# THE E CUBED COMPANY, L.L.C.

# **E3**

Providers of Strategic Energy Services At The Exponential Interface Among

Energy

· Economics and

Environment

Ruben S. Brown, M.A., M.A.L.D., President

Arthur W. Pearson, CEM Director of Operations Ms. Jaclyn A. Brilling, Secretary New York State Public Service Commission Two Empire Plaza Albany, NY 12223

#### Re: Case 07-E-0523-Proceeding on Motion of the Commission as to Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. For Electric Service

Dear Secretary Brilling:

Attached for filing is an original of the Direct Pre-filed Testimony and Exhibits of Ruben S. Brown, President of The E Cubed Company, LLC submitted on behalf of interveners, The E Cubed Company, LLC and the Joint Supporters, a voluntary association, in the above referenced case.

Copies are being distributed to the active parties via e-mail and a hardcopy as requested is being provided to the Company.

Very Truly Yours,

Sig

Arthur W. Pearson, C.E.M. Director, Project Operations.

Encl:

cc. Hon. William Bouteiller Hon. Michelle Phillips Active Parties List (via e-mail)

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September 6, 2007

#### STATE OF NEW YORK PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission as to Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. For Electric Service. Case 07-E-0523

#### JOINT SUPPORTERS

Prefiled Direct Testimony of Ruben S. Brown, M.A.L.D. President The E Cubed Company, LLC

> Arthur W. Pearson, C.E.M. Director, Project Operations The E Cubed Company, LLC 1700 York Avenue, Suite B-2 NEW YORK, NEW YORK 10128 212-987-1095

Dated: September 6, 2007

1	Q. Please state your name, professional affiliation and address.	
2	A. My name is Ruben S. Brown, M.A.L.D., President, The E Cubed Company, LLC	C,
3	with a place of business at 1700 York Avenue, Suite B-2, New York, NY 10128.	
4	Q. Are you the same Ruben S. Brown that testified in Rate Case 04-E-0572 in	
5	support of the Joint Proposal of Settlement involving the Consolidated Edison Company	у
6	of New York, Inc. current rate plan for 2005-2008?	
7	A. Yes. My professional credentials appeared in Exhibit 33 of the Hearing in	
8	January, 2005. They have been updated and are attached here as Exhibit(RSB-1).	
9	Q. What is the purpose of your testimony?	
10	A. The purpose of my testimony is to address the Company's proposals for a	
11	Permanent Demand Reduction Program, alternative targets, alternative resources to	
12	mobilize (including energy efficiency, distributed generation, and demand response),	
13	alternative methods of delivery, and assorted issues assorted with rates and methods of	
14	cost recovery. In not addressing the totality of the array of measures currently	
15	administered by the both the Company and NYSERDA are not restricted to permanent	
16	reduction measures, the Company does not address adequately the potential for demand	l
17	response and emergency generator programs to reduce peak demand and provide	
18	efficiency benefits. The ramp-up proposal that I describe requires recognition of demand	d
19	response resources as providing valuable efficiency benefits. Going forward, if a	
20	company role is maintained it should recognize and mobilize demand response resource	9.
21	These resources will in the aggregate likely bring down significantly the cost profile for	ſ
22	overall resource acquisition below the company's proposals.	

1	We wish to commend the Company with its progress on network and substation
2	reinforcements during the current rate plan and other measures that can facilitate
3	interconnection and utilization of dispersed generation. That there is much yet to be done
4	is acknowledged.
5	Q. On behalf of whom are you testifying?
6	A. I am testifying on behalf of The E Cubed Company, LLC (E-Cubed) and the Joint
7	Supporters, a voluntary association of providers and users of energy services and
8	products, comprised of current or recent clients of The E Cubed Company, LLC. <sup>1</sup> The
9	Joint Supporters have participated in Consolidate Edison Company of New York, Inc.
10	rate cases (including base rates and stand-by rates) and various generic cases since 1989.
11	In Case 04-E-0572, Joint Supporters participants provided approximately one-third of the
12	signatures on the Joint Proposal of Settlement. The Joint Supporters and E-Cubed
13	participated extensively in the Demand Resources collaborative that designed the
14	implementation of the Demand Resource provisions approved by the Public Service
15	Commission as a result of the decisions in Case 04-E-0572.
16	The Joint Supporters have also been active during 2007 in negotiating incremental
17	demand resource programs affecting Zone J that have yielded more than 140 MW of
18	mobilized resources during Summer 2007: (1) the design and implementation of
19	modifications of the NYISO Special Case Resource Program to be more discerning in

<sup>&</sup>lt;sup>1</sup> Entities participating in this intervention include leading companies, associations and end-users that provide or utilize energy services and equipment, and systems, and fuel stocks which comprise demand resources for electricity customers. Entities include: The E Cubed Company, LLC, [your organization and company name will appear here.]

