

CITY COUNCIL
CITY OF NEW YORK

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TRANSCRIPT OF THE MINUTES

of the

COMMITTEE ON ENVIRONMENTAL PROTECTION

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June 20, 2011
Start: 1:28 pm
Recess: 4:05 pm

HELD AT: Council Chambers
City Hall

B E F O R E:
JAMES F. GENNARO
Chairperson

COUNCIL MEMBERS:
Council Member Elizabeth S. Crowley
Council Member G. Oliver Koppell
Council Member Brad S. Lander
Council Member Stephen T. Levin
Council Member Peter F. Vallone Jr.

A P P E A R A N C E S [CONTINUED]

James F. Gennaro
Opening Statement
Chairperson
Committee on Environmental Protection

Samara Swanston
MS. SWANSTON:
Committee on Environmental Protection

Anthony J. Fiore
Chief of Staff to
Deputy Commissioner for Operations
New York City Department of Environmental Protection

James Roberts, P.E.
Deputy Commissioner
Water and Sewer Operations
New York City Department of Environmental Protection

Sergeant at Arms
Committee on Environmental Protection

Bill Murray
Staff Member
James F. Gennaro

Frank Zammataro
President and Founder
Rentricity, Inc.

Josh Canagy
Director
Business Development
Lucid Energy Technologies

Dan Avery
Policy Analyst
Committee on Environmental Protection

Ronald Smith
Co-Founder and Chief Executive Officer
Verdant Power

A P P E A R A N C E S [CONTINUED]

David A. Torrey
Chief Technical Officer
Advanced Energy Conversion

A. Weisman
Concerning Mr. Softy law
Resident of the Bronx

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CHAIRPERSON GENNARO: Ready to go?

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SERGEANT AT ARMS: Quiet please.

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5

CHAIRPERSON GENNARO: I'm dabbing my artificial tears here. They're not my tears, they're these tears. Okay. Thank you for coming

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7

and good afternoon. I'm Councilman Jim Gennaro,

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Chair of the Committee on Environmental

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Protection. Today the Committee will hear

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testimony on Intro 534, a Local Law calling for an

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assessment of New York City's hydropower

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production potential and the implementation of

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several hydropower pilots.

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And just to back up a little bit in

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time we had, some of you might have been here for

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the hearing, I guess back in January that we had

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when we talked about, you know, the Bloomberg

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Administration's good efforts regarding hydro.

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There were a couple of projects that they were

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thinking about that they were trying to move

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forward. We think that's really good. And we

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also have DEP's, where is that document, Bill,

23

it's like a DEP Strategic Initiative that talked

24

about hydro; we thought this was all really

25

terrific. And that led us to the hearing that we

1
2 had in January. And since then we've put together
3 Intro 534. And that's what we're here to talk
4 about today.

5 So that's some of the history
6 behind what brings us here today. I'll continue
7 with my statement.

8 New York State ranks third in
9 hydropower producing states, according to the
10 Energy Information Administration and it, meaning
11 New York State in its hydroelectric power
12 generation is the highest of any state east of the
13 Rockies. But by far the vast majority of
14 hydropower comes from the Niagara River Power
15 Project.

16 Okay, let's skip over some of this.
17 New York City has yet to fully utilize the
18 hydropower generation potential that exists as a
19 result of City-owned dams on its upstate
20 reservoirs, streams and rivers. But as I
21 mentioned much of that is in the work that's to
22 the Bloomberg Administration's and to DEP's
23 credit. And also worth talking about today a
24 little bit, I'm kind of paraphrasing; we believe
25 that there are opportunities downstate in the 14

1
2 City-owned sewage treatment plants. We have
3 people from the industry, many of whom were here
4 in January, that will, you know, talk about that.
5 And so, you know, it seems that there are very
6 traditional sources of hydro that we can certainly
7 look to but other areas of, you know,
8 nontraditional hydro that perhaps we can reap
9 great, you know, benefit from.

10 New York City manages the water
11 supply that provides more than a billion gallons a
12 day of water to residents in New York City and
13 other nearby areas. The water is delivered almost
14 entirely by gravity. The New York City watershed
15 includes 19 reservoirs and 3 lakes along with
16 7,000 miles of water mains, tunnels and aqueducts
17 which deliver water to City residents and
18 businesses. The water utility infrastructure also
19 includes 7,400 miles of sewer lines which take
20 waste water to the City's 14 downstate sewage
21 treatment plants.

22 Intro 534 would require the City to
23 assess the City's water supply and waster water
24 treatment systems and the bodies of water that are
25 within the City's jurisdiction to determine the

1
2 potential of these systems and bodies of water to
3 be used to generate power. Simple enough. This
4 assessment will include the means for transmitting
5 the electricity generated, the need to construct
6 and operate generation-related infrastructure,
7 grid connection issues, generation system
8 installation and maintenance costs and the
9 availability of Federal and State funds for
10 planning or installing an electrical generation
11 system.

12 In addition to an assessment of
13 suitable hydropower technologies for the
14 Department's water and wastewater systems, the
15 bill would also require that the Department
16 conduct a technological review of so-called in-
17 conduit and so-called free flow hydropower
18 technologies through the implementation of no less
19 than three demonstration projects. The pilot
20 demonstration projects would assess the costs and
21 benefits associated with various in-conduit and
22 free-flow hydropower generation technologies.

23 So it's kind of like two levels.
24 We have sort of the paper assessment and the sort
25 of like, you know, the project-based assessment by

1
2 which we can, you know, really get our hands
3 around which of these technologies may provide
4 great merit for the system.

5 Finally upon completion of the
6 assessment the Department would only be required
7 to implement hydropower projects for electricity
8 generation at sites as the assessment determines
9 have a cost benefit ratio of 0.75 or better. US
10 Secretary of Energy Chu noted last year that
11 "there is no one solution to the energy crisis but
12 hydropower is clearly part of the solution and
13 represents a major opportunity to create clean,
14 green energy jobs. Investing in our existing
15 hydropower structure will strengthen our economy,
16 reduce pollution and help us towards energy
17 independence". In support of his commitment in
18 April 2011 the Department of Energy announced \$26
19 million of funding to advance hydropower including
20 innovative technologies. It seems that the
21 Federal government has a belief in these
22 technologies and we certainly should do everything
23 that we can to see how they can benefit us here in
24 New York City.

25 Only by using all of the renewable

1
2 energy resources at our disposal can we expect to
3 come into compliance with the Clean Air Act
4 standards for criteria balloons [phonetic] in New
5 York City and demonstrate the kind of leadership
6 that made New York City great. How do you like
7 that? It's good to have a statement that has, you
8 know, verbiage like that. Let me say that again.
9 And demonstrate the kind of leadership that made
10 New York City great. You've got to love this
11 stuff.

12 And also, I will say, you know, not
13 only the Clean Air Act but the New York City
14 Climate Protection Act of 2007, a well-known, you
15 know, local law passed by this Council. It's
16 supported by the Administration. That's going to
17 reduce our greenhouse gas emissions by 30%. I
18 think that's even more relevant than even the
19 Clean Air Act. So this is how we get the 30%. I
20 mean it's, you know, in baby steps and this is how
21 we get here.

22 Where was I? Yes. That made New
23 York City great. Now we'll hear from the
24 Administration. But I will, let me just repeat
25 what I said earlier that it's been, you know,

1
2 really great to work with the Bloomberg
3 Administration. I don't think there's any, you
4 know, debate about the manner that Mayor Bloomberg
5 is the, you know, world leader in, you know, urban
6 environmental sustainability. I don't think
7 there's like, you know, any real debate about
8 that.

9 And it's been great to work with
10 the Mayor and the good people at DEP and the
11 Office of Long Term Planning and Sustainability,
12 you know, to map out a really green future for the
13 City. And this hearing and this bill come on the
14 heels of a great statement by DEP on their
15 commitment to hydro. In their document outlining
16 all of their initiatives and, you know, PlaNYC and
17 the other good things that have already been put
18 forward by the Administration with regard to hydro
19 and other kinds of clean energy.

20 Okay. And we're joined by Council
21 Member Koppell, Council Member Vallone, Council
22 Member Lander, Council Member Levin. I did see
23 Council Member Crowley. She has another
24 commitment but she will be here. And I'm grateful
25 for the opportunity to have this hearing and, you

1
2 know, talk about this exciting topic. And for our
3 first panel of witnesses we're going to be calling
4 up the good folks from DEP, Anthony Fiore from DEP
5 and Anthony Fiore again, he's a double slipper,
6 two slips. I like that. Redundancy, you know,
7 just to make sure we got that going. And where's
8 Jim Roberts?

9 [Pause]

10 CHAIRPERSON GENNARO: I was looking
11 for Jim Roberts' slip and here it is. He's on one
12 of Anthony's slips. So Anthony has got two slips
13 and Deputy Commissioner Roberts gets a mention on
14 Anthony's slip. Okay. You know, he's a humble
15 guy. I like that. He's a humble guy, an honest
16 guy, a great guy. But that's mean we're not going
17 to swear him in. We are. And so with that said,
18 this is what we always do in our Committee, the
19 Counsel will put the panel under oath and then we
20 can proceed with your good testimony.

21 MS. SAMARA SWANSTON: Please raise
22 your right hand. Do you swear or affirm to tell
23 the truth, the whole truth and nothing but the
24 truth today.

25 [No audible response]

2 CHAIRPERSON GENNARO: Thank you.

3 Well guys, great to see you. It was January when
4 we had folks in and we were glad to hear all the
5 good things that you are doing on hydro. And
6 we're here today to see if we can take it a step
7 forward. And we look forward to your good
8 testimony. With that, if you could just state
9 your names for the record and proceed with your
10 testimony.

11 MR. ANTHONY J. FIORE: Good
12 afternoon Chairman Gennaro and members. I'm
13 Anthony Fiore, Chief of Staff to the Deputy
14 Commissioner for Operations of the New York City
15 Department of Environmental Protection. In my
16 current role I am the lead staffer at DEP heading
17 up the feasibility and implementation of energy
18 projects associated with our facilities, both
19 within the City and upstate in our watershed.
20 With me is James Roberts, P.E., Deputy
21 Commissioner for Water and Sewer Operations for
22 DEP.

23 Thank you for the opportunity to
24 present testimony on Intro 534 regarding
25 hydroelectric power generation using DEP's water

1
2 supply and waste water treatment infrastructure.

3 As you are well aware, New York
4 City's water supply and system are the envy of the
5 world. New York City has been blessed with a
6 robust water supply and DEP, along with its
7 predecessors, have spent the better part of the
8 last 200 years building, improving and refining
9 that system with an eye towards both innovation
10 and longevity. One of the many blessings of our
11 system is that it is mostly gravity fed, which
12 greatly reduces our need for energy in the
13 delivery and distribution of our water. However,
14 during the treatment process, DEP expends massive
15 amounts of energy. As such, DEP has been a
16 pioneer in leveraging its assets to mitigate this
17 expenditure.

18 For example, since the inception of
19 wastewater treatment in the City DEP has captured
20 the gas produced in the anaerobic digestion
21 process and used it to fuel boilers, power
22 engines, and produce electricity. In addition, we
23 capture the heat produced from these operations
24 and use it for process and building heating and
25 cooling needs. DEP has been doing cogeneration

1
2 long before this term came into vogue.

3 In an effort not only to tighten
4 our own belts in this difficult economic climate,
5 but also to meet the Mayor's goal of reducing
6 greenhouse gases by 30% in the year 2017, DEP is
7 focused on developing new, viable sources of power
8 in an effort not only to reduce costs and
9 greenhouse gases in our operations but for all New
10 Yorkers where possible.

11 One such example is an innovative
12 project at the Newtown Creek Wastewater Treatment
13 Plant. We are partnering with National Grid to
14 process digester gas and inject it into the local
15 natural gas distribution system. The project will
16 supply enough energy to heat 2,500 homes and is
17 equivalent to taking almost 3,000 cars off the
18 road.

19 This project is the first of its
20 kind and will serve as a national and
21 international model for integrating renewable
22 energy in a dense urban environment. Moreover,
23 DEP is studying the implementation of new
24 cogeneration technologies at its North River and
25 Ward's Island wastewater treatment plants.

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2 At North River, the current engines
3 are 25 to 30 years old and in need of replacement.
4 Rather than just going to utility power, DEP is
5 evaluating a number of cogeneration technologies
6 to continue its tradition of supplying power and
7 heat from a process-inherent fuel source, digester
8 gas. At Wards Island heat is supplied to the
9 wastewater treatment plant and other municipal
10 customers from a State-run steam plant. Due to
11 downsizing by the State the steam plant is
12 shutting down.

