

# Regional Load Growth Factors

NYISO Load Forecasting Task Force

December 18, 2003

# Economic Indicators

## Concepts Used

Employment

FET.NYP06

Output

FGDP\$.NYP06

Household

FHHOLDQ.NYP06

Population

FPOPQ.NYP06

Income

FYP\$.NYP06

# Central Hudson

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<b>2004</b>	Correlation of W/N Peak and	
Employment	186.58	194.31	198.66	203.92	206.06	209.02	<b>210.76</b>	Employment	0.7789
Output	10.74	11.21	11.47	11.62	12.21	12.61	<b>13.04</b>	Output	0.9057
Households	179.39	182.68	185.75	187.32	189.11	190.51	<b>191.86</b>	Households	0.7880
Population	497.35	502.74	507.46	511.73	516.77	520.58	<b>523.6</b>	Population	0.8532
Income	12510	12804	13481	13945	15360	15391	<b>16456</b>	Income	0.8370

Growth									
Employment		1.0414	1.0224	1.0265	1.0105	1.0144	<b>1.0083</b>		
Output		1.0438	1.0232	1.0131	1.0508	1.0328	<b>1.0341</b>		
Households		1.0183	1.0168	1.0085	1.0096	1.0074	<b>1.0071</b>		
Population		1.0108	1.0094	1.0084	1.0098	1.0074	<b>1.0058</b>		
Income		1.0235	1.0528	1.0345	1.1014	1.0020	<b>1.0692</b>		

W/N Peaks	952	970	968	985	1020	1118		
W/N Peak Growth		<b>1.019</b>	<b>0.998</b>	<b>1.018</b>	<b>1.036</b>	<b>1.096</b>		

### Peak Growth divided by:

Employment Growth	0.978	0.976	0.991	1.025	1.081		
Output Growth	0.976	0.975	1.004	0.985	1.061		
Households Growth	1.001	0.981	1.009	1.026	1.088		
Population Growth	1.008	0.989	1.009	1.025	1.088		
Income Growth	0.995	0.948	0.984	0.940	1.094		

### Composite indicator

	1.0264	1.0282	1.0184	1.0537	1.0145	1.0361		
Peak Growth/CI	<b>0.9927</b>	<b>0.9706</b>	0.9991	<b>0.9828</b>	<b>1.0804</b>			

Peak Growth Rate Range	<b>1.0285</b>	<b>1.0183</b>						
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# Consolidated Edison

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Employment	3928.77	4031.22	4143.77	4115.29	3997.1	3952.59	<b>3984.43</b>
Output	437.5	459.62	505.04	513.39	514.91	525.23	<b>541.77</b>
Households	3282.81	3322.9	3365.8	3383.47	3392.05	3399.09	<b>3410.28</b>
Population	8782.28	8876.62	8951.11	8997.68	9024.33	9044.35	<b>9062.46</b>
Income	299118	309500	329428	333071	351090	349315	<b>361273</b>

Correlation of W/N Peak and:

Employment	-0.0245
Output	0.9096
Households	0.9322
Population	0.9515
Income	0.9550

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Growth							
Employment		1.0261	1.0279	0.9931	0.9713	0.9889	<b>1.0081</b>
Output		1.0506	1.0988	1.0165	1.0030	1.0200	<b>1.0315</b>
Households		1.0122	1.0129	1.0052	1.0025	1.0021	<b>1.0033</b>
Population		1.0107	1.0084	1.0052	1.0030	1.0022	<b>1.0020</b>
Income		1.0347	1.0644	1.0111	1.0541	0.9949	<b>1.0342</b>

W/N Peaks	11450	11650	11825	12225	12400	12600
W/N Peak Growth		<b>1.0175</b>	<b>1.0150</b>	1.0338	1.0143	1.0161

### Peak Growth divided by:

Employment Growth	0.9916	0.9875	1.0410	1.0443	1.0276
Output Growth	0.9685	0.9237	1.0170	1.0113	0.9962
Households Growth	1.0052	1.0021	1.0284	1.0117	1.0140
Population Growth	1.0067	1.0066	1.0285	1.0113	1.0139
Income Growth	0.9833	0.9536	1.0225	0.9623	1.0213

### Composite indicator

	1.0317	1.0566	1.0108	1.0203	1.0055	1.0225
Peak Growth/CI	<b>0.9862</b>	0.9607	1.0227	0.9941	<b>1.0106</b>	

<b>Peak Growth Rate Range</b>	<b>1.0083</b>				<b>1.0333</b>
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# Rochester Gas and Electric

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<b>2004</b>	Correlation of W/N Peak and:	
Employment	539.51	548.12	553.23	549.78	534.07	525.18	527.26	Employment	-0.5915
Output	33.15	33.2	33.84	32.99	33.71	34.01	34.72	Output	0.4327
Households	414.75	417.78	420.32	420.76	421.87	423.35	425.62	Households	0.8445
Population	1096.2	1096.73	1098.87	1100	1103.17	1106.94	1110.31	Population	0.8846
Income	28755	28975	29528	29989	31489	30627	31250	Income	0.9466