1	targeting sub-zones to obtain voluntary action <sup>2</sup> : and (2) in the wake of the 2006 Long
2	Island City Blackout, the design of an expansion of the Company's Rider U program for
3	mandatory action in networks of need. <sup>3</sup>
4	SUMMARY OF TESTIMONY
5	Q. Please summarize your testimony.
6	A. The Company's Demand Reduction proposal is described as provided in
7	Company witness Rebecca Craft's testimony. She heads a renamed department now
8	called Energy Efficiency that includes Customer Account Representatives and other
9	functions.
10	Then the targeted level of effort (or goal) as proposed by the Company is
11	discussed. It does not even meet forecast load growth during the rate plan (625 MW). I
12	then demonstrate that the Company's proposed 500 MW initiative from 2008-2016, that
13	mobilizes 138 MW inside the rate period (RYs 2008-2010), is inadequate. It should be
14	increased to the 1,700 to 2,000 MW by 2015-16 with 750 MW inside the rate period.
15	This is a fivefold higher objective.
16	The historic experience of NYSERDA administration serving the Con Edison
17	territory is reviewed showing over 630 MW of achievements and/or contracted projects
18	since the on-set of the Systems Benefit Charge in 1998. <sup>4</sup>

<sup>&</sup>lt;sup>2</sup> According to the report of the NYISO Price Responsive Load Work Group report at the September 5, 2007 Business Issues Committee meeting, there were two activations of the targeted demand response program in Summer 2007. The events were on July 19<sup>th</sup> and August 3<sup>rd</sup> in Sub-zones J3 (48.7 MWs registered) and J8 (61.4 MWs).

<sup>&</sup>lt;sup>3</sup> The August 8<sup>th</sup> Order of the Commission in Case No. 07-E-0392 dealing with emendations to the Rider U program indicated that about 40-50 MW incremental to a prior enrollment of 80 MW were obtained in Summer 2007 as a result of modifications to Rider U, a more than fifty percent increase in the Company's program.

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1	I demonstrate substantial advantages of maintaining a strong and dominant, but not
2	exclusive role, for NYSERDA as an experienced, staffed institution more rapidly
3	delivering a multiplicity of programs mobilizing a large number of providers and end-
4	users.
5	The Company has achieved 19 MW in the first round of its targeted program in 2003
6	and has committed 86 MW in rounds two and three <sup>5</sup> . Round four is on the streets now. It
7	is interesting that there appear to be no repeat contractors. There is a role for the
8	company, but not in the tightly controlled and restrictive fashion that it has rolled. The
9	targeted program was intended, in part, to facilitate "clean DG" and EE. It is achieving
10	lighting retrofits. It was not what the Joint Supporters advocated originally.
11	A group of priority appropriate measures is delineated: including (a) "energy
12	efficiency" performance, not just CFL lighting; (b) clean distributed generation and gas
13	technology; and (c) demand response, including selected measures to enhance these.
14	The Joint Supporters propose that the 750 MW program goal we identify be obtained
15	by the end of the 2008-2010 rate plan and that it be allocated going in $1/3$ to each of the
16	above three categories whether administered by NYSERDA and/or the Company.
17	A 1-3 family residential initiative is proposed that involves multiple measures and not
18	just lighting, but includes also direct load control for a/c units, and residential micro-
19	CHP.

<sup>&</sup>lt;sup>4</sup> A total of 634.4 MW has been achieved or contracted by NYSERDA in the Con Edison territory since 1998 by NYSERDA in SBC up to the end of SBC 2 (435.5 MW), SBC 3 56.6 MW, and the System Wide Program devised pursuant Case No. 04-E-0572 (142.5 MW). Sources are June reports by NYSERDA on SBC program and System Wide Program.

<sup>&</sup>lt;sup>5</sup> Company Witness Craft in Interrogatory Response to Staff Question 100, as attached hereto as Exhibit \_\_\_\_ (RSB-4).

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1	Measures affecting the deployment of clean distributed generation, including	
2	measures to further enhance the Company's initiatives in this field. As indicated by the	
3	discovery responses smaller customer loads are substantial and widespread and the Joint	
4	Supporters believe that the deployment of smaller CHP/DG systems should be strongly	
5	encouraged, The customer base for potential DG projects is extensive at sizes below the	
6	500 kW threshold deployed in the 04-E-0572 implementation processes by NYSERDA	
7	and possibly by the Company. However, It appears that no DG projects have been	
8	committed in the targeted distribution relief RFP awards by the Company. Size may be	
9	an issue there. Programs should be opened down to the single kW level, e.g. residential	
10	micro-CHP is a breakthrough technology with clean efficiency and cost-effective	
11	technology at that lever.	
12	The Company's AMI proposal is addressed. The Joint Supporters fundamental	
13	advocacy is for open architecture accessible to 1-5 minute data to all competent providers	
14	within the constraints of customer permission. A proprietary approach is not warranted.	
15	SUMMARY OF COMPANY'S DEMAND REDUCTION PROPOSAL	
16	Q. Please Summarize the Company's Demand Reduction Proposal.	
17	A. The Company proposes a continuation of the targeted distribution system relief	
18	approach that has evolved from a pilot in the early 2000s to a program in the current rate	
19	plan that could procure permanent reductions of up to 150 MW of energy efficiency and	
20	clean distributed generation. Another 350 MW of permanent reductions via "enlightened	
21	energy" would be performed more in the model of programs that the Company	
22	administered from 1988 to 1998. The Company would staff up to administer such	
23	programs. The Company proposes a three-year rate-plan budget of \$122.3 million,	

