

Rate Design Part II: How We Do It

(including Cost Allocation)



NARUC Energy Regulatory Partnership Program

*The Georgian National Energy and Water Regulatory Commission
and
The Vermont Public Service Board*

*by
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Vermont Public Service Board

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Overview

- ❖ *Determining Customer Classes*
- ❖ *Cost Allocation Factors*
- ❖ *Designing Rates/Setting Tariffs –
Reviewing Rate Forms*



Determining Customer Classes

- ❖ Customer class types
 - Residential (with or without a low income or elderly segment)
 - Commercial
 - Industrial
 - Street Lighting
 - Agricultural
- ❖ Utility rate designs occasionally combine these customer classes where similar characteristics



Determining Customer Classes

(cont'd)

- ❖ Determining cost allocation classes
 - Are all classes equally risky to serve?
 - Cross-subsidies between classes
 - Cross-subsidies within classes



Determining Customer Classes

(cont'd)

❖ Rate averaging

- Within rate classes
- Across geographic areas: rural vs. urban
- Rate averaging vs. subsidy vs. simplicity



Determining Customer Classes

(cont'd)

- ❖ Based on classes of customers
 - Customer classes designated according to the criteria adopted concerning:
 - ◆ Value
 - ◆ Cost characteristics
 - ◆ Social objectives



Cost Allocation Factors

- ❖ There are two types of rate base allocation
 - Embedded or fully allocated costs
 - Incremental or marginal costs

- ❖ Discussion here focuses on embedded or fully allocated costs. Cost allocations typically use this approach.



Cost Allocation Factors (cont'd)

- ❖ Categorize embedded costs
 - Generation
 - Transmission
 - Distribution
 - Metering & Billing
 - Joint and Common



Cost Allocation Factors (cont'd)

- ❖ Examples of allocation factors to consider
 - System Peak Month CP (“Coincident Peak”)
 - Summer Peak Month CP
 - 12 Month Average CP
 - Peak Month NCP (“Non-Coincident Peak”)
 - 12 Month Average NCP
 - Annual Billing Demand
 - Annual Number of Customers
 - Average Monthly Customers
 - Cost Per Meter
 - Weighted Metering Cost
 - Weighted Annual Readings/Bills

(See Handout #1:

Class Cost of Service Cost Allocation Strings)



Cost Allocation Factors (cont'd)

- ❖ Joint and common costs
 - Weakness of embedded costs
 - Unallocable costs
 - ◆ Administrative and general costs
 - “Solutions”
 - ◆ Allocate in proportion to allocable
 - ◆ Do something reasonable
 - ◆ Consider other policy goals



Cost Allocation Factors (cont'd)

- ❖ Functionalize embedded costs
 - Energy
 - Peak demand
 - Customers



Cost Allocation Factors (cont'd)

Handout #1

MORRISVILLE WATER AND LIGHT DEPARTMENT
 CLASS COST OF SERVICE STUDY
 ADJUSTED TEST YEAR: 12 MONTHS ENDING DECEMBER 31,2005

