Appendix A: IN-SEEM Model Specifications

Electricity consumption—Commercial			
Predictive variable	Coefficient esti-	Standardized	p-
Electricity price—Commercial	<b>mate</b> -483.980	β -0.16	<b>value</b> (0.002)
Natural gas price–Commercial	453.230	0.05	(0.009)
Employment in the Wholesale trade sector	0.145	0.12	(0.000)
Employment in Finance, Insurance, and Real Estate; 1-year lag	0.126	0.29	(0.000)
Earnings per employee in the Government sector	1,535	0.51	(0.000)
Adjusted R-squared	0.991		
Electricity consumption–Industrial			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Electricity price–Industrial	-772.510	-0.18	(0.013)
Gross state product, per capita	3,679,372	0.82	(0.000)
Adjusted R-squared	0.963		
Electricity consumption–residential			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Electricity price—residential	-1,098	-0.34	(0.000)
Natural gas price–residential; 2-year lag	1,485	0.15	(0.000)
Employment in Finance, Insurance, and Real Estate	0.296	0.62	(0.000)
Cooling degree days, annual	10.297	0.09	(0.000)
Adjusted R-squared	0.987		
Notice I are a second to Comment I			
Natural gas consumption—Commercial	Coefficient esti-	Standardized	p-
Predictive variable	mate	β	value
Natural gas price–Commercial	-1,084	-0.25	(0.051)
Natural gas price–Commercial; 1-year lag	-661.912	-0.15	(0.043)
Electricity price—Commercial; 2-year lag	-1,231	-0.98	(0.000)
Heating degree days, annual	7.474	0.38	(0.000)
Heating degree days, annual; 2-year lag	-5.084	-0.28	(0.019)
Earnings per employee in the Retail Trade sector	642.673	0.24	(0.059)
Earnings per employee in the Government sector; 1-year lag	-521.676	-0.38	(0.054)
Adjusted R-squared	0.827		

## Natural gas consumption-Industrial

Predictive variable	Coefficient esti- mate	Standardized ß	<i>p</i> - value
Natural gas price-Industrial	-4,177	-0.22	(0.005)
Motor gas price—Transportation	3,808	0.57	(0.000)
Electricity consumption–Industrial; 1-year lag	0.852	0.64	(0.000)
Employment in all Industrial sectors	0.257	0.63	(0.000)
Employment in the Manufacturing sector; 1-year lag	-0.203	-0.40	(0.000)
Earnings per employee in Transportation & Utilities; 1-year lag	-2,207	-0.19	(0.026)
Natural gas price–Industrial; 1-year lag	-5,188	-0.27	(0.001)
Adjusted R-squared	0.895		
Natural gas consumption–Residential			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Natural gas price—Residential; 1-year lag	-1,261	-0.20	(0.048)
Electricity price–Residential; 2-year lag	-1,174	-0.60	(0.004)
Natural gas consumption—Residential; 2-year lag	0.117	0.11	(0.093)
Electricity consumption—Residential	-0.329	-0.52	(0.014)
Heating degree days, annual	23.919	0.77	(0.000)
Unemployment rate	-159,566	-0.34	(0.001)
Adjusted R-squared	0.858		
Motor gas consumption–Transportation			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Motor gas price—Transportation	-1,473	-0.22	(0.004)
Motor gas consumption—Transportation; 2-year lag	0.266	0.26	(0.046)
Employment in the Manufacturing sector	0.123	0.25	(0.000)
Earnings per employee in the Manufacturing sector; 1-year lag	2,261	0.34	(0.001)
Earnings per employee in the Retail Trade sector	4,617	0.39	(0.005)
Employment in Transportation & utilities; 1-year lag	0.666	0.32	(0.001)
	0.000		
Adjusted R-squared	0.953		
Adjusted <i>R</i> -squared  Employment in the Construction sector	0.953	Chandowline d	
		Standardized β	<i>p</i> - value
Employment in the Construction sector	0.953 Coefficient esti-		-
Employment in the Construction sector  Predictive variable	0.953  Coefficient estimate	β	value
Employment in the Construction sector  Predictive variable  Electricity price—Industrial; 2-year lag	Coefficient esti- mate -1,054	<b>β</b> -0.18	<b>value</b> (0.001)
Employment in the Construction sector  Predictive variable  Electricity price—Industrial; 2-year lag  Employment in Finance, Insurance, and Real Estate	Coefficient esti- mate -1,054 -0.207	β -0.18 -0.22	value (0.001) (0.003)
Employment in the Construction sector  Predictive variable  Electricity price—Industrial; 2-year lag  Employment in Finance, Insurance, and Real Estate  Employment in the Wholesale Trade sector	0.953  Coefficient estimate -1,054 -0.207 2.563	β -0.18 -0.22 0.95	value (0.001) (0.003) (0.000)
Employment in the Construction sector  Predictive variable  Electricity price—Industrial; 2-year lag  Employment in Finance, Insurance, and Real Estate  Employment in the Wholesale Trade sector  Earnings per employee in Transportation & Utilities	0.953 Coefficient estimate -1,054 -0.207 2.563 2,337	β -0.18 -0.22 0.95 0.15	value (0.001) (0.003) (0.000) (0.000)
Employment in the Construction sector  Predictive variable  Electricity price—Industrial; 2-year lag  Employment in Finance, Insurance, and Real Estate  Employment in the Wholesale Trade sector  Earnings per employee in Transportation & Utilities  Employment in the Government sector	0.953  Coefficient estimate -1,054 -0.207 2.563 2,337 -0.231	β -0.18 -0.22 0.95 0.15	value (0.001) (0.003) (0.000) (0.000)

Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Employment in the Farming sector; national	0.020	0.54	(0.000)
Employment in the Government sector; 1-year lag	-0.204	-0.35	(0.000)
Employment in the Construction sector	-0.125	-0.22	(0.000)
Adjusted R-squared	0.988		
Employment in Finance, Insurance, and Real Estate	o	0. 1 1. 1	
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Electricity consumption–Commercial; 2-year lag	-1,039	-0.16	(0.031)
Motor gas price–Transportation	1,654	0.21	(0.000)
Nonwage income, per capita; 2-year lag	13,625	0.84	(0.000)
Employment in the Government sector; 1-year lag	-0.308	-0.29	(0.065)
Employment in the Wholesale Trade sector; 1-year lag	0.528	0.19	(0.001)
Adjusted R-squared	0.981		
Employment in the Government sector	Coefficient esti-	Standardized	<b>n</b>
Predictive variable	mate	β	<i>p</i> - value
Labor force participation rate; 2-year lag	201,074	0.33	(0.001)
Employment in the Services sector; 1-year lag	0.035	0.34	(0.005)
Motor gas consumption—Transportation	-0.211	-0.20	(0.004)
Electricity consumption–Commercial	1.392	0.66	(0.000)
Adjusted <i>R</i> -squared	0.982		
Employment in the Manufacturing sector	Coefficient esti-	Standardized	<b>n</b>
Predictive variable	mate	β	<i>p</i> - value
Natural gas price–Industrial; 1-year lag	-4,857	-0.13	(0.034)
Employment in the Services sector; 1-year lag	-0.276	-1.38	(0.000)
Employment in the Construction sector	2.951	1.60	(0.000)
Employment in Transportation & Utilities; 1-year lag	-2.028	-0.47	(0.000)
Adjusted R-squared	0.949		
Employment in the Mining sector	Coefficient esti-	Standardized	p-
Predictive variable	mate	β	value
Electricity price–Industrial; 1-year lag	130.617	0.38	(0.015)
Employment in the Construction sector	-0.055	-0.97	(0.000)
Employment in Transportation & Utilities	0.060	0.45	(0.000)
Labor force participation rate; 2-year lag	-14,563	-0.40	(0.001)
Adjusted <i>R</i> -squared	0.952		

Employment in the Retail Trade sector			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Electricity consumption–Commercial; 1-year lag	2.707	0.51	(0.000)
Motor gas price–Transportation	-3,501	-0.20	(0.000)
Motor gas consumption—Transportation; 1-year lag	1.100	0.41	(0.000)
Earnings per employee in Transportation & Utilities; 1-year lag	-4,504	-0.14	(0.019)
Adjusted R-squared	0.983		
Employment in the Services sector			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Employment in Finance, Insurance, and Real Estate	2.367	0.27	(0.000)
Motor gas consumption–Transportation	-0.603	-0.06	(0.014)
Employment in the Retail Trade sector	0.319	0.08	(0.020)
Electricity consumption—Commercial	8.732	0.42	(0.000)
Adjusted R-squared	0.999		
Employment in Transportation & Utilities			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Electricity consumption–Industrial; 2-year lag	-0.157	-0.26	(0.005)
Motor gas price-Transportation; 2-year lag	378.672	0.11	(0.009)
Employment in the Construction sector	-0.200	-0.48	(0.000)
Employment in the Wholesale Trade sector	1.442	1.27	(0.000)
Gross domestic product, per capita	1,265,699	0.46	(0.000)
Adjusted R-squared	0.990		
Employment in the Wholesale Trade sector			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Electricity price–Commercial; 2-year lag	722.069	0.31	(0.000)
Natural gas price–Commercial	736.187	0.09	(0.003)
Electricity consumption–Commercial; 1-year lag	0.446	0.55	(0.000)
Motor gas consumption—Transportation; 1-year lag	0.082	0.20	(0.000)
Employment in the Retail Trade sector	0.170	1.13	(0.000)
Adjusted R-squared	0.982		

Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Earnings per employee in the Retail Trade sector	1.819	1.61	(0.000)
Motor gas price–Transportation	0.315	0.50	(0.000)
Motor gas price—Transportation; 1-year lag	-0.290	-0.43	(0.000)
Natural gas price–Industrial	-0.318	-0.18	(0.001)
Electricity consumption—Industrial; 1-year lag	0.000	0.19	(0.001)
Adjusted R-squared	0.953		
Earnings per employee in the Farming sector			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Electricity price–Industrial	0.428	0.23	(0.386)
Motor gas price–Transportation; 2-year lag	-0.120	-0.05	(0.820)
Employment in the Farming sector; 1-year lag	0.000	-0.85	(0.011)
Adjusted R-squared	0.547		
Earnings per employee in Finance, Insurance, and Real Estate			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> -value
			•
Predictive variable	mate	β	value
Predictive variable  Electricity price—Commercial	<b>mate</b> -0.842	<b>β</b> -0.68	<b>value</b> (0.000)
Predictive variable  Electricity price–Commercial  Motor gas price–Transportation; 1-year lag	mate -0.842 -0.266	β -0.68 -0.19	value (0.000) (0.000)
Predictive variable  Electricity price–Commercial  Motor gas price–Transportation; 1-year lag  Employment in the Manufacturing sector	mate -0.842 -0.266 0.000	β -0.68 -0.19 0.48	value (0.000) (0.000) (0.000)
Predictive variable  Electricity price—Commercial  Motor gas price—Transportation; 1-year lag  Employment in the Manufacturing sector  National unemployment rate	mate -0.842 -0.266 0.000 117.986	β -0.68 -0.19 0.48 0.29	value (0.000) (0.000) (0.000) (0.003)
Predictive variable  Electricity price—Commercial  Motor gas price—Transportation; 1-year lag  Employment in the Manufacturing sector  National unemployment rate  Gross domestic product, per capita	mate -0.842 -0.266 0.000 117.986 1,177	β -0.68 -0.19 0.48 0.29 0.98	value (0.000) (0.000) (0.000) (0.003) (0.000)
Predictive variable  Electricity price—Commercial  Motor gas price—Transportation; 1-year lag  Employment in the Manufacturing sector  National unemployment rate  Gross domestic product, per capita  National nonwage income, per capita	mate -0.842 -0.266 0.000 117.986 1,177 -1.204	β -0.68 -0.19 0.48 0.29 0.98	value (0.000) (0.000) (0.000) (0.003) (0.000)
Predictive variable  Electricity price—Commercial  Motor gas price—Transportation; 1-year lag  Employment in the Manufacturing sector  National unemployment rate  Gross domestic product, per capita  National nonwage income, per capita  Adjusted R-squared	mate -0.842 -0.266 0.000 117.986 1,177 -1.204	β -0.68 -0.19 0.48 0.29 0.98	value (0.000) (0.000) (0.000) (0.003) (0.000)
Predictive variable  Electricity price—Commercial  Motor gas price—Transportation; 1-year lag  Employment in the Manufacturing sector  National unemployment rate  Gross domestic product, per capita  National nonwage income, per capita  Adjusted R-squared  Earnings per employee in the Government sector	mate -0.842 -0.266 0.000 117.986 1,177 -1.204 0.970	β -0.68 -0.19 0.48 0.29 0.98 -0.50	value (0.000) (0.000) (0.000) (0.003) (0.000) (0.010)
Predictive variable  Electricity price—Commercial  Motor gas price—Transportation; 1-year lag  Employment in the Manufacturing sector  National unemployment rate  Gross domestic product, per capita  National nonwage income, per capita  Adjusted R-squared  Earnings per employee in the Government sector  Predictive variable	mate -0.842 -0.266 0.000 117.986 1,177 -1.204 0.970  Coefficient estimate	β -0.68 -0.19 0.48 0.29 0.98 -0.50	value (0.000) (0.000) (0.000) (0.003) (0.000) (0.010)
Predictive variable  Electricity price—Commercial  Motor gas price—Transportation; 1-year lag  Employment in the Manufacturing sector  National unemployment rate  Gross domestic product, per capita  National nonwage income, per capita  Adjusted R-squared  Earnings per employee in the Government sector  Predictive variable  Electricity price—Commercial; 1-year lag	mate -0.842 -0.266 0.000 117.986 1,177 -1.204 0.970  Coefficient estimate 0.400	β -0.68 -0.19 0.48 0.29 0.98 -0.50 Standardized β 0.42	value (0.000) (0.000) (0.000) (0.003) (0.000) (0.010) p-value (0.000)
Predictive variable  Electricity price—Commercial  Motor gas price—Transportation; 1-year lag  Employment in the Manufacturing sector  National unemployment rate  Gross domestic product, per capita  National nonwage income, per capita  Adjusted R-squared  Earnings per employee in the Government sector  Predictive variable  Electricity price—Commercial; 1-year lag  Motor gas consumption—Transportation; 1-year lag	mate -0.842 -0.266 0.000 117.986 1,177 -1.204 0.970  Coefficient estimate 0.400 0.000	β -0.68 -0.19 0.48 0.29 0.98 -0.50 Standardized β 0.42 -0.35	(0.000) (0.000) (0.000) (0.003) (0.000) (0.010) p-value (0.000) (0.000)

Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Natural gas price–Industrial; 1-year lag	-0.471	-0.16	(0.001)
Motor gas price–Transportation	-0.137	-0.13	(0.004)
Electricity consumption–Industrial	0.000	0.36	(0.001)
Employment in the Retail Trade sector; 1-year lag	0.000	-0.57	(0.000)
Employment in the Services sector; 2-year lag	0.000	0.54	(0.000)
Adjusted R-squared	0.967		
Earnings per employee in the Mining sector			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Motor gas price—Transportation	0.455	0.24	(0.045)
Employment in the Manufacturing sector	0.000	0.90	(0.000)
National earnings per employee in the Mining sector	0.316	0.61	(0.000)
Unemployment rate	180.547	0.47	(0.007)
Motor gas consumption–Transportation; 1-year lag	0.000	0.47	(0.002)
Employment in Transportation & Utilities; 1-year lag	0.000	-0.30	(0.018)
Adjusted R-squared	0.875		
Earnings per employee in the Retail Trade sector			
Predictive variable	Coefficient esti-	Standardized	p-
Motor gas price—Transportation	mate	β -0.14	<b>value</b> (0.028)
Electricity consumption—Commercial; 1-year lag	-0.076	-0.14	(0.028)
Motor gas consumption—Transportation; 1-year lag	0.000	0.56	(0.000)
Employment in the Retail Trade sector; 1-year lag	0.000	-0.26	(0.000)
Adjusted R-squared	0.000 <b>0.961</b>	0.20	(0.000)
Adjusted it squared	0.501		
Earnings per employee in the Services sector			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Electricity consumption–Commercial	0.000	0.43	(0.000)
Motor gas price—Transportation	-0.049	-0.07	(0.001)
Earnings per employee in the Wholesale Trade sector	0.266	0.49	(0.000)
Employment in Transportation & Utilities	0.000	0.13	(0.011)
Adjusted R-squared	0.986		

Earnings per employee in Transportation & Utilities			
Predictive variable	Coefficient esti-	Standardized	<i>p</i> -
	mate	β	value