13 In lieu of multiple fuel oil-fired
14 package boiler plants being built, DEP is
15 examining the feasibility of using its digester
16 gas, supplemented by natural gas, to power a
17 cogeneration facility that would serve the needs
18 of many if not all the island's residents. This
19 broad approach would reduce capital expenditures
20 by multiple agencies, and reduce air emissions as
21 well as truck traffic.

22 On the supply side, DEP is also
23 working with other City agencies to bring more
24 renewable energy into its portfolio. We are
25 looking to leverage our assets, namely landfills

1
2 and large roof spaces at wastewater treatment
3 plants, to site wind and solar installations.

4 As I mentioned, DEP's water supply
5 is an engineering marvel that conveys water over
6 125 miles, mostly by gravity, through some of the
7 largest aqueducts in the world and into a
8 distribution system with over 7,000 miles of pipe.
9 Because of this, the system attracts a great deal
10 of attention from both well-established and
11 emerging companies that wish to test their
12 theories and pilot their concepts on our system.

13 Due to the number of requests we
14 get both in-City and upstate, DEP must consider
15 several factors in determining whether or not to
16 pursue a particular project. First and foremost
17 among our considerations is whether or not a pilot
18 or program will endanger our core mission, which
19 is to provide a safe, reliable supply of drinking
20 water to approximately half the State's
21 population.

22 DEP has been evaluating its in-City
23 assets. As early as 2004 DEP commissioned a study
24 to evaluate the hydroelectric potential in its
25 wastewater system at North River Waste Water

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2 Treatment Plant. That study showed there was a
3 potential to produce 200 kilowatts, approximately
4 3% of the plant's demand, that would have a
5 payback period of 27 years. This did not take
6 account of operations and maintenance costs.

7 More recent evaluations conducted
8 in 2010 indicate similar conditions. Our
9 analysis, along with information from the Idaho
10 National Laboratory, which performs work on behalf
11 of the Department of Energy, does not support the
12 conclusion referenced in the introductory language
13 of this proposed bill indicating 40 megawatts of
14 potential in the wastewater treatment plants
15 alone.

16 However, DEP is not relying on
17 technology alone to reduce its energy demands. We
18 are undertaking a number of operations and
19 maintenance changes to increase our energy
20 efficiency. Some examples include raising the
21 level in our wet wells to reduce pumping needs,
22 turning down blowers at night to more adequately
23 match aeration demands to flows, and instituting
24 an inspection and repair program to reduce
25 recycled flows.

1
2 As many here are aware, our
3 infrastructure is generally older than some cities
4 around the country. Approximately two-thirds of
5 our water distribution piping was installed prior
6 to 1970. Design of a system's components, like
7 valves, pipe, and other attributes by necessity
8 takes all of the function into account.

9 Adding or retrofitting elements to
10 our existing in-City infrastructure would
11 unnecessarily encumber our system. Decision-
12 making on either a planned or emergency basis
13 would be forced to take these retrofits into
14 account, thereby decreasing our flexibility and
15 increasing our exposure and liability. Any delay
16 in making system adjustments, responding to water
17 main breaks or additional vulnerability, no matter
18 how incremental, is unacceptable.

19 We work hard to carefully limit the
20 number of points of failure in our systems,
21 especially in the size of the conduits that appear
22 to be of greatest interest with regard to these
23 technologies. These strategies serve us well and
24 create much of the reliability and flexibility
25 that allow us to provide some of the highest

2 quality water in the world to the greatest city in
3 the world. The proposed bill would call for
4 installations that encumber and create additional
5 vulnerability to our most critical assets.

6 Our system, in fact, is already
7 designed to use energy for other functions. For
8 example, we utilize the energy created by the
9 system to operate valves, hydraulic pump stations,
10 educators, and piston actuators. These are things
11 the system was designed to do. Further,
12 especially in Queens, Brooklyn and Staten Island,
13 we rely on the available energy or pressure, to
14 move the water efficiently to the extremities of
15 its reaches.

16 In fact, in some instances pumping
17 stations have to draw water from upstream
18 transmission mains to supply the necessary
19 capacity to downstream sections of the system.
20 Any loss of head from the installation of turbines
21 could in some instances result in insufficient
22 firefighting capacities, posing serious public
23 safety concerns.

24 While DEP's day-to-day
25 effectiveness might make it seem otherwise,

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2 delivering water is a complicated process within
3 our distribution network that balances pressures
4 with volumes and water quality with travel time.
5 At a time when we are concerning ourselves with
6 these balances and compliance with new
7 regulations, like monitoring for levels of DBPs,
8 or Disinfection By-Products, it seems imprudent to
9 inject yet another variable, least of all a
10 variable we have no experience with and do not
11 have a clear appreciation for what impacts or
12 concerns it might create.

13 It is also important to note that
14 our underground infrastructure is housed in
15 facilities that are very vulnerable to flooding.
16 Power generation, by definition, co-mingles the
17 generation of electrical power with potentially
18 flooded chambers. Worker safety would be a
19 serious concern and we risk creating an
20 environment wherein our field personnel would need
21 special training in order to maintain and operate
22 our infrastructure.

23 Adding these elements to our
24 infrastructure will create additional maintenance
25 and repair concerns. Envision a major trunk main

1
2 being forced out of service, potentially affecting
3 our distribution system, because of the failure of
4 these systems, for example, unavailability of
5 replacement elements. We know little about the
6 maintenance and repair requirements and burdens of
7 this emerging technology. It seems imprudent to
8 experiment with these systems for marginal power
9 benefit with real potential consequence to our
10 service reliability.

11 Finally, you would be introducing
12 additional infrastructure of a sizeable nature
13 into an already congested and overdeveloped
14 underground. One of the biggest challenges we and
15 all utilities currently face is the limited
16 available space for co-mingling our necessary
17 infrastructure. It does not seem prudent to
18 encroach upon and deplete this valuable
19 underground real estate for unproven benefit.

20 Further, you create additional
21 manholes, chambers, etcetera that become permanent
22 maintenance responsibilities and liabilities. DEP
23 believes the risks to the security and reliability
24 of the distribution system overwhelm the possible
25 benefits from generation of power at in-City

1
2 distribution facilities.

3 DEP has been harnessing the energy
4 associated with its gravity-fed water supply
5 system for some time. There are five
6 hydroelectric plants located along the length of
7 the system from the source waters in the Catskill
8 Mountains to our terminal reservoirs just outside
9 the City limits. These five plants have a
10 combined capacity of over 70 megawatts.

11 In addition, for the past two years
12 DEP has been studying in depth the viability of
13 developing four additional hydroelectric
14 facilities on some of the upstate reservoirs.
15 These current installations are very much akin to
16 those of Boulder, Colorado referenced in the
17 introductory language of this proposed bill.
18 Unlike Boulder's system, which has very high head,
19 up to 800 feet, our system has a very gradual
20 slope over many miles thereby reducing the head
21 difference and power potential.

22 DEP has been more flexible and will
23 continue to be when it comes to the potential for
24 energy to be created on the wastewater side of our
25 operations. However, thus far we have seen little

1
2 reason to be hopeful that a significant source of
3 energy could be generated. Consultant work to
4 date suggests that even a large facility like
5 Wards Island could only generate 220 kilowatts,
6 the equivalent of 2,000 100-watt bulbs burning for
7 an hour and would require the installation of 17
8 turbines.

9 That facility in particular has a
10 demand of 15 megawatts. A 1% energy return is not
11 promising. However, the installation and
12 operation of energy generation facilities at
13 wastewater treatment plants does not appear to
14 pose insurmountable operation and maintenance
15 obstacles.

16 Based on our discussions with
17 industry to date, DEP has not identified credible
18 pilot projects for the generation of energy from
19 in-City water and wastewater operations. Despite
20 these not so promising results and safety concerns
21 related to installing turbines in the distribution
22 system, DEP is committed to its culture of
23 environmental stewardship by employing proven
24 methods and exploring novel ideas for reducing its
25 energy demands, power costs, and carbon footprint.

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2 In fact, as a result of a hearing
3 you, Chairman Gennaro, held this past February,
4 DEP is working with the Department of Energy
5 through the Idaho National Laboratory to perform
6 an in-conduit assessment of the gross hydropower
7 potential in both the water supply and wastewater
8 systems. In addition, we continue to be willing
9 to collaborate with private developers in the hope
10 of understanding where this emerging technology
11 can serve our needs.

12 Based on the extensive work we have
13 done over the past seven years and which we will
14 continue to do, the infancy of this emerging
15 technology, current market conditions, the risks
16 to the water supply system, the small return in
17 terms of energy generation and likely operation
18 and maintenance challenges that would drive up
19 costs, we believe that Intro 534 is premature and
20 would only limit the flexibility necessary to our
21 continuing work in this area.

22 For these reasons, DEP does not
23 support Intro 534, particularly those provisions
24 that require DEP to undertake three demonstration
25 projects and to implement them if the assessment

determines a cost benefit ratio of 0.75 or better.

That provision essentially requires DEP to use public funding for three private research and development projects regardless of their merits. Moreover, it requires DEP to implement hydropower projects based on a cost-benefit analysis without defining that term nor making clear that cost-benefit ratios and payback calculations are just one of the tools used to evaluate the overall merits of a project.

Additionally, the bill as drafted proposes to amend Section 24-364 of the Administrative Code. The State Legislature has included that section in its reservation of rights in Section 1-111 of the Administrative Code. Section 24-364 can only be amended by the State Legislature, not the City Council.

Thank you again for the opportunity to testify. I am glad to answer any questions.

CHAIRPERSON GENNARO: Thank you. Let me just mention that we're joined by Council Member Crowley, Council Member Levin, happy to have them both with us. Also, Sergeant, there was something about the temperature in here; it's a

1
2 little cold in here, right? Who's cold? I'm
3 cold. Anybody else cold? It's a little cold in
4 here. No? Okay. Yeah, okay.

5 [Off mic discussion]

6 CHAIRPERSON GENNARO: We have one,
7 yes. If we could just see if we could change the
8 thermostat a little bit Sergeant. Can you do
9 that? That's great.

10 Well I'm kind of in a fun mood
11 today. Let me just go through some of like the
12 highlight reel of how evil it is what we're doing
13 here. Hang on, hang on. I should have used a
14 certain color pen for that. Okay.

15 So we're... I just really have to do
16 this. And so we're, this is a thing just to get
17 people to test their theories, pilot their
18 concepts on our systems, what we're doing would
19 also "would endanger DEP's core mission". It
20 would unnecessarily encumber DEP's system,
21 decrease the flexibility, increase the exposure
22 and liability. It's unacceptable. The proposed
23 bill would encumber and create additional
24 vulnerability to our most critical assets.

25 It would pose serious public safety

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2 concerns. It is imprudent to inject yet another
3 variable. We don't have a clear appreciate of
4 what impacts or concerns it might create. Worker
5 safety would be a serious concern. It would
6 create additional maintenance and repair concerns.
7 Imprudent to experiment. Marginal power benefit.
8 Potential consequences to service reliability.
9 Rather than saying it's imprudent you say it does
10 not seem prudent. It would encroach and deplete
11 valuable underground real estate for unproven
12 benefit. The risk of security and reliability.

13 I think you get the idea. I mean
14 this is just, but yet, but yet, at the end of the
15 testimony you talk about how you're working to do
16 some kind of assessment with the Idaho National
17 Laboratory. And you're willing to work with
18 people who have this kind of technology. And so
19 you said all these things about how evil it is
20 like what we're doing but yet you're doing it now.

21 So all we're really seeking is to
22 figure out a way where what you said in your
23 document, before you---what's the name of the
24 document again, it's the, you know, DEP Strategic
25 Initiatives, like you said that in your document.

1
2 So that's what you guys are saying. That's what
3 the Office of Long Term Planning and
4 Sustainability is saying.

5 That's what we talked about in what
6 I thought was January but you said the hearing was
7 in February. I'll take your word for it. And
8 that's what you're actually doing with the Idaho
9 National Laboratory thanks to me. And we're just
10 figuring out a way that we can codify this in, you
11 know, some sort of bill that will, you know,
12 outlive the Bloomberg Administration and outlive
13 this Council.

14 And what we're doing here is like
15 describe--I mean this is--it's like you're talking
16 about Al Qaeda. This is like why we have a
17 watershed like, you know, police force. So this
18 is clearly something that, you know,
19 notwithstanding the fact that you made a statement
20 to do it as an agency and this. And the Bloomberg
21 Administration through the Office of Long Term
22 Planning wants to do, you just don't want to do it
23 in a way that--like we're telling you to do it.

