

BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO



In the Matter of the Application )  
of the Toledo Edison Company for ) Case No. 96-842-EL-ATA  
Authority to Amend Language in its )  
Partial Service Rate (GS-15) )

In the Matter of the Application )  
of the Cleveland Electric Illuminating )  
Company for Authority for Authority ) Case No. 96-843-EL-ATA  
to Amend Language in its Partial )  
Service Schedule. )

COMMENTS  
OF THE  
NON-UTILITY GENERATORS' ALLIANCE

I. INTRODUCTION

The two applications for tariff approval with respect to the partial service tariffs that Toledo Edison Company (TE) and Cleveland Electric Illuminating Company (CEI) (collectively referred to as Centerior Energy (Centerior)) have filed, flow from the Commission's Order in the recent rate cases. See In the Matter of the Application of the Toledo Edison for Authority to Amend and Increase Certain of its Rates and Charges for Electric Service, Case No. 95-299-EL-AIR and In the Matter of the Application of the Cleveland Electric Illuminating Company for Authority to Amend and Increase Certain of its Rates and Charges for Electric Service, Case No. 95-300-EL-AIR, Opinion and Order, April 11, 1996 (the "rate cases"). Therein, the Commission stated as follows:

... the issues involved in restructuring new partial service tariffs are sufficiently complex to warrant special investigation over and above that which was given in this case. The

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Commission will adopt the Staff's recommendation and direct that the Companies and interested parties meet with the Staff within 60 days of this Opinion and Order to discuss modification to the partial service schedules. In the event the parties have not reached a consensus within 120 days of this Opinion and Order, the Company should file an Application for Commission review updating their partial service schedules.

Id. at 83.

Pursuant to the Commission's directives, a meeting did take place with the Non-Utility Generators' Alliance (NUGA) and other interested parties. In the course of that meeting and subsequent telephone conferences, a number of the recommendations regarding the terms and conditions of service and the "user friendly" presentation of the tariffs were discussed. A number of revisions were adopted by Centerior for which NUGA appreciates the Centerior's cooperation. However, it was clear during the course of these discussions, that any debate with respect to the actual rates paid for partial service tariffs was simply off the table. The major thrust of NUGA's intervention and the testimony of Industrial Energy Consumers' (IEC) witness Knobloch in the rate cases was to contest the actual rates charged by Centerior Energy in its partial service schedules. Moreover, the subject matter of the Commission's discussion on partial service requirements tariffs dealt almost exclusively with the issue of rates being charged. Id. at 81-82. Therefore, it is entirely appropriate for this Commission to now address the issue of the rates contained within the partial service tariffs.

Pursuant to Section 4909.18, Ohio Revised Code:

If it appears to the Commission that the proposals and the application may be unjust or unreasonable, the Commission shall set the matter for hearing . . . at such hearing, the burden of proof to show that the proposals in the Application are just

and reasonable shall be upon the public utility. After such hearing, the Commission shall, where practical, issue an appropriate order within 6 months from the date that the application was file[d].

For the reasons which shall be more fully set forth below, NUGA asserts that these partial service tariffs are unjust and unreasonable. Moreover, NUGA requests that the Commission take administrative notice of the testimony filed by IEC witness Knobloch in the rate cases with respect to the partial service tariffs as further evidence that these tariffs are unjust and unreasonable. NUGA, therefore, requests that the Commission order an investigation into these rates and as a result modify the partial service tariffs so as to eliminate the discriminatory rates and terms of service and encourage viable cogeneration in the state of Ohio.

## **II. GENERAL TERMS AND CONDITIONS**

There were a number of changes regarding terms and conditions of partial service that Centerior Energy made which NUGA views positively and believes will provide more flexibility and customer choice in arranging partial service requirements. However, there are a few items which remain that NUGA requests the Commission to address. They are as follows:

- a. **CEI Sheet 144.9, Special Rules**  
**Toledo Edison 66D, Special Rules, paragraph 2.**

This paragraph states that a manual disconnect device capable of being padlocked by the company shall be provided. NUGA believes that the customer should also have access to this manual disconnect for safety reasons as well for circumstances such as if the customer is working on its equipment. The customer will need a positive way to keep the system open, to ensure that they are energized. The customer, when working on its system, obviously

wants to ensure that the workers are not endangered by possible electrocutions or severe bodily injury.