1	including \$103 million in incentives for customers. Labor of \$9.3 million would come
2	from revenue requirement and \$10 million in administration would be approved as part of
3	this proposal. The MW target inside the 2008-2010 rate plan would be 138 MW rolled
4	out as follows ( $RY1 = 22 MW$ , $RY2 = 54 MW$ , and $RY3 = 62 MW$ ).
5	TARGET IS INSUFFICIENT
6	Q. Is the target of 500 MW by 2016 appropriate?
7	A. No. Based upon reply of Infrastructure Panel to AGC Q-20 attached as Exhibit
8	RSB-1 as analyzed in ExhibitRSB-2, the level of 500 MW by 2016 would be
9	approximately 25% of the forecast load growth of the service territory. Meeting 100% of
10	the load growth during the rate plan (by 2010) would require approximately 625 MW
11	rather than the 138 MW proposed. The 625 MW of forecasted growth is a more
12	appropriate minimal objective within the rate period. Meeting 100% of the load growth
13	by 2015 would require approximately 1,700 MW and by 2016 approximately 1,900 MW.
14	Compared to the Governor's target of 15% efficiency reduction by 2015 that is being
15	explored for implementation in Case No. 07-M-0548 (across multiple vehicles) and the
16	Mayor of New York City's target of 30% by PlaNYC 2030 the proposed target is
17	inadequate. An objective consistent with the pending target of 15% electricity reduction
18	by 2015 as per Case No. 07-M-0548 would be more on the order of 100% of load growth
19	plus 2.5% of the 2007 (Base). That would be approximately 2,000 MW.
20	Q. What would be a more appropriate target?
21	A. A proportionate share of the emerging EPS objective and programs would suggest
22	a target in the range of 1,700 to 2,000 MW by 2015 or 16 with an intermediate target by

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1	2010 o	of 750 MW by March 2011 before the end of the proposed rate plan. In short, the
2	rate pla	an objective should be more than five times that proposed by the Company.
3	Q.	What has happened to implementation of measures against the 535 MW load
4	growth	n target for 2005-2008 set in Rate Case 04-E0572?
5	A.	There were three main components. Two were incremental to SBC funded
6	activiti	es. These were two bundles of 150 MW each assigned for administration to the
7	Compa	any and to New York Energy Research and Development Authority (NYSERDA).
8	The Co	ompany's portion was designated as "targeted distribution system" relief and the
9	NYSE	RDA portion was described as "System Wide Program". The remaining 235 MW
10	were e	xpected to be realized principally from SBC programs administered by
11	NYSE	RDA. A fourth component however, comprised demand response resources
12	partici	pating in the peak load reduction programs administered by the New York
13	Indepe	endent System Operator (NYISO) were not recognized in this targeted set of
14	propos	als. This is a major oversight on the part of the Company and should be rectified.
15	Q.	What been the Company's performance against the target?
16	A.	In the answer to AGC Q 20 as attached here in Exhibit(RSB-2), the
17	Infrast	ructure panel indicates that:
18 19 20 21		There are 37 MW's of reductions reflected in the forecast provided under Con Edison's existing Targeted Demand Side Management program, 20 MW's in the 2007 Base and 17 MW's in RY1 shown as 2008 above. (IIP Response to AGC 20)
22	There	is a balance of 113 MW of projects that could be in the pipeline for award by the
23	Compa	any through a limited number of vendors. In the alternative the unused MW and
24	dollars	could be transferred to NYSERDA for administration. They have not been.
25	Q.	What is NYSERDA's performance against the target?

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1	We understand that NYSERDA is testifying on these topics. However, our review of
2	public documents indicates the following:
3	1. A total of 634.4 MW has been achieved or contracted by NYSERDA in the Con
4	Edison territory since 1998 by NYSERDA.
5	a. 435.5 MW in SBC activity up through the end of SBC $2^6$
6	b. 56.6 MW in SBC 3 <sup>7</sup> , and
7	c. 142.5 MW in the System Wide Program SWP) devised pursuant Case No.
8	$04-E-0572^8$ .
9	Q. Has the low hanging fruit already been captured in almost twenty years of
10	demand side activity in the Con Edison territory?
11	A. Yes. Con Edison [Craft at p. 1] indicates that more than 700 MW of Demand Side
12	Management (DSM), i.e., "enlightened energy" between 1988 and 1998 in the Service
13	Territory. In addition, NYSERDA-administered SBC activity has occurred since 1998.
14	We understand that NYSERDA is documenting this activity as part of its testimony.
15	The implications of these achievements on both entities' part are that the next
16	levels of energy efficiency to be obtained could be more costly to obtain unless
17	efficiencies in management, scale and diversity of resources and delivery mechanisms are
18	realized. This should be recognized in program design and funding determinations. The
19	Company recognizes such in its testimony.
20	DELIVERY MECHANISMS

<sup>&</sup>lt;sup>6</sup> NYSERDA, Tables 3-3, 4-3 and 5-3 of the New York Energy Smart Program Evaluation and Status Report, dated March 2007.

<sup>&</sup>lt;sup>7</sup> NYSERDA, Table 3 of the 2007 System-Wide Program Annual Report, dated June

<sup>2007</sup> <sup>8</sup> NYSERDA, System-Wide Demand Reduction Program Bi-Monthly Report, that covers the period ending July 15, 2007.