24 And so, you know, we're not saying
25 that this is the final bill. But this is, you

1
2 know, certainly important that we do do it. And
3 there must be some words that we can put on a
4 piece of paper that will, you know, seek to codify
5 what you say that you want to do and what you are
6 actually doing. And so I just couldn't help but,
7 you know, kind of point out this robust rhetoric
8 that you used to denigrate what we're trying to do
9 here.

10 So why don't we just like start all
11 over again. And, you know, figure out how we can
12 craft a bill in such a way so that in the next
13 City Council and in the next Administration, you
14 know, we don't have like the good efforts that
15 this green Administration and this green Council
16 regarding hydro and other good things, you know,
17 falls apart because like the next Administration
18 like isn't into it.

19 And so why don't we like start all
20 over again? And so what I kind of need to hear
21 and would be helpful which would be like along the
22 lines of the last paragraph. You indicate that
23 there's a potential legal issue with regard to a
24 section of the code that has been reserved by the
25 State Legislature. Now that is helpful. You

1
2 know. That's something that we can use and we can
3 try to figure out but, you know, we need to figure
4 out how we can put something on a piece of paper
5 that will have this hydro initiative sort of live,
6 that will take the work that you're doing with
7 Idaho and like other people and even the stuff
8 you've already done.

9 Like you quote a study from 2004
10 which is, you know, 7 years old and, you know, I
11 think technology has moved forward in the last 7
12 years. And then you talk about other kinds of
13 conversations you're having with the industry now.
14 Like I don't know who it is in the industry. And
15 there's nothing stopping you from, you know, were
16 this bill to be passed, to put all that
17 information and make that part of the assessment.
18 You're already doing it. And so, you know, we
19 need to take the stuff that you're doing, put it
20 on a piece of paper and like have the assessment.
21 And so I don't see just sort of like the, you
22 know, the huge disconnect.

23 The only disconnect that I can see
24 is, you know, you don't want us to tell you to do
25 it. And so you want to do it like at your own

1
2 pace and, you know, it would be great if that's
3 the way the world actually works but, you know,
4 when you're in an Administration like you have to
5 deal with the Council and we have the ability to
6 pass laws. And we could pass this bill like in
7 the next couple of weeks.

8 We could just go and do it. And I
9 don't think, you know, this Mayor and this green
10 Administration is, you know, they don't have like
11 a long history of, you know, vetoing green bills.
12 And I will point out that back in the first
13 Administration when the Mayor was a good
14 environmental mayor but hadn't, you know,
15 transcended to the size of being like, you know,
16 the world leader environmental mayor, we heard the
17 same arguments about the, you know, CO2 reduction
18 bill.

19 I had a bill to reduce, you know,
20 greenhouse gases by, you know, 20% and it was just
21 like I wanted to release like a plague on the
22 City. It was just like we can't do that, it's 20%
23 and you're crazy. It's nuts. Like the City will
24 shut down. It's just like, you know, we can't do
25 it. And then the Mayor, you know, road to

1
2 Damascus conversion and, you know, becomes the
3 greenest mayor on the planet. And then all of a
4 sudden like the 20%, you know, greenhouse
5 reduction bill that was on the table became a 30%
6 greenhouse reduction gas reduction bill, plus the
7 ability to, you know, do the emissions inventory
8 and the creation of the Office of Long Term
9 Planning and Sustainability like that one year
10 made a difference.

11 And so I'm not happy with this
12 testimony. I am happy that the hearing from
13 February was put to good use and you're working
14 with the Idaho National Laboratory. And I thank
15 Bill Murray from my staff who's got a friend who
16 works there or whatever, we were able to make that
17 connection but I'm not happy about the outright
18 denigration of what we're trying to put forward
19 when we're doing nothing more than trying to
20 figure out how we can put on a piece of paper that
21 the next Administration and the next Council will
22 live with. And we want to force them into being
23 as green as we are. So this testimony is just
24 like, you know, to use your words, not acceptable.

25 And so let me tell you something

1
2 that's going to be true a couple of months from
3 now that's not true right now. It's like we're
4 going to pass a hydro bill and that's going to
5 happen and we're going to do it with you or we're
6 going to do it without you. We'd much prefer
7 doing it with you. So let's get to work on
8 putting the bill together that we can all live
9 with 'cause sure as I'm sitting here, that is
10 going to happen.

11 And so if you want to respond to
12 that. Then so. I think I've absolutely reached
13 my caffeine curve for the day. And so I recommend
14 everyone having one of these. And so in any way
15 that you want to respond just to kind of get it
16 going.

17 [Pause]

18 CHAIRPERSON GENNARO: So what have
19 we got? So that's really my long question. It's
20 just like we are going to do a bill. And so we
21 want to work with you to do it, so how do we do
22 that?

23 MR. FIORE: Well what I'll respond
24 to is there's three different major components to
25 the system. Our upstate water supply, in-City

1
2 distribution and our wastewater treatment. And
3 the concerns that were listed in our testimony
4 really focus around the in-City distribution
5 component of the system. And those are serious
6 concerns that we hope are evaluated more deeply
7 before any legislation is put forward--

8 CHAIRPERSON GENNARO: [Interposing]

9 But that's the purpose of the legislation is to do
10 that evaluation. I'm not a master of debate or
11 any kind of polemics but you're kind of making my
12 point. But, you know, continue.

13 MR. FIORE: And where we talk about
14 we've been evaluating this for seven years. We
15 know technology changes. We're continuing to
16 evaluate that. As you know, working with Idaho
17 National Laboratory on the water supply side and
18 continuing to evaluate [mic cut out briefly]
19 implementation in the wastewater treatment side
20 and you ask who we are working with. Well many of
21 the people in this room today that we've been
22 working with.

23 CHAIRPERSON GENNARO: Yeah, but...

24 let me just go over the fact one more time that if
25 I were a mayor and I were running a city, I

1
2 wouldn't necessarily want the legislature to deal
3 with, I wouldn't want a city council, I kind of
4 wouldn't want that. You know because I would do
5 like what I wanted to do. And everyone would want
6 to do that.

7 So fortunately or unfortunately we
8 exist. And I, you know, made a declaration that I
9 clearly believe that this Council is going to do
10 this bill in some form. And so what I am asking
11 for and what I, you know, hope I can get in return
12 is a commitment from the Administration to figure
13 out a bill that would give us the ability to, you
14 know, speak to this emerging technology which I
15 should mention, one of the whole reasons why we
16 did our green tech bill a couple of years ago,
17 what it was, you know, we had, you know, people
18 with emerging technologies who were coming forward
19 to the City who either wanted to put these
20 technologies in the consumer market like, you
21 know, rooftop windmills or something like that or
22 whatever.

23 And like the City bureaucracy was
24 not able to figure out how to permit some of these
25 things so they could put these things on the roofs

1
2 or do whatever it is. And the green tech bill
3 spoke to that but it also spoke to those entities
4 that were, you know, bringing new technologies to
5 the City, so City government would have an
6 opportunity to have those things, you know...
7 properly evaluated by a panel of folks within the
8 City. And we would actually go out there looking
9 for these kinds of technology. So it's not--so
10 we've been down this road before.

11 It's all well and good that you're
12 working with folks on this but we here at the
13 Council, you know, feel a need to codify this so
14 this is going to be done in such a way that there
15 will be documentation that it has to be created
16 that, you know, people can see and challenge. And
17 so, you know, we don't doubt that you're trying to
18 do good things but, you know, like it or not this
19 is going to be done.

20 And it is going to be guided, you
21 know, by a bill that's ultimately going to come
22 through this Council. And so there really needs
23 to be some kind of dialog and colloquy, you know,
24 between us and you guys. And I think that is a
25 process that is going to result in a bill that is,

1
2 you know, better for you and better for the City
3 because we think we could, you know, come to a
4 bill that is better by, you know, having the full
5 cooperation of the Bloomberg Administration and
6 all the good people at DEP 'cause if we do it on
7 our own it's not going to be as good as that which
8 we could do together.

9 But we'll do it that way if we have
10 to. Like we feel strongly about this. And so
11 it's kind of up to you. So we work with you when
12 we get like a bill that's better for DEP and, you
13 know, therefore better for the City but, you know,
14 the bill's going to happen like no matter what.
15 And so I don't know as though we need to have more
16 out of this hearing than just a willingness to
17 have that conversation, have that process and get,
18 you know, an end-product bill.

19 And so that's like what is going to
20 happen with you or without you. That's just what
21 I really think is going to happen. I mean again
22 ultimately I don't speak for the Speaker. I don't
23 speak for the leadership of the Council. But it's
24 my understanding that that's where this is going
25 based on conversations with people who would know.

1
2 And so that's kind of where this is. And I think
3 I just helped you by telling you that.

4 And so there are other questions
5 but what I will do is I'll wait for that response
6 and then Council Member Koppell wants to jump in.
7 I don't know if we have a listing of people that
8 want to ask questions. I don't see one. And so
9 we'll have that response and then I'm going to
10 call on Oliver who has something to say.

11 MR. FIORE: I'll just say we look
12 forward to continuing the dialog with you as well.

13 CHAIRPERSON GENNARO: Thank you.
14 Thank you. And so I recognize Council Member
15 Koppell.

16 COUNCIL MEMBER KOPPELL: I mean I
17 don't want to repeat what you've already said but
18 it's very peculiar testimony because the testimony
19 itself if you analyze it, I think this is what the
20 Chairman is trying to say, actually says that
21 you're doing what you say you don't want to do.
22 Because it says you're evaluating the potential of
23 energy in the wastewater treatment plants.

24 It says you're evaluating the
25 potential of hydropower from upstate water

1
2 supplies. You have it on some of the facilities
3 now. I think you said five. And you're looking
4 at other ones and you're working with this outfit
5 in, what is it, Boulder. So actually you are
6 evaluating the potential of developing energy in
7 connection with your water projects even though
8 you protest that it's going to be dangerous to do
9 so.

10 So it just doesn't make any sense.
11 If you don't feel you'll have 3, you know, test
12 projects ready in 18 months, you certainly could
13 share that with the Committee and say well 18
14 months is too short a time to come up with 3 pilot
15 projects. But you're doing what the bill says you
16 should do and what the Chairman wants to do is
17 enshrine it in law so that the Department actually
18 is supported in what it's doing.

19 So I don't know if that requires a
20 response but I'm sort of mystified by the
21 testimony 'cause the testimony starts out by
22 saying you're doing all the things and then says
23 essentially what you're doing is very dangerous
24 [chuckling] which doesn't make any sense.

25 MR. FIORE: Again, jus to clarify,

1
2 three parts of our system and the assessments
3 we're doing are on the water supply side upstate
4 and our wastewater treatment side. We've also
5 done some assessments on the in-City distribution.
6 And what's listed in the testimony are the
7 concerns that have come out of that thus far. And
8 so that's what's really coming across there.

9 COUNCIL MEMBER KOPPELL: But I
10 don't see in the bill language a mandate that you
11 have to do these pilot projects on the in-City
12 distribution system. I don't think that's in the
13 bill. Is it? Do you see it there? The mandate
14 that you--

15 MS. FIORE: [Interposing] Yes,
16 that's how we read it.

17 COUNCIL MEMBER KOPPELL: You read
18 it that it mandates testing on the in-City
19 distribution system. I don't... well I don't see it
20 there but we'll look at it. I assume the staff
21 will look at it. I don't see that. I think
22 they're looking at the whole, all the different
23 parts of the system.

24 CHAIRPERSON GENNARO: And also if I
25 might, what we have is, you know, the first draft

1
2 of the bill. And so we have the, you know, we
3 have the clay on the wheel, on the potter's wheel,
4 and the whole idea is to, you know, make this clay
5 that's on the wheel into a pot, you know, a bill,
6 that is better than that which it is now. And
7 this is a process that we do for, you know, each
8 and every bill that we pass.

9 And when we do, thank you Oliver,
10 when we do bills cooperatively and we do bills,
11 you know, together that that's how we get the best
12 product. I don't run a water system, you know,
13 you do. And but yet our job is to not doubt the
14 kinds of discussions that you're having but, you
15 know, make a--it'll be a formal assessment that
16 people can see and people can challenge.

17 And I wouldn't want to do it if I
18 were you either, you know, but what can I tell
19 you? You know? This is something that I believe
20 is going to happen. And I don't think I'm wrong
21 but, you know, time will tell. But certainly
22 we're getting off to like a little bit of a, you
23 know, rock start and I got a little, you know,
24 ginned up by some of the language that was in the
25 statement. So you know how I can be sometimes.

1
2 You know. And so Jim definitely knows how I can
3 be, you know. Right. And so Jim is a great guy.
4 And hang on a second.