- b. **CEI Sheet 144.9, General Rules, Paragraph 3**  
**Toledo Edison Sheet 66D, General Rules Paragraph 3.**

The indemnification provision which requires the customer to indemnify the company in all circumstances except those caused by the company's gross negligence should be changed from a gross negligence standard to a negligence standard. If the company is negligent it should not be relieved from liability and it should be equally accountable as any one else.

- c. **Centerior Sheet 144.10**  
**Toledo Edison Sheet 66D Special Rules Paragraph 7.**

This paragraph requires the removal of all equipment from the customer's premises that was necessary to permit interconnection operations, etc. There may be instances in which the removal of the equipment is not cost effective or expedient. This tariff should allow for customers to keep some equipment on the premises with Centerior's approval which approval shall not be unreasonable withheld.

- d. **Centerior Sheet 144.11 Special Rules Paragraph 10**  
**Toledo Edison Sheet 66E Special Rules Paragraph 10.**

In the event of a Company caused outage, the company will allow the customer a four hour grace period in order to bring its alternative supply back on line. In some circumstances, the non-utility generator can probably bring the unit back on line within the four hour period; however, in other circumstances, more time may be required. If the outage is caused by the company, it is unfair to penalize the customer by perhaps placing it in a position of exceeding its capacity reservation. NUGA would suggest the following language:

The company will allow up to a four (4) hour grace period **or such other period that is demonstrated to be reasonable by the customer** for the customer to bring its alternative supply back on line in the event of a company caused outage of the alternative supply.

### **III. RATES FOR PARTIAL SERVICE**

The Non-Utility Generators' Alliance asserts that the rates charged by Centerior Energy for partial service are unjust and unreasonable and in violation of the Public Utilities Regulatory Policy Act of 1978 (PURPA). The rates are so high as to inhibit the development of cogeneration in the Centerior service territory as a viable alternative for businesses struggling to meet their energy needs. As such, the partial service rates are anti-competitive. In In the Matter of the Application of the Cincinnati Gas & Electric Company for an Increase in Electric Rates in its Service Area, Case No. 91-410-EL-AIR, Opinion and Order, May 12, 1992, the Commission fully addressed each aspect of the partial service tariffs and set forth a position that supported cost-based rates. The precedent that was established in the CG&E rate case needs to be applied to Centerior Energy as well. Attached to these comments as Exhibit A, is an analysis which demonstrates the impact of Centerior's current rates on a typical customer contemplating cogeneration. This exhibit will be discussed infra.

#### **A. CAPACITY RESERVATION CHARGE**

In its Opinion and Order in the CG&E rate case, the Commission noted that the CEI/Toledo Edison tariffs employ fixed rates based upon an 88% reliability factor, or conversely a 12% forced outage rate which was approved in a stipulation. However, in the CG&E rate case, the Commission adopted a new capacity reservation factor which it believes "more closely approximates the potential cogeneration reliability which would be experienced by CG&E." Id. at 108. The new reliability factor accepted by the Commission

in the CG&E case is 95%, i.e., a 5% forced outage rate. This 5% forced outage rate is based upon a review of the reliability of cogeneration facilities in various states. Id. Thus, the capacity reservation charge should be lower to reflect a 95% reliability factor.

#### **B. DEMAND CHARGE**

Under Centerior's tariffs, there is a demand charge applied for supplemental, backup, and maintenance demand. In calculating demand charges for backup demand and maintenance demand, the companies offer the customer the option of either method A or method B. Each of these options is somewhat confusing to follow and also results in excessive rates charged to the cogenerator. For example, the daily demand charge for backup power should be determined by dividing the full generation and transmission costs by 30 days and then adding back to that total cost, the line losses associated with the transmission of power. In the CG&E rate case, the Commission noted IEC's contention that the actual charge for backup power should be the greater of the backup power actually used or the capacity reservation charge, since the customer is also paying for some backup power in the capacity reservation charge. Further, the methodology described above was also recommended and adopted by the Commission in that Order. Id. at 111.

