

# Manitoba Hydro Customer Consultation

Industrial Rates Workshop



# Industrial Rates Workshop

- Engage Customers in Rate Development
  - Increase understanding of rate-setting process
  - Solicit feedback and input into rate-setting process
- Inform Stakeholders of Critical Factors
  - Provide information on key considerations for Manitoba Hydro
  - Provide information on impacts of potential rate structures
- Improve Understanding of Customer Impacts
  - Evaluate potential opportunities for cooperative process
  - Determine impact of rates on consumption behavior
- Facilitate Rate Applications and Approvals
  - Improve process and reduce regulatory risk



# MIPUG Workshop – Nov 2010

- General Service Large (>100 kV)

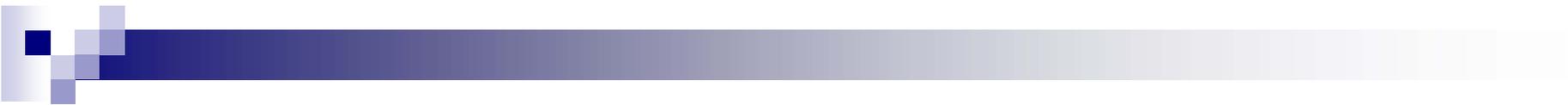
- 
- 
- 13 Accounts, Approximately 4,725 GWh and 675 MVA

- General Service Large (30 – 100 kV)

- 
- 9 Accounts, Approximately 605 GWh and 100 MVA

- 

- MIPUG representative/consultant
- Active participant in consultation process



# Industrial Users Workshop

- **General Service Large (>100 kV)**
  - 1 Industrial Account
  - Approximately 3.0 – 4.0 GWh, 0.5 - 1 MVA
- **General Service Large (30 – 100 kV)**
  - 23 Industrial & Commercial Accounts
  - Approximately 300 - 325 GWh, 55 - 58 MVA



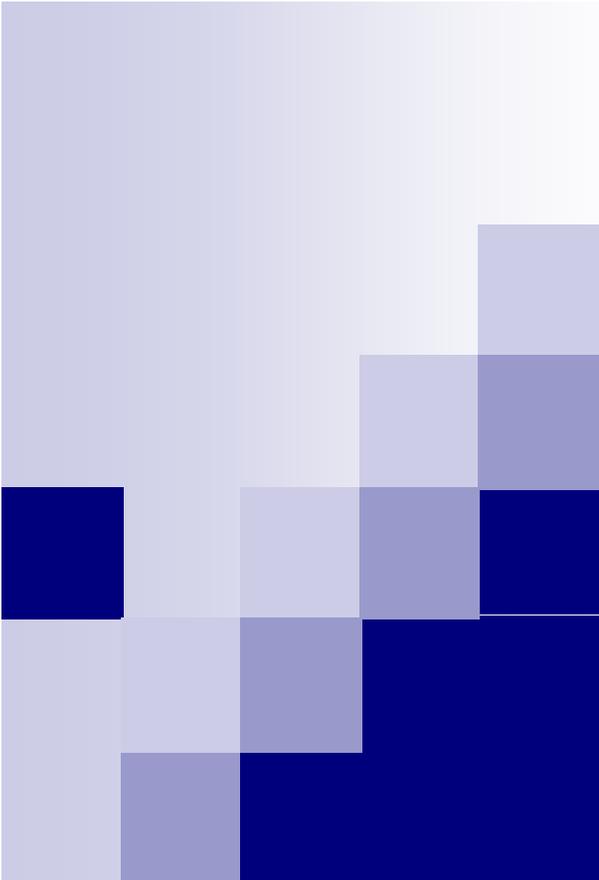
# Manitoba Hydro Representation

- Rates & Regulation

- Rates & Policies Department

- Industrial & Commercial Solutions

- Key Account Officers
- Major Account Energy Service Advisors
- Customer Engineering Services Department



# Energy Intensive Industrial Rate

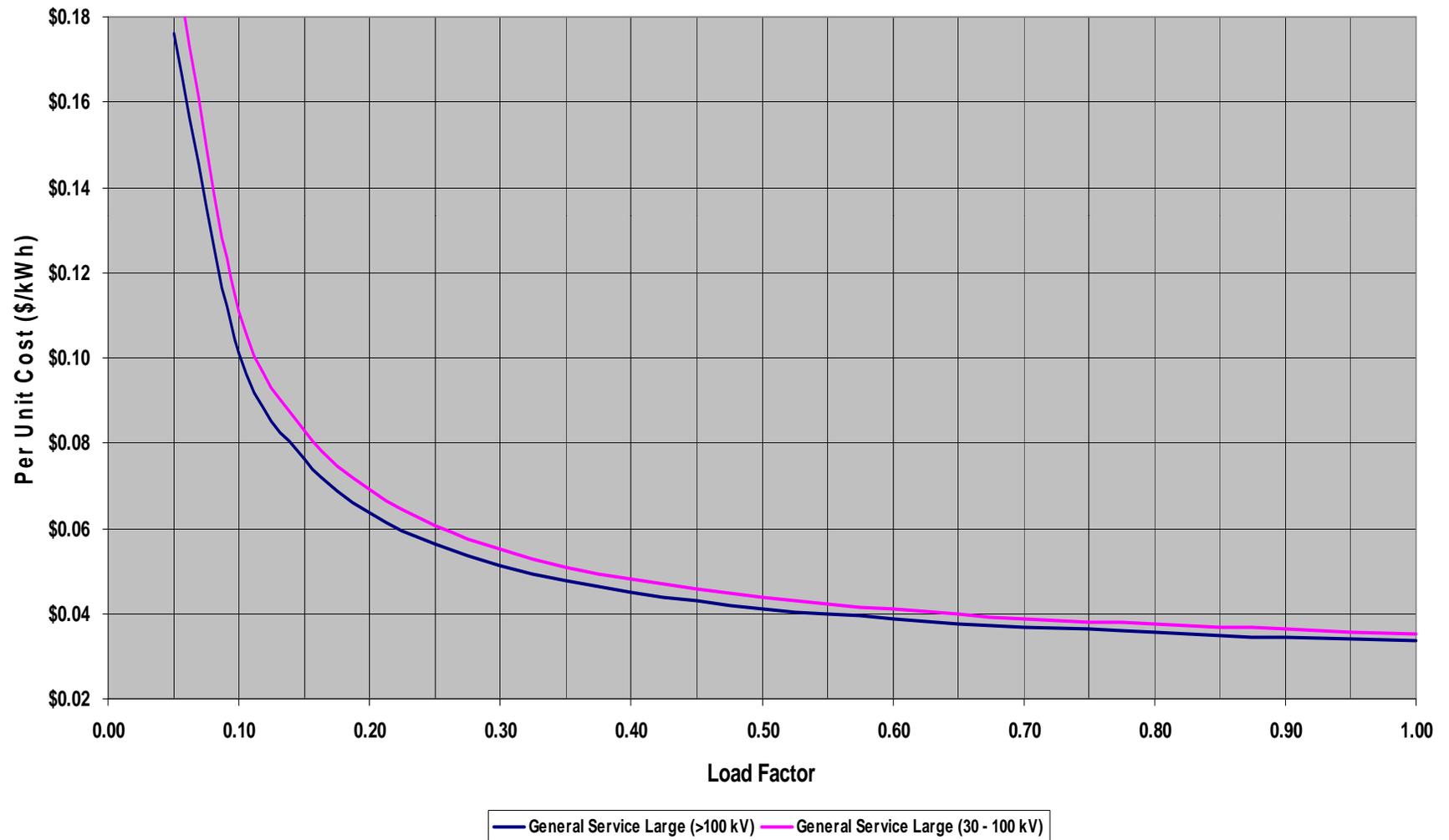
Review of PUB Applications  
and Customer Consultation



# Heritage Industrial Rates

- **General Service Large (>100 kV)**
  - Energy Charge \$0.0262 per kWh
  - Demand Charge \$5.40 per kVA
- **General Service Large (30 – 100 kV)**
  - Energy Charge \$0.0269 per kWh
  - Demand Charge \$6.06 per kVA
- **Not Sensitive to Time of Use Periods**
  - Flat energy charge, peak demand charge
- **Demand-Centric Rate Characteristic**

# Unit Energy Costs vs Load Factor





# Energy Intensive Industrial Rate

- Rational for Implementation of EIIR
  - Mitigate potential impact of low domestic rates
  - Minimize general rate impact of industrial growth
- Impact of Industrial Load Growth
  - Reduces available energy for export market
  - Lower domestic rate decreases general revenues
- Hinders Ability to Secure Firm Export Contracts
  - Lack of a market representative price signal
  - Uncertainty regarding potential load growth
  - Strong influence during on-peak periods



# Rate Impact of Industrial Growth

## ■ 50 MW of Additional Industrial Load

- New domestic revenue \$ 13 - \$ 15 Million/Yr
- Foregone export revenue \$ 21 - \$ 25 Million/Yr
- General revenue reduction \$ 8 - \$ 10 Million/Yr

## ■ General Rate Impact

- 0.7 to 0.9 percent general rate increase for 50 MW addition
- Without considering additional costs for advancement



# Energy Intensive Industrial Rate

- Manitoba Hydro EIR Application - 08 GRA
- Public Utilities Board Order 112/09 - Jul 09
- Manitoba Hydro EIR Application - Feb 10
- MIPUG Consultation Process - Apr 10
- Board Review of EIR Application - Sep 10
- EIR Application Withdrawal - Oct 10



# PUB Board Order 112/09

- Denial of 2008 EIR Application (GRA)
- PUB Directives in Board Order 112/09
  - Include non-governmental customers (> 30 kV)
  - Apply to peak period load growth only
  - Minimize historic baseline adjustments
    - curtailable, self-generation, mandated energy efficiency
  - Marginal rate of 5.53 cents per kWh minus 0.9 cents
  - New customers allowed 50% at heritage rates
- Willingness to examine alternate proposals
- Expanded focus to promote conservation



# February 2010 EIR Application

- **Included All Non-Governmental Accounts**
  - 45 accounts in GSL Greater than 30 kV rate classes
- **Applied to Load Growth in On-Peak Period Only**
  - Monday to Friday, 6:00 AM – 10:00 PM, excluding holidays
- **Historic Baseline Determination**
  - Peak consumption over 12 consecutive months
  - 36 month period ending April 1, 2009
- **Annual Growth Adjustment to Baseline**
  - 2.5 percent for first five years of rate application
  - Compounded adjustment of 13.1 percent (five years)



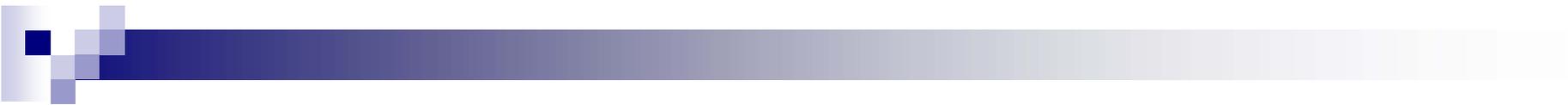
# February 2010 EIR Application

- Above Baseline EIR Rate of \$0.0485 per kWh
  - Based on firm export contracts from previous two years
- Affiliated Accounts Aggregated
  - Accounts combined for determination of baseline
- New to Manitoba Accounts
  - 50 percent of consumption at heritage rates
  - Remaining consumption at EIR rates
  - Adjustment made after three years