1	Q. Please summarize the Company's proposal regarding delivery mechanisms.
2	A. As noted above in the summary of the Company's proposal, it proposes a 500
3	MW program (2008-2016) that it controls. It proposes a 150 MW increment of the
4	current rate plan's targeted distribution system relief approach employing energy
5	efficiency and clean distributed generation which has passed through two rounds (2 & 3)
6	with round 4 pending. At present this program does not employ Demand Response and
7	Load Management. \$125 Million was authorized for obtaining 150 MW in the current
8	rate plan from 2005-2008.
9	Another 350 MW of "enlightened energy" would be performed from 2008 to
10	2016 more in line with the model of programs that the Company administered in the first
11	half of the nineties.
12	The combination of the two sources would yield 138 MW inside the rate period
13	from 2008-2010.
14	Q. How does this compare to delivery mechanisms provided for demand resources in
15	the current rate plan?
16	A. The Company's summary of existing measures appears in the response to DPS
17	Staff Q-100. It is attached as ExhibitRSB-3. It conveys real progress in some areas,
18	but acknowledges customer and provider participation in NYISO programs and
19	NYSERDA administered programs. The earlier targeted programs have obtained 19 MW
20	since 2003 and 86 MW of demand reduction is now under contract against the goal of
21	150 MW in the current rate plan.
22	There is at the present time no company controlled "enlightened energy" activity.
23	System Wide Program activities are contracted and implemented by NYSERDA utilizing

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1	rate case authorized funds and mandates. A limited of contractors/awardees to the
2	Company have appeared and been selected in rounds 2 & 3 with no repeats. By
3	comparison, NYSERDA with a now ten year history with multiple programs and multiple
4	vendors/awardees has mobilized significantly larger numbers of vendors/awardees with a
5	corresponding dramatically larger number of customer site projects awarded and
6	contracted. The number of DG projects participating in the Company's targeted program
7	is not directly visible due to the program design, but is presumed to be small or non-
8	existent, despite the original intent of the program. By comparison, the number of DG
9	projects subscribed in the NYSERDA SWP program has been substantial. The joint
10	marketing activity has led earlier to early adopters in the NYSERDA programs which
11	have been rolled out faster than the Company's programs. There has been some need to
12	sort out the relationship of SBC-funded opportunities and SWP opportunities in order to
13	avoid confusion for customers and vendors. In short, the Company's proposal advocates
14	nothing regarding the continuation of NYSERDA administered activities. This is a major
15	shortcoming.
16	Q. What is your overall recommendation regarding future mechanisms regarding
17	overall delivery of demand resources to Con Edison electric Customers?
18	A. Multiple lines of activity and delivery mechanisms are needed to achieve the
19	goals that we suggest should be set.
20	1. The role of NYSERDA as a central "hub" mechanism of benefit to the customers
21	of Con Edison should be accepted and incorporated into the Company's demand
22	resource program plans. An active NYSERDA role should be contemplated for
23	sizeable portion of the overall program.

1	2.	The Company should continue to work with and coordinate with NYSERDA to
2		extend the reach and penetration of programs.
3	3.	If Company procurement of demand resources is advanced, we recommend that
4		measures be widened to include demand resources and load management as well
5		as energy efficiency and distributed generation.
6	4.	Front-line delivery of Demand Resources should advance by as many different
7		performers and measures as can be mobilized in this environment: large and
8		small, residential, commercial, and industrial measures.
9	5.	Breakthrough technologies should be advanced by all means possible including
10		open access metering architecture, networking systems, clean distributed
11		generation, including gas technology and micro-CHP technology for 1-4 family
12		residential situations, and the use of performance contracting.
13		
14		MEASURES
15	Q.	What is the Company's proposal for measures to be deployed?
16	A.	The Company proposes permanent reduction measures, including EE and DG in
17	its targ	geted program, and a broad array of measures, yet to be determined in its
18	"enlig	htened energy" component. They will be developed based upon market research.
19	Q.	What is the Joint Supporters' proposal for measures to be deployed by whatever
20	institu	tional mechanism is finalized?
21	A.	The array of energy efficiency, distributed generation, load management/demand
22	respon	se measures, and gas and steam technology measures that the Joint Supporters

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1	In short, the incremental programs supported by ratepayer funds whether	
2	administered by NYSEDA and/or by the Company should embrace all measures that can	
3	deliver value down to and including 1 kW capabilities, e.g. micro-CHP for 1-3 family	
4	residences and small commercial accounts. We also would support a substantial	
5	expansion of the residential load control program – now at 27 MW.	
6	The use of electricity storage should be explored and demonstrated at several	
7	different customer types and sizes. The potential for distribution infrastructure deferral	
8	may be significant in some areas.	
9	We did not endorse steam chilling to the exclusion of gas chilling or to gas	
10	distributed generation and would not endorse that at this juncture.	
11	Q. You have proposed a rate plan target of 750 MW for demand resources. How	
12	would you distribute it among broad categories of measures?	
13	A. We would propose a distribution of 1/3 energy efficiency, 1/3 distributed	
14	generation, and 1/3 demand response/load management or 250 MW per broad group of	
15	measures.	
16	<b>OPPORTUNITIES TO PURSUE</b>	
17	Q. Within the Demand Resource measures of the programs implemented pursuant	
18	either the current rate plan or the SBC programs under the Administration of the	
19	Company and NYSERDA, has there been any underserved population of customers that	
20	might provide the base for substantial expansion in programs going forward?	
21	A. Yes, the accounts under 500 kW. As indicated by the Company in response to	
22	Interrogatory RESA Question 12 (attached here as Exhibit(RSB-5), as of August 3,	
23	2007 there are sizeable number of accounts from 100 to 1,499 kW in demand. By simple	