Growth							
Employment		1.0160	1.0093	0.9938	0.9714	0.9834	1.0040
Output		1.0015	1.0193	0.9749	1.0218	1.0089	1.0209
Households		1.0073	1.0061	1.0010	1.0026	1.0035	1.0054
Population		1.0005	1.0020	1.0010	1.0029	1.0034	1.0030
Income		1.0077	1.0191	1.0156	1.0500	0.9726	1.0203

W/N Peaks	1403	1392	1430	1512	1556	1541
W/N Peak Growth		0.9926	1.0270	1.0575	1.0291	0.9904

## Peak Growth divided by:

Employment Growth	0.9770	1.0175	1.0641	1.0594	1.0071
Output Growth	0.9911	1.0076	1.0847	1.0071	0.9816
Households Growth	0.9854	1.0208	1.0564	1.0264	0.9869
Population Growth	0.9921	1.0250	1.0564	1.0261	0.9870
Income Growth	0.9850	1.0078	1.0412	0.9801	1.0182

	<u>Composite indicator</u>					
Peak Growth/CI	1.0037	1.0124	1.0021	1.0262	0.9916	1.0137
Peak Growth Rate Range	0.9890	1.0144	1.0552	1.0028	0.9988	

# Orange and Rockland

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<b>2004</b>	Correlation of W/N Peak and:	
Employment	99.62	104.54	106.12	105.77	105.67	105.53	106.52	Employment	0.1239
Output	6.99	7.16	7.18	7.07	7.25	7.42	7.6	Output	-0.5463
Households	89.92	91.49	92.98	93.66	94.31	94.52	94.89	Households	-0.0689
Population	282.47	285.55	287.75	289.79	291.87	292.49	293.15	Population	-0.1319
Income	9600	9879	10260	10093	11143	11153	11501	Income	-0.2333

## Growth

Employment	1.0494	1.0151	0.9967	0.9991	0.9987	1.0094
Output	1.0243	1.0028	0.9847	1.0255	1.0234	1.0243
Households	1.0175	1.0163	1.0073	1.0069	1.0022	1.0039
Population	1.0109	1.0077	1.0071	1.0072	1.0021	1.0023
Income	1.0290	1.0386	0.9837	1.1040	1.0009	1.0312

W/N Peaks	1250	1280	1325	1355	1410	1025
W/N Peak Growth	1.0240	1.0352	1.0226	1.0406	0.7270	

## Peak Growth divided by:

Employment Growth	0.9758	1.0197	1.0260	1.0416	0.7279
Output Growth	0.9997	1.0323	1.0386	1.0148	0.7103
Households Growth	1.0064	1.0186	1.0152	1.0334	0.7253
Population Growth	1.0130	1.0272	1.0154	1.0332	0.7254
Income Growth	0.9951	0.9967	1.0395	0.9425	0.7263

## Composite indicator

	1.0104	1.0463	0.9838	1.1395	1.0030	1.0359
Peak Growth/CI	1.0134	0.9894	1.0394	0.9132	0.7248	
Peak Growth Rate Range	1.0498		0.9460			

# New York State Electric and Gas

	1998	1999	2000	2001	2002	2003	2004	Correlation of W/N Peak and:	
Employment	465.89	479.04	490.72	510.25	515.83	518.3	<b>525.28</b>	Employment	0.9377
Output	22.66	23	23.69	24.36	25.54	26.62	<b>27.66</b>	Output	0.9471
Households	427.26	431.53	435.57	436.98	438.36	438.68	<b>439.28</b>	Households	0.8715
Population	1135.71	1137.15	1139.12	1142.82	1146.79	1147.66	<b>1148.34</b>	Population	0.9363
Income	25788	26422	27747	28233	30549	30480	<b>32005</b>	Income	0.8884

## Growth

Employment		1.0282	1.0244	1.0398	1.0109	1.0048	<b>1.0135</b>
Output		1.0150	1.0300	1.0283	1.0484	1.0423	<b>1.0391</b>
Households		1.0100	1.0094	1.0032	1.0032	1.0007	<b>1.0014</b>
Population		1.0013	1.0017	1.0032	1.0035	1.0008	<b>1.0006</b>
Income		1.0246	1.0501	1.0175	1.0820	0.9977	<b>1.0500</b>

W/N Peaks	2515	2516	2528	2547	2543	<b>2563</b>
W/N Peak Growth		<b>1.0004</b>	1.0048	<b>1.0075</b>	0.9984	<b>1.0079</b>

## Peak Growth divided by:

Employment Growth	0.9729	0.9809	0.9690	0.9876	1.0031
Output Growth	0.9856	0.9755	0.9798	0.9523	0.9670
Households Growth	0.9905	0.9955	1.0043	0.9953	1.0071
Population Growth	0.9991	1.0030	1.0043	0.9950	1.0071
Income Growth	0.9764	0.9568	0.9902	0.9227	1.0102