# MIPUG Consultation Process

- **Meetings with Individual Customers – Feb 10**
  - Discussion regarding customer impacts
  - Highlighted need for additional consultation
  - Notification to PUB about revised application
- **Initial Meeting with MIPUG - Apr 10**
  - Discussion regarding EIR application
  - Review of alternate EIR proposal
  - Establish framework for further discussion
- **Consultations Commence - Jun 10**
  - Nine meetings over seven month period



# Topics of Consultation

- Nature of Response to PUB Directives
- Determination of Historic Baselines
- Rational for Minimum Baseline Thresholds
- Requirement for Annual Growth Rates
- Impact of Demand Charges on Load Shifting
- Fairness and Equity in Application of EIIR
- Suitability of Marginal Rate/Export Market Price
- Impact of Export Contract Expiration/Renewal
- Revisions to Load Growth Projections



# Feedback - MIPUG Consultation

- Perception of Regulatory Risk
  - Nature of response to Board Order 112/09
  - Need to address specific PUB directives
- Negative Impact on Economic Growth
  - No incentive for economic development
  - Approach contrary to other provinces
- Determination of Appropriate Baseline Levels
  - Historical consumption versus contract demand
- Inequity of Rate Application (new vs existing)
  - Impact on incremental load growth



# Feedback - MIPUG Consultation

- **Discrimination against Industrial Load Growth**
  - Incremental step load growth (significant load additions)
  - Gradual Incremental load growth (smaller load additions)
- **Exemption for Governmental Customers**
  - Load growth has same impact regardless of source
- **Inclusion of System Extension Policy**
  - Impact on new customers and expansion of existing customers



# Consideration of Alternatives

- **Revisions to Determination of Baseline**
  - Use of service contract levels to establish baseline
- **Minimum On-Peak Baseline Threshold Levels**
  - Examined the impact of 60 GWh, 30 GWh and 20 GWh
  - Provided protection for smaller customers, PUB resistance
- **Addition of Incremental Growth Allowance**
  - 50 percent allowance for annual growth
- **Began Examination of Time-of-Use Rates**
  - Broad applicability with time-of-use price signal
  - Provision for load shifting to off-peak periods



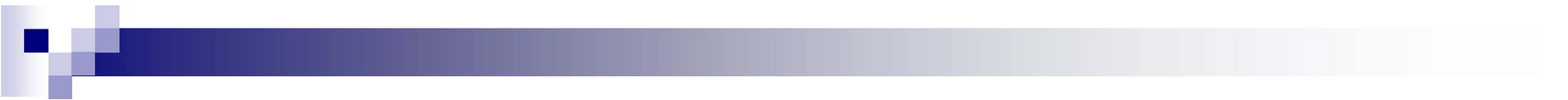
# Impact of EIR Application

<b>Analysis of Impact on MIPUG Members (growth projections)</b>	PUB Directive Board Order 112/09	MH EIR Application (Feb 2010)	MH EIR Proposal (April 2010)
Revenue Neutrality (Domestic Rates)	Bill Increase 0% to 8.9%	Bill Increase 0% to 7.5%	Bill Increase 0% to 3.1%
Additional Revenue (Impacted Accounts)	Additional \$31.0 M (over five years)	Additional \$13.5 M (over five years)	Additional \$7.5 M (over five years)
Export Revenue (approx rate impact)	Full Recovery (rate neutral)	\$13.5 M Shortfall (approx 1.2%)	\$23.5 M Shortfall (approx 2.1%)
Regulatory Risk Customer Response	Low/Medium Risk Negative	Medium Risk Negative	High Risk Cautious



# EIR Consultation Conclusions

- **Competing Directives Compromise EIR Rate**
  - Desire for broad applicability, conservation stimulus
  - Ability to accommodate economic development
  - Protection for export revenues, reduced rate impacts
- **“Formula-Based” EIR Impacts all Growth**
  - Differentiate “energy intensive” from other growth
  - Positive growth (eg. jobs) negatively impacted
- **Alternatives Reduce Export Revenue Protection**
  - Higher baselines reduce Manitoba Hydro revenue
  - Growth allowance contrary to PUB directives



# EIR Application Status

## ■ Review by MH Board of Directors

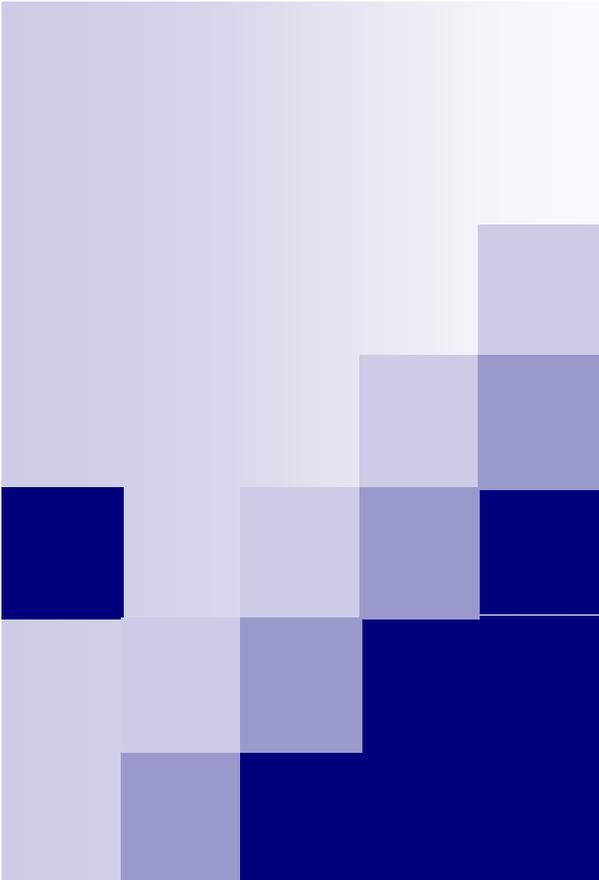
- Presentation of customer feedback from consultation
- Concerns about customer impacts in tough economy
- Review impact of revised load growth projections

## ■ Decision to Withdraw EIR Application

- Further review of alternative options (time-of-use)
- Examine implications of service extension policy

## ■ Direction for Further Action

- Detailed examination of time-of-use alternative
- Review impact of service extension policy



# Time-of-Use Rates

Potential Alternative to EIIR



# Illustrative Time-of-Use Rate

- Broad-Based Applicability Across Rate Class
- Time-of-Use Price Signal Linked to Export Price
- Eliminates Difficulty of Baseline Determination
- Equity for all Accounts within Rate Class
- More Energy Centric Approach to Rates
- On-Peak Incentive for Conservation Activities
- Provides Degree of Export Revenue Protection
- Compliments Potential Demand Response Rate
- Supports Economics of Green Energy Initiatives



# Revenue-Neutral Rate Design

- What Does Revenue-Neutrality Mean..?
- On-Peak Rates Related to Market Prices
- On-Peak Rates Have a Seasonal Aspect
- Off-Peak Rate Related to Export Prices
- Demand Rate Adjusted to Maintain Neutrality
- Intended to Achieve Neutrality Across Class
- Evaluating Range of Winners and Losers
  - Increases or Reductions dependent on consumption patterns
  - Impacts are related to impact on Manitoba Hydro's revenue



# Time-of-Use Definition

## ■ Daily On-Peak Period

- Monday to Friday, 6:00 AM – 10:00 PM
- Excluding statutory holidays

## ■ Daily Off-Peak Period

- Monday to Friday, 10:00 PM – 6:00 AM
- 24 Hours, weekends, holidays

## ■ Seasonal Aspect

- Winter Period (Dec to Mar) – 4 months
- Summer Period (Apr to Nov) – 8 months



# Illustrative Time-of-Use Rate

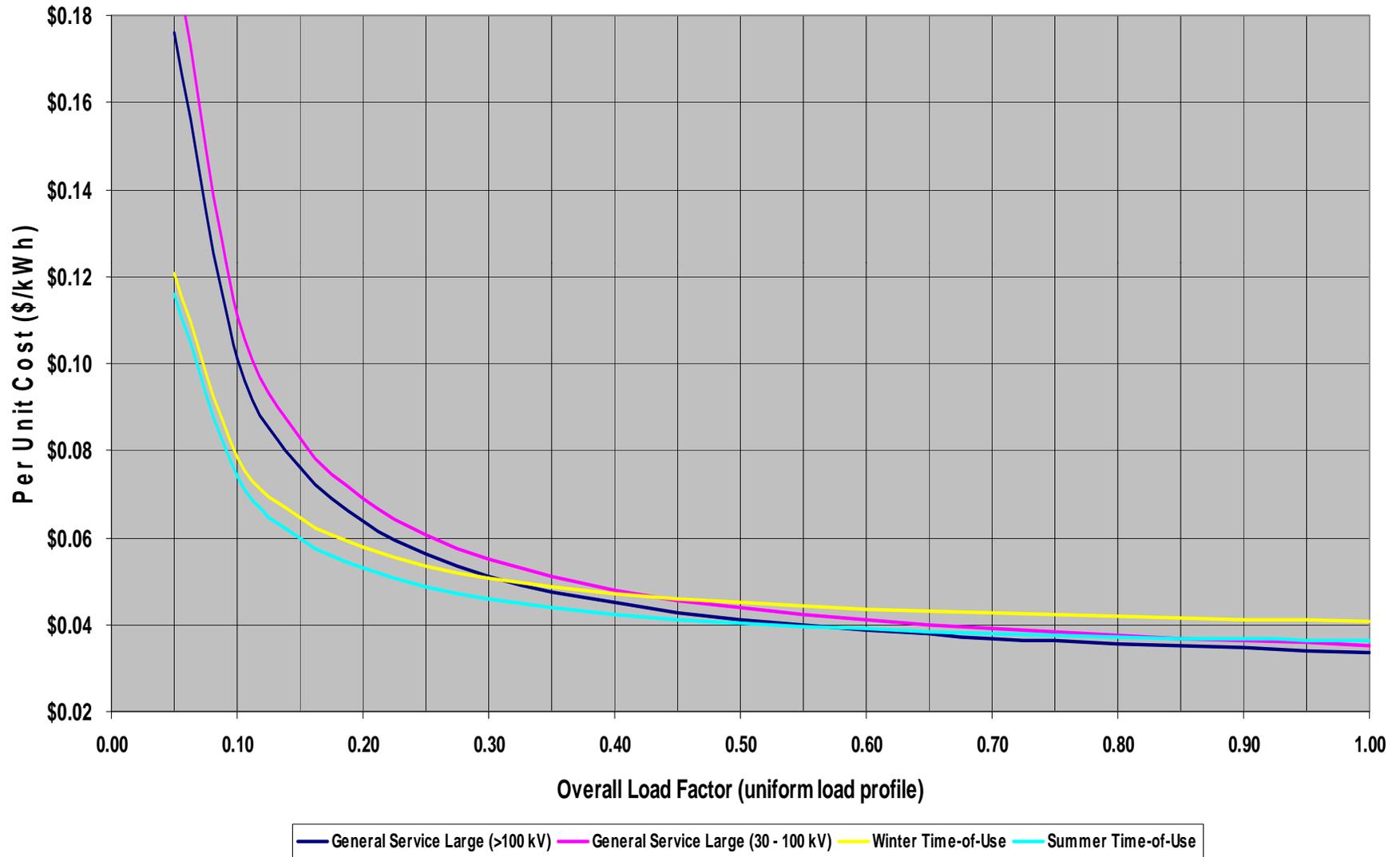
## ■ General Service Large (> 100 kV)

