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Mary L. Cottrell, Secretary
Department of Public Utilities
One South Station – 2nd Floor
Boston, MA 02110

Re: DPU No. 07-50. Request for Comments by the Department on Investigation its own Motion into Rate Structure that will Promote Efficient Deployment of Demand Resources.

Dear Secretary Cottrell:

As legal counsel for Intech 21, Inc., I hereby submit the following comments in the above Docket.

Request for Comments. The Department of Public Utilities issued an Order in DPU 07-50 requesting comments (by September 10, 2007) upon an investigation it proposes to undertake on *rate structures and revenue recovery mechanisms that may reduce disincentives to the efficient deployment of demand resources in Massachusetts.* Although not expressly stated, such inquiry should lead to a revolutionary revision of rate structures for local public utility distribution companies ("LDCs"). Serious and challenging times call for serious and creative policies; and evidence is mounting that every part of society that can reduce wastage of energy consumption should be strongly and persistently urged so to do. LDCs are uniquely situated to promote major energy efficiency programs and can do so at uniquely economic cost (referred to herein as "EE"). A win/win, if the LDCs are accorded proper appreciation for their ineluctable responsibility to earn a fair return for its stockholders. (In contrast, a win/lose would result if the LDCs achieves major reduction in energy demand, yet, at the same time, suffers considerable economic losses as a result.)[1]

Clear Need to Adopt New Policies to Promote Energy Efficiency [and Executive Summary]. The comments offered below are intended to fully support and encourage the Department to proceed apace to achieve a creative restructuring of LDC rates so as to incent the LDCs to promote EE opportunities in the realm of demand response and demand management – that acquire/produce 'negawatts' or 'nega-BTUs' at costs clearly below their own wholesale cost of acquisition of electricity and gas from traditional sources. Simply put,

[1] Throughout the history of structuring LDC rates by the DPU in Massachusetts (and all other states), the establishment of public utility rate base required that costs must be necessary to produce, distribute and sell energy. This convention lasted a full century (with increasingly abundant energy being sold at overall reduction in costs). In counterpoint (as noted below), energy has become an acutely and increasingly scarce commodity and its direct cost is increasing dramatically -- for that reason and more; in addition, the indirect costs of freewheeling energy consumption are likewise becoming dramatically evident and increasingly problematical.

EE beats wholesale costs of energy by more than 50%.[2] Simple, economic and fortuitous EE programs and products are newly available -- to achieve win/win/win opportunities. However, major leadership is required by both the DPU and the LDCs; most notably, rate structures must undergo historic change so that the LDCs are properly incented to become central advocates for major EE.

Introduction of Intech 21, Inc., and Mass Energy Alliance. Intech 21, Inc., is an inventor/vendor (located on Long Island)[3] making major entree into the energy efficiency retrofit market in New York City and environs. It has been and will continue to save energy dramatically, and thereby achieve dramatic payback. For example, it currently saves 25% of the heating energy in several multi-residential complexes for the New York City Housing Authority ("NYCHA"), while achieving a rapid two-year payback (all without any problematic intrusion upon the tenants) – and has been so performing for over five years. Similarly, it is retrofitting a private multi-residential housing complex and is achieving energy reductions at rate of 25% at an approximate cost of 4¢/kWh -- while similarly achieving two-year paybacks.[4]

Anecdotal Marketing Is Too Slow. However, in each individual case, the energy-user must be educated as to the opportunity and the benefit to be achieved; and after reaching that milestone, that energy-user must then begin consideration of introducing a new comprehensive system retrofit – and, in so doing, incur substantial, immediate capital costs (to gain savings on energy usage). Such piecemeal marketing, one by one, does not a broad-scale EE transformation make.

Obversely, major cost-overhead occurrence to engage in major marketing efforts would dramatically diminish otherwise-compelling cost/benefit ratios.

Promoting Triad Alliance: i) Vendor; ii) LDC; and Energy-User. There are multiple prospective modes of alliance within such essential and poised triad. No one single part of such prospective triad – acting alone - can bring about sufficient response to the vital challenge of EE. Yet, acting in systemic team fashion, that task becomes straightforward and readily achievable – a salutary win/win/win result for that triad. In some helpful form or other, the LDC should subsidize the entree of the vendor and, in turn, promote and assist the take up by the energy-user of the new retrofit technologies.[5]

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[2] And, *a fortiori*, the cost savings percentage is much more in the case of retail price of energy – EE costs only 25% of energy used at the burner tip and at the light switch.