Class Cost of Service Cost Allocation Strings

41.7% 63.0%

	Residential Rate S1	Commercial S2	Lg Commercial S2a	Industrial S3	Residential TOD S7	Industrial TOD S9	Residential Demand S11	Streetlights/Security Lights S4/S10	TOTAL
Winter KWH									0
Summer KWH									0
Total KWH	20,651,776	6,147,010	9,570,188	8,796,040	123,444	310,880	96,856	142,317	45,838,511
NYP&A	3,608,348						4,900		4,900
Tailblock	17,043,428						91,956		91,956
System Peak Month CP	4,422.0	1,169.0	1,279.6	885.4	8.0	47.7	21.9	33.1	7,866.7
Summer Peak Month CP (July 22)	2,588.0	1,197.4	2,287.7	1,458.8	15.6	54.9	7.9	0.0	7,610.3
12 Month Average CP	2,859.2	981.3	1,980.1	1,067.3	11.4	51.3	15.1	13.9	6,979.6
Peak Month NCP	3,943.7	1,690.4	3,174.2	1,437.6	64.0	66.8	31.2	33.1	10,441.0
12 Month Average NCP	4,240.7	1,416.1	2,892.2	1,133.7	35.4	67.2	30.0	33.1	9,848.4
Annual Billing Demand			31,470.2	19,113.0		1,326.7	581.8	0.0	52,491.7
Annual Number of Cust	38,194	5,639	751	72	72	12	48	5	44,793
Average Monthly Cust	3,183	453	63	6	6	1	4	0	3,716
Cost Per Meter	\$32.00	\$32.00	\$102.00	\$102.00	\$102.00	\$102.00	\$102.00	\$32.00	\$606.00
Weighted Metering Cost	\$101,850.67	\$14,493.33	\$6,383.50	\$612.00 #	\$612.00	\$102.00	\$408.00	\$13.33	\$124,474.83
Weighted Annual Readings/Bills	38,194	5,639	751	72	72	13	48	6	44,795
KWH/Peak KW	4,670.2	5,258.2	7,479.2	9,934.6	15,430.5	6,517.4	4,422.6	4,304.2	79,125%
KWH/Average KW	7,222.9	6,263.9	4,833.3	8,241.4	10,828.4	6,060.0	6,414.3	10,248.1	83.73%
KWH/Peak NCP	5,236.6	3,636.4	3,015.0	6,118.5	1,928.8	4,653.9	3,104.4	4,304.2	71.96%
KWH/Average NCP	4,869.9	4,340.9	3,308.9	7,758.8	3,487.1	4,626.2	3,228.5	4,304.2	69.60%
	Residential Rate (01)	Commercial (02)	Industrial (03)	Residential TOD (04)	Industrial TOD (05)	Residential Demand	Streetlights/Security Lights	TOTAL	
Total KWH	45.05%	13.41%	19.19%	0.27%	0.68%	0.21%	0.31%	79.125%	
System Peak KW	56.21%	14.86%	11.26%	0.10%	0.61%	0.28%	0.42%	83.73%	
12 Mo. Average CP	41.08%	14.06%	15.29%	0.16%	0.74%	0.22%	0.42%	71.96%	
Peak Month NCP	37.77%	16.19%	13.77%	0.61%	0.64%	0.30%	0.32%	69.60%	
Average NCP	43.06%	14.38%	11.51%	0.36%	0.68%	0.30%	0.34%	70.63%	
Annual Number of Cust	85.27%	12.53%	0.16%	0.16%	0.03%	0.11%	0.01%	98.32%	
Average Monthly Cust	85.66%	12.19%	0.16%	0.16%	0.03%	0.11%	0.01%	98.32%	
Weighted Metering	81.82%	11.64%	0.49%	0.49%	0.08%	0.33%	0.01%	94.87%	
Metering & Accounting	85.26%	12.59%	0.16%	0.16%	0.03%	0.11%	0.32%	98.63%	
VPPSA/JLG 39965,55061									
MINIMUM ALLOCATION PERCENT	37.77%	11.64%	0.16%	0.10%	0.03%	0.11%			
FINAL ALLOCATION PERCENT	45.15%	14.12%	17.61%	0.25%	0.67%	0.22%			
MAXIMUM ALLOCATION PERCENT	85.66%	16.19%	19.19%	0.61%	0.74%	0.33%			



Cost Allocation Factors (cont'd)

MORRISVILLE WATER AND LIGHT DEPARTMENT
 CLASS COST OF SERVICE STUDY
 ADJUSTED TEST YEAR: 12 MONTHS ENDING DECEMBER 31,2005