- Winter On-Peak Energy \$0.048 per kWh
- Summer On-Peak Energy \$0.038 per kWh
- Off-Peak Energy \$0.022 per kWh
- On-Peak Demand \$2.70 per kVA

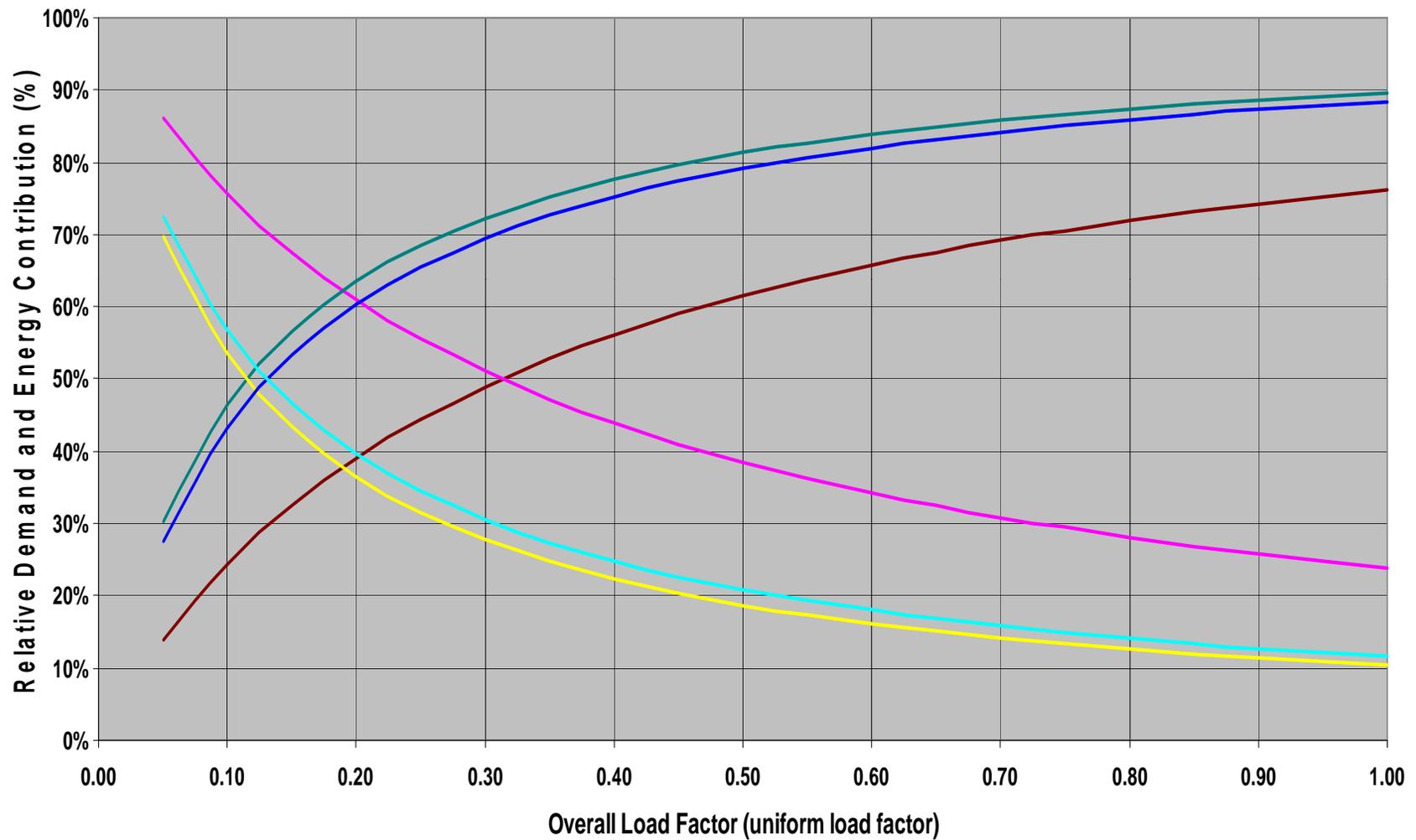
## ■ General Service Large (30 – 100 kV)

- Winter On-Peak Energy \$0.051 per kWh
- Summer On-Peak Energy \$0.041 per kWh
- Off-Peak Energy \$0.024 per kWh
- On-Peak Demand \$3.03 per kVA

# Impact of Usage Load Factor



# Energy Centric Approach



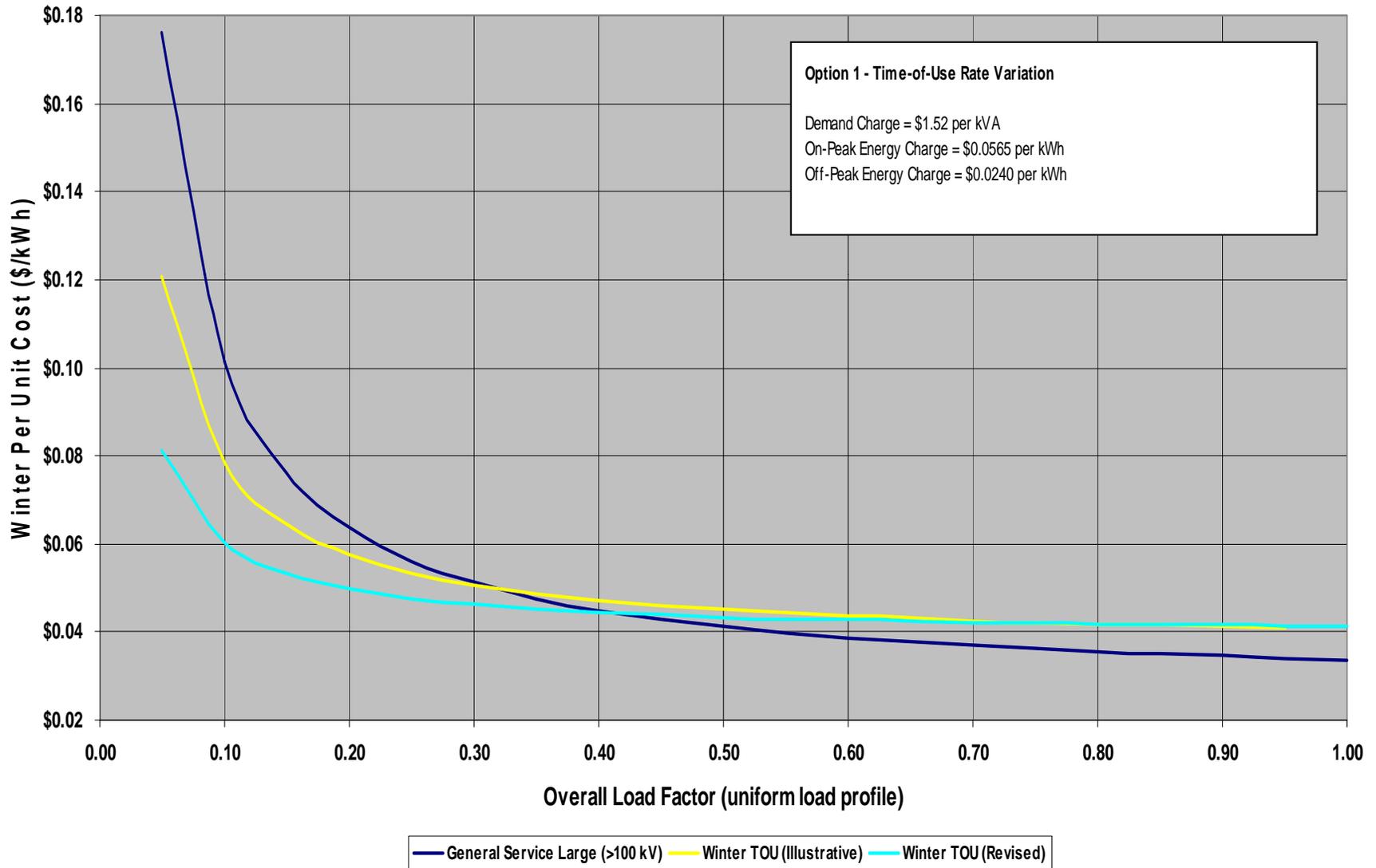
— GSL 30-100 Energy — GSL 30-100 Demand — Winter TOU Energy — Winter TOU Demand — Summer TOU Energy — Summer TOU Demand