#### **C. DETERMINATION OF PARTIAL SERVICE CAPACITY**

Under the tariff proposed by Centerior, if a customer establishes a higher partial service capacity just one time, then a new higher capacity level is set for the life time of the contract. This is inconsistent with the re-establishment of contract demand capacity

available for large industrial customers who do not cogenerate. For those customers, contract demand capacity is adjusted whenever the monthly billing demand exceeds the contracted demand in any of three months of a 12 consecutive month period. When that does occur, the new contract demand for a large industrial customer who does not cogenerate is established to be equal to the average of the three highest months kilowatt demand during any 12 consecutive months of the preceding months of the contract term. By establishing a separate and different criteria for contract demand capacity for cogenerators as opposed to customers who do not cogenerate, the company is discriminating against cogenerators in violation of the PURPA.

A similar argument was raised by NUGA in the Ohio Power Rate Case with respect to the monthly charges for standby service wherein Ohio Power sought to propose more onerous, costly demand charges on cogenerators than were imposed on neighboring industrial customers who did not cogenerate. See, In the Matter of the Application of Ohio Power Company for Authority to Amend its Filed Tariffs to Increase the Rates and Charges for Electric Service and Related Matters, Case No. 94-996-EL-AIR, Opinion and Order, March 23, 1995, pages 50-52. In that case, the Commission ordered the company to delete from its tariffs, the ratchet provision language that had formerly been contained therein. Id. at 52.

#### **D. EMERGENCY POWER**

Emergency power is set for CEI and Toledo Edison at \$31.00 per kw and 15¢ per kwh and, \$27.30 per kw and 15¢ per Kwh, respectively. This is clearly excessive. Rates for

emergency power should be based on the cost of providing that service. A more reasonable approach would be to price emergency power at the incremental cost of power incurred by the companies at the time the emergency power is required plus a 5 mill per kilowatt hour adder. By utilizing this methodology, customers would be charged what it costs CEI to provide that power plus an administrative markup for CEI. Centerior's emergency power is similar to what CG&E has defined as critical power. In the CG&E rate case, the Commission held that "the availability of supplemental power, beyond that amount which is contracted for, should be made available to customers only to the extent that the company has available capacity, and only at the company's marginal cost on a real time basis." *Id.* at 113. Therefore, based on this precedent, it is logical to amend Centerior's tariffs so that the provision of emergency power is based upon Centerior's costs at the time such power is requested.

**E. CUSTOMER CHOICE WITH RESPECT TO BACKUP POWER**

In the event that a customer requires backup power or emergency power due to an unscheduled outage of its generating facility, that customer should be permitted to buy through the company and obtain less costly power from another source. This will allow partial service customers to find a replacement source of energy.

The above discussion illustrates the need for the commission to commence its own investigation into the reasonableness of the rates and charges assessed by CEI and Toledo Edison for partial service. The discussion above is not meant to be exhaustive but merely to highlight the most serious concerns that NUGA has at this time. As is demonstrated by



Exhibit A, the differential in the rates paid by a cogenerator versus a non-cogenerator are so egregious as to severely inhibit the development of cogeneration in northern Ohio.

#### **IV. AN ILLUSTRATION OF THE IMPACT OF CENTERIOR'S RATE SCHEDULE ON COGENERATION FACILITIES**

In order to illustrate for the Commission the impact of Centerior's rates and tariffs on a typical cogeneration facility, the Non-Utility Generators' lines prepared a hypothetical example which is attached as Exhibit A. In this hypothetical, NUGA assumed a 5 megawatt peak load with a 73% load factor. Further, the hypothetical assumes the customer installed a 3 megawatt facility relying on 2 megawatts of supplemental power. The equivalent availability factor was set at 90% with 5% random outages and 5% maintenance outages. The corresponding tariff sheet for such a customer would be CEI's large industrial schedule. Under this schedule, a customer who does not install a cogeneration facility would pay an average cost of 4.9340¢ per kwh. Conversely, a customer who installs a cogeneration facility, under method A of CEI's tariffs would pay an average rate of 15.11¢ per kwh. Under method B, the average rate is 10.32¢ per kwh. This represents approximately a 300% and 200% increase respectively over the rate per kwh without the installation of a cogeneration facility. This can hardly be said to encourage customers to cogenerate.

Under method A, the customer can save 2.2826¢ per kwh of generator output; however, this number does not include variable costs such as fuel costs. By the same token, under method B, the customer can save approximately 3.560¢ per kwh generated. Again, however, this does not include the variable costs. When the variable costs including fuel costs are added into this calculation, the savings to the customer are minimal. Moreover,

the simple comparison of price per kwh under a cogeneration scenario versus a non-cogeneration scenario are so staggering as to clearly and convincingly demonstrate the discriminatory and unjust nature of these rates. As has been testified to by IEC witness Knobloch in the rate cases, the rates currently contained within Centerior's tariffs are not based on cost of service. This further justifies the need to open an investigation with respect to the partial service tariffs.