Natural gas price–Industrial	0.293	0.21	(0.000)
Earnings per employee in the Retail Trade sector	1.668	1.94	(0.000)
Earnings per employee in the Manufacturing sector; 1-year lag	0.111	0.23	(0.015)
Electricity consumption—Industrial; 1-year lag	0.000	-0.54	(0.002)
Earnings per employee in Finance, Insurance, and Real Estate	-0.103	-0.28	(0.007)
Adjusted R-squared	0.950		
Earnings per employee in the Wholesale Trade sector			
Predictive variable	Coefficient esti- mate	Standardized β	<i>p</i> - value
Electricity price–Commercial	-0.534	-0.44	(0.000)
Natural gas price–Commercial; 2-year lag	0.764	0.21	(0.000)
Earnings per employee in the Retail Trade sector; 1-year lag	0.801	0.34	(0.000)
Motor gas consumption–Transportation; 1-year lag	0.000	0.28	(0.006)
Adjusted R-squared	0.959		
Gross state product, per capita			
Predictive variable	Coefficient esti-	Standardized	p-
	mate	β	value
Electricity consumption—Industrial	0.000	0.60	(0.003)
Electricity consumption—Commercial; 1-year lag	0.000	0.40	(0.002)
Motor gas price—Transportation; 1-year lag	0.000	-0.19	(0.000)
Earnings per employee in Finance, Insurance, and Real Estate	0.000	-0.22	(0.008)
Adjusted R-squared	0.980		
	0.980		
Adjusted <i>R</i> -squared  Nonwage income, per capita		Standardizad	
	0.980 Coefficient estimate	Standardized β	<i>p</i> -value
Nonwage income, per capita	Coefficient esti-		-
Nonwage income, per capita  Predictive variable	Coefficient esti- mate	β	value
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential	Coefficient esti- mate 0.000	<b>β</b> 0.38	<b>value</b> (0.003)
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential  Motor gas price—Transportation; 1-year lag	Coefficient esti- mate 0.000 -0.045	β 0.38 -0.09	value (0.003) (0.030)
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential  Motor gas price—Transportation; 1-year lag  Employment in the Government sector; 1-year lag	Coefficient esti- mate 0.000 -0.045 0.000	β 0.38 -0.09 0.56	value (0.003) (0.030) (0.000)
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential  Motor gas price—Transportation; 1-year lag  Employment in the Government sector; 1-year lag  Natural gas price—Commercial; 1-year lag	Coefficient esti- mate 0.000 -0.045 0.000 0.179	β 0.38 -0.09 0.56	value (0.003) (0.030) (0.000)
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential  Motor gas price—Transportation; 1-year lag  Employment in the Government sector; 1-year lag  Natural gas price—Commercial; 1-year lag  Adjusted R-squared	Coefficient esti- mate 0.000 -0.045 0.000 0.179	β 0.38 -0.09 0.56 0.13	value (0.003) (0.030) (0.000)
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential  Motor gas price—Transportation; 1-year lag  Employment in the Government sector; 1-year lag  Natural gas price—Commercial; 1-year lag  Adjusted R-squared  Unemployment rate	Coefficient esti- mate 0.000 -0.045 0.000 0.179 0.969	β 0.38 -0.09 0.56 0.13	value (0.003) (0.030) (0.000) (0.004)
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential  Motor gas price—Transportation; 1-year lag  Employment in the Government sector; 1-year lag  Natural gas price—Commercial; 1-year lag  Adjusted R-squared  Unemployment rate  Predictive variable	Coefficient esti- mate	β 0.38 -0.09 0.56 0.13 Standardized β	value (0.003) (0.030) (0.000) (0.004)
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential  Motor gas price—Transportation; 1-year lag  Employment in the Government sector; 1-year lag  Natural gas price—Commercial; 1-year lag  Adjusted R-squared  Unemployment rate  Predictive variable  Earnings per employee in Finance, Insurance, and Real Estate	Coefficient esti- mate	β 0.38 -0.09 0.56 0.13 Standardized β 0.33	value (0.003) (0.030) (0.000) (0.004) p- value (0.002)
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential  Motor gas price—Transportation; 1-year lag  Employment in the Government sector; 1-year lag  Natural gas price—Commercial; 1-year lag  Adjusted R-squared  Unemployment rate  Predictive variable  Earnings per employee in Finance, Insurance, and Real Estate  Employment in the Manufacturing sector	Coefficient esti- mate	β 0.38 -0.09 0.56 0.13 Standardized β 0.33 -0.40	(0.003) (0.030) (0.000) (0.004) p- value (0.002) (0.001)
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential  Motor gas price—Transportation; 1-year lag  Employment in the Government sector; 1-year lag  Natural gas price—Commercial; 1-year lag  Adjusted R-squared  Unemployment rate  Predictive variable  Earnings per employee in Finance, Insurance, and Real Estate  Employment in the Manufacturing sector  National unemployment rate	Coefficient esti- mate	β 0.38 -0.09 0.56 0.13 Standardized β 0.33 -0.40 0.49	value (0.003) (0.030) (0.000) (0.004) p- value (0.002) (0.001) (0.000)
Nonwage income, per capita  Predictive variable  Electricity consumption—Residential  Motor gas price—Transportation; 1-year lag  Employment in the Government sector; 1-year lag  Natural gas price—Commercial; 1-year lag  Adjusted R-squared  Unemployment rate  Predictive variable  Earnings per employee in Finance, Insurance, and Real Estate  Employment in the Manufacturing sector  National unemployment rate  Nonwage income, per capita	Coefficient esti- mate	β 0.38 -0.09 0.56 0.13 Standardized β 0.33 -0.40 0.49 -0.49	p- value (0.002) (0.0001) (0.0001) (0.0001) (0.0000)