1	addition, there are 8657 accounts in the range from 100 to 499 kW involving 1,740 MW				
2	of demand and 6,189,598 MWH of consumption. These facilities could contain many				
3	candidates for distributed generation and other measures.				
4	Q. Do you have any understanding of the potential CHP opportunity for accounts of				
5	this size?				
6	A. Yes. An analysis of the Combined Heat and Power Market Potential for New				
7	York State was performed in 2002.9 It estimated that the net remaining CHP				
8	opportunities in the Consolidated Edison territory for sizes 50 to 500 kW totaled				
9	approximately 490 MW at 6,716 sites in the commercial sector and approximately 110				
10	MW at 1,272 sites in the industrial sector. Combined this is approximately 600 MW of				
11	remaining CHP potential at 7,988 sites at that time in the size range of 50 to 500 kW. The				
12	additional potential from 500 to 1000 kW totals approximately 730 MW at another 1,832				
13	sites. The 2002 study then jumps to data from 1 to 5 MW with another 1,100 MW of net				
14	potential at 645 sites. The total potential at sites under 1,000 kW is approximately 1,330				
15	MW at over 9.800 sites.				
16	Q. What is the significance of this comparison between current account statistics and				
17	the 2002 study?				
18	A. While the data are not directly comparable, the data suggests that a substantial				
19	portion of the targets that either the Company has proposed (138 MW during the rate plan				
20	and 500 MW by 2016) or the Joint Supporters has proposed (750 MW during the rate				
21	plan and 1700-2000 MW by 2015 or 2016 could be met by Combined Heat and Power				
22	Projects at facilities under 500 kW. With an account base of 100 to 500 kW accounts				

<sup>&</sup>lt;sup>9</sup> NYSERA Report 02-12, Combined Heat and Power Market Potential for New York State, Final Report, October 2002, p. A-4.

1	totaling 1,740 MW at approximately 8,700 sites there would be approximately 800 more				
2	facilities/accounts in the marketplace. A suggested net CHP potential of 600 MW at				
3	nearly 8,000 sites under 500 kW could be scaled up. However, it is not needed at this				
4	juncture. Substantial potential does exist in this population and should be mobilized by				
5	programs developed and administered whether by the Company and/or NYSEDA.				
6	Assume 1 in 4 (150 MW) or 1 in 2 (300 MW). Either one will provide substantial				
7	incremental potential to realizing program objectives as long as funds do flow the CHP,				
8	not just CFL lighting in the name of an opportunity for CHP.				
9	Q. Do the present award programs address CHP opportunities from 1 kW to 500				
10	kW?				
11	A. No. They should. NYSERDA has not looked at facilities at under 500 kW. We do				
12	not know what the Company has done with clean DG applicants except to indicate that				
13	they are not able to remain interconnected to the grid and that such technologies as gas-				
14	engine driven air compressors need to maintain total redundancy which makes them cost-				
15	prohibitive. In any programs funded as a result of the pending rate plan, projects from 1				
16	to 500 kW should become eligible and they should not require redundancy. A pricing or				
17	disincentive system can be deployed such as in the programs that interface the NYISO or				
18	ISO-New England.				
19	1-3 FAMILY RESIDENTIAL INITIATIVES				
20	Q. Do you have any recommendations in order to extend energy efficiency, clean				
21	DG, and demand response resources to the single family residential level?				

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1 A. I introduce an exhibit which I prepared, that was presented by Eric Guyer of 2 Climate Energy, LLC at the EPS Portfolio Standard Technical Conference on July 19 & 20, 2007 when I was unable to make my presentation. It is marked Exhibit (RSB-6).<sup>10</sup> 3 4 This exhibit shows the millions of houses in New York, the majority of which are heated 5 with natural gas. All of these are candidate for micro combined heat and power systems 6 that are now being commercialized in the United States after substantial success in 7 Europe and Japan. This could add hundreds of megawatts of capacity. Such system 8 being introduced in the United States have been specifically design to achieve energy 9 conservation, general load reduction, and peak demand management at the residential 10 level at attractive paybacks for homeowners. Potential for micro-CHP systems far 11 outweighs the mid-term potential for many other measures on account of it ability to be 12 deployed within the existing home appliance installation and service infrastructure. 13 14 STAND-BY RATE ISSUES 15 Q. Do you observations regarding the 14 RA Standby rates? 16 A. Yes. While the existing rate structure is working for some customers, especially 17 larger ones that do not prefer to operate base-loaded depending upon energy prices, it 18 remains appropriate to provide choice to customers until such time as the DG/CHP 19 market reaches a level of self-sustaining maturity and market penetration. While the 20 current optional choice of exemptions for facilities that meet certain conditions and with 21 sizes 1,000 kW or less has been extended in the generic proceeding to 2009, the 22 Company should support the extension of the exemption option on standby rates versus

<sup>&</sup>lt;sup>10</sup> http://www.dps.state.ny.us/07M0548/07M0548\_Guyer\_Climate\_Energy.pdf

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otherwise applicable service classifications until the end of the rate plan. This will give
 the projects that could come into the pipeline during this rate plan to exercise the option,
 depending upon their unique factors.

4 Additionally, the current rates impose what amounts to an excessive ratchet 5 charge as well as potentially highly costly surcharges for exceeding the Contract 6 Demand. Through lack of clear information on the standby rates, and as a result of poorly 7 design CHP jobs resulting in a loss of some certainty about reliability, and as a result of 8 our own (the DG/CHP community) pronouncements about how dire the standby rates are 9 to live with, there is more fear of them than is necessary. What needs to be developed is 10 a means through which the host facility is held responsible for the performance of their 11 systems, but only at a level appropriate for the time and electric power market costs, etc 12 during a period when the system fails to deliver as scheduled.