**V. LEGAL SUPPORT FOR NUGA'S POSITION**

NUGA urges the Commission to find that subjecting customers who install other sources of energy to a higher rate per kwh consumed than would be applied to customers in the same class who do not install such sources of energy, is unjust, unreasonable, and discriminatory.

The PURPA specifically requires that electric utility companies not discriminate against cogenerators. Specifically, the law states:

**(C) Rates for Sale by Utilities**

The rules prescribed under subsection (a) of this section shall ensure that, in requiring any electric utility to offer to sell electric energy to any qualifying cogeneration facility or small power production facility, the rates for such sale --

- (1) Shall be just and reasonable and in the public interest,
- (2) and shall not discriminate against the qualifying cogenerators or qualifying small power producers

USC Section 824a-3 (c). The regulations of the Federal Energy Regulatory Commission further expand upon the congressional statutes regarding qualifying facilities. Specifically, the FERC regulations state as follows:

Section 292.305 Rates for Sale

(a) *General Rules* (1) Rates for sales:

(i) Shall be just and reasonable and in the public interest; and  
(ii) Shall not discriminate against any qualifying facility in comparison to rates for sales to other customers served by the electric utility.

(2) Rates for sales which are based on accurate data and consistent system-wide costing principles shall not be considered to discriminate against any qualifying facility to the extent that such rates apply to the utility's other customers with similar load or other cost-related characteristics.

Id. (emphasis added). The operative words of this section are that public utilities are prohibited from discriminating against cogeneration facilities in comparison with other customers. By virtue of a customer constructing its own cogeneration facility, that customer will have to pay an exponentially higher rate per kilowatt hour consumed while that customer's consumption will be reduced. Since the customer is choosing to provide itself with an energy efficient supply-side alternative, as a policy matter it is unreasonable and unconscionable to penalize the customer for its efforts to use energy more wisely and more efficiently.

The purpose of PURPA was to create incentives for the development of other sources of energy with specific references to those sources which either used energy more efficiently through cogeneration or by utilizing alternative renewable sources of fuel. In good faith, a customer installs a cogeneration facility thereby embarking upon a program to both utilize energy more efficiently and reduce its costs of operation. Instead of being

able to realize a savings, resulting from a significant investment in energy efficiency, the customer is instead being required to bear the burden of increased rates and not decreased rates due to Centerior's discriminatory, anti-cogeneration rates.

There have been a number of cases which have come before the Courts and Federal Energy Regulatory Commission dealing with the discrimination against qualifying facilities (QFs) through the rate design of the utility company. In Industrial Cogenerators vs. Florida Public Service Commission, 43 FERC p61, 545, (1988) the Federal Energy Regulatory Commission (FERC) found that the imposition of ratchets on non-partial service QFs was discriminatory.<sup>1</sup> In finding discrimination, FERC held:

It appears that the Florida PSC's rule is not in compliance with the Commission's rules in that it singles out self generators to be penalized because of fluctuating electrical *loads* not QF generation. If ratchets, however, are being imposed for supplementary service, that would appear to be inconsistent with our regulations, particularly given the fact that a minimum reservation charge may also be imposed.

Id. at page 62, 354.

This case is similar to the instant case in that Centerior utilizes different methodologies for establishing partial service tariffs such that cogenerates can pay more than non-cogenerators.

The policy concerns behind Section 210(C) of the PURPA were enunciated by FERC in its decision when it stated as follows:

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<sup>1</sup> It should be noted that although FERC found that there was discrimination, it stated "while we are confronted in this instance with what appears to be a showing of discrimination, we will nonetheless defer this matter because resolution of this issue must be based on a review of the underlying record and, consistent with our earlier decisions, we will defer ruling on this matter to the state court. Id. at page 62, 354.