[3] Its headquarters and laboratories are located in Port Washington, New York. It has been in business for almost 20 years; and it has been inventing and producing wireless digital energy control systems throughout that time. Intech has developed energy-saving proposals for multi-residential complexes in Massachusetts, both public and private.

[4] These comments by Intech 21 relate to the current Docket. Such Docket, in turn, does not appear to focus upon the prospective advent of dynamic pricing and the utilization of smart interval meters. Intech is a low-cost pioneer in that realm and is achieving major successes in providing and installing smart/interval meters as part of energy control retrofitting. But again, that feature of Intech's capability is not forced upon herein.

[5] To accelerate such introduction in Massachusetts a number of approaches can be considered: for example -- the LDCs could take on the broad marketing burden and related costs of convincing the energy-user of the

Need for Acceleration via Successful Triad Alliances. In time, energy efficiency will become the norm in Massachusetts (and beyond). In time, small inventor/vendors (such as Intech) will penetrate the marketplace. But – absent some systematized acceleration modality - it would take a decade i) for long-standing wasteful energy-usage practices to change substantially, ii) for retrofits to be introduced piecemeal and to demonstrate major cost/benefit value and iii) for word of mouth to reach the broad marketplace. Then iv), energy users must commit to step up to a capital retrofit of its complex energy system (using new technology it does not fully understand).[6]

Promoting New Public Ethos and Entrée of New Vendors with New Systems. The major marketing hurdle for inventor/vendors (such as Intech) is energy-user inertia (read: somnolence). Energy-users have enjoyed a 'golden era' whereby energy costs were cheap and energy was plentiful. All of that is poised for change; but first-rate leadership is required to show and mandate meaningful reflexive responses to such change opportunity. Moreover, as it is an expensive commitment to retrofit an energy system (that – in the mind of the energy-user - is functioning as designed), the subsidy must be meaningful.[7]

Notably, the prospective retrofit technology will be a digital override of an obsolete analogue system -- and energy-users have done well understanding neither.

The program must overcome energy-users inertia and wasteful habits of long standing. An owner of a typical private multi-residential housing complex tends to be reluctant to make capital investment anew when its current building investment is profitable already; and, in turn, even less so, when a building is not profitable. The marketplace has long-accorded a ready opportunity to stick with a classic, simple algorithm: simply raise rents, as costs of energy increase. Moreover, electricity costs are borne very often by the tenants.

Yet an Intech retrofit typically provides an annual dividend of 50% on such capital reinvestment – with its rapid 2-year payback; and hence, at some point, marketing should become self-sustaining. But not so now.

Differing Energy-Users with Differing Motivations and Resources. Useful distinctions can be compared as between public housing complexes (on one hand) and

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economic opportunity to be exploited; -- or they could simply subsidize the retrofits (much as the LDCs subsidize some (albeit limited) EE utilizing the "System Benefit Charge" established pursuant to the Electricity Industry Reconstruction Act of 1997, G.L. c. 25, Sec. 19; -- or they could provide working capital for vendors such as Intech at subsidized rates of interest; -- or they could finance the purchase of the new equipment and structure credits by reason of energy saved. Any of these examples could be put in place efficiently by the LDC; but it would be costly, and, in turn, it would result in a significant reduction of LDC sales and revenues. Serious thought and planning is mandated – so as to incent the LDCs to such tasks.

[6] In the meanwhile, the cost of energy will have continued to increase – in large measure because energy is used wastefully and the demand for energy will not have been abated by EE.

[7] As is said: an offer must be made to the energy-users that they cannot refuse.

private multi-residential complexes (on the other hand). The motivations and resources differ between these two.

