605 (b)	Optimal 1605 (b)
Include Substitution and Displacement	385	458	514	551
In-forest sequestration only	385	366	366	366
Indexed to Grow w/o Harvest				
Include Substitution and Displacement	1.00	1.19	1.34	1.43
In-forest sequestration only	1.00	0.95	0.95	0.95

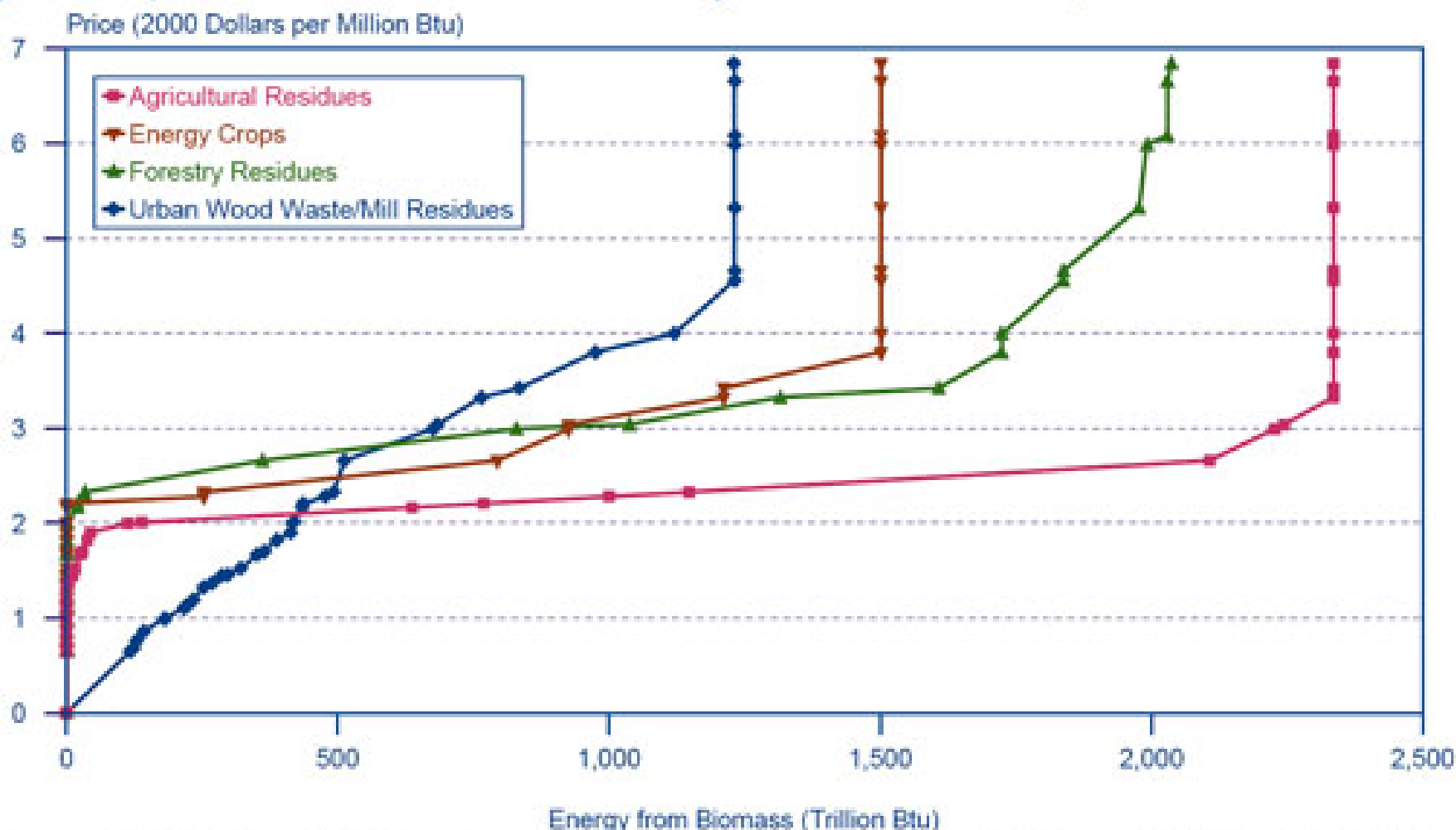
Renewable Energy in the US

Renewable Energy Source	2003	2004	2005	2006	2007
Wood Derived Fuels					
Biofuels and Waste					
Hydroelectric Conventional					