Handout #2

CAPACITY ALLOCATION SPREADSHEET

Capacity Allocation	Residential Rate S1	Commercial S2	Lg Commercial S2a	Industrial S3	Residential TOD S7	Industrial TOD S9	Residential Demand S11	Streetlights/Security Lights S4/S10	TOTAL
Capacity KW - 12 Mo Avg	2,859.2	981.3	1,980.1	1,067.3	11.4	51.3	15.1	13.9	6,979.6
Loss KW	481.1	165.1	333.1	179.6	1.9	8.6	2.5	2.3	1,174.3
Capacity (Incl Loss)	3,340.3	1,146.4	2,313.2	1,246.9	13.3	59.9	17.6	16.2	8,153.9
% Allocation Total	40.97%	14.06%	28.37%	15.29%	0.16%	0.74%	0.22%	0.20%	100.00%
Customers Eligible For NYPA	38,194				72		48		38,314
NYPA KW	568.5								570.3
Net KW	2,771.8	1,146.4	2,313.2	1,246.9	13.3	59.9	17.6	16.2	7,585.5
% Allocation	36.54%	15.11%	30.50%	16.44%	0.18%	0.79%	0.23%	0.21%	100.00%
Capacity \$ - Attachment A									\$1,724,990
Capacity \$ - Internal Generation									\$53,104
Net of Transmission									-\$443,004
NYPA Transmission									\$0
Net of McNeil - Transferred to Joint									\$0
Reverse Fuel Offset									\$312,003
VEPPI Capacity Assignment									\$24,065
Fuel Offset \$									-\$1,181,428
Subtotal \$									\$489,731
NYPA \$ (Net ERCC)									\$38,532
Net \$									\$451,199
Capacity Allocation	\$164,873	\$68,193	\$137,595	\$74,167	\$792	\$3,565	\$1,049	\$965	\$451,199
Controlled Water Heater Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
NYPA \$ Allocation	\$38,411	\$0	\$0	\$0	\$72	\$0	\$48	\$0	\$38,532
SUBTOTAL ALLOCATION	\$203,284	\$68,193	\$137,595	\$74,167	\$865	\$3,565	\$1,098	\$965	\$489,731
% ALLOCATION	41.51%	13.92%	28.10%	15.14%	0.18%	0.73%	0.22%	0.20%	100.00%
\$'s FOR JOINT ALLOCATION (Cap \$, Net Fuel, Net NYPA)	\$184,834	\$63,439	\$0	\$68,996	\$737	\$3,316	\$976	\$898	\$323,197



Cost Allocation Factors (cont'd)

MORRISVILLE WATER AND LIGHT DEPARTMENT
 CLASS COST OF SERVICE STUDY
 ADJUSTED TEST YEAR: 12 MONTHS ENDING DECEMBER 31, 2005

Handout #3

TRANSMISSION ALLOCATION SPREADSHEET

Transmission Allocation	Residential Rate \$1	Commercial \$2	Lg Commercial \$2a	Industrial \$3	Residential TOD \$7	Industrial TOD \$9	Residential Demand \$11	Streetlights/Security Lights \$4/\$10	TOTAL
Capacity KW - Winter Peak Mo	4,422.0	1,169.0	1,279.6	885.4	8.0	47.7	21.9	33.1	7,866.7
Loss KW	816.9	216.0	236.4	163.6	1.5	8.8	4.0	6.1	1,453.3
Capacity (Incl Loss)	5,238.9	1,385.0	1,516.0	1,049.0	9.5	56.5	25.9	39.2	9,320.0
% Allocation Total	56.21%	14.86%	16.27%	11.26%	0.10%	0.61%	0.28%	0.42%	100.00%
Customers Eligible For NYPA	38,194				72		48		38,314
NYPA KW	568.5	0.0	0.0	0.0	1.1	0.0	0.7	0.0	570.3
Net KW	4,670.5	1,385.0	1,516.0	1,049.0	8.4	56.5	25.2	39.2	8,749.8
% Allocation	53.38%	15.83%	17.33%	11.99%	0.10%	0.65%	0.29%	0.45%	100.00%
Capacity KW - Summer Peak Mo	2,588.0	1,197.4	2,287.7	1,458.8	15.6	54.9	7.9	0.0	7,610.3
Loss KW	581.4	269.0	513.9	327.7	3.5	12.3	1.8	0.0	1,709.7
Capacity (Incl Loss)	3,169.4	1,466.4	2,801.6	1,786.6	19.1	67.2	9.7	0.0	9,320.0
% Allocation Total	34.01%	15.73%	30.06%	19.17%	0.20%	0.72%	0.10%	0.00%	100.00%
NYPA KW	0.0	0.0	0.0	0.0					0.0
Net KW	3,169.4	1,466.4	2,801.6	1,786.6	19.1	67.2	9.7	0.0	9,320.0
% Allocation	34.01%	15.73%	30.06%	19.17%	0.20%	0.72%	0.10%	0.00%	100.00%
Transmission \$									\$443,004
Other \$									
Less Velco Transmission Dividends									-\$27,999
Subtotal \$									\$415,005
NYPA Transmission \$									\$0
Net \$									\$415,005
Transmission Allocation - Summer Pk	\$70,564	\$32,649	\$62,375	\$39,777	\$425	\$1,497	\$215	\$0	\$207,503
Transmission Allocation - System Pk	\$110,762	\$32,846	\$35,951	\$24,877	\$199	\$1,340	\$598	\$929	\$207,503
NYPA Transmission Alloc	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Controlled Water Heater Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SUBTOTAL ALLOCATION	\$181,326	\$65,494	\$98,327	\$64,653	\$625	\$2,837	\$814	\$929	\$415,005
% ALLOCATION	43.69%	15.78%	23.69%	15.58%	0.15%	0.68%	0.20%	0.22%	100.00%
\$'s FOR JOINT ALLOCATION (Cap \$, Net Fuel, Net NYPA)	\$181,326	\$65,494	\$98,327	\$64,653	\$625	\$2,837	\$814	\$929	\$415,005