Pubic housing administrators tend to be both sensitive and savvy as to energy saving opportunities that are available from retrofitting their notably-inefficient heating systems. These administrators have little or no ability to raise rents (while extant public housing subsidies steadily stall or decline). Public housing is chronically caught in the vice of increasing costs and decreasing resources. To achieve their mandate, they must stretch to find modes and means to reduce energy consumption; yet they have no ready means to raise the capital necessary for retrofits. Conversely, in the private multi-residential markets, the owners (despite having the necessary capital resources) are inclined to postpone confronting their own obsolete wastefulness and steady energy cost increases -- simply by resort to raising the rents to tenants (or transferring these rising cost to tenants).

Such marketing entrée conundrum can be readily overtaken – in both scenarios - by proactive promotions and financial assistance by the LDC; and once so accelerated, such win/win opportunities should begin to take on its own momentum. Clearly, some pump priming is necessary. And the primer of the pump should be incented to take on that role.

Major Moment, Major Change -- Required to be Led by DPU. We are all facing a pivot point in the realm of energy and related energy policy. This moment is driven by the sudden and permanent increases in the price of all energy (principally for liquid fossil energy), coupled with increasing scarcity of cheaply-produced energy.[8]

We propose that the Mass. DPU adopt a dramatically proactive posture toward EE.

The Department had been the consummate regulator of both electric and gas LDCs throughout most the last century. At the very end, in 1997, Massachusetts (along with many states) adopted a new ethos of utility deregulation; which, in turn, was designed to promote competition (especially in wholesale energy production). Accordingly, the respective roles of both the LDCs and the DPU became diminished somewhat. Yet, a new challenge faces both -- as the nature of energy supply and the cost thereof enter a wholly new and problematic era. The advent of price increases for basic energy and (other new mandates), together with the opportunity to recapture most of the energy wasted (via energy efficiency), compel the DPU to step forward and look anew at the pivotal and strategic role of the LDC -- as being the clear, best actor to promote dramatic new and sustained EE.

Vital New Role for LDCs. Moreover, the only serious opportunity for the next two decades to achieve serious EE is via the LDCs – if at all. The one other best opportunity is by way of stronger national CAFE mandates for automobile mileage; but every evidence shows that Congress will proceed at 'deliberate speed' in pursuing this opportunity. And existing automobiles cannot be retrofitted -- as can major buildings.[9]

[8] And, in addition to the dramatic increase in price, there are other compelling reasons that prompt a major shift in the policy infrastructure affecting energy (for example, environmental).

[9] At the national level there is much attention being given to the hope for alternative and renewable energy. Although there is prospectively strong benefit in these alternatives; yet, at best, only a fraction of our energy

Notably, despite the initial diminution of the role of the LDCs (caused by deregulation), the LDCs continue to hold an extraordinarily close working relationship with energy-users; and, as such, are in a unique strategic position to promote energy efficiency. But there is the seeming dilemma. LDCs – as private enterprises - must raise their capital in the private securities market. These investors (stockholders and lenders) - hitherto - had only been repaid for their investment by way of dividends and repayments derived from sales revenues. Hereafter, new rate structures (and consequent revenues) must accord comparable return when the LDCs are able to *save* energy -- as well as *sell* energy. To that end, both the DPU and the LDCs must become creative and broad-spirited -- establishing new rational/economic modes and means whereby the LDC will be keenly and successfully incented to bring about critical advances in EE to its franchise areas. And, in logical and rational consequence, the LDC must earn income for its stockholders by promoting EE, just as it does in promoting and making energy sales.

New Regulatory Infrastructure to Cope with Shifting Tides of Energy Supply and Pricing. A wholly new regulatory dynamic is at hand. This major, permanent change in energy pricing mandates major change in energy policy regulation. This next century will be the century where energy costs increase steadily; while the last century saw the opposite. Most energy supply is declining in locations favorable to the U.S.; and access to the remaining supply is growing more expensive and problematical. And, for the next few decades, most energy will be consumed by way of an energy infrastructure that had been designed for an era of cheap energy. In consequence, most energy had been wasted – and is still being wasted, needlessly. Yet, this same obsolete, misfitting energy infrastructure can be retrofitted economically and handily -- to eliminate most of that wastage. New technologies have been invented (upon the advent of the digital age and the age of wireless communication); and this technology can and must be used to reduce energy wastage and achieve strong, permanent EE.