Geothermal					
Wind	1.0				
Solar/Photovoltaics					

Renewable Energy in the US

Renewable Energy Source	2003	2004	2005	2006	2007
Wood Derived Fuels	17	18	18	18	18
Biofuels and Waste	7	8	8	10	12
Hydroelectric Conventional	24	23	23	24	21
Geothermal	3	3	3	3	3
Wind	1.0	1	1	2	3
Solar/Photovoltaics	1	1	1	1	1

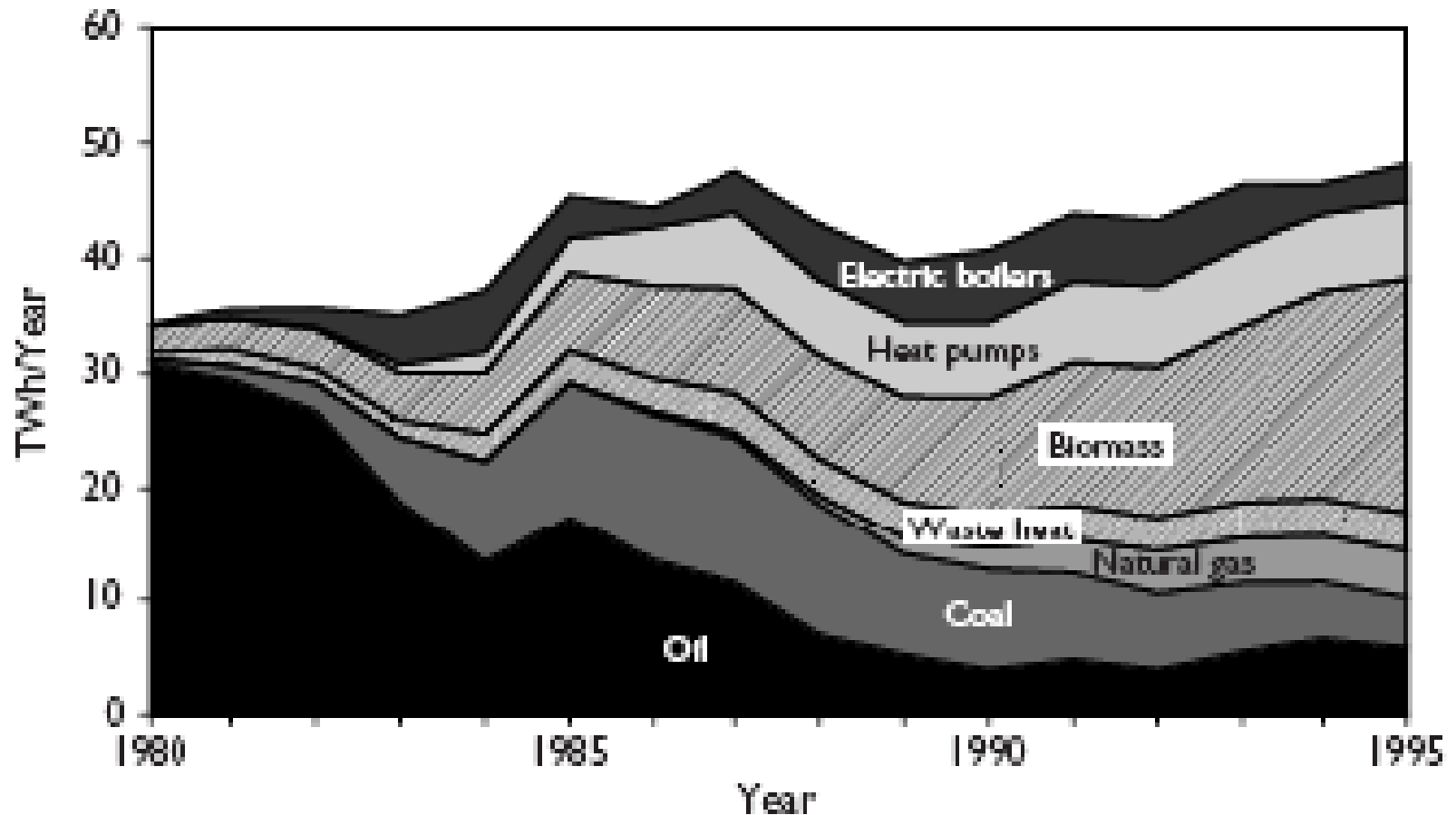
Figure 2. Projections of Biomass Resource Availability at Different Price Levels, 2020