The standard to be applied to resolve this issue has its genesis in section 210(c) of PURPA. Section 210(c) of PURPA specifically provides that rates for sales by utilities shall not discriminate against qualifying facilities. The Conference Report to section 210 stated:

[T]he conferees use the phrase "not discriminate against cogenerators or small power producers" because they were concerned that the electric utility's obligations to produce and sell under this provision might be circumvented by the charging of unjust and non-cost based rates for power solely to discourage cogeneration or small power production.

Joint Explanatory of the Committee of Conference, P.L., 78-617, reprinted in FERC Status and Regulations ¶5151, at p. 5106. *Id.* at page 62, 353. Thus, it is clear by this decision as enunciated by FERC, that utilities cannot discriminate against cogenerators and must base the rates on cost of service.

On the state level, there is support for NUGA's position that the partial service tariffs proposed by CEI and Toledo Edison are unjust and unlawful. Section 4905.33 Ohio Rev. Code states in pertinent part as follows:

No public utility shall directly or indirectly or by any special rate, rebate, drawback, or other devise or method charge, demand, collect, or receive from any person, firm or corporation a greater or lesser compensation for any services rendered. . . then it charges, demands, collects, or receives from any other person, firm, or corporation for doing a like and contemporaneous service under substantially the same circumstances and conditions.

(Emphasis added.) Centenor's rates which penalize cogenerators with an excessive rate that is two to three times greater than those who do not cogenerate is clearly unlawful.

Section 4905.35, Ohio Rev. Code states as follows:

No public utility shall make or give any undue or unreasonable preference or advantage to any person, firm, corporation or locality or subject any person, firm, corporation or locality to any undue or unreasonable prejudice to disadvantage. By charges a customer who cogenerates an additional fee which amounts to a penalty, Ohio Power is placing the cogenerator at a prejudicial disadvantage.

Based upon the foregoing, Centerior's proposed partial service rate which attempts to penalize cogenerators is unjust, unlawful, and unreasonable and should not be approved by the Commission. NUGA strongly urges the Commission to investigate Centerior's partial service rates.

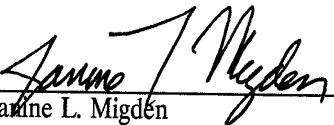
## **VI. CONCLUSION**

The comments contained within this document are by no means exhaustive but basically highlight the most critical concerns of NUGA. Clearly Centerior's tariffs are extremely complex and difficult for potential industrial cogenerators to understand. Some steps were taken by Centerior to alleviate some of that confusion; however, for many its tariffs will remain an enigma. Given the very high rates experienced by customers in the Centerior service territory, cogeneration represents a viable alternative to a customer leaving the system entirely or relocating its business outside the region. By partially cogenerating, the customer, assuming reasonable rates on the part of Centerior, can continue to survive and hopefully prosper as a business in northeastern Ohio. The failure of Centerior to develop and have in place reasonable cost-based partial service rates has contributed to stifling economic development in the northeast region of the state. The testimony filed by IEC witness Knobloch clearly demonstrates in which ways the Centerior tariffs are not cost-based. Moreover, the Commission has taken huge strides in fostering cogeneration rates

based on cost of service as set forth in its precedent in the CG&E rate case. NUGA requests the Commission to take administrative notice of the testimony filed by Thomas Knobloch in the CEI rate cases and to take into account the precedent established in the CG&E rate case.

WHEREFORE, NUGA respectfully requests that the Commission establish a commission ordered investigation to fully investigate the partial service tariffs of the Cleveland Electric Illuminating Company and the Toledo Edison Company.

Respectfully submitted,


  
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ON BEHALF OF THE NON-UTILITY  
GENERATORS ALLIANCE

### CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing has been served by first class mail, postage prepaid, or hand delivered to the following parties of record this 5th day of September, 1996.

  
Janine L. Migden

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G:\ATTY\JLM\NUGA\PUCO\96-842\COMMENTS

### The Problem

Cleveland Electric Illuminating has proposed a Partial Requirements Tariff under which its customers who install onsite generation to displace their current firm service would take service to meet their excess demand beyond the capability of the generator (supplemental service). In addition, such customers would take service under the tariff during those periods when the generator is not in service (standby, backup, and maintenance service). The complexity of operating a generator in conjunction with both the partial requirements tariff and the tariff under which service would otherwise be taken makes estimating the cost of service under various options in the abstract to be virtually impossible. In order to overcome this difficulty an example using a hypothetical industrial facility (the Facility) located in Cleveland Electric Illuminating Company's service territory has been developed and analyzed. The analysis of that example follows.