New Challenge; New Breed, with New Technology. A new breed of inventors stands ready to achieve major EE (in the order of 25%) -- with dramatic payback periods (in the order of two years). Nevertheless, in their role as vendors, these inventors face an energy-using public that is accustomed to trusting to slumbering serendipity -- as they use energy freely and wastefully. Energy-users feel no sense of crisis – feel no impetus in moving toward EE. Moreover, the strategically positioned LDCs are put at disincentive – in that promoting of EE will reduce sales -- and reducing sales will reduce revenues. So a major regulatory sea change is necessary; and it must be led by both the DPU -- and the LDCs it regulates. EE must be made to start soon and to accelerate in a sustained fashion.

Price of Energy. As a matter of course, there must be a clear and present need for a revolutionary jump-shift in utility rate structure. That need is here; and it can be clearly shown in the exponential increases in the price of basic energy across the board --and the general knowledge that most energy is wasted (needlessly). Upon the advent of deregulation, press accounts were describing decreases in the wholesale price of energy; for example, wholesale prices of electricity were posited at well below 5¢; but the NE ISO last year

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will be derived from these resources, and more critically, there will be many decades before such alternatives will achieve any sort of full-scale production. Conversely, EE can and should occur immediately.

posited typical wholesale costs at approximately 9¢/kWh. And coupled with the NE ISO posit of approximately 7¢/kWh for LDC distribution costs, the retail price of electricity as of last year was approximately 16¢/kWh – and since last year there has been another major jump shift in the cost of fossil fuel.[10]

In the case of electricity, we are looking at a retail cost to the energy-user of 16¢/kWh; while, in contrast, the cost of achieving kWh saved ('negawatts') by Intech average is merely 4¢/kWh. A clear and present major differential – and done simply to eliminate wastage.

The DPU has much experience in assessing the likely future cost of energy; and likewise the LDCs. Throughout the last century, the overall cost of energy declined.[11] But over the last decade, especially the last few years, we have seen a dramatic rise in the cost of fossil fuel, which is the basic cost element of the value being marketed by the LDCs. In recent years, the LDCs, which now must serve as common carriers of energy for their customers, are being forced into the position of having to impose higher and higher prices onto their own franchise customers; yet these same LDCs cannot affect the basic price of fossil fuel – unless they take up the cause of EE to cause reduction in energy demand (and many other LDCs do likewise). Notably, the cost of a barrel of oil has risen from below $30 to over $70 in but a few years.[12]

EE can and should achieve major reduction in energy usage. Notably, Intech is already saving 25% of heating energy used by the NYCHA, and, similarly, Intech is saving 25% of electricity (following retrofits).

Leadership Prospects: National versus Local. Nationally, there is less than a consensus as to what extent EE should be prioritized. But, even if there was a consensus - at the national level - on advancing and accelerating EE for electricity and gas, the regulators who can influence and properly incent LDCs are state regulators. Select states will have to take the lead and show the way. Massachusetts is a natural leader for this task. As noted in the December 2006 filing by the Massachusetts Division of Energy Resources (in DPU No. 06-113), the moment is ripe; and some states have begun to address this same subject.[13] Here

[10] These cost/kWh figures, for average wholesale and retail electricity prices in New England, were taken, respectively, from the New England ISO *Electricity Cost White Paper* of June 2006. In that White Paper a number of cost ingredients were accumulated. Notably, on page 11, in Table 3, the projected retail costs for 2006 (including transmission) is posited at 15.6¢/kWh (which is rounded for simplicity herein to 16¢/kWh). Moreover, the retail costs exceed 16¢/kWh in succeeding years (assuming typical price increases for fossil fuel, which have since been rendered obsolete by jump-shifts in fossil fuel prices). Similarly, the same White Paper, same table, disaggregates the wholesale and distribution cost projections per kWh for 2006 and beyond, starting at 9¢ and 7¢, respectively.

[11] The latest breakthrough occurred when the efficiency of gas turbine combined-cycle generators increased dramatically (coincident with the advent of deregulation).

[12] Moreover, there are several theories afoot that predict the imminent advent of 'Peak Oil.' Regardless, the consumption of oil has vastly exceeded the discovery of oil for several decades.

