

EDUCATION AND WORK EXPERIENCE OF THOMAS C. FRANTZ

I received a B.S. degree from the Pennsylvania State University in Environmental Resource Management and completed all course work and research for a M.S. degree in Resource Economics from the University of New Hampshire. My graduate research involved modeling the structure of the New Hampshire economy using an input-output analysis. I have taught college courses in macroeconomics, microeconomics and managerial economics.

I started work at the Commission in 1989 as a staff economist. My work focused primarily on fuel price forecasting and the analysis of economic forecasts. In 1990, I was promoted to Utility Analyst III. My responsibilities concentrated on electric utility issues including analyzing and advising the Commission on cost of capital, rate design, special contract, and fuel and purchased power adjustment clause filings.

In January 1996, I was promoted to the position of Chief Economist. My new responsibilities included administering the Economics Department's research and analysis of economic and utility matters, as well as providing the Commission with expert testimony and advice on economic, utility and public policy issues. My responsibilities also included testifying before the Legislature on utility matters.

The Commission reorganized in late 2001 and I was named Director of the Electric Division. As Director of the Electric Division, I am responsible for the case management of the electric proceedings before the Commission including the day-to-day work of the Staff of the Electric Division. I also continue to provide the Commission and, when requested, the Legislature with advice on electric utility matters.

TABLE 2-1
Hypothetical Transactions Table*
Industry Purchasing

		<i>Processing Sector</i>						<i>Final Demand</i>						
		Outputs ¹						(7)	(8)	(9)	(10)	(11)	(12)	
		(1)	(2)	(3)	(4)	(5)	(6)	Gross inventory accumula- tion (+)	Exports to foreign countries	Government purchases	Gross private capital formation	Households	Total Gross Output	
		Inputs ²												
<i>Industry Producing</i>	<i>Processing Sector</i>	(1) Industry A	10	15	1	2	5	6	2	5	1	3	14	64
		(2) Industry B	5	4	7	1	3	8	1	6	3	4	17	59
		(3) Industry C	7	2	8	1	5	3	2	3	1	3	5	40
		(4) Industry D	11	1	2	8	6	4	0	0	1	2	4	39
		(5) Industry E	4	0	1	14	3	2	1	2	1	3	9	40
		(6) Industry F	2	6	7	6	2	6	2	4	2	1	8	46
	<i>Payments Sector</i>	(7) Gross inventory depletion (-)	1	2	1	0	2	1	0	1	0	0	0	8
		(8) Imports	2	1	3	0	3	2	0	0	0	0	2	13
		(9) Payments to government	2	3	2	2	1	2	3	2	1	2	12	32
		(10) Depreciation allowances	1	2	1	0	1	0	0	0	0	0	0	5
		(11) Households	19	23	7	5	9	12	1	0	8	0	1	85
		(12) Total Gross Outlays	64	59	40	39	40	46	12	23	18	18	72	431

¹Sales to industries and sectors along the top of the table from the industry listed in each row at the left of the table.

²Purchases from industries and sectors at the left of the table by the industry listed at the top of each column.

* Source: W. Miernyk, THE ELEMENTS OF INPUT-OUTPUT ANALYSIS. (Random House, 1965).

**Public Service Company of New
Hampshire**
Docket No. DE 10-195

Data Request CSC-01

Dated: 10/14/2010
Q-CSC-008
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Witness: Terrance J. Large
Request from: Concord Steam Corporation

Question:

Provide all studies or analyses relating to the impact of the PPA on the markets for electricity, capacity, fuel or RECs, or other market impacts for jobs, economic output, gross state product, household earnings and tax revenues.

Response:

PSNH has no studies or analyses related to the impact of the PPA on the markets for electricity, capacity, fuel or RECs.

The impact on jobs, economics output, etc. is described in the testimony of Dr. Shapiro. Attached to this response are the RIMS II work papers that support Dr. Lisa Shapiro's economic impact analyses based on utilization of New Hampshire specific multipliers from the federal government's Regional Input-Output Modeling System (RIMS II). The work papers support estimated impacts for jobs, economic output, gross state product and household earnings.

Estimated Economic Impacts Associated with the Laidlaw Project

RIMS II Multipliers for NH (downloaded 4/20/2010)

Industry		Final Demand Multipliers			
		Output (\$'s) ¹	Earnings (\$'s) ²	Employment (jobs) ³	Value-Added (\$'s) ⁴
Aggregated Industry					
	Forestry, fishing and related activities	1.7780	0.3570	11.6073	0.9640
	Construction	2.1796	0.6584	17.7872	1.1303
Detailed Industry					
	Forest nurseries, forest products and timber tracts	1.4760	0.2285	7.1959	0.7339
	Logging	1.7649	0.3339	9.4389	0.9524
	Agriculture and forestry support activities	1.9585	0.6493	27.9280	1.0934
	Construction	2.1785	0.6581	18.0043	1.1348
	Truck transportation	1.9019	0.4824	12.6684	1.0177

Footnotes

1	Each entry in column 1 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
2	Each entry in column 2 represents the total dollar change in earnings of households employed by all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
3	Each entry in column 3 represents the total change in number of jobs that occurs in all industries for each additional 1 million dollars of output delivered to final demand by the industry corresponding to the entry. Because the employment multipliers are
4	Each entry in column 4 represents the total dollar change in value added that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.