Cost Allocation Factors (cont'd)

MORRISVILLE WATER AND LIGHT DEPARTMENT
 CLASS COST OF SERVICE STUDY
 ADJUSTED TEST YEAR: 12 MONTHS ENDING DECEMBER 31,2005

Handout #4

ANNUAL ENERGY ALLOCATION SPREADSHEET

Annual Energy Allocation	Residential Rate S1	Commercial S2	Lg Commercial S2a	Industrial S3	Residential TOD S7	Industrial TOD S9	Residential Demand S11	Streetlights/Security Lights S4/S10	TOTAL
Sales (KWH)	20,651,776.0	6,147,010.0	9,570,188.0	8,796,040.0	123,444.0	310,880.0	96,856.0	142,317.0	45,838,511.0
Specific Loss Assignment									0.0
Residual Losses	2,733,040.5	813,490.7	1,266,511.5	1,164,061.3	16,336.5	41,141.6	12,817.9	18,834.1	6,066,234.0
Sales (Incl Losses)	23,384,816.5	6,960,500.7	10,836,699.5	9,960,101.3	139,780.5	352,021.6	109,673.9	161,151.1	51,904,745.0
Customers Eligible For NYPA	38,194				72		48	0	38,314
NYPA(KWH)	2,668,594.7	0.0	0.0	0.0	5,030.6	0.0	3,353.7	0.0	2,676,979.1
Net Sales(KWH)	20,716,222	6,960,501	10,836,699	9,960,101	134,750	352,022	106,320	161,151	49,227,766
% Allocation	42.08%	14.14%	22.01%	20.23%	0.27%	0.72%	0.22%	0.33%	100.00%
Off-Peak KWH									0.0
LM Credit Per KWH									0.0
LM Adjustment									0.0
Energy (\$) - Attachment A									\$2,476,958
Energy Charges - Generation									\$153,334
Net of Uplift Payments									\$0
VEPPI capacity									-\$24,065
Fuel Offset (\$)									\$1,181,428
Reverse Fuel Offset									-\$312,003
Subtotal (\$)									\$3,475,651
NYPA (\$)	\$14,203	\$0	\$0	\$0	\$27	\$0	\$18	\$0	\$14,248
Net Sales (\$)	\$1,456,641	\$489,421	\$761,972	\$700,335	\$9,475	\$24,752	\$7,476	\$11,331	\$3,461,403
LM Adjustment (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal (\$)	\$1,470,845	\$489,421	\$761,972	\$700,335	\$9,502	\$24,752	\$7,494	\$11,331	\$3,475,651
% Allocation	42.32%	14.08%	21.92%	20.15%	0.27%	0.71%	0.22%	0.33%	100.00%
\$'s FOR JOINT ALLOCATION	\$1,559,478	\$464,179	\$722,674	\$664,215	\$9,322	\$23,475	\$7,314	\$10,747	\$3,461,403
VPPSA/CJU 1-Jun-09									



Cost Allocation Factors (cont'd)

MORRISVILLE WATER AND LIGHT DEPARTMENT
 CLASS COST OF SERVICE STUDY
 ADJUSTED TEST YEAR: 12 MONTHS ENDING DECEMBER 31, 2005
 DISTRIBUTION, CUSTOMER, & DSM ALLOCATION SPREADSHEET