5 [Pause, off mic discussion]

6 COUNCIL MEMBER CROWLEY: Yeah.

7 CHAIRPERSON GENNARO: Okay. I'll
8 recognize Council Member Crowley and then I'll
9 come back to finish up.

10 COUNCIL MEMBER CROWLEY: Thank you
11 Mr. Chair. I have questions about where you
12 currently are generating electricity. Can you go
13 into detail more? Are you generating any from the
14 New Sound Creek Filtration Plant?

15 MR. FIORE: Currently we have
16 hydroelectric generation at our upstate water
17 supply facilities. There are five hydroelectric
18 facilities on that system as I mentioned earlier,
19 two of which we own and operate. That's at the
20 East Delaware Tunnel Outlet and the Never Sink
21 Tunnel Outlet up in Grahamsville in New York.
22 That's on water supply conduits that transfer
23 water from one reservoir to another. And at the
24 outlet of those conduits we have turbines there
25 that generate electricity.

2 In-City we also have engines at
3 several of our wastewater treatment plants that
4 use the digester gas as a fuel source. And those
5 engines either directly drive equipment or they
6 produce electricity to power the facility.

7 COUNCIL MEMBER CROWLEY: That's it.
8 I don't have any other questions.

9 CHAIRPERSON GENNARO: Thank you.
10 Thank you Council Member Crowley. Oh, I did make
11 a... part of your statement talks about other types
12 of things that we're doing, other types of things
13 that DEP is doing with regard to other assets, you
14 know, landfills, large roof spaces and that kind
15 of things to site wind and solar. If you could
16 just bring me up to date on what's going on with
17 regard to landfills for solar and wind.

18 I know a little bit about what
19 you're doing. I don't know as much as I would
20 like to know. And I just want to talk about
21 something else for a minute, you know, just like
22 real quickly. And so I'm just kind of, you know,
23 just cool things off a little bit. And so, hmm,
24 what is the current state of things with regard to
25 the Bloomberg Administration and DEP, you know,

1
2 siting these kinds of things at landfills? Like
3 how's that going to work?

4 MR. FIORE: So currently we're
5 conducting some feasibility studies to understand
6 both the best technology and the engineering
7 requirements associated with putting solar or
8 windmills on the landfills. And we're looking
9 across all of the City's landfills. The Fountain
10 Avenue--

11 CHAIRPERSON GENNARO: [Interposing]
12 Right.

13 MR. FIORE: --and Pennsylvania
14 Avenue, Freshkills, Brookfield, Edgemere. So I
15 think Mayor Bloomberg announced during Earth Day
16 about installing some of these green renewable
17 technologies at the landfills--

18 CHAIRPERSON GENNARO: [Interposing]
19 Right, yes, I remember. I was there at the speech
20 and everything but I just kind of got away from
21 me, some of the details, and I thought this was as
22 good a time as any to let you speak to that--

23 MR. FIORE: [Interposing] So, you
24 know, one of the things that the City has to
25 leverage is some open space--

2 CHAIRPERSON GENNARO: [Interposing]

3 Mm-hmm.

4 MR. FIORE: --and the largest open
5 space that we have is on these landfills. And we
6 see an opportunity to bring those landfills to
7 green fields, so to speak--

8 CHAIRPERSON GENNARO: [Interposing]

9 Mm-hmm.

10 MR. FIORE: --much quicker than
11 just through the end use plans themselves. So we
12 see both the solar and wind technology as an
13 interim process to bring those pieces of property
14 to be green fields and usable for public benefit
15 sooner than they would otherwise be able to do.

16 CHAIRPERSON GENNARO: Right. Oh,
17 you mean because if we put the solar and wind like
18 that can happen earlier than they can be made into
19 like recreational areas because there's less you'd
20 have to do to a landfill to make it like a family
21 fun place than a place to put stuff.

22 MR. FIORE: That's correct.

23 CHAIRPERSON GENNARO: Okay. Now.
24 Has it been like an RFP or an RFEI? I'm just
25 wondering about, I just wanted to know like what

1
2 kind of, you know, technical processes have been
3 put forward to try to advance that.

4 MR. FIORE: No RFEI or RFP has been
5 released yet. We're currently conducting studies
6 to do our due diligence to understand--

7 CHAIRPERSON GENNARO: [Interposing]
8 Right.

9 MR. FIORE: --the requirements that
10 need to be to put into some type of solicitation.

11 CHAIRPERSON GENNARO: To the extent
12 that the City has gotten this far in its own
13 process or whatever, would this be the type of
14 thing where, you know, the City itself would, you
15 know, buy the stuff and put it up, operate it or
16 just kind of like let some other entity do it,
17 finance it, or whatever. And that way the City
18 doesn't really have to bother with that and so the
19 City kind of puts it out to the marketplace. You
20 know. The marketplace does it. They install it.
21 They maintain it. They guarantee it. They run
22 the stuff. And like the City gets a benefit from
23 it. Is that more the model that you think it may
24 go?

25 MR. FIORE: Yeah. I think right

1
2 now all the business models are on the table but
3 as you just expressed that's kind of the leading
4 thought is that this would be done by the private
5 sector.

6 CHAIRPERSON GENNARO: Right. And
7 so it's our land and it's right off the bay and
8 it's our wind and whatever and, you know, and then
9 okay. And so far there hasn't been an RFEI or an
10 RFP. It's just being explored, right?

11 MR. FIORE: Yeah. We're working
12 with, you know, other City agencies--

13 CHAIRPERSON GENNARO: [Interposing]
14 Right.

15 MR. FIORE: --Department of
16 Sanitation and Parks Department as well in really
17 understanding the interface between the--

18 CHAIRPERSON GENNARO: [Interposing]
19 Oh. Speaking of the Parks Department, I'm glad
20 you brought that up. Because these properties
21 were under the domain of, you know, the Department
22 of Sanitation. And then they, you know, back like
23 I think it was the Al Appleton days, like he took
24 over like the landfills for the purposes of having
25 them remediated under, you know, DEP rather than I

1
2 guess Sanitation which, you know, used to do it.

3 And so when they went from being
4 Sanitation sort of managed properties and then it
5 went to DEP I wasn't sure if the property ever
6 actually was transferred to like, you know, DEP
7 proper and like DEP owned it or just DEP did its
8 stuff there. And not to mention the Parks
9 Department, has the land been like transferred to
10 the Parks Department, 'cause once it's a park,
11 like once we make it parks and you want to do
12 something other than a park you have to alienate
13 it and, you know, has that happened?

14 Is this like is Freshkills now like
15 a City park? And I'm making a prelude to the fact
16 that I don't know the answer to this question
17 which I should know but I don't and I'm not
18 afraid, I'm not embarrassed that I don't. Like
19 who owns the property?

20 MR. FIORE: It's a good question
21 because the landfills are in different stages--

22 CHAIRPERSON GENNARO: [Interposing]
23 Right.

24 MR. FIORE: --so Freshkills is not
25 currently not parkland. It is operated and

maintained by the Department of Sanitation.

Fountain Avenue and Pennsylvania Avenue, the land belongs to the Department of Interior. And we've had discussions--

CHAIRPERSON GENNARO: [Interposing]

Okay.

MR. FIORE: --about--

CHAIRPERSON GENNARO: [Interposing]

Oh, with Gateway and all of that.

MR. FIORE: [Interposing] That's

correct.

CHAIRPERSON GENNARO: Fine, fine,

fine, yeah.

MR. FIORE: And we've had

discussions with them about potentially installing solar power up there as well--

CHAIRPERSON GENNARO: [Interposing]

Right.

MR. FIORE: --and they're

favorable--

CHAIRPERSON GENNARO: [Interposing]

Mm-hmm.

MR. FIORE: --to doing that.

CHAIRPERSON GENNARO: Right. But

1
2 so far is it fair to say that any of the sort of
3 large, closed landfills, they have not been
4 transferred to the Parks Department and they don't
5 currently have the status as parkland, yet. I
6 mean they're like parkland in that it's green and
7 when you look at it on a map it's green or
8 whatever but it doesn't have that like legal
9 designation of having been transferred to the
10 Parks Department. So it's not in like the Parks
11 Department like parkland lockbox yet.

12 MR. FIORE: That's correct.

13 CHAIRPERSON GENNARO: Okay. Yeah,
14 so that, you know, gives us a little flexibility.
15 Now I'm the one arguing for flexibility.
16 Interesting how, you know, a half an hour can,
17 hmm, I find that curious. So, okay, I guess
18 having gotten what I wanted which is, you know,
19 what I think is a good commitment by the
20 Administration, you know, to work in a cooperative
21 way that we could, you know, figure out something
22 to put on a piece of paper that we could lead to
23 the people who are here when we're gone to make
24 sure that, you know, they keep doing the good
25 things that we're doing.

1
2 So I'm good. I'm good. And it's a
3 pleasure to see you guys. And just let me, you
4 know, let me end where I began by saying it's
5 been, you know, a real pleasure and a privilege,
6 you know, working with, I will say it again, and
7 of all the things that get back to Mayor Bloomberg
8 from this hearing, I will repeat once again,
9 what's that? I'm in the middle of--okay fine.

10 [Off mic discussion] After?

11 But, you know, after what I'm say
12 what I'm going to say it's going to be very hard
13 to follow me but okay have it your way, have it
14 your way. I did say that Mayor Bloomberg in my
15 mind and I don't think it's like a big debate
16 about it is that, you know, a world leader in
17 urban environmental sustainability. So I said
18 that twice at this hearing for anyone who's
19 texting something to somebody. And so that's a
20 great thing to be and it's very good to work with
21 him and his very, very green Administration and
22 all the great people at DEP. And so I'm good.
23 I'm good. And so thank you and with that I
24 recognize Council Member Levin who will try to
25 follow that.

2 COUNCIL MEMBER LEVIN: Not a
3 chance, not a chance.

4 CHAIRPERSON GENNARO: Yeah, good
5 luck.

6 COUNCIL MEMBER LEVIN: Thank you
7 Mr. Chairman. Sorry to interrupt before. My
8 question is the technologies are there. There are
9 technologies that exist that, you know, what the
10 bill calls for is three pilot projects but it does
11 not impose a scale on those projects. Right? I
12 mean so they could be fairly modest sized projects
13 that would have, you know, very little impact. Is
14 that not correct?

15 MR. FIORE: Well I'm not sure that
16 just the scale of the project alone will determine
17 the--

18 CHAIRPERSON GENNARO: [Interposing]
19 If I could jump in sort of like add a coda to that
20 question, it's fun being Chairman, you can jump in
21 whenever you want, you know. We certainly don't
22 want to... yeah; we don't want to downplay, you
23 know, any kind of significance of what these, you
24 know, pilots are or whatever. We just think
25 there's a way to do something that will, you know,

1
2 give us more information, you know, beyond which
3 that what we can get from, you know, people
4 sitting around a table generating brain waves.

5 I mean I think we have to do like
6 something but, you know, we didn't really wan to
7 portray anything we would do in terms of a pilot
8 as being, you know, harmful in any way. And I
9 don't know if that's where you're going with your
10 question. Yeah.

11 COUNCIL MEMBER LEVIN: I guess my
12 question was that how can you object to it if you
13 don't know what the proposals are?

14 CHAIRPERSON GENNARO: Mm-hmm.

15 MR. FIORE: Again, I don't want it
16 to come across that we, in philosophy, reject this
17 idea. We've been working on this for a while in
18 concert with Chairman Gennaro. And I thank him
19 again for putting us in touch with Idaho National
20 Laboratory 'cause it's been useful.

21 What we have concerns with are
22 those that I expressed in the earlier testimony
23 associated with our in-distribution system. You
24 know our system is aged. It's a very long system.
25 So loss in head can affect us greatly both

1
2 operationally and from a public safety standpoint.
3 So we want to make sure that those concerns are
4 fully understood. And from what we've seen to
5 date has been small power generation that's
6 associated with all of the costs that come with
7 any scale sized project. So what we've seen so
8 far is where those costs outweigh the benefits.
9 So I hope that addresses the scalability of your
10 question.

11 COUNCIL MEMBER LEVIN: But, sorry.

12 MR. JAMES ROBERTS: If I could,
13 Council Member, both Council Members, but
14 specifically starting off with Council Member
15 Gennaro, to back to your earlier statement.
16 Certainly the Administration and the agency by no
17 means would walk in here and intend to denigrate
18 anything that you would put before us. So if
19 that's what was read into it, we would apologize
20 for that because that certainly would not have
21 been our intent. Right? Coming to the table.

22 CHAIRPERSON GENNARO: Mm-hmm.

23 MR. ROBERTS: And I think that the
24 agency and the Administration has a long-standing
25 history of working very cooperatively with the

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Council--

CHAIRPERSON GENNARO: [Interposing]

Mm-hmm.