Source: Regional Input-Output Modeling System (RIMS II), Regional Economic Analysis Division, Bureau of Economic Analysis

Estimated Economic Impacts Associated with the Laidlaw Project

ESTIMATES BASED ON CONSTRUCTION EXPENDITURES @

\$70,000,000 Over 32 Months

Final Demand Multipliers - Employment

		Annual Avg	Total
Direct Expenditures		\$26,250,000	\$70,000,000
Construction Industry Multipliers			
Low	17.7872	467	NA
Average	17.8958	470	NA
High	18.0043	473	NA

Final Demand Multipliers - Output

		Annual Avg	Total
Direct Expenditures		\$26,250,000	\$70,000,000
Construction Industry Multipliers			
Low	2.1785	\$57,185,625	\$152,495,000
Average	2.1791	\$57,200,063	\$152,533,500
High	2.1796	\$57,214,500	\$152,572,000

Final Demand Multipliers - Value-Added

		Annual Avg	Total
Direct Expenditures		\$26,250,000	\$70,000,000
Construction Industry Multipliers			
Low	1.1303	\$29,670,375	\$79,121,000
Average	1.1326	\$29,729,438	\$79,278,500
High	1.1348	\$29,788,500	\$79,436,000

Final Demand Multipliers - Earnings

		Annual Avg	Total
Direct Expenditures		\$26,250,000	\$70,000,000
Construction Industry Multipliers			
Low	0.6581	\$17,275,125	\$46,067,000
Average	0.6583	\$17,279,063	\$46,077,500
High	0.6584	\$17,283,000	\$46,088,000

Estimated Economic Impacts Associated with the Laidlaw Project

	Industry	Final Demand Multipliers			
		Output (\$'s)	Earnings (\$'s)	Employment (jobs)	Value-Added (\$'s)
Aggregated Industry	Forestry, fishing and related activities	1.7780	0.3570	11.6073	0.9640
Detailed Industry	Forest nurseries, forest products and timber tracts	1.4760	0.2285	7.1959	0.7339
Detailed Industry	Logging	1.7649	0.3339	9.4389	0.9524
Detailed Industry	Agriculture and forestry support activities	1.9585	0.6493	27.928	1.0934
Detailed Industry	Truck transportation	1.9019	0.4824	12.6684	1.0177

At \$20 million spent per year on biomass fuel

\$ 20,000,000

	Industry	Impacts Based on Final Demand Multipliers			
		Output (\$'s)	Earnings (\$'s)	Employment (jobs)	Value-Added (\$'s)
Aggregated Industry	Forestry, fishing and related activities	\$35,560,000	\$7,140,000	232	\$19,280,000
Detailed Industry	Forest nurseries, forest products and timber tracts	\$29,520,000	\$4,570,000	144	\$14,678,000
Detailed Industry	Logging	\$35,298,000	\$6,678,000	189	\$19,048,000
Detailed Industry	Agriculture and forestry support activities	\$39,170,000	\$12,986,000	559	\$21,868,000
Detailed Industry	Truck transportation	\$38,038,000	\$9,648,000	253	\$20,354,000

At \$25 million spent per year on biomass fuel

\$ 25,000,000

	Industry	Impacts Based on Final Demand Multipliers			
		Output (\$'s)	Earnings (\$'s)	Employment (jobs)	Value-Added (\$'s)
Aggregated Industry	Forestry, fishing and related activities	\$44,450,000	\$8,925,000	290	\$24,100,000
Detailed Industry	Forest nurseries, forest products and timber tracts	\$36,900,000	\$5,712,500	180	\$18,347,500
Detailed Industry	Logging	\$44,122,500	\$8,347,500	236	\$23,810,000
Detailed Industry	Agriculture and forestry support activities	\$48,962,500	\$16,232,500	698	\$27,335,000
Detailed Industry	Truck transportation	\$47,547,500	\$12,060,000	317	\$25,442,500

At \$17 million spent per year on biomass fuel

\$ 17,000,000

	Industry	Impacts Based on Final Demand Multipliers			
		Output (\$'s)	Earnings (\$'s)	Employment (jobs)	Value-Added (\$'s)
Aggregated Industry	Forestry, fishing and related activities	\$30,226,000	\$6,069,000	197	\$16,388,000
Detailed Industry	Forest nurseries, forest products and timber tracts	\$25,092,000	\$3,884,500	122	\$12,476,300
Detailed Industry	Logging	\$30,003,300	\$5,676,300	160	\$16,190,800
Detailed Industry	Agriculture and forestry support activities	\$33,294,500	\$11,038,100	475	\$18,587,800
Detailed Industry	Truck transportation	\$32,332,300	\$8,200,800	215	\$17,300,900

DE 10-195
Q-CSC-01-008
Attachment