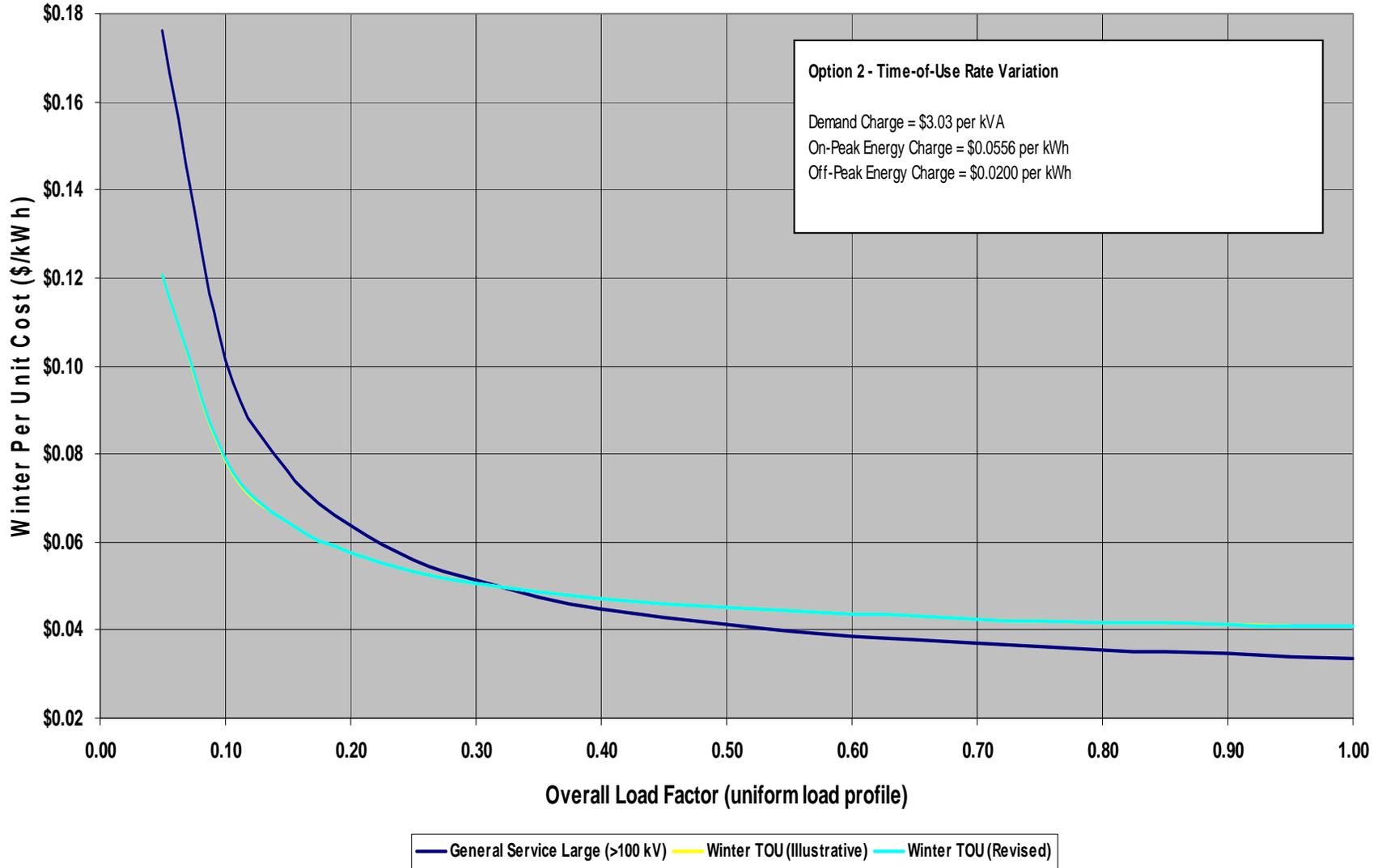
# Alternate Rate Configurations

- Illustrative Time-of-Use Rate
  - Win \$0.051, Sum \$0.041, Off \$0.024, Demand \$3.03
- Option 1 - Lower Demand Rate
  - Win \$0.057, Sum \$0.047, Off \$0.024, Demand \$1.52
- Option 2 - Lower Off-Peak Energy Rate
  - Win \$0.056, Sum \$0.046, Off \$0.020, Demand \$3.03
- Option 3 - Lower Demand & Off-Peak Energy Rates
  - Win \$0.061, Sum \$0.051, Off \$0.020, Demand \$1.52
- Option 4 - Higher Demand, Lower Off-Peak Rates
  - Win \$0.050, Sum \$0.040, Off \$0.020, Demand \$4.55
- Option 5 – Levelized On-Peak Rates
  - Win \$0.044, Sum \$0.044, Off \$0.024, Demand \$3.03