Handout #5

Distribution Allocation	Residential Rate S1	Commercial S2	Lg Commercial S2a	Industrial S3	Residential TOD S7	Industrial TOD S9	Residential Demand S11	Streetlights/Security Lights S4/S10	TOTAL
Class Max Peak - Avg Monthly	4,240.7	1,416.1	2,892.2	1,133.7	35.4	67.2	30.0	33.1	9,848.4
% Allocation	43.06%	14.38%	29.37%	11.51%	0.36%	0.68%	0.30%	0.34%	100.00%
% Allocation - Net Snowmaking	43.06%	14.38%	29.37%	11.51%	0.36%	0.68%	0.30%	0.34%	100.00%
Gross Distribution Dollars	158,480	52,921	108,086	42,367	1,323	2,511	1,121	1,236	\$368,045
(Less Street Light Related)									-\$5,294
Net Distribution Dollars	\$156,200	\$52,159	\$106,531	\$41,758	\$1,304	\$2,475	\$1,105	\$1,218	\$362,751
Street & Area Light Related								\$5,294	
Total Distribution \$	\$156,200	\$52,159	\$106,531	\$41,758	\$1,304	\$2,475	\$1,105	\$6,512	\$368,045
Customer Allocation	Residential Rate S1	Commercial S2	Lg Commercial S2a	Industrial S3	Residential TOD S7	Industrial TOD S9	Residential Demand S11	Streetlights/Security Lights S4/S10	TOTAL
Number of Bills Sent	38,194	5,639	751	72	72	13	48	6	44,795
% Allocation - Reading & Accounting	85.26%	12.59%	1.68%	0.16%	0.16%	0.03%	0.11%	0.01%	100.00%
Reading & Accounting\$	\$207,353	\$30,614	\$4,077	\$391	\$391	\$71	\$261	\$30	\$243,187
AVG # of Customers	3,183	453	63	6	6	2	4	0	3,717
Cost Per Meter	\$32	\$32	\$102	\$600	\$102	\$600	\$102	\$32	\$128,561
Weighted Metering Cost	\$101,851	\$14,493	\$6,384	\$3,600	\$612	\$1,200	\$408	\$13	\$128,561
Weighted Metering Percent	79.22%	11.27%	4.97%	2.80%	0.48%	0.93%	0.32%	0.01%	100.00%
% Allocation - Service Costs	79.22%	11.27%	4.97%	2.80%	0.48%	0.93%	0.32%	0.01%	100.00%
Customer \$ - Service Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Customer \$	\$207,353	\$30,614	\$4,077	\$391	\$391	\$71	\$261	\$30	\$243,187
DSM Allocation	Residential Rate S1	Commercial S2	Lg Commercial S2a	Industrial S3	Residential TOD S7	Industrial TOD S9	Residential Demand S11	Streetlights/Security Lights S4/S10	TOTAL
Total Power Costs Assigned	\$1,855,454	\$623,109	\$997,893	\$839,155	\$10,991	\$31,154	\$9,405	\$13,225	\$4,380,387
Percentage of Power Costs Assigned	42.36%	14.22%	22.75%	19.16%	0.25%	0.71%	0.21%	0.30%	100.00%
DSM Assignment	0	0	0	0	0	0	0	0	0
COSTS ALLOCATED (Excl Joint \$)	\$2,219,008	\$705,882	\$1,108,502	\$881,304	\$12,686	\$33,700	\$10,771	\$19,768	\$4,991,619
% ALLOCATION TOTAL	44.45%	14.14%	22.21%	17.66%	0.25%	0.68%	0.22%	0.40%	100.00%
\$'s FOR JOINT ALLOCATION	\$2,289,191	\$675,886	\$931,609	\$840,014	\$12,378	\$32,175	\$10,469	\$19,116	\$4,810,837
% ALLOCATION (JOINT)	47.58%	14.05%	19.36%	17.46%	0.26%	0.67%	0.22%	0.40%	100.00%
% ALLOCATION (ST&AREA LGTS)	47.69%	14.08%	19.41%	17.50%	0.26%	0.67%	0.22%	0.40%	100.22%

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 1-Jun-09



Cost Allocation Factors (cont'd)

MORRISVILLE WATER AND LIGHT DEPARTMENT
 CLASS COST OF SERVICE STUDY
 ADJUSTED TEST YEAR: 12 MONTHS ENDING DECEMBER 31, 2006