MR. ROBERTS: --on a number of things. So I just wanted to say that.

CHAIRPERSON GENNARO: Mm-hmm.

MR. ROBERTS: And Council Member Levin, with regard to your question in terms of size, I believe that in order to demonstrate the types of technologies that are being contemplated, and again, it's a very--there's a lack of clarity about what's being contemplated at a macro level for us to really assess what that bill could then be interpreted to include. Okay. But my understanding is that the technologies that we're talking about entail systems that are major pieces of our infrastructure. Things on the order of 48 inch and larger type infrastructure. And so to pilot those types of things, scalable, in the street. So you can do it in a laboratory and you can test things but it's the implementation of them in these systems that's really of greatest concern.

COUNCIL MEMBER LEVIN: And I think

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2 I agree with the Chairman that that's the whole,
3 you know, idea is to get something that's real
4 life and that's workable that can--and that's kind
5 of a technology that is, you know, well
6 established and that has the potential to do it.

7 So I kind of agree with the
8 Chairman's assessment that we should, you know, it
9 would be best to work in concert here and get to a
10 place that you're comfortable with as well.

11 Can you talk a little bit; DEP has
12 issued a RFEI on hydroelectric plants in the four
13 reservoirs upstate? Can you speak a little bit
14 about that process and where that is? And how
15 many responses you've gotten or?

16 MR. FIORE: Sure. So we hold a
17 preliminary permit with the Federal Energy
18 Regulatory Commission to study the development of
19 four hydroelectric plants upstate on the dams.
20 That's Pepacton, Cannonsville, Neversink and
21 Schoharie. We're 2 years into a 3-year permit to
22 develop and conduct the necessary studies to
23 support a license application. But we're also
24 pursuing a parallel track to see if the private
25 sector is interested in working on this project

1
2 with the City.

3 The RFEI that was put out, we've
4 gotten seven responses to that. And the
5 Department has currently hired a financial advisor
6 to help us evaluate a number of potential
7 public/private partnerships, this being one of
8 those.

9 COUNCIL MEMBER LEVIN: Okay. So
10 those were the only questions I had Mr. Chairman.
11 Thank you very much.

12 CHAIRPERSON GENNARO: Thank you.
13 Thank you Council Member Levin. And so I want to
14 thank this panel. I want to thank DEP for all of
15 their good work. We got some testimony coming up
16 in the panels. And we look forward to hearing
17 what the industry has to say. We have a member of
18 the public who wants to speak as well. And so
19 that's for being here. We, you know, look forward
20 to working with you and let's see what we can get
21 done. Okay? Appreciate it. Okay. Take care
22 guys.

23 And we have four people, four
24 different entities that are from the industry.
25 We're going to do panels of two. And so just

1
2 because you're sitting on the same panel doesn't
3 indicate, you know, any kind of alliance or
4 whatever. But just to kind of move things along
5 we're going to panel folks. And so the first
6 panel, Frank Zammataro from Rentricity and Josh
7 Canagy [phonetic] from Lucid Energy Technologies.
8 That will be the first panel to be followed by
9 Ronald; I can't get the last name.

10 [Off mic discussion] Okay. Ronald,
11 Ronald, yeah, Ronald. Just go with Ronald from
12 Verdant Power. And David Torrey from Advanced
13 Energy Conversion. That'll be the panel after
14 this one. But we're going to hear from Rentricity
15 and Lucid now. So we'll call that panel. And you
16 know what? While that panel is being set up, I'll
17 tell you what, they can get the presentation just
18 set up and you can give the oath. I just need
19 about two minutes. I'll be right back. I would
20 just ask that people held things up until I got
21 back.

22 [Pause]

23 MS. SWANSTON:: Rentricity and this
24 is Josh Canada. Gentlemen could you raise your
25 right hands. Do you swear or affirm to tell the

truth, the whole truth and nothing but the truth today?

[No audible response]

MS. SWANSTON:: Thank you.

[Pause]

CHAIRPERSON GENNARO: Sorry for that delay. So we'll hear from Frank Zammataro from Rentricity, just please state your name for the record and proceed with your testimony.

MR. FRANK ZAMMATARO: Yes. My name is Frank Zammataro and I represent Rentricity, Incorporated, located in Manhattan. Good afternoon Chairman Gennaro and members of the Committee. Thank you for this opportunity to testify regarding Intro 534, a thoughtful and important piece of legislation that will add yet another important component to an already progressive renewable energy plan for the citizens of New York City.

Rentricity supports this effort and hopes to help expand New York City's energy recovery hydro activities. To reiterate from my previous testimony give on February 17th, 2011, it was actually delayed from January because of the

1
2 snowstorm, processing potable water and wastewater
3 is extremely energy-intensive, consuming
4 approximately 4% of the United States electricity
5 production.

6 The cost of pumping and treating
7 water represents about one-third of a wastewater
8 facility's operating budget. New York's aging
9 water distribution infrastructure, much of it over
10 100 years old, is clearly a candidate for energy
11 recovery consideration as the infrastructure
12 continues to be upgrade and modernized.

13 However energy recovery and
14 operating efficiencies are generally a lower
15 priority to the basic need of moving clean
16 drinking water. Energy recovery tends to be more
17 discretionary in nature versus the traditional
18 nondiscretionary requirements associated with
19 transmission lines.

20 A long term goal of this Committee
21 should be to make energy recovery a
22 nondiscretionary consideration for every New York
23 City-related water transmission line or regulator
24 vault upgrade or enhancement. Rentricity Energy
25 Recovery Systems consists of integrated and

1
2 agnostic technology solutions that include one or
3 more micro turbines, generators, sensors,
4 processors, electronic controls, communications
5 equipment that operate seamlessly and autonomously
6 within water infrastructure. The installation of
7 such a system in no way impeded the regular
8 operations of pressurized water distribution.

9 Rentricity custom engineers each
10 system for a specific site's operational
11 considerations and constraints, inclusive of all
12 requisite monitoring, controls, and protective
13 relays. Systems can be stand alone or integrated
14 into a water utility's existing SCADA system and
15 can be fitted with sensors for smart water system
16 monitoring for leakage detection. Rentricity also
17 works with water utility clients to comply with
18 all electrical utility entity and safety
19 requirements as well as government permitting and
20 licensing procedures.

21 Rentricity primarily uses proven,
22 off the shelf, reverse pump components that water
23 managers see every day in their regular work.
24 Water users enjoy the same services as always but
25 now the system is more efficient using a wasted

1
2 byproduct, excess pressure, to generate a valuable
3 and much needed resource: clean, renewable energy.
4 Rentricity currently has two commercial projects
5 in the United States and has another three in
6 various stages of design and construction.

7 I'm going to walk through a number
8 of slides that will represent Rentricity's
9 activities with drinking water infrastructure, the
10 largest being a 325 kilowatt single turbine
11 installation in Los Angeles, California due to be
12 completed later this year. Molly, could you just
13 page through those slides please?

14 [Pause]

15 You can just; I'm going to go very
16 quickly through these. These are just some
17 examples of our current installations. This was
18 in a busy street in Stamford, Connecticut. This
19 is a turbine being lowered into a vault that is in
20 the distribution system. You can keep going,
21 Molly. These are just the designs. You can see
22 on the bottom left the before picture. That
23 happens to be a 12 inch line so again we're not
24 dealing with the large 48 inch lines but this is a
25 12 inch line, 2 million gallons of flow a day.

1
2 You can see the after picture when we installed
3 that turbine. And we connect to a local grid pole
4 about 25 feet away from this vault on a busy
5 street.

6 Again just more construction
7 photographs showing how we tap into that main
8 line. And this is the site from the street. You
9 can see the vault door is open. The top of the
10 turbine, we do include a utility grade box above
11 ground with our controls to connect to the local
12 utility pole.

13 This happens to be our Keen project
14 which you'll see a video about this shortly. This
15 was supported through ARRA funding. This is a
16 ward, a treatment facility; this is the
17 precondition without any energy recovery. That
18 big green thing is a pressure reduction vault or
19 valve. And what we are managing here are pressure
20 transients and flow transients going from 700
21 gallons per minute to 200 gallons per minute
22 within a 24-hour period. You can keep going,
23 Molly.

24 You can see this is the design
25 infrastructure. Everything in light gray is new

1
2 and what we ultimately installed. And these are
3 just photographs during the construction. You can
4 keep going, Molly.

5 This happens to be a mandated
6 release in Pennsylvania that is installed and up
7 and running today. It's a requirement to release
8 water when water is put in a reservoir. We
9 actually use this power behind the meter at a pump
10 station, powering two of four pumps in that
11 blockhouse in the upper left photograph. And
12 these are just some construction photographs.

13 Okay. Now Molly just go to the
14 next slide and leave it there please. Thank you.

15 Along with this testimony,
16 Rentricity is also providing a case study of its
17 commercial project in the City of Keen, New
18 Hampshire. While Keen is a much smaller city than
19 New York this project highlights Rentricity's
20 understanding of the site boundary conditions, the
21 implementation of complicated process controls
22 which resulted in a safe and automated energy
23 recovery project that remains transparent to the
24 water utility's normal operations.

25 Rentricity is now going to show a

1
2 2-minute video. So I beg your indulgence of this
3 ribbon cutting ceremony. The audio is not very
4 good so if you can just bear with it. I'd
5 appreciate it. If you can just click right on
6 the--yeah, there you go Molly.

7 [Begin video presentation, no
8 audio]

9 MR. ZAMMATARO: That project was
10 recently completed in April and that's when we did
11 the ribbon-cutting ceremony.

12 It should be noted that the City Of
13 Keene's water treatment plant is now 100% energy
14 neutral. In fact they receive a small monthly
15 check back from their electric utility for the
16 residual energy that they actually create. It's
17 another important consideration, I think, for this
18 Council as well that every drop of Keene's water
19 supply which is a 20,000 person town, yet every
20 drop of their water goes through this system every
21 day.

22 To sum um, Rentricity utilizes
23 existing, proven technology to take advantage of
24 wasted gravity-fed energy in order to create
25 renewable energy all while leaving the operation

1 of the drinking water systems untouched.

2 Furthermore it seeks to do so efficiently and cost
3 effectively. I am pleased, on another note; I am
4 pleased to report to the Committee that Rentricity
5 has been in discussions with the New York City DEP
6 since the fall of 2009 regarding energy recovery.
7

8 Most recently with the support of
9 the New York City DEP, Rentricity will most likely
10 be granted a small grant set of funds from
11 NYSERDA, the New York State Energy and Research
12 Development Authority located in Albany, to review
13 energy recovery possibilities at a number of New
14 York City's wastewater treatment facilities. A
15 safe starting point from the New York City DEP's
16 perspective however far from the thorough review
17 of the potential hydro resources on the drinking
18 water side of the agency's operations.

19 As the Council knows at this stage,
20 it is difficult to accurately predict just how
21 much electricity of this sort could be generated
22 in New York City. But given that over 1 million
23 gallons of potable water flows through the City's
24 pipelines daily, it could certainly be in the 10's
25 of megawatts level or greater or perhaps 1% of the

1
2 City's total energy demand.

3 Therefore Rentricity strongly
4 supports New York's Intro 534 to undertake an
5 assessment of the electricity-generation
6 capability of the City's water supply, wastewater
7 treatment, and bodies of water within the City's
8 jurisdiction.

9 Rentricity would like to recommend
10 the following enhancements to Intro 534. First,
11 that a technology review be included as part of
12 that initial assessment instead as part of the
13 demonstration projects. There are many existing
14 turbine technologies that can be used under a
15 diverse range of hydraulic conditions. A review
16 of these technologies in the assessment or during
17 the assessment will make the effort more
18 comprehensive, allowing for economic analysis of
19 projects to be determined at an earlier stage
20 prior to the actual demonstration pilot
21 installation, etcetera.

22 Secondly, that select staff of the
23 New York City DEP as part of the assessment visit
24 one or more of existing energy recovery sites such
25 as those referenced systems in Boulder, Colorado

1
2 and/or the Keen, New Hampshire project which we
3 just showed on video, to further understand how
4 these energy recovery technologies are integrated
5 in a transparent manner to normal operational
6 requirements.

7 In closing, Rentricity has proven
8 that in-pipe energy recovery is abundant, safe,
9 efficient and economically viable. By looking at
10 energy recovery in New York City's water
11 infrastructure, the City Council is helping to
12 provide its citizens with a buffer from oil and
13 natural gas price spikes and supply interruptions
14 as well as increase the security of the New York
15 City's electric supply. I appreciate your time in
16 reading this and listening to me. And I
17 appreciate your conclusion of my testimony in the
18 Committee's deliberations and my number is there
19 if you need to contact me. Thank you.