A "redo" should be built into the rate whereby one incident of exceeding the Contract Demand does not result in any more cost to the facility than would have the open NYISO market at the time of the event. In addition, the facility should be allowed to demonstrate that the cause of the problem has been addressed and the Contract Demand left as it was as long as this "test" is completed within set period of time.

18 This is in keeping with the requirements in place for NYISO SCR-enrolled 19 generators that do not achieve their target outputs during a test or an event. They are 20 allowed to demonstrate they can achieve the required capacity or they are derated until 21 they do, not for 12 months.

### **RUBEN S. BROWN PRESIDENT AND CHIEF EXECUTIVE OFFICER THE E CUBED COMPANY, LLC**

Ruben S. Brown, M.A.L.D. has provided regulatory litigation support services as witness, case and document strategist and tactician, document preparer/reviewer, hearing preparer, and settlement negotiator since 1984, appearing as witness before the Federal Energy Regulatory Commission (FERC) and the regulatory commissions in Connecticut, Georgia, Massachusetts, New Jersey, New York, and Utah. He also appeared in front of the Commission in North Carolina with respect to a certificate of public convenience and necessity for a small power plant developed for his own account in 1983. Mr. Brown has also assisted interventions in litigated cases in which he did not personally appear as witness in Connecticut, Delaware, Massachusetts, Michigan, New Jersey, New Mexico, New York, and Pennsylvania.

With respect to Demand Resources, the primary subject of the Joint Supporters Testimony in Case 07-E-0523, Mr. Brown has examined for multiple clients the regulatory rules and practices affecting local generation, small power production, distributed generation, energy efficiency and demand response resources in twenty-six States and two Canadian provinces. The E Cubed Company under his supervision has negotiated interconnection rules and arrangements for small (and large) generators in nine States, at FERC and at NYISO, PJM, and ISO-NE. Coalitions are often mobilized. One of these is the Joint Supporters voluntary association that has functioned on an ad hoc basis since 1989. The Joint Supporters involved 25 companies and associations in Case 04-E-0572 which set the 2005-2008 electric plan for the Consolidated Edison Company of New York, Inc.

Mr. Brown has designed and implemented intervention strategies regarding local generation, demand resources and competitive energy services (including commodities, energy efficiency, and demand response) in cases and proceedings before the New York State Public Service Commission and the State Energy Planning Board since 1989, including the Consolidated Edison Company of New York, Inc. base rate and restructuring cases in 1990, 1994, 1997 and subsequent phases, and the standby rate case concluded in 2004. From 1991 to 1993, he served as part-time Executive Director of the New York Energy Efficiency Council.

On behalf of the Joint Supporters and the National Association of Energy Services Companies (NAESCO) Brown negotiated the restructuring cases of New York's PSC jurisdictional utilities in favor of moving the then existing utility demand response programs into a System Benefits Charge (SBC) program that was to be administered by NYSERDA. He has served on the SBC Advisory Committee since its inception. Mr. Brown has negotiated the design of market rules in the wholesale market for Demand Response Resources at the FERC and in the ISO/Rots of NYISO, ISO-NE, and PJM Interconnect. He was the invited witness by FERC at its February 5, 2002 Technical Conference on Electricity Market Operations addressing Recommended ISO/RTO Markets for Demand Response Resources. He spoke on behalf of the Joint Supporters.

Mr. Brown has also appeared as witness and presenter of comments in front of legislative bodies, including appearing as one of fifteen invited witnesses before the U. S. Senate Commerce

Committee in the first oversight hearings (1986) on the Public Utility Regulatory Policies Act of 1978 and appearing before legislative committees in New York and Connecticut.

As competitive market representative for Energy Service Companies (ESCOs), Mr. Brown served on the Selection Committee for the Independent Board of Directors of the New York Independent System Operator (NYISO) and while designing the selection process examined in detail with their incumbents, the leadership selection process of the PJM Interconnection Association and ISO New England. Mr. Brown serves as client alternate to Management Committee and the Members Committees of the NYISO. Also as Market representative Mr. Brown served on the Advisory Committee to the New York State Energy Planning Board's December 1, 2000 Report to its Legislature on the Reliability of the Transmission and Distribution System in New York.

In 2005-2006, he served as witness and negotiated implementation of Connecticut's Energy Independence Act in multiple proceedings before the Connecticut Department of Public Utilities. In 2006-2007, he negotiated the implementation of the ISO-New England Forward Capacity Market with respect to distributed resources, included capacity market participation for energy efficiency, distributed generation, and demand response down to 1 kW facilities, such as 1-3 family residential micro-CHP facilities. In 2006-2007, he participated in the Rhode Island DG Working Group pursuant 2006 Legislation.

Brown has performed surveys of cogeneration potential in the United States (reported at the November 1988 NARUC meeting), in New Jersey (1985 BPU decision allowing TMI Investment to be replaced by competitive markets), and in New York State (1978 NY Assembly Report) and surveys of low head hydro potential (1977 inventory of 16,000 sites in twelve Northeastern States for Allis-Chalmers Hydroturbine Corporation and the 1978 Inventory of New York State Sites for State Small Hydro Task Force – supported by NYSERDA). More than 400 MW of small hydro was developed in New York State in the wake of those initiatives. From 1980-1984, Mr. Brown built small power production plants for his own account, including two successful small hydroelectric plants in Maine and North Carolina.