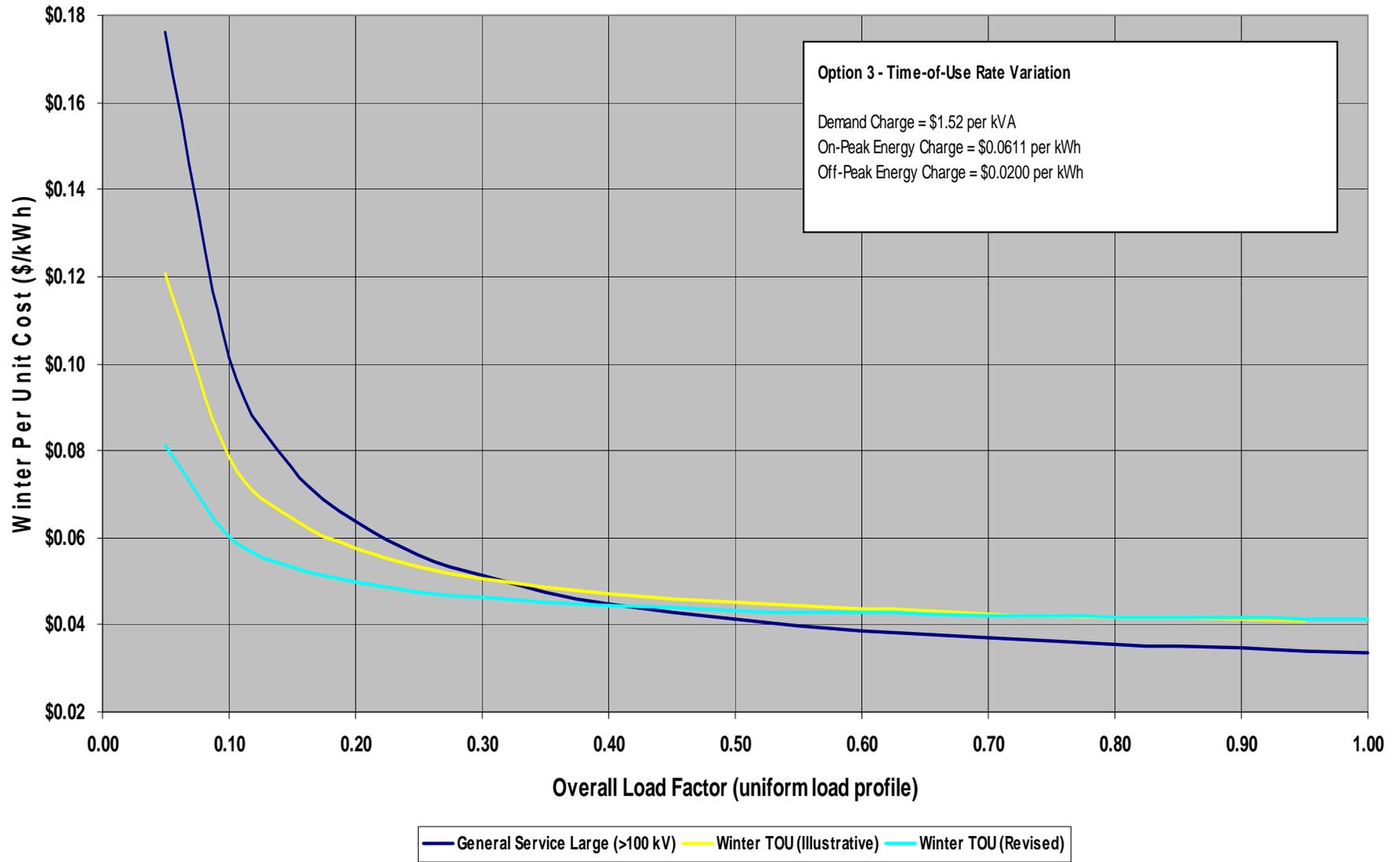
# Option 1: Lower Demand Rate



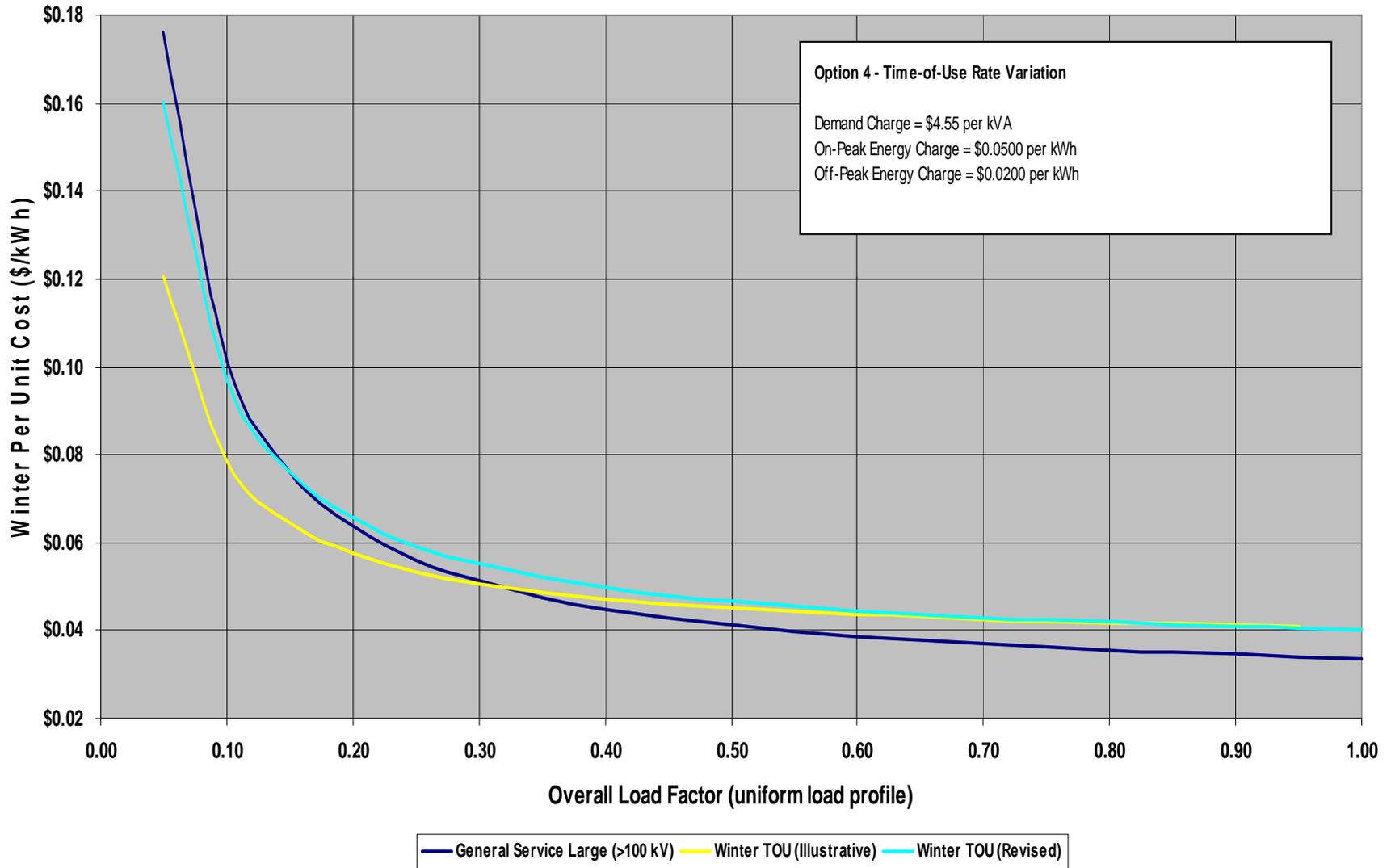
# Option 2: Lower Off-Peak Energy Rate



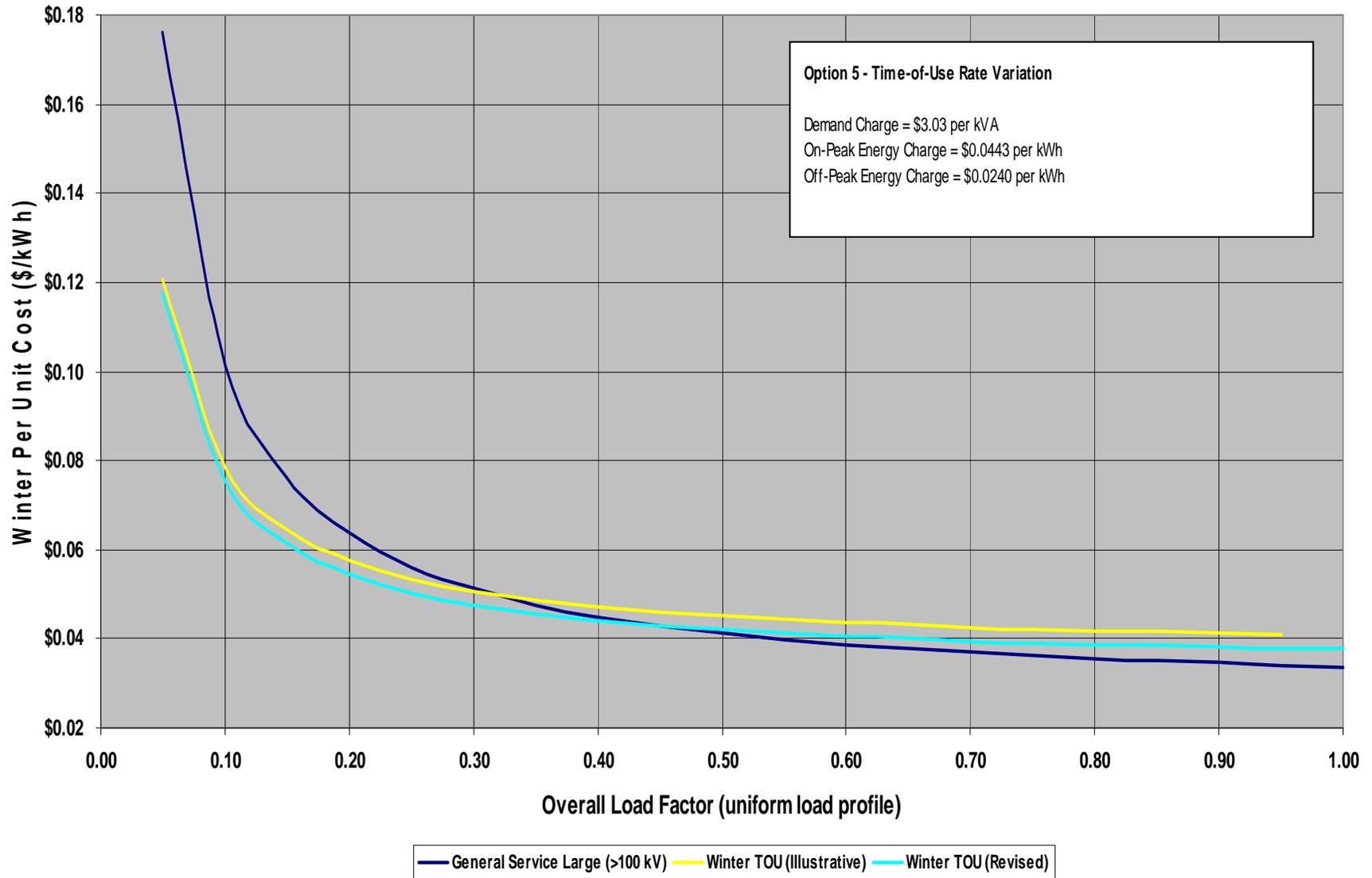
# Option 3: Lower Demand/Lower Off-Peak Energy



# Option 4: Higher Demand/Lower Off-Peak Energy



# Option 5: Levelized On-Peak Energy Rate



# Impact of Time-of-Use Rate

## GSL 30 - 100 kV (2008-09)

Annual Load Factor	On-Peak Ratio	Winter Ratio	Illustrative Rate	Option 1 Rate	Option 2 Rate	Option 3 Rate	Option 4 Rate	Option 5 Rate
0.303	43.49%	37.95%	-8.93%	-15.19%	-9.13%	--15.39%	--3.55%	-10.33%
0.584	48.12%	59.23%	-1.34%	-3.79%	-1.09%	-3.54%	-1.26%	-1.67%
0.877	76.46%	138.74%	5.10%	4.66%	6.86%	6.42%	9.17%	4.66%
Less than -1.0%			14	22	15	20	5	15
Plus/Minus 1.0%			8	0	6	1	9	7
Greater than 1.0%			6	6	7	7	14	6

# Impact of Time-of-Use Rate

## GSL Greater than 100 kV (2008-09)

Annual Load Factor	On-Peak Ratio	Winter Ratio	Illustrative Rate	Option 1 Rate	Option 2 Rate	Option 3 Rate	Option 4 Rate	Option 5 Rate
0.376	43.94%	26.15%	-7.92%	-11.80%	-8.45%	-12.34%	-4.67%	-7.95%
0.689	47.11%	33.69%	-1.98%	-3.25%	-1.89%	-3.16%	-0.75%	-2.03%
0.927	60.86%	49.75%	1.42%	2.10%	2.11%	1.80%	2.89%	1.66%
Less than -1.0%			7	8	7	8	5	6
Plus/Minus 1.0%			5	4	5	3	8	6
Greater than 1.0%			2	2	2	3	1	2

# Consumption Analysis

## Time-of-Use Consumption Analysis

Customer Name: Representative Customer

Premise Number:

Rate Category: GS Large 30-100KV

Fiscal	Mth	Heritage Structure		Time-of-Use Demand Peaks			Monthly Time-of-Use Energy Usage (kWh)		
		Peak kVA	Monthly kWh	Winter	Summer	Off-Peak	Win On-Peak	Sum On-Peak	Off-Peak
2009-10	1	6,018	3,469,584	0	6,018	5,938	0	1,590,384	1,879,200
2009-10	2	5,919	3,714,192	0	5,919	5,908	0	1,582,782	2,131,410
2009-10	3	6,002	3,362,808	0	6,002	5,936	0	1,609,134	1,753,674
2009-10	4	5,974	3,755,616	0	5,974	5,925	0	1,774,104	1,981,512
2009-10	5	6,130	3,795,456	0	6,130	5,839	0	1,636,716	2,158,740
2009-10	6	6,244	2,631,630	0	6,021	6,244	0	1,222,740	1,408,890
2009-10	7	6,103	3,798,119	0	6,103	5,973	0	1,704,015	2,094,104
2009-10	8	6,014	3,700,204	0	6,014	5,983	0	1,666,389	2,033,815
2009-10	9	6,069	3,812,478	6,069	0	5,983	1,700,232	0	2,112,246
2009-10	10	5,918	3,842,004	5,887	0	5,918	1,658,946	0	2,183,058
2009-10	11	6,086	3,550,548	6,086	0	5,901	1,610,556	0	1,939,992
2009-10	12	8,032	3,784,026	6,336	0	8,032	1,855,740	0	1,928,286
<b>Annual Totals</b>		74,510	43,216,664	24,377	48,182	73,580	6,825,474	12,786,263	23,604,927
		<b>Tot Annual Demand</b>				72,559	<b>Tot Annual Energy</b>		43,216,664

The information presented above is compiled on a fiscal year basis, starting on April 1st (Mth 1) and ending on March 31st (Mth 12).  
Time-of-Use Demand Billing are determined during the on-peak period only.

# Billing Analysis

## Billing Analysis

Customer Name: Representative Customer

Premise Number:

Rate Category: GS Large 30-100KV

Fiscal	Mth	Heritage Rate Structure			Time-of-Use Rate Structure					Difference		
		kVA	kWh	Total	kVA	Win kWh	Sum kWh	Off kWh	Total kWh	Total	\$	%
2009-10	1	\$24,754	\$61,063	\$85,817	\$12,377	\$0	\$41,661	\$30,093	\$71,754	\$84,131	-\$1,686	-1.96%
2009-10	2	\$23,427	\$46,032	\$69,459	\$11,713	\$0	\$31,727	\$22,498	\$54,225	\$65,938	-\$3,521	-5.07%
2009-10	3	\$15,299	\$34,481	\$49,780	\$7,650	\$0	\$26,786	\$15,084	\$41,870	\$49,520	-\$260	-0.52%
2009-10	4	\$14,163	\$25,263	\$39,425	\$7,081	\$0	\$18,077	\$11,958	\$30,034	\$37,116	-\$2,310	-5.86%
2009-10	5	\$13,312	\$29,444	\$42,756	\$6,656	\$0	\$20,718	\$14,142	\$34,860	\$41,516	-\$1,240	-2.90%
2009-10	6	\$12,621	\$21,993	\$34,614	\$6,311	\$0	\$16,393	\$10,026	\$26,419	\$32,730	-\$1,885	-5.44%
2009-10	7	\$10,100	\$23,774	\$33,874	\$5,050	\$0	\$16,826	\$11,361	\$28,187	\$33,237	-\$636	-1.88%
2009-10	8	\$10,714	\$23,547	\$34,261	\$5,357	\$0	\$16,408	\$11,404	\$27,812	\$33,169	-\$1,092	-3.19%
2009-10	9	\$12,744	\$30,221	\$42,965	\$6,372	\$26,653	\$0	\$14,420	\$41,073	\$47,445	\$4,480	10.43%
2009-10	10	\$15,801	\$33,674	\$49,475	\$7,726	\$27,538	\$0	\$17,084	\$44,623	\$52,349	\$2,874	5.81%
2009-10	11	\$15,733	\$35,950	\$51,683	\$7,867	\$30,823	\$0	\$17,569	\$48,392	\$56,259	\$4,576	8.85%
2009-10	12	\$13,922	\$35,544	\$49,465	\$6,961	\$33,455	\$0	\$15,969	\$49,423	\$56,384	\$6,919	13.99%
<b>Annual Totals</b>		\$182,590	\$400,985	\$583,575	\$91,121	\$118,469	\$188,596	\$191,608	\$498,674	\$589,795	\$6,220	1.07%

The information presented above is compiled on a fiscal year basis, starting on April 1st (Mth 1) and ending on March 31st (Mth 12).