20 CHAIRPERSON GENNARO: Thank you.
21 Thank you very much. And I'll have questions and
22 comments but as I do with panels, we'll have the
23 other witness speak and then I'll pose questions
24 and comments to both of the panelists. Josh
25 Canagy [phonetic], am I saying that right?

2 MR. JOSH CANAGY: You've got it
3 right, yes.

4 CHAIRPERSON GENNARO: Okay. Lucid
5 Energy Technologies, let me just make sure I have
6 your statement in front of me before you proceed.
7 Here it is, right here. So, sure, if you could
8 state your name for the record and proceed with
9 your testimony.

10 MR. CANAGY: My name is Josh Canagy
11 with Lucid Energy Technologies. Good afternoon
12 Chairman and members of the Committee. I'm the
13 Director of Business Development for Lucid Energy
14 Technologies. And I greatly appreciate the
15 opportunity to discuss with the Committee Intro
16 Bill 534. Introduced Bill number 534 will move
17 New York City closer to its goals for a 30%
18 reduction in greenhouse gases by 2017 as well as
19 supporting other State clean energy goals.

20 As the DEP rightly states in its
21 strategic plan for 2011 through 2014, an
22 aggressive energy strategy plan is crucial to meet
23 the PlaNYC goals of reducing our greenhouse gas
24 emissions by 30%. The strategy plan goes on to
25 describe 4 primary technologies that are seen by

1
2 the DEP as critical in developing 30 to 50
3 megawatts of clean energy supplies. These
4 technologies include hydroelectric power.

5 In the DEP's strategic plan the
6 Department describes hydroelectric power as a key
7 component of the DEP's efforts to create a clean
8 power portfolio, support economic development in
9 host communities in upstate New York, generate
10 revenues for the City of New York, and reduce our
11 overall carbon footprint. And I would agree with
12 that statement in the plan wholeheartedly.

13 The plan goes on to describe two
14 distinct opportunities for generating
15 hydroelectric power. First, in the City's
16 impoundment infrastructure which we've heard
17 discussed earlier where reservoirs create
18 opportunities for conventional dam-based
19 hydropower. And secondly in the plan it states
20 that there are multiple hydraulic gradients such
21 as the effluent from our wastewater processes that
22 sometimes drops into the ambient water from a
23 significant elevation that we can transform into
24 electric power for our wastewater treatment
25 plants.

1
2 It's the latter form of the
3 hydroelectric power that my testimony will focus
4 on today. The production of hydroelectric power
5 from multiple hydraulic gradients that we, the
6 DEP, in this case can transform into electric
7 power. In lay terms multiple hydraulic gradients
8 means a change in elevation as water is moved in
9 pipelines by gravity, as a result of elevation
10 change, energy in the form of head pressure builds
11 and this energy can be recovered. Generating
12 hydroelectric power in these pipelines is what
13 we've been referring to as in-conduit hydropower.

14 I'm going to skip ahead here. This
15 forward-thinking policy by the DEP regarding
16 hydroelectric power is validated I think by other
17 major US water utilities such as the San Francisco
18 Public Utility Commission, the Portland Water
19 Bureau, Metropolitan Water District of Southern
20 California, and the Dallas Water Utility. All
21 these water utilities and water agencies are
22 taking steps to assess and are installing in-
23 conduit hydroelectric power systems aimed at
24 recovering excess energy found in their water
25 systems.

1
2 Numerous other cities have in-
3 conduit systems installed within their water
4 systems. There are other indications that I see
5 that support the DEP's strategy plan in its call
6 for utilizing these in-conduit hydropower sources.
7 Recently, for one, the Department of Energy, the
8 U. S. Department of Energy, issued a funding
9 announcement for the express purpose of studying
10 and developing advanced hydropower systems
11 specifically naming in-conduit hydropower devices.

12 The Federal Energy Regulatory
13 Commission, known as FERC has issued hundreds of
14 conduit exemptions. This is an alternative to the
15 traditional FERC licensing that's afforded to in-
16 conduit hydropower due to its lack of
17 environmental impacts and lack of threats to fish
18 and wildlife. I see these Federal activities as
19 affirming the role of in-conduit hydropower as a
20 valuable tool in assisting the City to lower its
21 greenhouse gas emissions by 30% in 2017.

22 Now I want to speak a little bit
23 about a specific technology that my firm has
24 developed known as Northwest Power Pipe. I feel
25 it's a tool that the DEP could study for the

1
2 purpose of generating clean energy in its water
3 system and facilities. It's a unique in-conduit
4 hydropower system and it is my firm's core
5 technology. It's a lift-based turbine that
6 captures excess kinetic energy within water
7 systems.

8 The power pipe technology is based
9 on the same principles utilized by wind turbines
10 where movement of a fluid, in this case water
11 rather than wind, create lift on a turbine. This
12 is the principle that allowed for me to fly here
13 today to give this testimony.

14 Skipping ahead, the amount of
15 excess pressure required for the use of a power
16 pipe system is very low compared to conventional
17 hydropower technologies. We have recently been
18 awarded several patents.

19 We've heard a lot of people say
20 today that there's nothing new in the hydropower
21 world and I would say that's just not the case.
22 Power pipe allows for power extraction across a
23 wide range of pressure conditions and fills a gap
24 in the matrix of conventional hydropower allowing
25 for gravity-fed systems to generate power where it

1
2 had not been previously possible. Like a wind
3 turbine, power pipe operates across a wide range
4 of flow conditions.

5 I want to skip ahead to some cost
6 issues as well. Currently power pipe enjoys a
7 levelized cost of energy of under \$.09 per
8 kilowatt hour. And our company's goal is to be at
9 \$.07 per kilowatt hour by the end of 2012. This
10 will put in-conduit technologies like power pipe
11 on par with coal fired power as well as other
12 renewable sources like wind and solar. However
13 unlike solar and wind power, in-conduit hydropower
14 does not suffer from the same problems of an
15 intermittent power supply as the clouds roll in or
16 the wind dies down. In-conduit hydropower is a
17 predictable, stable source for clean energy.
18 Clean energy that could be recovered from the
19 City's water system throughout its transmission,
20 distribution, and wastewater facilities.

21 Now with respect to the assessment.
22 As with any major capital project, an economic, I
23 think we've called that paper today, and a
24 technical or pilot assessment is necessary to
25 protect the interests of all stakeholders from the

1
2 rate payers to the DEP itself. This is true for
3 more mature clean energy technologies as well as
4 new clean energy technologies. For instance, the
5 American Wind Energy Association's Guidelines for
6 Siting Wind Turbines suggests a minimum 1-year
7 resource assessment be undertaken. Solar projects
8 require a careful assessment of solar resources
9 and substantial modeling in order to create the
10 most efficient and effective clean energy systems.

11 Hydroelectric projects are no
12 different from that. What is not known, as you
13 heard Frank testify, is the potential for
14 producing power downstream from the impoundments
15 in the City's water transmission, distribution,
16 and wastewater facilities. The potential appears
17 to be significant to those that understand the
18 size and nature of the City's water system. By
19 conducting an assessment of this system, private
20 industry in partnership with public agencies such
21 as the DEP could begin to understand the
22 significant opportunities for generating clean
23 energy and lowering greenhouse gas emissions.

24 Many stakeholders would be poised
25 to support such an undertaking. It is certain

1
2 that technologies such as power pipe and the
3 others you will hear spoken about today could
4 generate significant amounts of clean energy for
5 the DEP in the City. And I would like to add, we
6 understand that sometimes the assessments yield a
7 no. Not every assessment is a yes.

8 So in the course of undertaking an
9 assessment, there are several factors to be
10 considered. And probably not all sites will pass
11 muster. However I urge this Committee, the
12 Council, its members and the Administration to
13 support the undertaking of an assessment of the
14 City's hydroelectric potential and for that
15 assessment to include the entirety of the water
16 system from the upstate reservoirs, downstream,
17 all the way to the wastewater systems that return
18 clean water to the watershed.

19 Such an assessment would fit both
20 Council and Administration goals as well as the
21 goals of the rate payers of this City to limit
22 greenhouse gas emissions and find clean sources
23 for energy. And my contact information is
24 provided below. Thank you.

25 CHAIRPERSON GENNARO: Thank you.

1
2 Thank you both. I have a couple of questions.
3 I'll try to be brief.

4 [Pause]

5 CHAIRPERSON GENNARO: Okay. This
6 is for Frank. Page 3 of your statement says that
7 there have been, just a moment, this has to do
8 with... okay, good. Sorry about that. Frank, page
9 3 of your statement talks about that there have
10 been some discussions between your firm and DEP
11 since the fall of 2009. Oh, okay, so the bottom
12 of page 3, you know, it talks about something that
13 might come to pass. I hope your presence here
14 today doesn't in any way impact on whether that
15 comes to pass or not. I didn't know about this.
16 I don't want to trip it up, you know.

17 But what would that be?

18 MR. ZAMMATARO: As I mentioned,
19 just to reflect a little on the New York City--

20 CHAIRPERSON GENNARO: [Interposing]
21 Right.

22 MR. ZAMMATARO: -discussions. They
23 have been very much against anything on the
24 potable drinking water side for the reasons cited.
25 They are highly concerned about the infrastructure

1
2 and how to integrate these things in seamlessly.

3 We, again, don't know what's there
4 but I think we have to see what kind of
5 infrastructure is there. I think Jim or Anthony
6 mentioned a 48-inch pipe. Certainly very
7 difficult to address. The largest pipe that we
8 have addressed is 36 inches. So their concerns
9 and fear are, I think, valid. However they
10 potentially could be educated further.

11 During all the discussions we were
12 really pushed to the wastewater side. And I don't
13 think I'm speaking out of school. They kind of
14 tossed us a bone. They said, hey; go look at the
15 wastewater side. It's safe. You're not going to
16 mess up my primary mission. And we did.

17 We had a small grant from NYSERDA
18 last year in 2010. We used some of those funds to
19 look at 6 wastewater treatment plants around New
20 York City. The assessment covered 2 possible
21 unique designs that could be applied to some of
22 the concrete channels at the secondary batteries
23 and at the outfall weirs. We, in cooperation with
24 New York City DEP, Anthony Fiore, in fact, gave us
25 a letter of support which we included in a

1
2 proposal for a program opportunity known as 2202.
3 And we found out late last week, on Friday as a
4 matter of fact, that we will likely be a recipient
5 of that if we can reach contractual negotiations
6 which I believe we will.

7 So we are charged now with looking
8 at the three facilities that we're going to target
9 are Wards Island channels, Coney Island outfall
10 weirs, and Owls Head outfall weirs. And we're
11 going to look at some unique designs that could
12 potentially be applied there for energy recovery.

13 It is really a design study. So
14 we've gone beyond the initial assessment and now
15 we're getting into an actual design study. That's
16 all it is. There's nothing more. There's nothing
17 about an installation or anything of that type
18 associated with that activity.

19 CHAIRPERSON GENNARO: Mm-hmm.
20 Okay. You know, I'm happy that that this kind of
21 process is happening. And this is why I wrote the
22 bill. But thank you for that. And one more for
23 you Frank before I move on.

24 With regards to your comments to
25 Intro 534, page 4, and I'm asking the Counsel to

1
2 the Committee to take note, that the technology
3 review be included as part of the initial
4 assessment instead of part of the demonstration
5 project. And why don't you just go through about
6 why you believe that that would be a better way to
7 go? Just help us understand that a little better.

8 MR. ZAMMATARO: Well there are
9 technologies that exist today. Josh has
10 technology. We have deployed a variety of
11 different technologies with our projects. They
12 are proven, ruggedized, systems. I believe that
13 as part of an initial assessment in looking at the
14 flows and the pressure differentials in various
15 infrastructure and in various sized pipes would
16 result in considering a number of technologies, to
17 at least do a top line cost basis analysis, where
18 you would get some indicative costs associated
19 with addressing a facility even if it's 20, 30,
20 40, 50 feet under the ground which obviously would
21 add to costs.

22 So you would at least, as part of
23 an assessment, see a variety of pipelines,
24 regulator vaults, transmission lines, and you can
25 then consider what is the best technology to be

2 applied to a particular flow variation, pressure
3 variation, location. And then I think in the
4 assessment it might lead you to then the
5 consideration of one, two or three potential
6 technologies for your pilot.

7 But I would include that right up
8 front. I wouldn't not--just go out and gather
9 numbers and say, okay, we can generate 50
10 kilowatts here or 100 kilowatts there or, you
11 know, 200 kilowatts there. You have to do that
12 versus some kind of technology that has an
13 efficiency rating and a potential application in a
14 cost effective manner.