[13] See pp. 8 to 10 thereof.

in Massachusetts – in this Docket – a clear case can be made to show that 'negawatts' and 'nega-BTUs' can be procured by LDCs for the benefit of the respective energy-using-retrofitting customers at costs clearly and dramatically below wholesale costs for new supplies.[14]

It can be shown that the cost of energy (as sold by public utilities) has reached a point at which there is dramatically clear opportunity to achieve major energy savings by way of EE (in the order of 25%) -- at costs that are more than 50% below the wholesale price of energy (and at 25% the retail costs of electricity and gas).[15] These savings are permanent; and moreover, the savings-rate increase, *per force*, as the cost of fossil fuel increases.

If an energy-user will allow its heating system to be retrofitted (as in the case of the NYCHA with the Intech System) and achieves a payback of such retrofitting costs in two years, that particular energy-user achieves an annual dividend on that investment of 50%! This is a major bonus dividend – paid annually. And even if the payback is – only - over three years, the resultant ROI is over 30%. EE vendors can readily achieve these ROIs.

Our leadership in Massachusetts should see this major economic moment and seize this opportunity. It will not happen without leadership.

Major Technological Advances – Especially in Digital and Wireless Products. The digital era is here; and digital measurements and commands can be communicated wirelessly. Wireless installation is quick and non-intrusive; and most critically, it is economical. Low cost for installation and operation means strong and prompt payback.

The Intech System was designed to be economical when oil was below $30/Bbl. Now oil is over $70/Bbl. Electricity and gas rates are climbing in proportion to the rise in basic energy supply cost to gas and electric LDCs. (Again, Intech is achieving payback within two years).

Role of LDCs. The LDC can and must play an increasing and permanently strategic role. It knows energy; and it already knows much about its customers' energy usage. Conversely, the energy-users know their LDCs and trust in their integrity, expertise and sense of responsibility. Such LDCs ought to be able to convince many major energy-users, especially in multi-residential housing complexes, to commit to pilot programs in EE by introducing new wireless digital systems. And once the pilot program has proven out, the energy-user can be more readily convinced to retrofit its entire system.

Now that the LDCs are mandated to serve as common carriers (under deregulation), they can now best apply their wealth of expertise principally to the benefit of their customers. And, as LDCs customize the capability of their customers as to the use of energy and their exploitation of EE, more expertise will be gained. The LDC should be promoted to the full

[14] Measured metrics (displayed graphically) will dramatically show cost of energy savings at more than 50% of wholesale costs and at 25% of retail costs of energy. Intech is prepared to appear as a witness to tender such vivid graphic evidence.

[15] See Footnote 9.

role of allied energy-agent of their customers. By helping its individual customers to save on energy use, an LDC indirectly helps of its overall customers be able to gain access to cheaper energy -- because the overall demand for energy will abate by reason of broad-based expansion and exploitation of EE.

Traditional DPU Regulation. When serving in the role as allied energy-agent of the energy-user, both the LDCs and the energy-users would be comforted by having a traditional process of accountability be performed by the DPU. Programs can be proposed, approved, reviewed and revised, etc., at the DPU. The DPU, in turn, would accord the LDC a fair profit for serving as agent to all aspects of the energy-users needs: both distribution of energy as a common carrier, and as promoter of cost-beneficial EE. The energy-user, in turn, is comforted the knowledge that this allied energy-agent is being regularly audited by the traditional regulatory agency.

Knowledge gained as to EE can be readily disseminated so as to accelerate such exploitation – on and on. Wisdom advanced Massachusetts can be replicated by other states, and vice versa.

Conclusion. There is much work to do to plumb the best programs for subsidizing EE. These programs must be comfortable to the LDCs, to the vendors, and to the energy-users. In the case of the latter, the subsidy must be enough to accelerate their pursuit of EE. Conversely, monies expended by the LDC to subsidize and/or promote EE should be credited to their rate base, provided that the cost/benefit is clearly superior. And the experience of Intech is that the costs of EE are significantly below wholesale costs of energy -- and, *a fortiori*, are startlingly below the retail costs of energy to the energy users.

Accordingly the Department is encouraged to initiate this investigation and to seek – promptly - to establish pilot programs that can demonstrate such major savings and such major reduction in energy consumption.

Yours sincerely,

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