### ASSUMPTIONS

For illustration and analysis purposes an industrial Facility is assumed to be currently operating in Cleveland Electric Illuminating Company's service territory and has the following characteristics:

The facility is open and operating at all times throughout the year. It has a 5 megawatt(mW) electric peak load on a daily basis with an average 73% load factor on a monthly basis.

The electrical load is comprised of a 3 mW base load and the additional machinery and HVAC load caused by a two shift assembly operation 5 days per week. The additional assembly operations increase electric load 1 to 2 mW from the minimum base load of 3 mW while the shifts are in operation from 8 AM TO 12 PM.

Electric Service is from Cleveland Electric Illuminating at Subtransmission Voltage (11-33 Kv) and service is currently being taken under the utility's Large Industrial Schedule P.U.C.O. No. 12 per a special contract approved by the PUCO as required in the tariff (14th revised sheet 114 through 1st revised sheet 117).

Because of its relatively high electric costs(around 5 cents per kWh) compared to its competition and the availability of relatively low cost generating equipment(combined cycle technology) and natural gas, the Facility is considering installing a 3 mW natural gas fired combined cycle generator onsite with a projected 5% random outage rate and a manufacturer's recommended 5% Planned Maintenance (scheduled) Rate. The proposed facility would, as a result, have a 90% Equivalent Availability factor. Based on prior experience with its generating equipment the manufacture projects that the Facility will subject to:

9 Random outages per month average  
3 outages on peak  
6 outages off peak  
Average 4 hours in duration

18 days per year of Planned Outages with  
5 days in October with 2 on-peak 4 off-peak Random outages  
3 days in February with 2 on-peak 4 off-peak Random outages  
10 days in May with 1 on-peak 2 off-peak Random outages

Because of the installation of capacitor banks onsite, the power factor of the Facility has been corrected to unity and will not be an issue to be considered in the decision. Charges for reactive kilovolt-amperes(RKVA) consumed will be zero.

**CEI**  
**Base Tariff Rates**  
**Large Industrial Schedule**

**Rider 7**

\$ 4.30 per KW for off peak forgiveness  
where the on peak hours are 8AM until 8PM weekdays except holidays

**Energy**

1st 115 kWh included in per kW of billing demand charges

Next 305 kWh                    3.64 cents during on peak hours  
   3.22 cents during off peak hours

Next 130 kWh                   1.17 cents during on peak hours  
   1.05 cents during off peak hours

Excess over 550 kWh        .54 cents per KW of billing demand during all hours of use

**Demand**

**For the First 5 kW**

\$18.73 per kW of billing demand during the four summer months  
\$17.09 per kW of billing demand during the eight winter months

**Additional Demand Above 5 kW**

\$17.40 per kW of billing demand during the four summer months  
\$15.81 per kW of billing demand during the eight winter months

**Reactive**

.48 cents per RKVA of reactive demand

1997  
Cleveland Electric Illuminating  
Billing Month

By Month

<u>Month</u>	<u>Total Hours</u>	<u>Hours On-Peak</u>	<u>Week Days in Month</u>	<u>Holidays in Month</u>	<u>Hours Off-Peak</u>
Jan	744	264	23	1	480
Feb	672	240	20		432
March	744	252	21		492
April	720	264	22		456
May	744	252	22	1	492
June	720	240	20		480
July	744	264	23	1	480
August	744	252	21		492
September	720	252	21	1	468
October	744	288	23		456
November	720	228	20	1	492
December	<u>744</u>	<u>240</u>	<u>23</u>	<u>3</u>	<u>504</u>
	8760	3036	259	8	5724

Holidays

Christmas, Christmas Eve, New years Eve, New Years Day, Memorial Day, July 4th, Labor Day, Thanksgiving

on peak hours are 8 am until 8 pm Weekdays  
off peak hours are otherwise plus Holidays

**1997**  
**Example Industrial Facility**  
**Projected Typical Daily**  
**Load and Supply Schedule**  
**On Peak (mW)**