Sources: A.F. Turhollow and S.M. Cohn, *Data and Sources of Biomass Supply*, unpublished report (Oak Ridge, TN: Oak Ridge National Laboratory, January 1994); M. Walsh et al., *Biomass Feedstock Availability in the United States: 1999 State Level Analysis* (Oak Ridge, TN: Oak Ridge National Laboratory, April 1999, updated January 2000), web site <http://bioenergy.ornl.gov/resourcedata>; M. Walsh et al., "The Economic Impacts of Bioenergy Crop Production on U.S. Agriculture" (Oak Ridge, TN: Oak Ridge National Laboratory, May 2000), web site <http://bioenergy.ornl.gov/papers/wagin/index.html>; and Antares Group, Inc., *Biomass Residue Supply Curves for the United States (Update)*, Report for the U.S. Department of Energy and the National Renewable Energy Laboratory (June 1999).

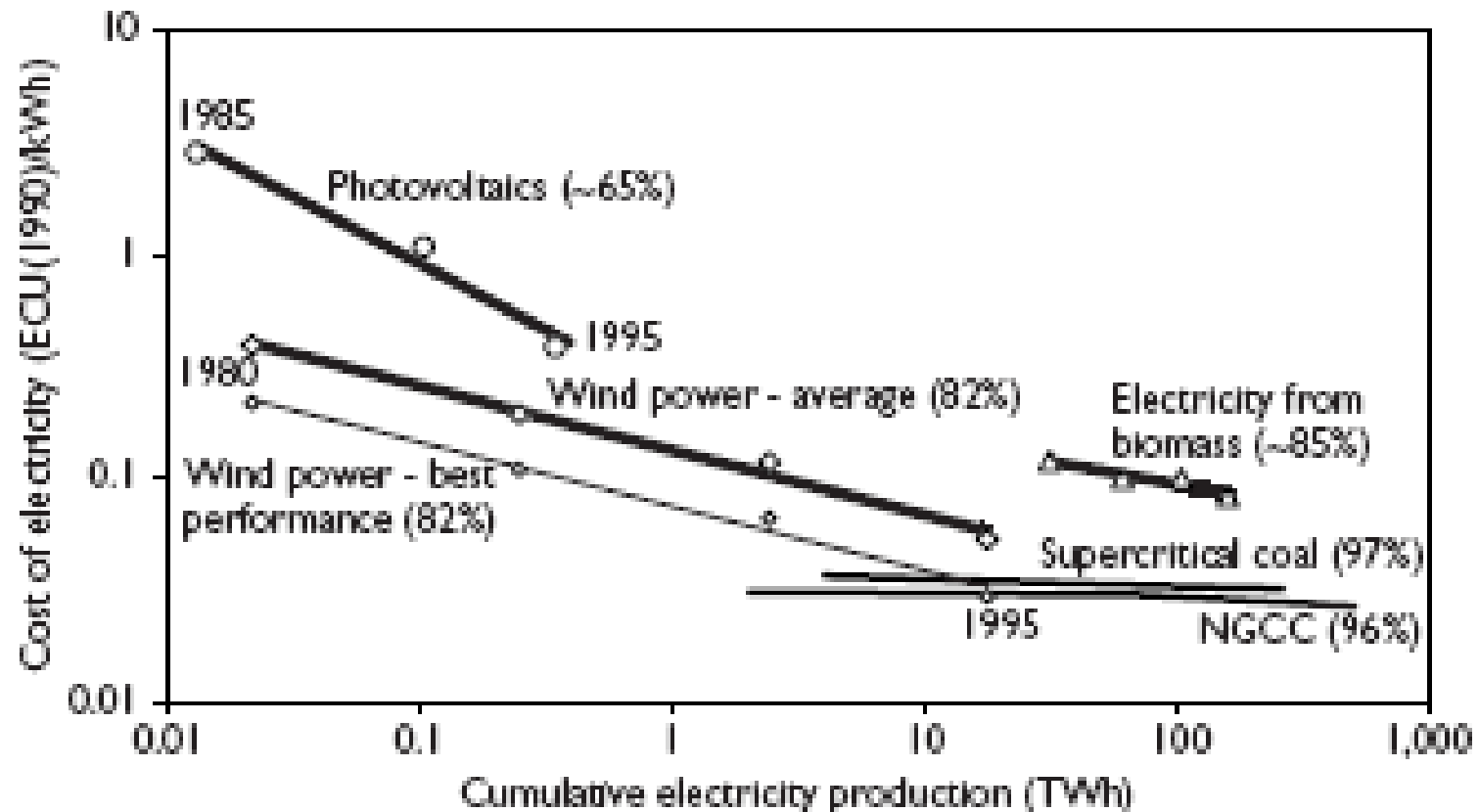
Wood Chips Displaced Oil

Figure 1.6. District Heating in Sweden, 1980-1995



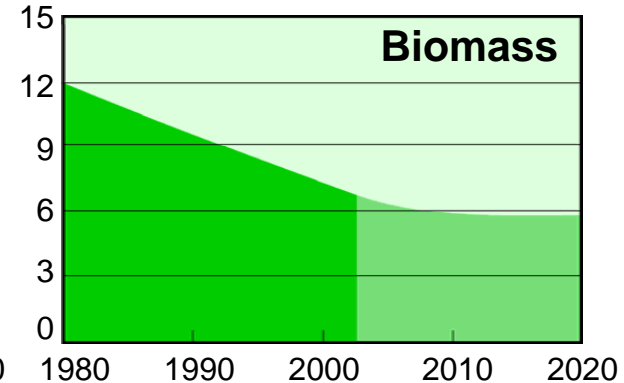
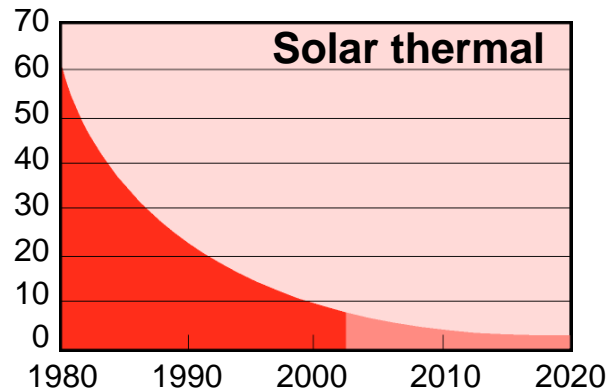
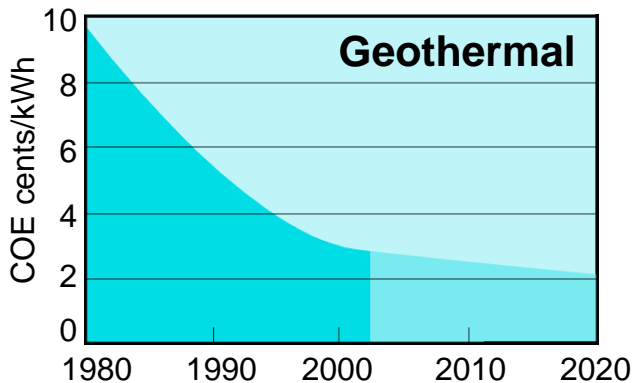
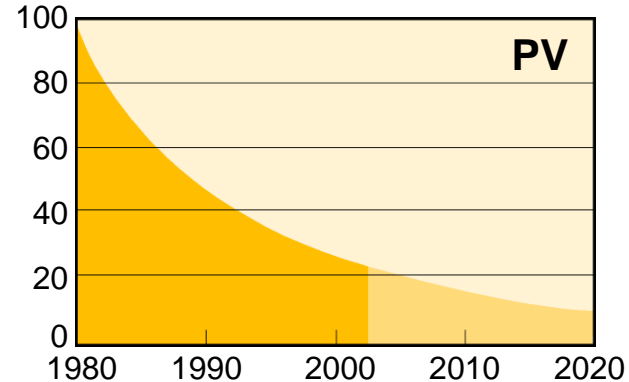
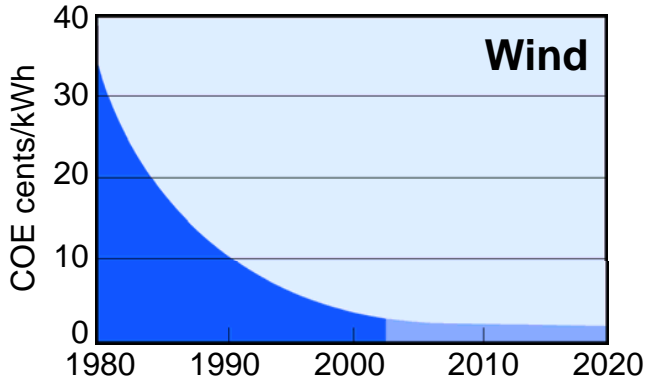
Learning By Doing: Biomass is 10x as big and the same price (cents/kwh) as Wind Power in Europe