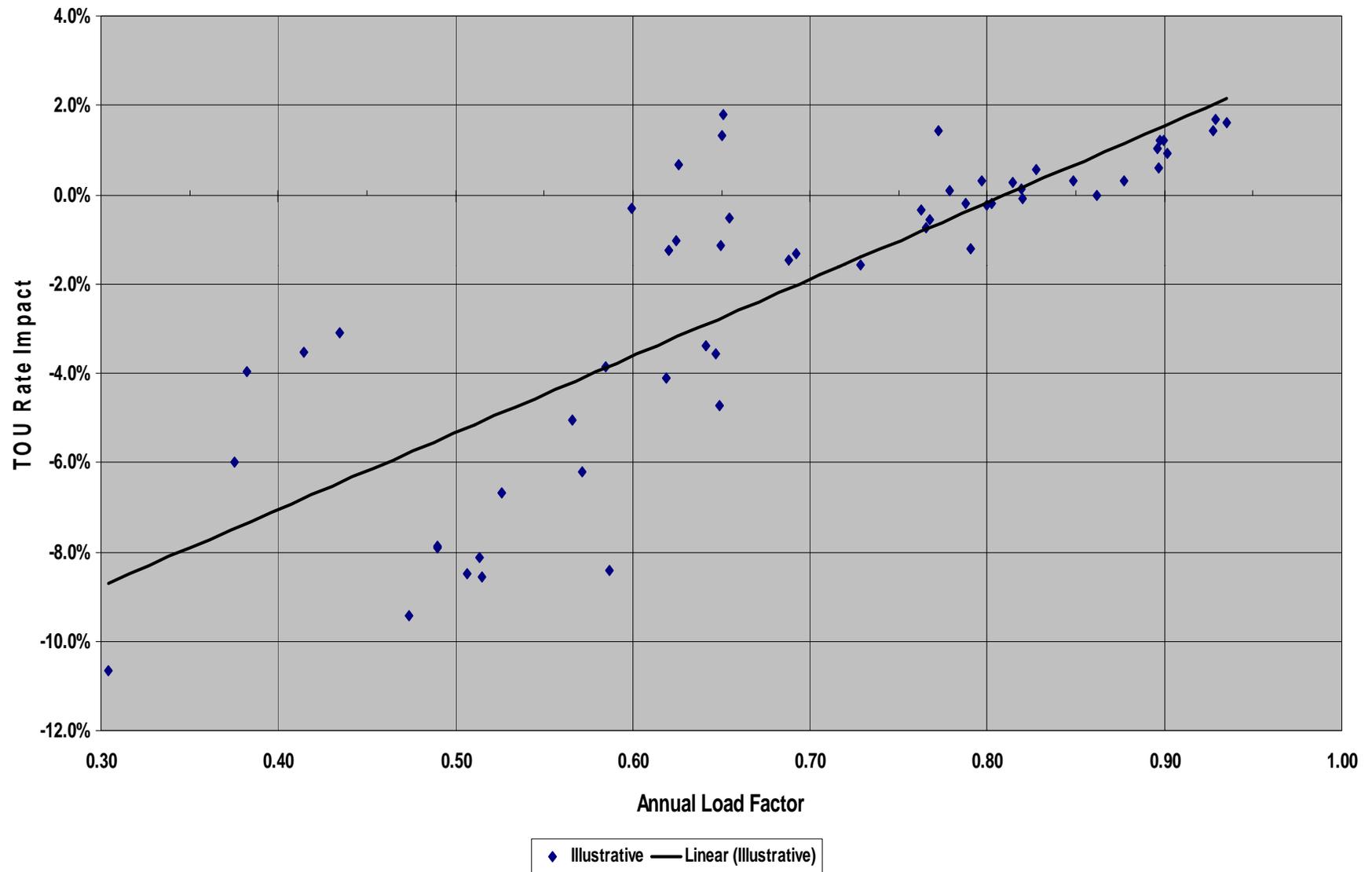
Time-of-Use Demand Billing is determined during the on-peak period only.



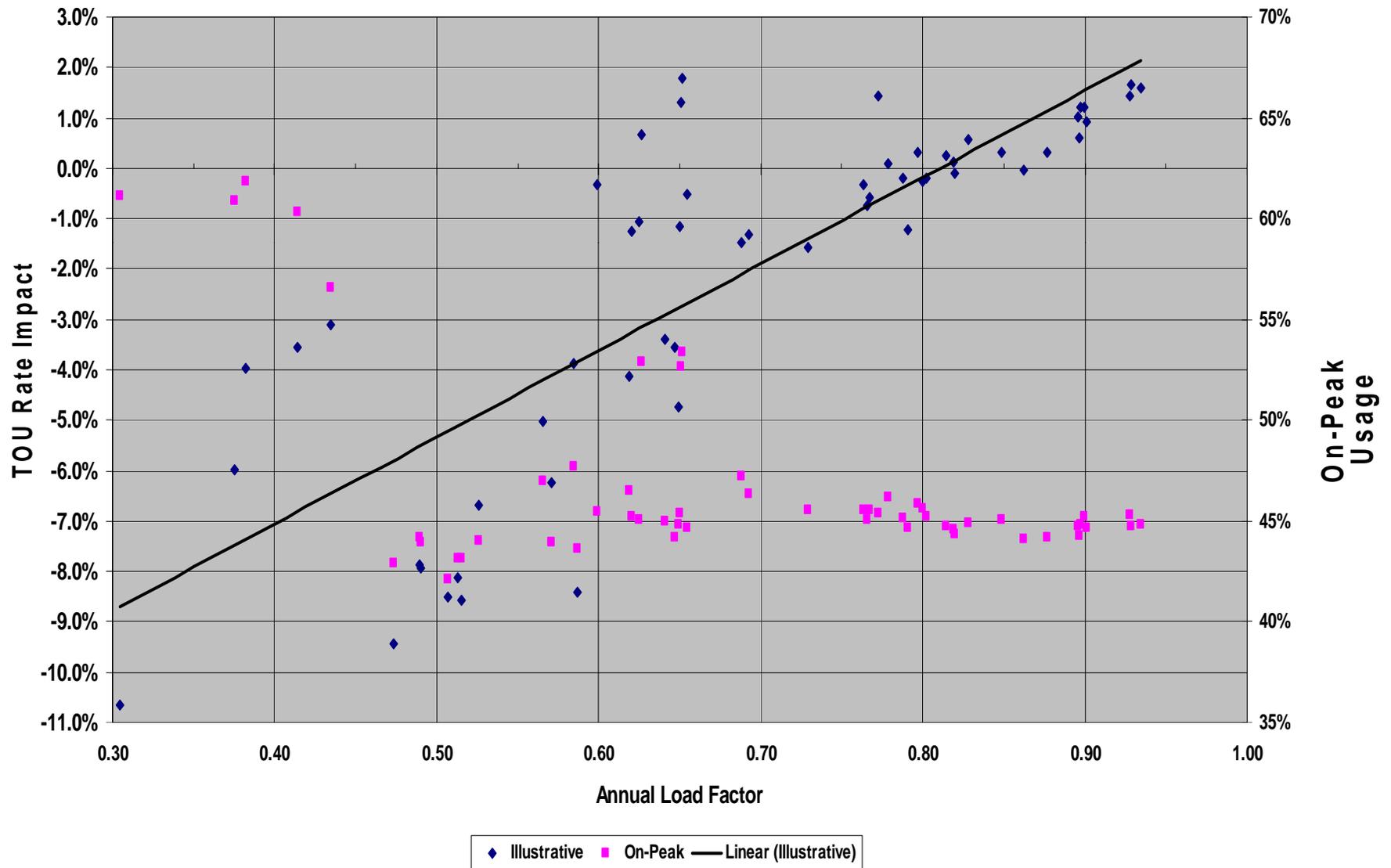
# Factors Influencing TOU Impact

- Annual Load Factor
  - Relationship between consumption and peak demand
- On-Peak Energy Consumption Ratio
  - Portion of energy consumed in the on-peak period
- Winter-Summer Consumption Ratio
  - Seasonal consumption of energy in on-peak period