In 1991-2 as Registered Foreign Agent on behalf of the Grand Council of the Crees (of Quebec) Mr. Brown interfaced with the economic review in New York of two Hydro-Quebec import contracts ultimately resulting in cancellation of 20 year contracts deemed to be overpriced compared to avoided cost and market alternatives, including fuel switching, distributed generation, and other demand resources.

Prior positions include: Director, Center for Regional Technology, Polytechnic University (1975-1980), Executive Director, and Vice Chair Council on the Environment of New York City (1973-1977), Project Manager, National Research Council (1971-1973); Project Research Staff Director, MIT Sloan School of Management (1969-1971).

Education: Mr. Brown was educated at the University of Texas and the Fletcher School of Law and Diplomacy, Tufts University.

#### Company Name: Con Edison Case Description: Electric Rate Filing Case: 07-E-0523

#### Response to Astoria Gen. Co. Interrogatories – Set AGC1 Date of Response: 07/23/2007 Responding Witness: IIP

Question No. :20

At page 4, lines 4 through 7, Con Edison's Infrastructure Investment Panel states that the Company's projected capital and O&M expenditure requirements are needed, inter alia, to support economic growth. Please provide the Company's forecasted increase in customer demand in each Rate Case Year. Please specify the total amount of MWs such demand was offset by: (i) any demand reductions attributable to the Existing DSM Program; and (ii) any demand reductions attributable to the New DSM Program.

#### Response:

The following table provides the forecasted increase in customer demand in each rate year:

#### **CECONY Service Area Forecast**

<u>Year</u>	TOTAL MW	<u>Increase</u>
2007 (Base)	13,575	
2008	13,800	225
2009	14,000	200
2010	14,200	200

- (i) There are 37 MW's of reductions reflected in the forecast provided under Con Edison's existing Targeted Demand Side Management program, 20 MW's in the 2007 Base and 17 MW's in RY1 shown as 2008 above.
- (ii) There are no MW's of demand reduction offsets attributed to the new DSM program.

Load Forecast

Employing the Data provided by the Infrastructure Panel the answer to AGC-20 and attached in Exhibit \_\_\_\_\_\_RSB-2, the following simplified forecast can be prepared for the period 2007-2016 the period covered by the Company's Demand Resource Proposal in Witness Craft's testimony.

CECONY Service Area Forecast *		Annual Rate of Increase	Equivalent Average Rate of Increase	Cumulative Rate of Increase	
Year	TOTAL MW	<u>Increase</u>			
2007 (Base)	13,575				
2008	13,800	225	1.66%	1.66%	1.66%
2009	14,000	200	1.45%	1.47%	3.13%
2010	14,200	200	1.43%	1.47%	4.60%
subtotal		625	**	4.60%	
2011	14,409	209	1.47%	1.54%	6.15%
2012	14,621	212	1.47%	1.56%	7.71%
2013	14,837	215	1.47%	1.59%	9.30%
2014	15,056	219	1.47%	1.61%	10.91%
2015	15,277	222	1.47%	1.63%	12.54%
subtotal at					
2015		1702		12.54%	
2016	15,502	225	1.47%	1.66%	14.20%
Total at 2016		1927		14.20%	

\* Small box contains Con Edison Infrastructure Panel computation for AGC Q-20.

The remainder of the Box has been prepared by witness.

\*\* Assumes equivalent average rate for first three years is carried forward.

#### PERSPECTIVE ON THE COMPANY'S DEMAND RESOURCE PROPOSAL

Witness Rebecca Craft has proposed 500 MW by 2016.

As derived above this COULD meet approximately of total estimated forecast load growth by 2016.

26%

An objective consistent with the target of meeting load growth by Demand Reduction would target 100% or 1700 MW by 2015 and 1900 MW by 2016.

An objective consistent with the pending target of 15% electricity reduction by 2015 as per Case No. 07-M-0548 would be more on the order of 100% of load growth plus 2.5% of the 2007 (Base). That would be approx. 2036 MW.

Company Name: Con Edison Case Description: Electric Rate Filing Case: 07-E-0523

Response to DPS Interrogatories – Set Staff6 Date of Response: 07/12/2007 Responding Witness: Craft

#### Question No. :100

Subject: Energy Efficiency On page 4, line 1, of the Rebecca Craft testimony, the witness indicates that the Company has always been a strong supporter of demand side management (DSM). Elaborate on the Company's achievements from the end of the Enlightened Energy Program in 1998 through the beginning of the current rate period beginning on April 1, 2005, specifying estimates of MW savings achieved as a direct result of Con Edison activities during this period.

#### Response:

Con Edison has promoted DSM in a number of areas, including:

- 1. Targeted DSM (or demand reduction) program;
- 2. Various demand response initiatives, including the Company's direct load control program, which has achieved27 MW;
- 3. Customer education and outreach (including web site development, Account Executive activities of promoting Con Edison and NYSERDA DSM initiatives during one-on-one meetings with major customers);
- 4. Seminar and trade fair participation (to achieve awareness and increased DSM participation);
- 5. Support of equipment and appliance efficiency standards, including support for federal distribution transformer efficiency standards and New York State's appliance efficiency standards; and
- 6. Support for implementation of NYSERDA's portfolio of SBC programs (through customer outreach activities and trade fair participation as shown in 3 and 4 above).
- 7. Support for distributed generation ("DG"), including establishment of a web site for DG interconnection, appointment of a DG ombudsman, and agreeing to provide the DG interconnection timing requirements for facilities up to 5 MW.