<u>Hours</u>	<u>Facility Weekday Gross Load</u>	<u>Facility Weekend Gross Load</u>	<u>Generator Output</u>	<u>Facility Weekday Supplemental</u>	<u>Facility Weekend Supplemental</u>
8 am	4	3	3	1	0
9 am	4	3	3	1	0
10 am	4	3	3	1	0
11 am	5	3	3	2	0
12 pm	5	3	3	2	0
1 pm	5	3	3	2	0
2 pm	5	3	3	2	0
3 pm	5	3	3	2	0
4 pm	5	3	3	2	0
5 pm	4	3	3	1	0
6 pm	4	3	3	1	0
7 pm	4	3	3	1	0

**Off Peak**

<u>Hours</u>	<u>Facility Weekday Gross Load</u>	<u>Facility Weekend Gross Load</u>	<u>Generator Output</u>	<u>Facility Weekday Supplemental</u>	<u>Facility Weekend Supplemental</u>
8 pm	4	3	3	1	0
9 pm	4	3	3	1	0
10 pm	4	3	3	1	0
11pm	4	3	3	1	0
12 am	3	3	3	0	0
1 am	3	3	3	0	0
2 am	3	3	3	0	0
3 am	3	3	3	0	0
4 am	3	3	3	0	0
5 am	3	3	3	0	0
6 am	3	3	3	0	0
7 am	3	3	3	0	0

January 1997  
**Projected Base Electrical Service Cost**  
Direct Buy From Utility - Large Industrial Schedule

**kWh Usage**

	Hours <u>On-Peak</u>	Hours <u>Off-Peak</u>	kWh <u>On-Peak</u>	kWh <u>Off-Peak</u>
744 hours @ 3000 KW	264	480	792,000	1,440,000
352 hours @ 4000 KW	264	88	264,000	88,000
132 hours @ 5000 KW	132	0	<u>132,000</u>	<u>0</u>
			1,188,000	1,528,000

**Base Energy Costs per Tariff**

<u>KW</u>	<u>Hours</u>	On-Peak <u>kWh</u>	Off-Peak <u>kWh</u>	On-Peak <u>Costs</u>	Off-Peak <u>Costs</u>
5,000	115	575,000	575,000	0	0
5,000	305	613,000	950,000	\$21,209.80	\$30,592.00
5,000	130	0	3,000	0	\$3,150.00
5,000	Excess	0	0	0	0

**Base Demand Costs per Tariff**

First 5KW	\$17.40	\$ 87.00
Next 4995 KW	\$15.81	<u>\$78,970.95</u>
Total		79,057.95

There are no reactive demand charges because the power factor has been corrected to 1.0 (RKVA=0)

**Customer Charges**

None

**Total Cost for Month of January**

Energy	\$54,949.80
Demand	79,057.95
Customer Charge	<u>0.00</u>
	\$134,007.75 for 2,716,000 kWh

or an average cost of 4.9340 cents per kWh

**Cost for CEI Service  
with Generation**

January Generation = (744 hours in month - 36 hours outage) (3000 kW) = 2,124,00 kWh

The Example Industrial Facility must supplement its generation any time its generator is not running or when the total electrical demand at the facility exceeds the 3 mW capacity of the generator. CEI will offer such service under a proposed partial requirements tariff which is the subject of this analysis. Under the partial requirements tariff the Facility has the choice of taking service under either method A or Method B. Costs for service from CEI to the Facility under each method are calculated below.

**Method A**

Under this method the user pays for a capacity reservation which is waived when an outage occurs during the month and the user takes service. Then the regular demand and energy charges of the Large Industrial Schedule would apply based on usage.

Capacity Reservation  $\$4.50 \times (3000 \text{ kW} - 3000 \text{ kW Backup}) = 0$   
Demand Charges are unchanged at 5,000 kW = \$79,057.95  
Customer Charge is \$100 for Partial Service  
Energy Charge is per supplemental schedule

**Supplemental Energy**

Additional due to outages

36,000 kWh on peak x 1 equivalent day outages of 12 hours per day on peak  
@ 3000 KW per hour  
36,000 kWh off peak x 2 equivalent day outages of 12 hours per day off peak  
@ 3000 kW per hour

Supplemental Energy for 21 Weekdays excess above 3 mW and backup energy

378,000 kWh on peak + 36,000 kWh = 414,000 kWh  
80,000 kWh off peak + 72,000 kWh = 152,000 kWh  
Total supplemental Energy 566,000 kWh

Billing	On-Peak	Off-Peak
First 115(@2000 kW)	230,000 kWh @ 0	152,000 kWh @ 0
Next 305(@ 2000 kW)	184,000 kWh @ \$.0346	0 kWh
Supplemental Energy Charges = \$6,366.40		