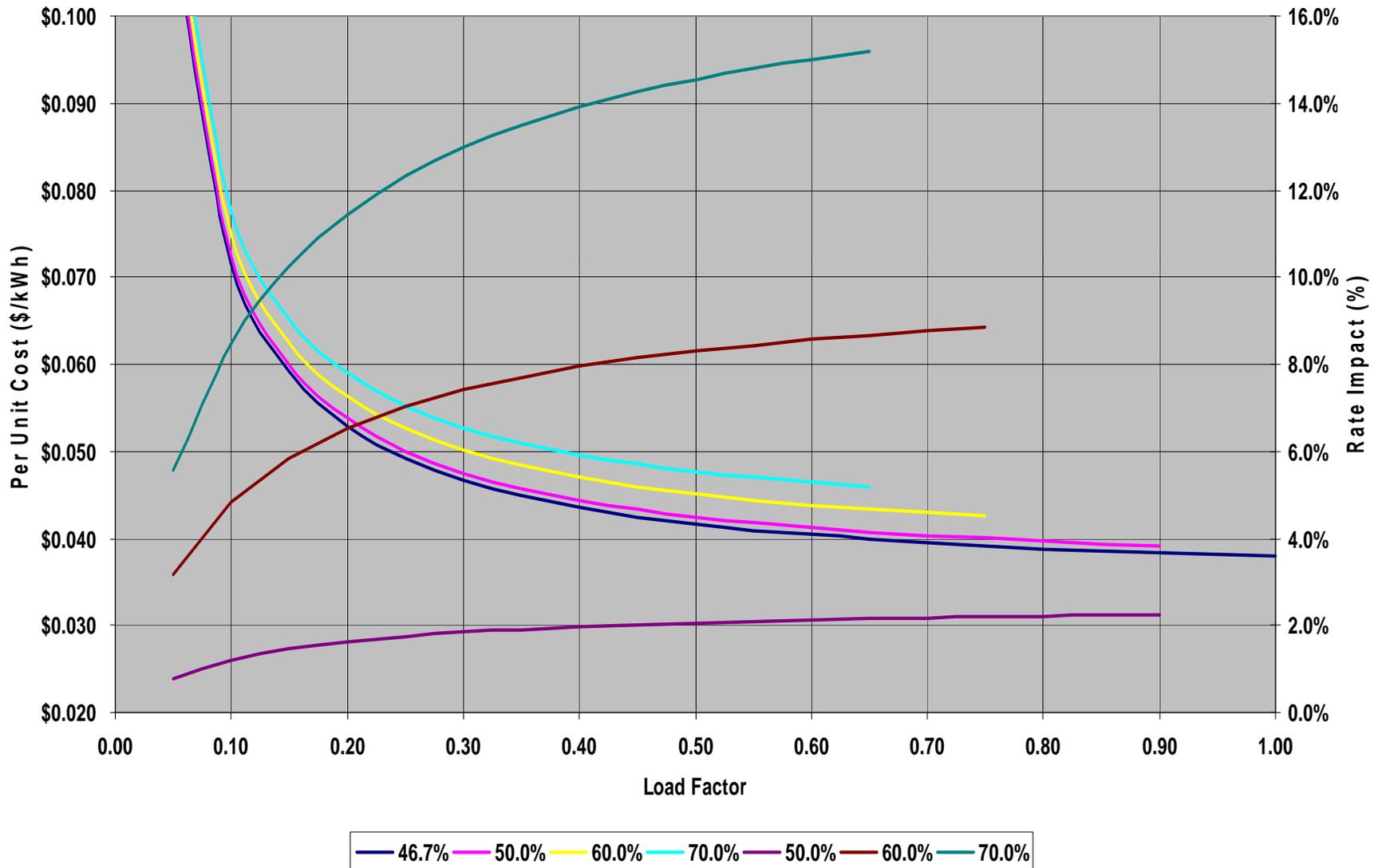
# Greater 100 kV - Load Factor

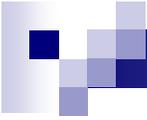


# Greater 100 kV - On-Peak Usage

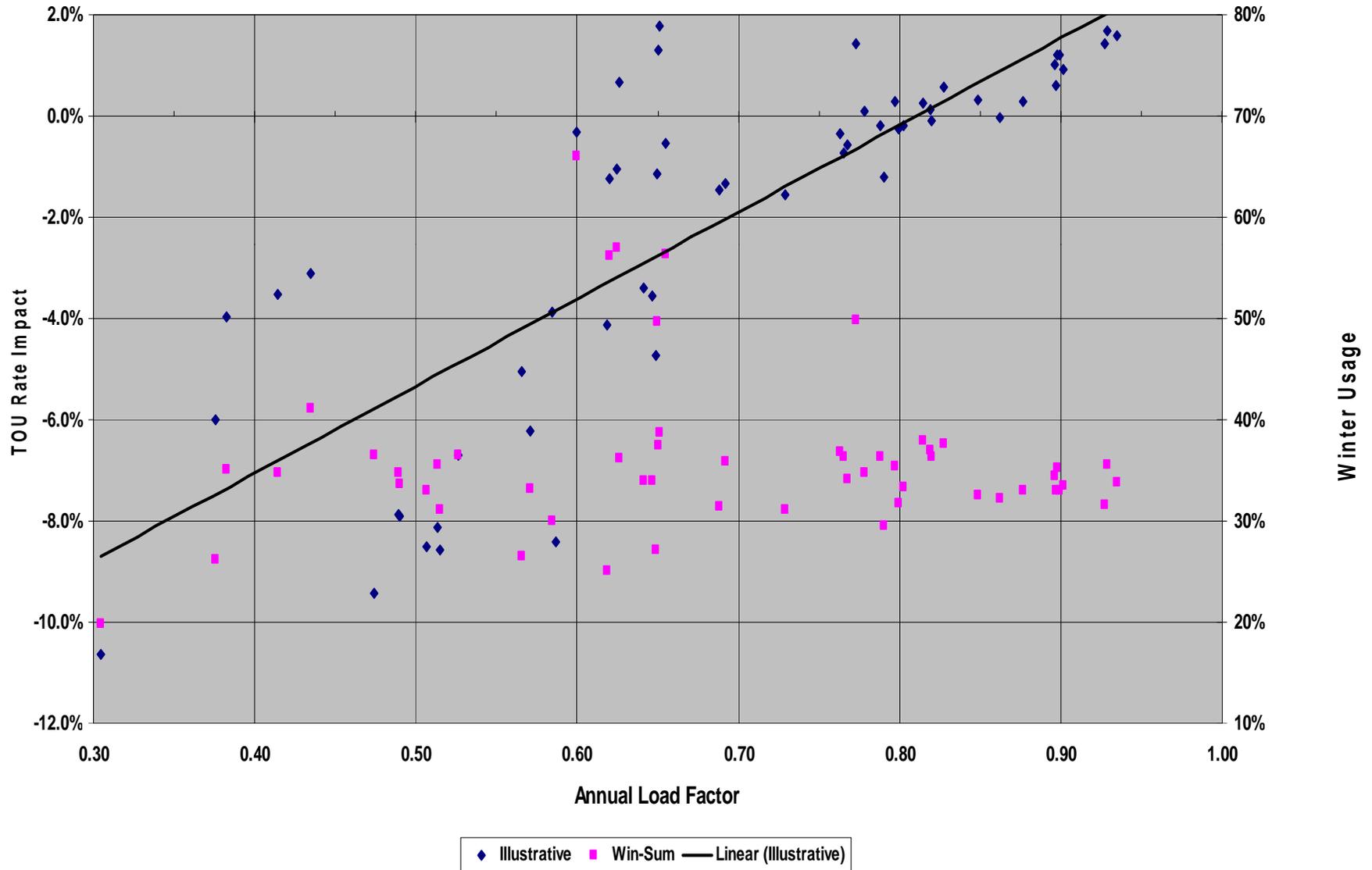


# Greater 100 kV – On-Peak Usage

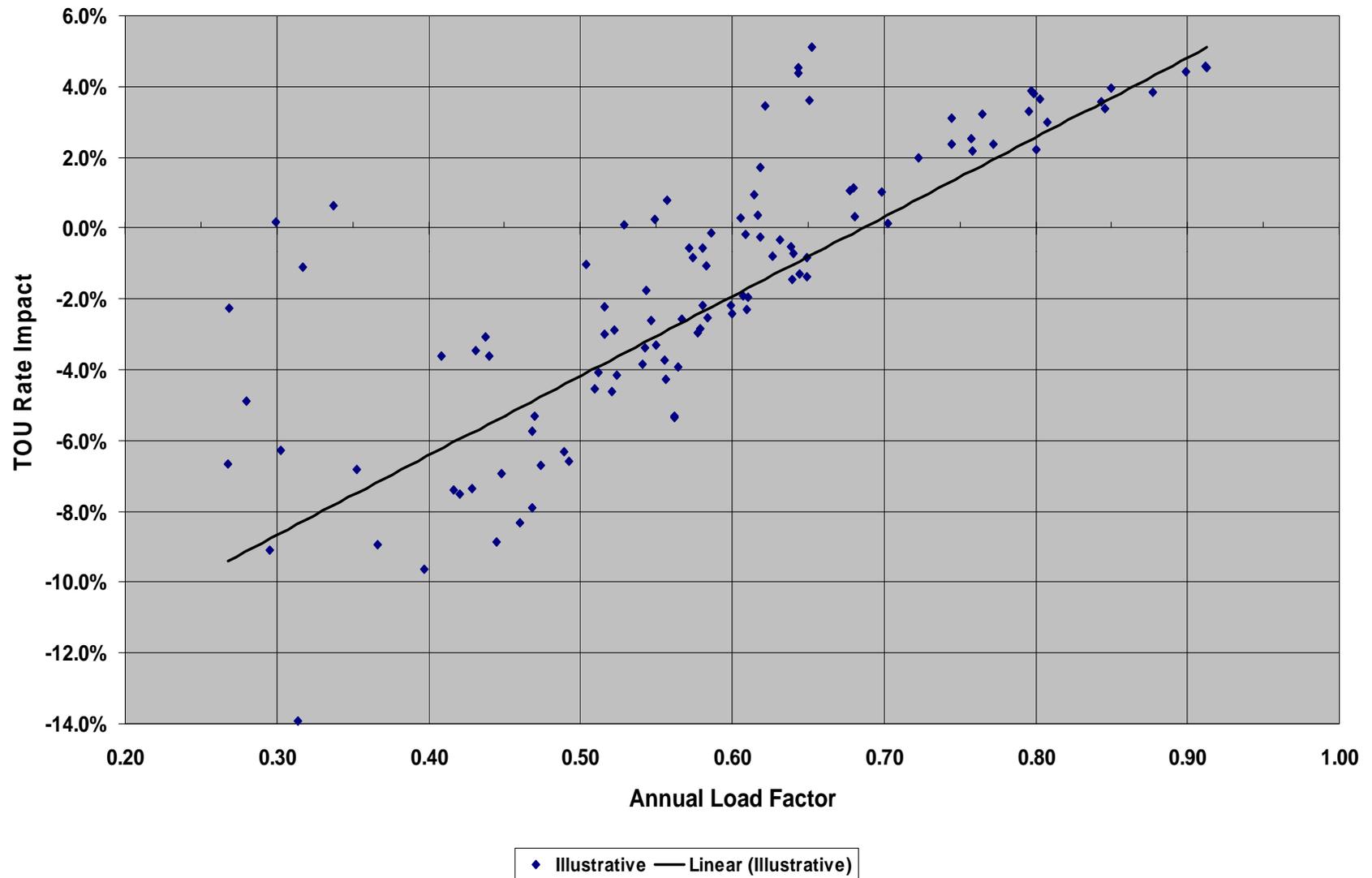




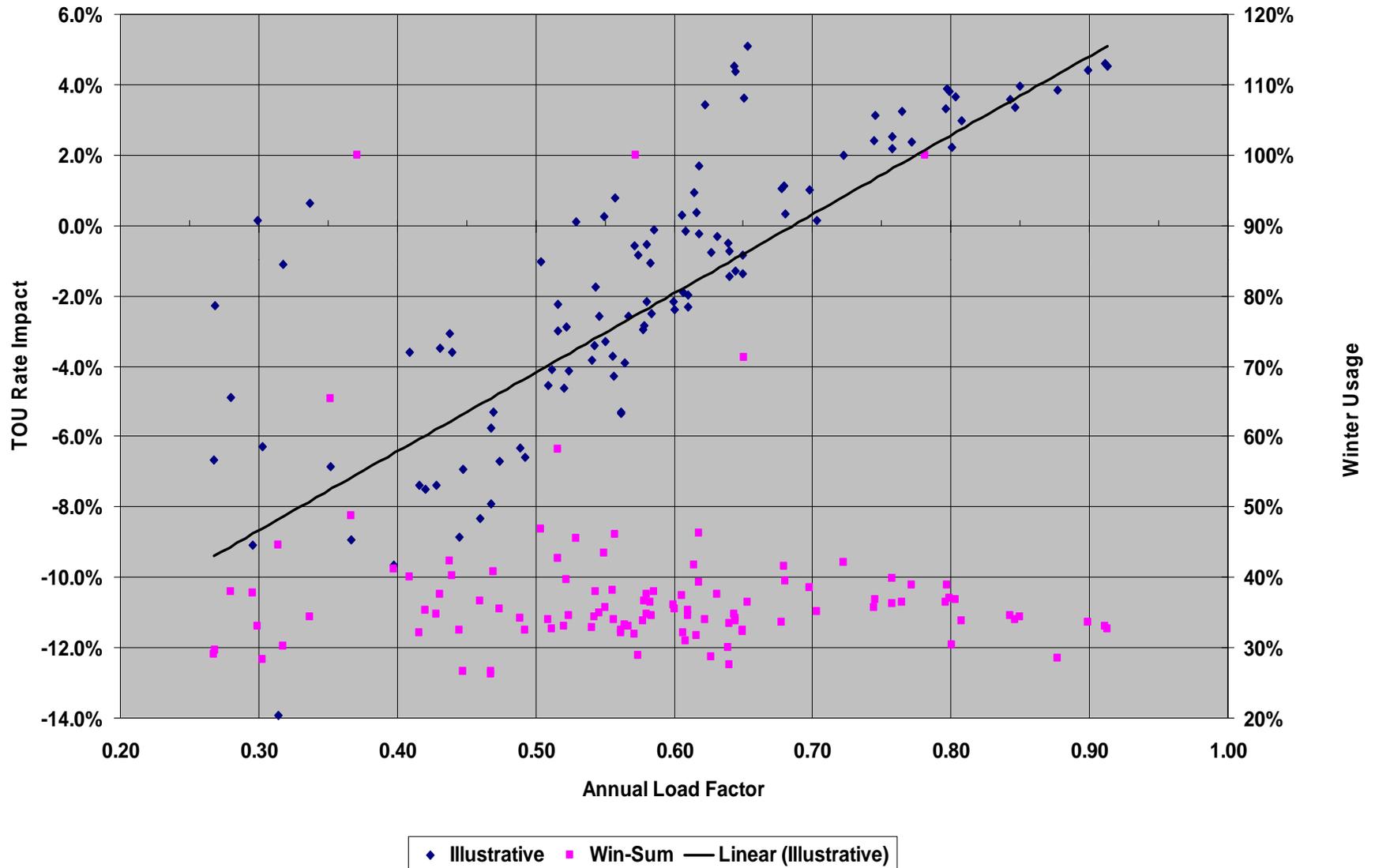
# Greater 100 kV – Seasonal Usage



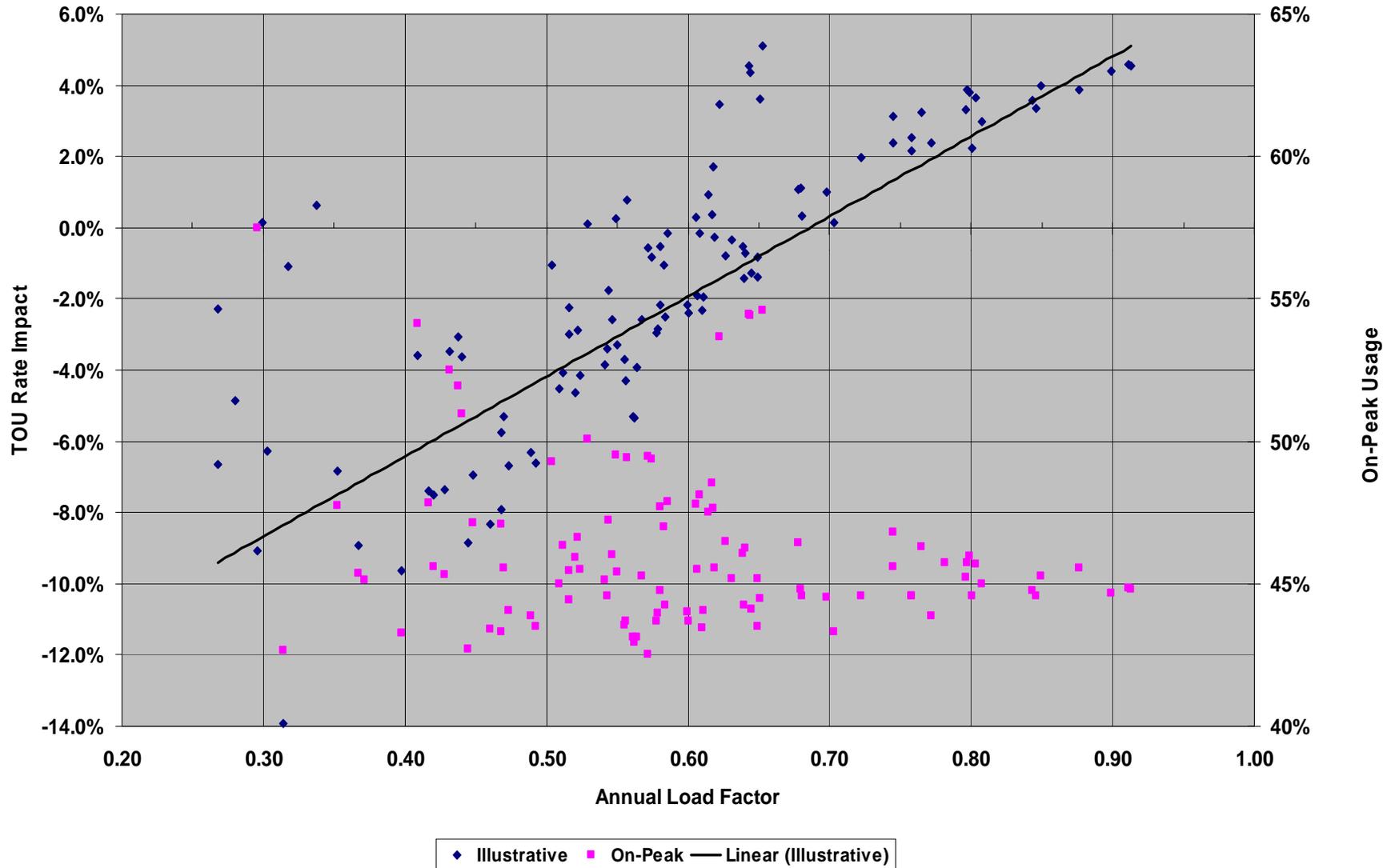
# 30 to 100 kV – Load Factor



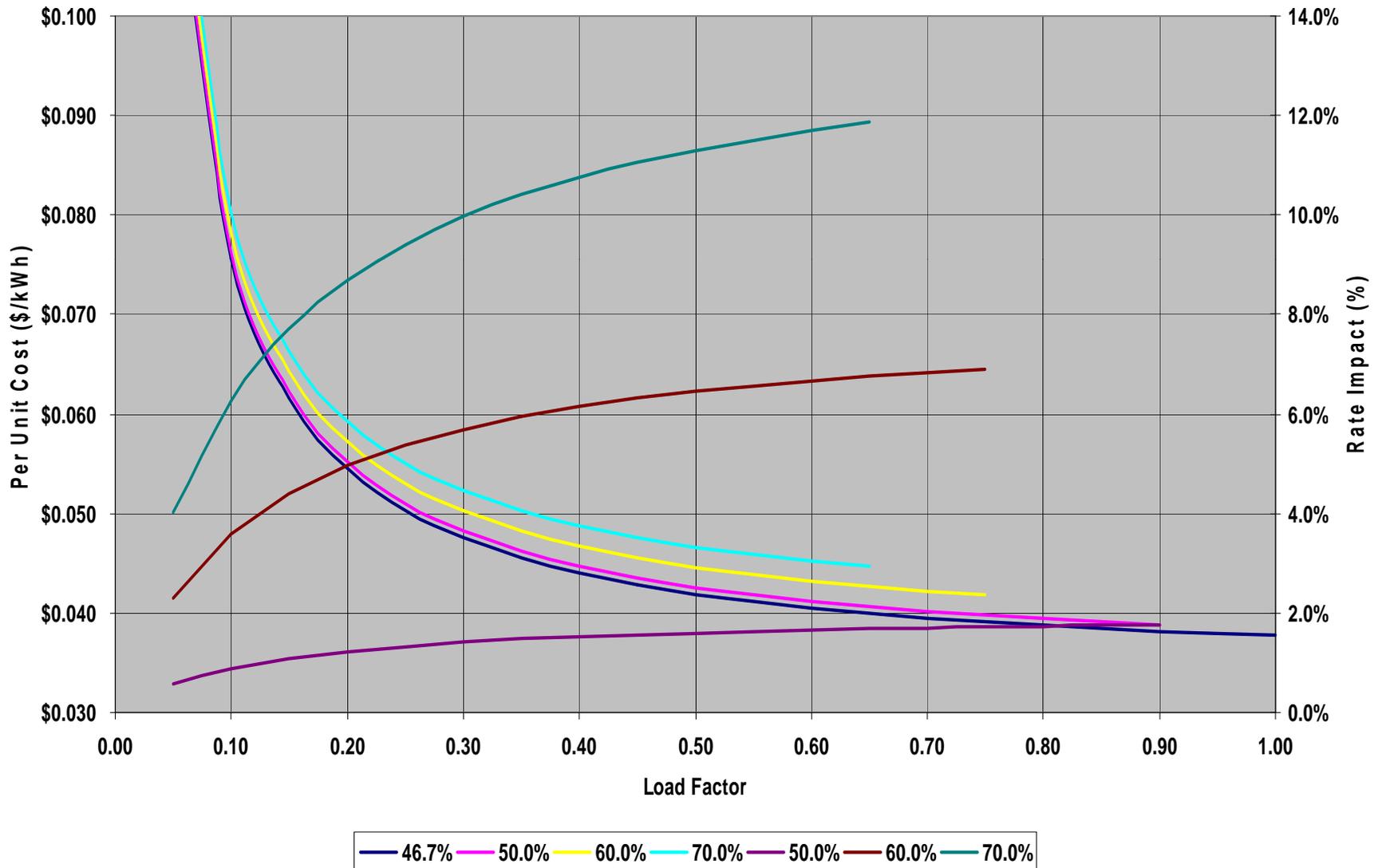
# 30 to 100 kV – Seasonal Usage

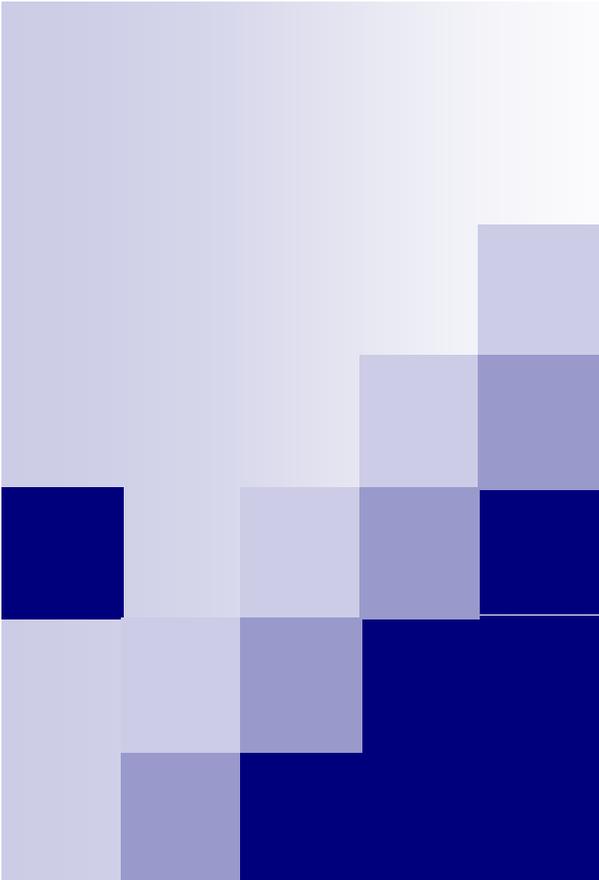


# 30 to 100 kV – On-Peak Usage



# 30 to 100 kV – On-Peak Usage





# Moving Forward....

Future Direction for Industrial Rates  
Consultation and Discussion



# Moving Forward....

- **Further Review and Analysis of Proposal**
  - Impact on revenues (export/domestic), general rate impact
  - Potential to influence industrial consumption behavior
- **Potential for 2011/12 GRA application**
  - Revised application for April 1, 2012 implementation
  - Review of System Extension Policy (generation/transmission)
- **Approaches to Phase-In of Time-of-Use**
  - Phantom time-of-use billing (duplicate bill)
  - Phase-in exposure (plus/minus capped)
- **Additional Consultation with Stakeholders**
  - Other stakeholders, public interest groups, etc.



# Questions and Discussion..?

## ■ Customer Information/Analysis

- Impact on historic consumption patterns
  - monthly and annual impact analysis
- Impact of future load growth projections
  - monthly and annual impact analysis
- Impact of changes in consumption behavior
  - load shifting, peak shaving, self-generation

## ■ Manitoba Hydro Contacts

- Key Account Officers
- Major Account Energy Services Advisors