15 CHAIRPERSON GENNARO: It's
16 certainly good to know that. Does that sound good
17 to you Josh? Does that sound like something?

18 MR. CANAGY: It does. I would just
19 add to what Frank said, you know, when you say the
20 work assessment, that's, there's not a lot of
21 precision in that word.

22 CHAIRPERSON GENNARO: Right.

23 MR. CANAGY: So assessment is not--

24 CHAIRPERSON GENNARO: [Interposing]
25 Many things that I say are very imprecise. That's

1
2 why I'm on this side of the table, you know.

3 MR. CANAGY: Right. Assessment
4 from a hydropower standpoint is often considered
5 to be head and flow. Those are the two things
6 that hydropower people look at. In addition to
7 that, as the DEP testified, there's a risk factor
8 that needs to be assessed. Are we willing to deal
9 with the risk of installing a technology in a
10 potable water system versus the risk that comes
11 with using the same technology in a wastewater
12 system? What about access, space, proximity to
13 grid connections? All those things I believe--

14 CHAIRPERSON GENNARO: [Interposing]
15 Okay.

16 MR. CANAGY: --would be part of an
17 assessment.

18 CHAIRPERSON GENNARO: Okay. That's
19 good to hear that. I see the Counsel for the
20 Committee taking copious notes. That's good. And
21 there have also been... I'm kind of getting the
22 sense that, you know, what we're asking for in
23 terms of this kind of assessment has, you know,
24 not only not been done on like a robust, you know,
25 thorough nature for New York City but really

1
2 hasn't, it looks like it hasn't been done really
3 anywhere.

4 And what we're asking for is a real
5 opportunity that perhaps this, you know, growing
6 industry really hasn't had an opportunity to have
7 happen yet. Is that fair to say that what we're
8 asking for in this kind of assessment is, you
9 know, not only an opportunity for the City to find
10 out how this kind of technology or these, you
11 know, kinds of technologies can be of help but
12 this is also good for the industry as a whole to
13 find out how these things can happen in these
14 types of systems around the country? Is that a
15 fair statement?

16 MR. CANAGY: I believe so. I don't
17 know of any city that has looked at their entire
18 water system from sort of a start to finish and
19 done a very broad assessment similar to maybe an
20 assessment that would be done to use solar as an
21 analogy, there are certain places that you would
22 start that are sensible. So the access, the
23 proximity to consumption, a lot of these
24 technologies are distributive-generation in
25 nature. So there are some--that sort of points

1
2 you in a direction when you set out to do an
3 assessment.

4 Frank mentioned in his testimony
5 that as new vaults are added or as construction
6 takes place on the City's water system, that is a
7 very logical place to start from an assessment
8 standpoint. So I think there are some ways to do
9 that that are most efficient.

10 CHAIRPERSON GENNARO: Okay.

11 MR. ZAMMATARO: Yeah, I'd just like
12 to add, Rentricity does in fact approach water
13 utility operators and starts off with a data
14 gathering activity and a top line assessment.
15 That then leads to a site visit and a next level
16 detailed assessment. And then eventually it leads
17 to a recommendation for one or more sites.

18 I'll give you an example. And
19 again I'm not trying to compare anything to New
20 York City. It is a huge complex system. But for
21 the Municipal Authority of West Moreland County,
22 right outside of Pittsburgh, we found 76 pressure
23 reduction valve vaults in the system of which 6
24 were addressable today with what we consider; they
25 were low hanging fruit and addressable today. And

1
2 we've only exploited 1 to date. So there are many
3 more behind that.

4 And I think when you take on an
5 energy recovery hydro assessment in a water
6 system; it has to be seen as a long term
7 initiative where you're going to find your low
8 hanging fruit. But then you'll find that, you
9 know, there's a capital project to excavate out a
10 piece of pipeline in Queens. And guess what, if
11 you made the vault 15 feet longer or 10 feet wider
12 you can then make it energy-recovery ready.

13 So the key question and I don't
14 have the answer for New York City just yet, does
15 the infrastructure afford the opportunity to find
16 energy in the system so as the system continues to
17 be modernized, these types of technologies can be
18 considered for installation during these capital
19 improvements? And I think that's a very, very
20 important long term question for the City Council
21 or this Committee.

22 And understanding that this right
23 now, energy recovery, is truly a discretionary
24 project. But when a main breaks, guess what, they
25 have to go out and fix it. And I think energy

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2 recovery long term should be a nondiscretionary
3 part of a modernization or upgrade of a
4 transmission line, as a long term goal.

5 CHAIRPERSON GENNARO: Yeah. So let
6 me just make a note to staff that, you know, I
7 don't know what works, I don't know what's the
8 best, but if that's the way to, you know, proceed
9 with this kind of technology, being integrated,
10 ultimately into the system, it's not like you wake
11 up one day and say, okay, every building in New
12 York City has to be transformed into a green
13 building.

14 But you have a building code that
15 says, you know, going forward we want to, you
16 know, make sure that these kinds of elements are
17 considered and implemented when we do that kind of
18 construction and, you know, God knows that us and
19 the Bloomberg Administration have done that.

20 And it's obligatory, like they have
21 to do this. So, you know, we should consider that
22 Samara and Dan and Bill, as an element for the
23 bill if it makes sense. 'Cause putting the stuff
24 in, you know, the systems are already there. It's
25 all kinds of yelling and screaming but, you know,

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2 going forward it just becomes that's the way we do
3 it. That's how we do things. That's how we build
4 things. We build in such a way that, you know, we
5 capture every amount of power that there is. And
6 so that's something to think about. Okay.

7 But let's go to, now, let's go to
8 the statement from the Administration and you
9 heard it just like I did. And I don't want to put
10 anybody on the hot seat here because if I were
11 either one of you, I wouldn't say anything bad
12 about the DEP. That would be a bad thing for you
13 to do.

14 But, you know, it talks about,
15 well, you know, it's like not a big yield and
16 it's... all kinds of stuff you have to do but you
17 don't get a big payback and, you know, there are
18 problems. And, you know, is this, let me phrase
19 the question in such a way that there's no
20 possibility that you could say anything, you know,
21 about DEP that's going to hurt you.

22 Is this more a function of putting
23 this kind of technology into something that's like
24 already there? And, you know, you're trying to
25 put more like with a crow bar and a can of grease

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2 to get it in there versus some kind of going
3 forward spec or design feature where you kind of
4 are making your vaults and this and that to, you
5 know, have these kinds of accommodations. Is that
6 sort of the rub I guess? Was that question
7 coherent? Did you get that?

8 MR. ZAMMATARO: So you mentioned a
9 couple of things.

10 CHAIRPERSON GENNARO: Yeah.

11 MR. ZAMMATARO: The cost
12 effectiveness part of it is a very, very important
13 consideration. You're competing with \$.04 per
14 kilowatt hour from entities like NYPA in the New
15 York City area. But these technologies are
16 eligible for could be made eligible for other
17 subsidy supports through NYSERDA and therefore get
18 that price per kilowatt hour up.

19 Rentricity as a rule generally does
20 not like to address a site that's anything less
21 than 30 kilowatts because we don't believe that
22 it's a money-making value proposition. You're
23 going to have very long payback periods. And we
24 like to target typically anywhere between 5 and 15
25 years of a payback. One of the selling points on

1
2 the higher end of that scale is that this is a
3 green project. And green projects will in fact
4 have these longer paybacks.

5 The one thing I would like to also
6 mention to the Committee, something that I have
7 seen develop in Connecticut very recently with
8 Governor Malloy, is he's introduced a bill
9 creating what's called a Z Rec, similar to what we
10 know perhaps in New Jersey as an S Rec for solar
11 projects. It's a solar renewal energy credit.
12 It's an extra subsidy. The Z Rec stands for Zero-
13 -

14 CHAIRPERSON GENNARO: [Interposing]
15 This is the birth of the NYC Rec. Okay?

16 MR. ZAMMATARO: Yeah.

17 CHAIRPERSON GENNARO: This is the
18 birth. We're seeing it happen right now.

19 MR. ZAMMATARO: Well the Z Rec
20 stands for Zero Emission Renewable Energy Credit.
21 And it could be up to \$.30 per kilowatt hour for
22 any technology that has no emissions. I'm very
23 impressed by it. I think it could, again,
24 continue to help--

25 CHAIRPERSON GENNARO: [Interposing]

1
2 Yeah, because I was going to say, can't we--
3 because now it's not like just about dollars,
4 aren't there like carbon credits and all that kind
5 of stuff, whatever it is? It's that concept,
6 right?

7 MR. ZAMMATARO: That's correct.

8 And Rentricity, in fact, was qualified as a low
9 emission renewable technology by the Connecticut
10 DPUC back in 2004. So we enjoy extra subsidies in
11 any place in New England because of that
12 qualification. And we're in the process right now
13 of doing that in New York State as well. We
14 qualify in Pennsylvania. We qualify in California
15 where we have other projects as well.

16 CHAIRPERSON GENNARO: What do we
17 have in New York State, like well what is that?
18 What mechanism is there for that?

19 MR. ZAMMATARO: It's a bidding
20 process that NYSERDA manages where you can bid a
21 project on a cycle-basis, it might be once or
22 twice a year that they have this bidding process.
23 And you can get up to \$.06 per kilowatt hour in
24 addition to whatever the wholesale rate is from
25 the local utility.

2 CHAIRPERSON GENNARO: Oh, I see. I
3 see. Hmm.

4 MR. ZAMMATARO: And that improves
5 your--

6 CHAIRPERSON GENNARO: [Interposing]
7 Right.

8 MR. ZAMMATARO: --your payback and
9 improves the return on your project.

10 CHAIRPERSON GENNARO: Mm-hmm. And
11 how about the concept that when I veered off
12 slightly into the landfill thing with the solar
13 and the wind. It's just like can we have the
14 solar or wind company, whoever they are, they put
15 the thing in, they finance it, they run it, they
16 service it. If it falls down they put it back up
17 again and then, you know, they operate it and it
18 doesn't come out of the City. The City's just
19 providing like the place for this company to kind
20 of like do it's thing.

21 Does that paradigm sort of like
22 lend itself for your technology? That was
23 actually a good question. You know what I mean?
24 That was pretty good.

25 MR. CANAGY: That was a good

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question.

CHAIRPERSON GENNARO: I know.

MR. CANAGY: Thank you Chairman.

Yes. To answer the question, Lucid looks at three models to take our technology to market, one being a power purchase agreement which as you referred to also--

CHAIRPERSON GENNARO: [Interposing]
That's what that is? What I just said?

MR. CANAGY: --that's right.

That's right.

CHAIRPERSON GENNARO: Okay.

MR. CANAGY: PPA. The other would be the outright sale of the equipment to a utility or agency. And third would be a lease program. All three of those models can be used to take the product to market. And to go back to your previous question just quickly with respect to cost effectiveness, there are no feel good renewable energy projects out there these day in this economic environment. The technology that we're developing has to be competitive. It has to pay back in a reasonable amount of time. What is that? It's 5 to 15 years as Frank said. We

1
2 really want to be focused on those projects that
3 are in the 5 to 10-year range. And I mentioned
4 the levelized--

5 CHAIRPERSON GENNARO: [Interposing]
6 Mm-hmm.

7 Mr. CANAGY: --costs o energy
8 component in thinking about the price of these
9 technologies. It's a very tough market and we
10 have to be cost effective. And we wouldn't ask
11 for anyone to support a project that doesn't make
12 sense from a payback standpoint. That serves no
13 one any benefit. So I just wanted to add to that
14 question--

15 CHAIRPERSON GENNARO: [Interposing]
16 Well that's fine. And that makes sense. But this
17 is one of the reasons why, you know, the whole
18 goal of the bill is to have some kind of formal
19 assessment that's a document. It gets reported to
20 the Council. It goes to the industry. It goes to
21 the public.

22 You know we can have some kind of
23 oversight on it and say that, you know, maybe if
24 the study had been done this way there's a way--
25 you know it's just a way to put it out there so

1
2 that all kinds of, you know, eyes can look at it
3 and that not in any way, shape or form do I not
4 trust the Bloomberg Administration or the DEP to,
5 you know, to do things great, but nobody's
6 perfect. And anything that you create and, you
7 know, put out there to the public and to the
8 industry and to scientists or whatever, that's a
9 way to get the best eyes and ears, you know, to
10 get the best product.

11 And while I really commend DEP for
12 doing this like a very discretionary way, like
13 they don't have to be doing any of this now, but
14 they're talking to you guys, they're talking to
15 Idaho. They've got, you know, some kind of RFEI
16 out on the street of upstate. They've got the
17 Office of Long Term Planning.