Handout #6

JOINT ALLOCATION SPREADSHEET

Joint Allocation	Residential Rate S1	Commercial S2	Lg Commercial S2a	Industrial S3	Residential TOD S7	Industrial TOD S9	Residential Demand S11	Streetlights/Security Lights S4/S10	TOTAL
McNeil Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Uncollectable Accounts Admin/General	\$308,490	\$91,082	\$125,543	\$113,200	\$1,668	\$4,336	\$1,411	\$2,576	\$648,306
Depreciation & Amortization:									
Depreciation - Joint Only	\$227,947	\$67,302	\$92,765	\$83,645	\$1,233	\$3,204	\$1,042	\$1,903	\$479,041
Amortization - Non Power Related	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxes:									
Gross Revenue Tax	\$15,266	\$4,507	\$6,213	\$5,602	\$83	\$215	\$70	\$127	\$32,082
WX Tax	\$15,266	\$4,507	\$6,213	\$5,602	\$83	\$215	\$70	\$127	\$32,082
Payroll	\$12,612	\$3,724	\$5,132	\$4,628	\$68	\$177	\$58	\$105	\$26,504
Property Tax - Joint Only	\$54,755	\$16,166	\$22,283	\$20,092	\$296	\$770	\$250	\$457	\$115,069
Interest & Income:									
Interest Expense - Net Direct Assignments	\$91,085	\$26,893	\$37,068	\$33,423	\$493	\$1,280	\$417	\$761	\$191,419
T.I.E.R.	\$91,085	\$26,893	\$37,068	\$33,423	\$493	\$1,280	\$417	\$761	\$191,419
Credits:									
Interest & Dividend - Net VELCO	-\$88,216	-\$26,046	-\$35,900	-\$32,371	-\$477	-\$1,240	-\$403	-\$737	-\$185,390
Misc Operating Revenue	-\$15,408	-\$4,549	-\$6,270	-\$5,654	-\$83	-\$217	-\$70	-\$129	-\$32,380
Misc Non-Operating Income	-\$9,065	-\$2,677	-\$3,689	-\$3,326	-\$49	-\$127	-\$41	-\$76	-\$19,051
Jobbing/Contract Work	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
rental income	-\$25,889	-\$7,644	-\$10,536	-\$9,500	-\$140	-\$364	-\$118	-\$216	-\$54,406
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SUBTOTAL JOINT \$	\$677,927	\$200,159	\$275,889	\$248,764	\$3,666	\$9,528	\$3,100	\$5,661	\$1,424,694
DESCRIPTION	Residential Rate S1	Commercial S2	Lg Commercial S2a	Industrial S3	Residential TOD S7	Industrial TOD S9	Residential Demand S11	Streetlights/Security Lights S4/S10	TOTAL
GRAND TOTAL	\$2,896,935	\$906,040	\$1,384,391	\$1,130,068	\$16,351	\$43,228	\$13,871	\$25,429	\$6,416,313
% ALLOCATION	45.15%	14.12%	21.58%	17.61%	0.25%	0.67%	0.22%	0.40%	100.00%

VPPSA/CJU



Tariff Development

- ❖ Designing rates/setting tariffs
 - After allocation to customer classes, the costs still must be set into tariffs
 - Tariff development also considers goals of the tariffs



Tariff Development (cont'd)

❖ Uniform tariffs

- Easier to administer
- Social benefits of ensuring connectivity
- For most customers,
- Accompanied by line extension policies that require customer to pay much of cost of new extensions



Tariff Development (cont'd)

❖ Gradualism

- If subsidies exist, how quickly do you try to eliminate them
- Rate shock – irate ratepayers
- Impact on low-income consumers
- Public policy consideration
 - ◆ Industrial development
 - ◆ Protection of residential consumers



Designing Rates Setting Tariffs

(cont'd)

- ❖ Social objectives of service pricing
 - Assistance to specific customer classes
 - ◆ Residential lifeline or low-income rate
 - ◆ Economic development/business retention rates
 - Promote social objectives
 - ◆ Conservation/environmental considerations
 - ◆ Universal service



Designing Rates Setting Tariffs – Reviewing Rate Forms

- ❖ Primary tariff cost components
 - Customer Charge – Flat rate
 - ◆ Often used to recover fixed charges
 - Usage component
 - Demand component
 - Interaction of these components sends price signals



Designing Rates Setting Tariffs – Reviewing Rate Forms (cont'd)

- ❖ Usage Charges typically set at marginal energy price
 - Attempt to send efficient price signal
 - Customer charged the average cost of additional usage



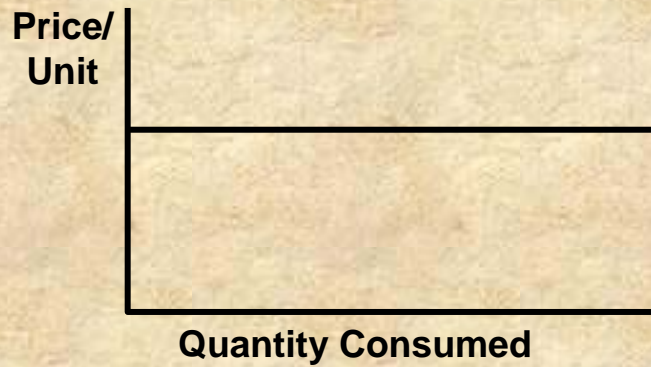
Designing Rates Setting Tariffs – Reviewing Rate Forms (cont'd)