Figure 1.5. Electric Technologies in EU, 1980-1995



Renewable Energy Cost Trends

Levelized cents/kWh in constant \$2000¹

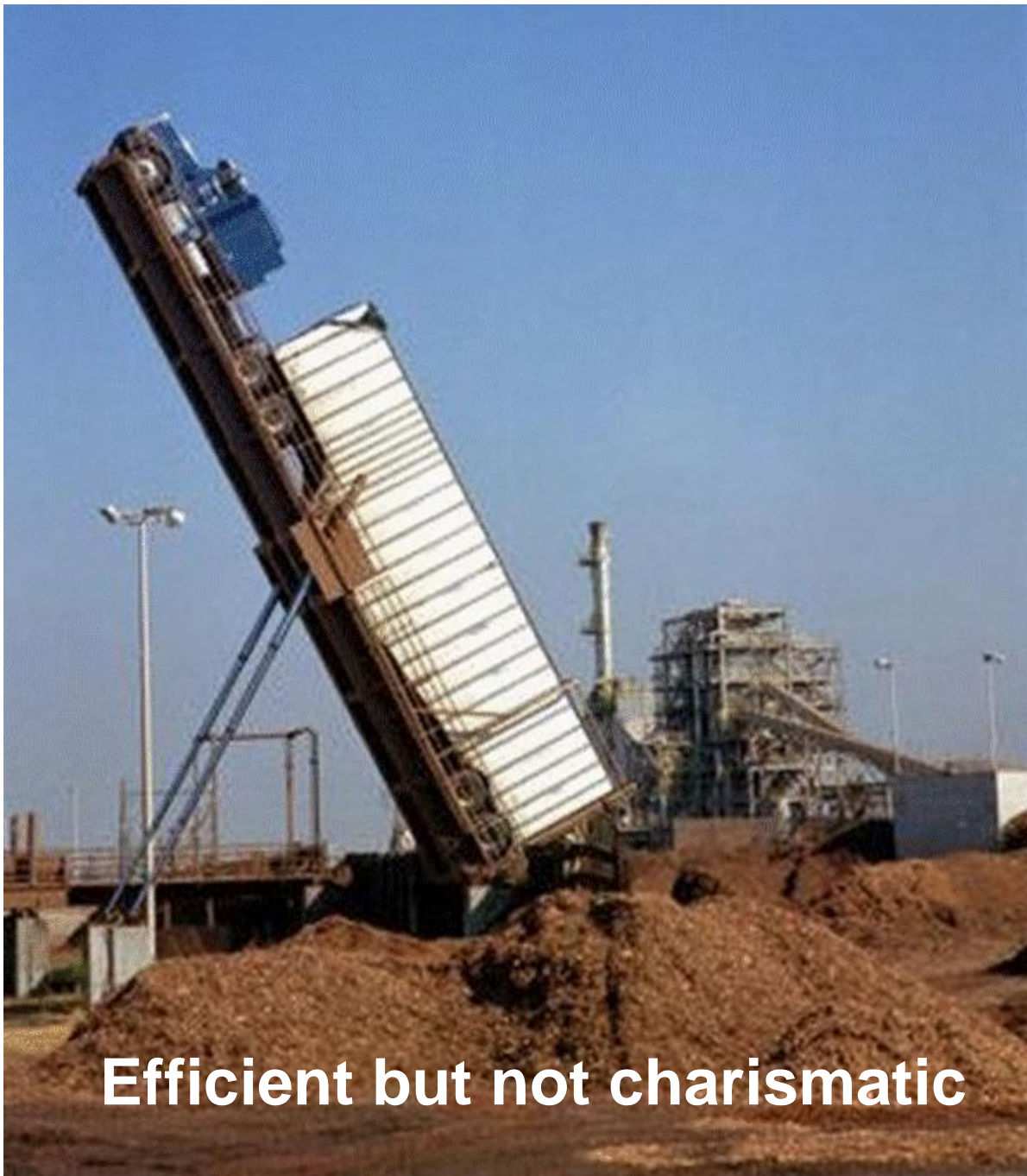


Source: NREL Energy Analysis Office (www.nrel.gov/analysis/docs/cost_curves_2002.ppt)

¹These graphs are reflections of historical cost trends NOT precise annual historical data.

Updated: October 2002

NREL Cost Curves – Hoping for Cheap Power



Efficient but not charismatic

SF Bay Area Approach: Finance via Local Property Taxes

	East Bay Regional Park District	Mid Peninsula Open Space District	Marin Open Space District
Annual Budget (Million \$)	144	30	6
Area (Acres)	100,000	57,000	15,000
Property Taxes	65%	74%	93%
Assessments	21%	0%	0%
Fees, Rents & Charges	10%	3%	<1%
Interest	3%	4%	<1%
Misc. & Grants	1%	18%	5%

Arcata Community Forest:

1/3 Reserves

2/3 Working to Pay the Bills

3/3 Enjoyed by the Community



Untapped Opportunities?

- Imitate Modern German Forestry
 - High Inventories of Big Trees
 - Thin and Sanitation Salvage
 - 100% Open Access for Recreation
 - Hyper-efficient use of Wood Chips
- Biomass Volume for Cash
 - 2x increase for renewable power 2/10/09 Riverside Press
 - Thinning for high quality stands could pay
- Working Open Space Districts
 - Local Cost-Share from Property Taxes or Products

Questions ?