Total supplemental Charges = \$79,057.95 + \$ 6,366.40 + \$100 = \$85,524.35  
or 15.11 cents per kWh

Savings Potential = \$134,007.75 - \$85,524.35 = \$48,483.40  
or 2.2826 cents per kWh of Generator output



### Method B

Demand charges are computed on a per occurrence basis @ 90 cents per kW per day

\$ .90 per kW per day of outage x 3000 KW x 9 days of outages which is equivalent to  
\$8.10 per KW per month

or if the off peak forgiveness option is selected

\$.90 per kW per day of outage onpeak outage x 3 days of outages which is equivalent to  
\$2.70 per KW per month but requires the purchase of  
\$4.30 per KW of off-peak forgiveness per Rider 7

\$2.70 + \$4.30 =	\$7.00 x 3000	\$21,000
or	\$8.10 x 3000	\$24,300

break even is 5 off-peak outages per month so the Facility should elect to sign up for  
Rider 7 @ \$21,000

customer Charge \$100.00

#### Supplemental Energy and Capacity

Demand @ 2 mW

First 5 KW @	\$17.40	\$87.00
Next 1995 @	\$15.81	<u>\$31,540.95</u>
Total		\$31,627.95

On-Peak Energy

36,000 kWh @ 3 outages for 4 hours @ 3000 kW  
@ \$.005 per kWh = \$180

Off-Peak

72,000 kWh @ 6 outages for 4 hours @ 3000 kW  
@ \$.005 per kWh = \$360

### Supplemental Energy

18,000 kWh on-peak x 22 - 1 days outage = 378,00 kWh  
4,000 kWh off-peak x 22 - 2 days outages = 80,000 kWh

#### On-Peak

First 115 x 2000 KW	230,000 kWh @ no charge	0
Next 305(@ 2000 KW)	148,000 kWh @ \$0.0346	\$ 5,120.80

#### Off-Peak

First 115(@ 2000 kW)	80,000 kWh @ no charge	0
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Total Supplemental Energy	\$5,120.80
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### Method B

#### Total Supplemental Cost

Demand	31,627.95
Energy	<u>5,210.80</u>
	36,748.75

#### Partial Services

Demand	\$21,000.00
Customer Charge	\$100.00
Energy Charge	<u>\$130.00</u>
	\$21,230.00

#### Total Cost

Supplemental	\$36,748.75
Partial Service	<u>\$21,230.00</u>
Total	\$57,978.75 for 484,000 kWh

or 11.97 cents per kWh

Savings	= 134,007.75 Base Cost - 57,978.75
Potential	= \$76,029

or 3.586 cents per kWh Generated

### Summary

Direct Buy Base Cost from CEI Large Industrial Schedule No. 12

\$134,000.75 for 2,716,000 kWh  
or 4.9340 cents per kWh

#### **Method 1**

Install 3 mW generator and take supplemental service under CEI Large Industrial Schedule No. 12 and standby/backup/maintenance under CEI's Partial Service Schedule Method A

Supplemental and Partial Service Charges from CEI

\$84,901.55 for 484,000 kWh or \$0.1754 per kWh

resulting in a gross saving of  
 $\$134,007.75 - \$84,901.55 = \$49,106.20$  for the  
2,124,000 kWh generated onsite or 2.612 percents kWh

#### **Method 2**

Same as Alternative 1 except Partial Service Schedule Method B is selected by Customer

Supplemental and Partial Service Charges from CEI

\$57,978.75 for 484,000 kWh or 11.97 cents per kWh

Resulting in a gross savings of  
 $\$134,007.75 - \$57,978.75 = \$76,029$  for the  
2,124,000 kWh generated onsite or 3.58 cents per kWh

### Conclusions

Under either Method A or Method B the savings potential for installing onsite generation is not adequate to cover any realistic estimates of the variable cost of operating the generator including fuel and pay back the capital investment required for the system over a reasonable period of time. This is due to the fact that the cost of partial requirements service is significantly more expensive than full service. It is so much more expensive, in fact, that the total payments to CEI are not significantly reduced even after generation is added onsite. The proposed onsite generation is made uneconomic as a direct result despite its ability to operate at full capacity on a continuous basis.