## Composite indicator

	1.0148	1.0188	1.0238	1.0211	1.0160	1.0178
Peak Growth/CI	0.9858	<b>0.9863</b>	<b>0.9841</b>	<b>0.9778</b>	<b>0.9920</b>	

**Peak Growth Rate Range**                      **1.0038**    **1.0016**

# Long Island Power Authority

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<b>2004</b>	Correlation of W/N Peak and:	
Employment	1147.74	1189.66	1217.38	1218.8	1211.67	1214.67	1227.03	Employment	0.7723
Output	80.98	84.44	88.36	87.4	90.54	92.15	<b>94.52</b>	Output	0.9430
Households	896.99	909.47	919.96	927.08	933.51	937.93	942.74	Households	0.9809
Population	2716.61	2740.19	2763.77	2785.33	2805.38	2818.43	<b>2826.35</b>	Population	0.9943
Income	98052	100011	105335	105584	107118	106328	<b>108415</b>	Income	0.9206

Growth									
Employment		1.0365	1.0233	1.0012	0.9941	1.0025	<b>1.0102</b>		
Output		1.0427	1.0464	0.9891	1.0359	1.0178	<b>1.0257</b>		
Households		1.0139	1.0115	1.0077	1.0069	1.0047	<b>1.0051</b>		
Population		1.0087	1.0086	1.0078	1.0072	1.0047	<b>1.0028</b>		
Income		1.0200	1.0532	1.0024	1.0145	0.9926	<b>1.0196</b>		

W/N Peaks	4205	4275	4455	4616	4738	4815		
W/N Peak Growth		1.0166	1.0421	1.0361	1.0264	1.0163		

### Peak Growth divided by:

Employment Growth	0.9808	1.0184	1.0349	1.0325	1.0137		
Output Growth	0.9750	0.9959	1.0475	0.9908	0.9985		
Households Growth	1.0027	1.0302	1.0282	1.0194	1.0115		
Population Growth	1.0079	1.0332	1.0281	1.0191	1.0115		
Income Growth	0.9967	0.9894	1.0337	1.0117	1.0238		

### Composite indicator

	1.0236	1.0355	0.9999	1.0190	1.0051	<b>1.0158</b>		
Peak Growth/CI	0.9933	1.0064	1.0363	1.0073	1.0111			

<b>Peak Growth Rate Range</b>		<b>1.0223</b>			<b>1.0270</b>		
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# Niagara Mohawk

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	Correlation of W/N Peak and:
Employment	1626.83	1666.67	1688.44	1684.79	1674.48	1674.13	1686.48	Employment 0.2492
Output	93.19	94.09	96.13	93.88	96.15	97.59	99.97	Output -0.1897
Households	1372.14	1379.95	1385.11	1384.78	1386.49	1388.11	1390.95	Households 0.2364
Population	3528.25	3521.08	3518.36	3517.49	3522.71	3526.49	3525.92	Population -0.3330
Income	84424	85752	88299	88941	97465	95158	96923	Income 0.2249

## Growth

Employment	1.0245	1.0131	0.9978	0.9939	0.9998	1.0074
Output	1.0097	1.0217	0.9766	1.0242	1.0150	1.0244
Households	1.0057	1.0037	0.9998	1.0012	1.0012	1.0020
Population	0.9980	0.9992	0.9998	1.0015	1.0011	0.9998
Income	1.0157	1.0297	1.0073	1.0958	0.9763	1.0185

W/N Peaks	6152	5996	6098	6448	6231	6127
W/N Peak Growth	0.9746	1.0170	1.0574	0.9663	0.9833	

## Peak Growth divided by:

Employment Growth	0.9513	1.0039	1.0597	0.9723	0.9835
Output Growth	0.9653	0.9954	1.0827	0.9435	0.9688
Households Growth	0.9691	1.0132	1.0576	0.9652	0.9822
Population Growth	0.9766	1.0178	1.0577	0.9649	0.9823
Income Growth	0.9595	0.9877	1.0498	0.8818	1.0072

## Composite indicator

Peak Growth/CI	1.0275	1.0205	1.0195	1.0543	0.9711	1.0049
Peak Growth Rate Range	0.9486	0.9966	1.0372	0.9166	1.0126	

# Summary Tables

<b>Criteria 1:</b>	<b>Recent Historical Load Growth</b>		<b>Criteria 2:</b>	<b>Relationship to Economic Indicators</b>	
	<u>Minimum</u>	<u>Maximum</u>		<u>Minimum</u>	<u>Maximum</u>
Central Hudson	1.0176	1.0355	Central Hudson	1.0183	1.0285
Consolidated Edison	1.0150	1.0175	Consolidated Edison	1.0083	1.0333
LIPA	1.0166	1.0361	LIPA	1.0223	1.0270
NYSEG	1.0004	1.0079	NYSEG	1.0016	1.0038
Niagara Mohawk	0.9746	1.0170	Niagara Mohawk	0.9532	1.0175
NYPA			NYPA		
O&R	1.0226	1.0352	O&R	0.9460	1.0498
RG&E	0.9926	1.0291	RG&E	1.0124	1.0283