- ❖ After establish energy rate, in Vermont, customer charge is established to recover residual amount
- ❖ Often means customer charge does not recover all fixed costs
- ❖ Alternative would set usage/demand rates too low

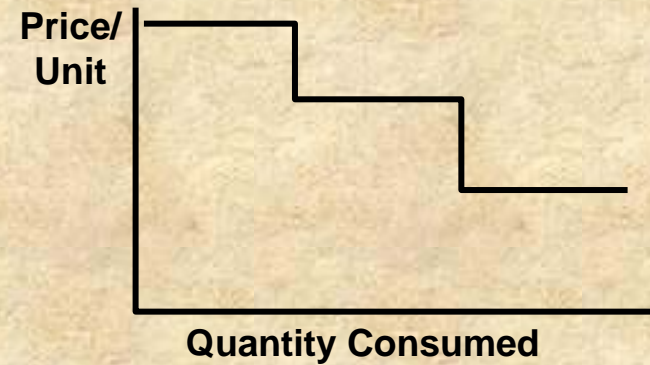


Designing Rates Setting Tariffs – Reviewing Rate Forms (cont'd)

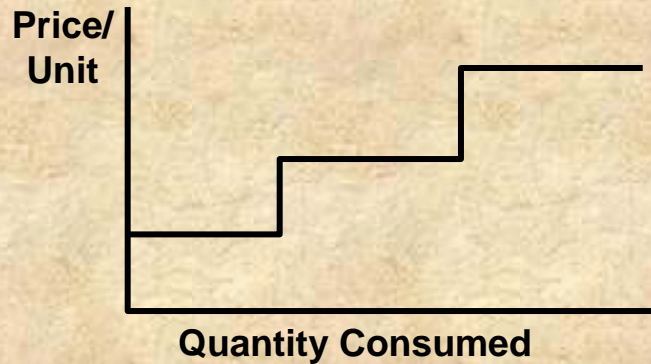
Flat Rates



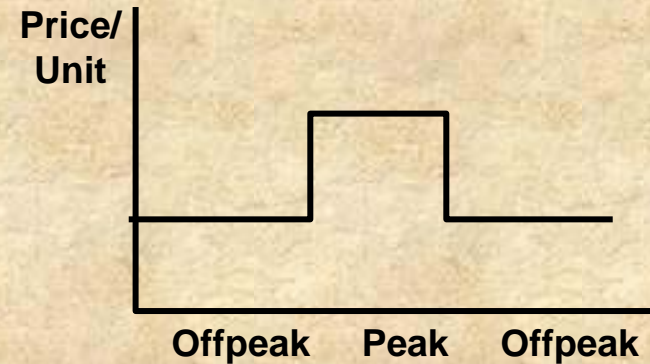
Decreasing Block Rates



Increasing Block Rates



Seasonal Rates





Designing Rates Setting Tariffs – Reviewing Rate Forms (cont'd)

❖ Usage patterns

– Flat

– Declining block

- ◆ Based upon assumption that cheaper to serve large customers
- ◆ And that marginal cost is less than average cost
- ◆ Encourages consumption, discourages conservation, so important to ensure prices are right



Designing Rates Setting Tariffs – Reviewing Rate Forms (cont'd)

- ❖ Rate Designs to Encourage Increased Efficiency and Lower Peak
 - Critical Peak Pricing Programs
 - Real-Time Pricing
 - Other Options



Designing Rates Setting Tariffs – Reviewing Rate Forms (cont'd)

❖ Demand component

- Reflects fact that utility must have power available to serve customer
 - ◆ (i.e., capacity charges)
- Encourages reduced usage at peak periods (load shifting)



Designing Rates Setting Tariffs – Reviewing Rate Forms (cont'd)

❖ Usage patterns (cont'd)

– Inverted block

- ◆ Marginal cost greater than average cost
- ◆ Discourages consumption – encourages conservation
- ◆ Lifeline rate

– Peak/off-peak rates

- ◆ water heater discounts

– Seasonal rates