Although the effects of customer education and outreach and efficiency standard support have not been measured, the Company's targeted DSM Programs have achieved more than 19 MWs of demand reduction since their inception in 2003. There are currently an additional 86MWs of demand reduction under contract in the targeted program. In addition, the Company's support for NYSERDA programs have helped it to execute contracts for 185 MW under the system-wide and SBC 3 programs. Other Con Edison activities in demand response have directly resulted in 86.2 MWs in the Company's Distribution Load Relief Program, 15.1 MWs in the NYISO's Emergency Demand Reduction Program, 9.1 MWs in the NYISO's special case resource capacity program and 27 MWs in the Direct Load Control Program. These amounts do not include the MWs associated with customers who have chosen to register in the NYISO program through entities other than Con Edison.

#### Company Name: Con Edison Case Description: Electric Rate Filing Case: 07-E-0523

#### Response to Retail Energy Supply Interrogatories – Set RESA2 Date of Response: 08/08/2007 Responding Witness: Customers Operations

#### Question No. :12

In connection with the Company's proposal to expand the MHP program to all customers with a maximum demand greater than 500 kW in any month in an annual period ending 9/30, please provide the number of customers and level of load in MWs and MWhs associated with moving the threshold MHP level to 500kW, 400 kW, 300 kW, 200 kW and 100 kW.

#### Response:

#### As of 8/3/2007:

Demand Category	Number of Accounts	MW Demand	Consumption MWh
100 to 199 kW	5,447	747	2,564,451
200 to 299 kW	1,676	406	1,451,569
300 to 399 kW	941	323	1,179,014
400 to 499 kW	593	264	994,564
500 to 1,499 kW	1,581	1,253	4,685,048



# Micro-CHP Can Meet New York's Efficiency Goals

Dr. Eric Guyer, CEO Climate Energy, LLC July 20, 2007



Combined Heat and Power for the Home

# **Combined Heat and Power**

- Should be part of basic energy efficiency goal/approach - not an afterthought in EEPS
- In 2003, there were a total of 3,548,785 smaller residences in NYS offering micro-CHP opportunities. Approx. 62% heat with NG.
- Each residence can meet 25-30% combined efficiency reduction with micro-CHP compared to grid electricity and older conv. NG furnace.

Climate Energy	eewatt	Combined Heat and Power for the Home		
Small Residences in NYS(2003)				
Serv.Area	One Unit	2-4 Units	Total	
CHG&E	151,790	6,904	158,694	
Con Edison	378,053	298,517	676,569	
NMPC	908,124	65,026	974,150	
NYSEG	552,685	33,933	586,618	
O&R	117,974	7,175	125,148	
RG&E	217,685	13,212	230,897	
LIPA -TRW	764,146	33,561	797,707	
Total Bldgs	3,090,457	458,328	3,548,785	



# Residential Combined Heat and Power Levers for Change

- Consider the potential of adding micro-CHP to 2.2 million homes that use natural gas.
- "Normal" Home renovation can leverage change in existing stock. Incentives can prompt innovation.
- 3.4 5.5% renovated each yr, Avg. of 155,000 homes, 22.7% of those renovate space heating. (62%) of those or 22,000 use NG. As per 2005 SBC Evaluation Report (adjusted to include LI)





# Compute Efficiency (New Way)

- Generate 5,000 kWhr/yr. by replacing old heating system at 70% efficiency with a FreewattTM micro-CHP
- No actual increase in gas consumption due to increase in total efficiency to 90% (70% for heating with added 20% for electricity for a total of 90%.)
- 5,000 kWhr is 55% of total electricity needed per year.
- Now consuming 145,000,000 Btu/yr, I.e. 100,000,000 Btu/yr for heating and 45,000,000 Btu/yr for electricity. 55 M Btu/yr saved.
- Percentage reduction in total home energy use is 55/200
  = 28% which is nearly double the Governor's objective.





## Micro-CHP: Exactly what is it?

**DEFINITION:** Grid-connected, professionally-installed home space and water heating appliances operating on natural gas that

1) generate significant electric power as a byproduct of normal operation (~ 5,000 kWh/year)

# 2) provide self-powering, emergency backup power, and grid support capability

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Combined Heat and Power for the Home

## What Can Micro-CHP do?

80% of the energy and environmental benefit of residential solar electric power at 20% of the cost

**Neutralize Residential Peak Demand from Grid** 

Produce significant amounts of on-site electric power at total costs comparable to residential utility rates

Provide back-up power during grid outages

Widely deployable: Over 25 million candidate home sites

Siting challenges: None





# Micro-CHP: Why now?

World-class manufacturers of energy appliances see and understand the opportunity and market gap for a high-performance, plug-and-play product, and can produce it an affordable price

Underlying power technology is proven in over 50,000 homes in Japan: ultra-endurance, ultra-quiet small internal combustion engine technology married with catalytic emissions, control, sold-state power inverter electronics and digital communications technology meets all the challenges.

Investment in product has been made: No need to wait any longer.