18 DEP is coming out with this
19 document that talks about, you know, these types
20 of initiatives that they want to do from 2011 to
21 2014. That's all terrific. But, you know, you
22 get the next budget cycle, you get the next
23 budget, you get then next, and then all of a
24 sudden, you know, DEP is really constrained and
25 like everything discretionary just sort of like

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walks off the table.

And I get that. So this is just a way to do things so that the next leadership of DEP and like the next leadership of the Council and the next Mayor, like won't have an option but to pursue these things that, you know, this Council and this Mayor and this DEP, you know, pursues with a vigor. You know? And so that's the point.

Let's see if I have anything else to... okay. [Pause] I made notes here. I used to be staff so I like make notes all the time. And on a light note I've had a couple of light moments so far in this hearing. I'd like to make notice of words that have never been entered into the record since I've been Chairman of the hearing. And we have two on one page of Rentricity's statement on page 2 agnostic has never been a word entered into the record in this hearing since I've been Chairman ever. At least I know what the word means as opposed to the next work interty [phonetic]?

MR. ZAMMATARO: Yes.

CHAIRPERSON GENNARO: I have no

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idea what that word means.

MR. ZAMMATARO: Basically the requirements to connect to an electric utility.

CHAIRPERSON GENNARO: I see. Two words never entered into the record in this statement on one page of testimony. That's not something you get every day. You know. So there you have it. Okay. You guys have been great. Terrific. Thanks for your good work. Thanks for working with DEP. Thanks for, you know, trying to move this or any kind of green technology forward in a very, very tough economy. I certainly give you credit for doing that and may the force be with you. Okay.

MR. CANAGY: You're welcome. Thank you.

CHAIRPERSON GENNARO: Power or force it's like a--you know. I'm trying. I'm trying. Thank you. Thank you gentlemen. Particularly Josh who came a long way, thank you for making the trip. And the next panel, Ronald from Verdant Power, David Torrey from Advanced Energy Conversion.

[Pause]

2 CHAIRPERSON GENNARO: Okay. We'll
3 have the Counsel to the Committee swear in the
4 panel and then we will proceed. No, we have one
5 more, we have one more panel. I think we have one
6 more person after this to testify. And that
7 person, just to let them know that they're on
8 deck, looks like A. Wesson, I think, Wesson?
9 Okay? And Mr. Wesson will be the next and last
10 witness. And so would you--

11 MS. SWANSTON:: [Interposing]
12 Gentlemen, would you raise your right hands? Do
13 you swear or affirm to tell the truth, the whole
14 truth and nothing but the truth today?

15 MR. DAVID A. TORREY: I do.

16 MR. RONALD SMITH: I do.

17 CHAIRPERSON GENNARO: Okay. Thank
18 you. And thank you both for being here today.
19 Hope you've enjoyed our little hearing today. Let
20 me start with Mr. Smith from Verdant Power. Yeah,
21 make sure, you have to put the thing on.

22 MR. SMITH: Hello? Is that on?

23 CHAIRPERSON GENNARO: Yeah. Just
24 make sure you talk right in and usually the way
25 these things work is that when the red light on

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the button is off it means the mic is on.

MR. SMITH: Okay.

CHAIRPERSON GENNARO: Okay.

MR. SMITH: Got it. Well thank you very much for the opportunity to be here. I'm Ron Smith, the CEO of Verdant Power. And we are pleased to have the opportunity to talk with you today about the opportunities for water here in New York City.

Our technologies are different from what we were just talking about in terms of in-conduit technologies. Verdant Power is a leader, headquartered here in New York City, in kinetic hydropower or free flow hydropower, hydropower without dams.

Over the past six years with the continuous support of the City and State of New York, Verdant Power has worked to develop and demonstrate the world's first array of grid connected tidal power turbines through its Roosevelt Island Tidal Energy RITE Project in the East River. The RITE Project is currently in the final stages of being licensed by the Federal Energy Regulatory Commission, FERC, to provide

1
2 commercial grid connected electricity in New York
3 City as the first commercial demonstration of
4 kinetic hydropower systems in the world.

5 The initial project will ultimately
6 supply in stage, up to 1 megawatt of tidal
7 electricity. The RITE Project is a technology-
8 readiness level 7-8 project, with 9 being
9 commercially competitive and as such is not a
10 commercially economic technology but an early
11 demonstration of a technology that could become a
12 viable economic source of energy in the future.

13 Traditionally cost benefit
14 calculations are not appropriate to evaluate this
15 technology at this time. We have been working
16 with Con Ed and others on this project and started
17 working with NYSERDA in 2002. So this project
18 will be, as I just said, the initial one in the
19 world.

20 Recognizing what we are doing, we
21 fully support the intent of this legislation. The
22 first is the water power resource assessment; we
23 believe that a resource assessment is a very
24 important first step for assessing the potential
25 capability of kinetic hydropower, certainly in and

1
2 around New York City. We have been working with
3 NYSERDA, as I mentioned, and NYSERDA has an
4 objective for the State by 2020 of 1,000 megawatts
5 from this technology. We believe that an
6 assessment of the waters in and around New York
7 City would result in certainly multiple megawatts
8 of power in the fairly near term as we scale the
9 technology.

10 In terms of technology assessments
11 and demonstration projects, we certainly support
12 that as well. We believe that the RITE Project is
13 actually a commercial demonstration project which
14 is, you know, will be deployed certainly within
15 the next 18-month timeframe. So just to read some
16 of the comments here. We note that an
17 implementation schedule of three demonstration
18 projects in 18 months without identified funding
19 is a significant undertaking and respectfully
20 suggest that a matching funding mechanism might be
21 promulgated to allow the projects to move forward.
22 For example on our RITE Project we are moving
23 forward with funding from NYSERDA as well as
24 private sector sources. NYSERDA awards \$1.7
25 million to support that and are to be matched by

1
2 about another \$2.2 million.

3 So Verdant would respectfully
4 request that in implementing demonstration
5 projects that RITE be considered as a kinetic
6 hydropower technology demonstration and a New York
7 City contribution to the execution of the RITE
8 Project be considered on the order of \$250,000 to
9 \$500,000 that would provide for an evaluation of a
10 free-flow tidal energy demonstration that is
11 capable of supplying localized power to Roosevelt
12 Island but also would provide long-term
13 recognition to the City and potentially elsewhere
14 in and around New York City.

15 As I previously mentioned in my
16 testimony in February, in April of 2008 we had 400
17 people from around the world focused in this
18 industry in Time Square at a 4-day conference that
19 was focused on this project. That may happen
20 again as we get this project deployed. Various
21 local groups are now working to establish New York
22 City as a globally recognized urban platform and
23 as a destination for the world to see
24 groundbreaking innovations in clean energy and
25 energy efficiency. Clean energy from New York

1
2 City's water should be an integral part of the
3 City's clean energy capabilities and its vision
4 for the future.

5 CHAIRPERSON GENNARO: Thank you Mr.
6 Smith. It's always a pleasure to see you. And
7 I've known about this project for a long time and
8 it's great that it's getting the worldwide
9 attention that it deserves. But I could do with
10 less, the panel, I'll hear the next witness and
11 then I'll have comments and questions for both
12 panelists. [Pause] Sorry about that. And so... Mr.
13 Torrey, right?

14 MR. TORREY: Yep.

15 CHAIRPERSON GENNARO: Okay.

16 MR. TORREY: Good afternoon. I
17 appreciate the opportunity to offer my thoughts on
18 developing hydropower for New York City and the
19 proposed legislation intended to advance this
20 development. My name is David Torrey. I'm Chief
21 Technology Officer of Advanced Energy Conversion.
22 We're a small business in Schenectady, New York.
23 I'm an electrical engineer by training with
24 specialization in electronic power conversation,
25 embedded controls, motors and generators and the

1
2 application of these technologies to interesting
3 energy conversion problems.

4 I've had a long interest in clean
5 energy technologies and in recent years my company
6 has developed some experience with alternative
7 hydroelectric technologies that represent a
8 different approach from very large traditional
9 hydroelectric plants. This work has been funded
10 by private industry, NYSERDA and the U. S.
11 Department of Energy.

12 My previous testimony was
13 supportive of exploring hydroelectric power within
14 the New York City water system and natural
15 waterways under the jurisdiction of the City and
16 the production of clean energy from the flow of
17 water. As my testimony and that of others
18 indicated, there are multiple good reasons for
19 exploring hydropower including hydropower can
20 leverage the existing and substantial
21 infrastructure of the public water supply system.
22 Hydropower represents local electricity generation
23 from a clean energy source. And hydropower
24 positively addresses the issue of security the
25 energy supply.

1
2 It was my recommendation that New
3 York City undertake a resource assessment that
4 identifies not only where there are hydroelectric
5 energy resources within its control but also where
6 that energy could be used if it were made. Energy
7 generation without local consumption hurts the
8 economic viability by increasing costs without
9 increasing the energy capture.

10 In parallel with the resource
11 assessment it is worth undertaking a technology
12 assessment that identifies emerging alternative
13 hydroelectric technologies that may offer
14 solutions in particular circumstances. There is a
15 lot of activity within this space, producing a lot
16 of new ideas that merit consideration, but proper
17 vetting through demonstration and independent
18 review.

19 The pending legislation is
20 motivated by generating power from the flow of
21 water thereby capturing energy that would
22 otherwise be lost. Specifically mentioned are in-
23 conduit, pressure control, sewers and wastewater
24 treatment facilities as opportunities for energy
25 capture within the existing New York City

1
2 infrastructure. Natural bodies of water are also
3 mentioned.

4 My read of the pending legislation
5 would require four things. One, the New York City
6 DEP perform an assessment of the City's water
7 supply, wastewater treatment systems and bodies of
8 water within the City's jurisdiction to determine
9 the hydroelectric potential of these resources.

10 Two, perform a technological review
11 of suitable hydropower technologies consistent
12 with the available resources through three
13 demonstration projects. Completion of this work
14 within 18 months with a report to the Mayor and
15 the City Council, and four, to implement
16 hydropower projects for electricity generation at
17 sites with a cost benefit ratio of 0.75 or better.

18 A thorough assessment needs to
19 collect a lot of data. These data need to
20 effectively map flow, pressure or head, nearby
21 electric utility connection points, channel, the
22 size, accessibility, etcetera. Armed with this
23 information it will be possible to calculate how
24 much power is available at different locations
25 within the system and how easy it will be to

1
2 inject the generated power into the electric
3 utility system.

4 Give that the City has over 6,000
5 miles, is what I have written here but I've
6 learned today that it's actually 7,000 miles, of
7 pipe under the streets, hundreds of miles of
8 aqueducts, 14 large wastewater plants, dams, and
9 other sites where hydroelectric power may be
10 harvested, this is a sizable undertaking.

11 Depending on the level of existing
12 instrumentation, this may require a large team
13 armed with instrumentation and other technology to
14 facilitate data collection and analysis. I am not
15 sure to what degree the required information
16 exists but I suspect it is not already assembled.

17 The detailed mapping of the New
18 York City water system is the first step in
19 identifying where energy capture makes sense. The
20 instrumentation used to create the map can also
21 help with diagnosing system problems and system
22 control. With the addition of turbine generators
23 to the system, it is possible to envision the
24 ability to efficiently route flow through the
25 system in ways to minimize leakage, reduce stress

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2 on pipes, allow for periodic maintenance,
3 etcetera, much like how electric utilities control
4 the flow of electric power through the grid.

5 On the longer distribution lines
6 and at dams there may be opportunity for
7 installation of micro-hydro systems that will not
8 involve major environmental permitting and costly
9 engineering. Benefits will include better ability
10 to meet stream flow requirements, better
11 management of pressure in the system, etcetera.
12 You do not need major projects to go a long way
13 towards the goals.

14 My understanding is that New York
15 City DEP is already looking for ways to capture
16 energy within the public water supply system. The
17 recent request for expressions of interest in
18 connection with adding another 15 megawatts of
19 hydropower within the reservoir system is an
20 example. I've had discussions with New York City
21 DEP over the last three years regarding the
22 installation of turbine generator systems within
23 wastewater treatment plants. While the pending
24 legislation would require the assessment and
25 demonstrations in these and possibly other

1
2 locations throughout the water system, the
3 necessary resources may be significant.

4 There is nothing inherently risky
5 about undertaking either the resource assessment
6 or the technologies assessment so long as sound
7 engineering practices are followed. Proper
8 diligence will ensure that water quality and
9 system control are maintained throughout the
10 effort. Again this means that adequate resources
11 must be available to do the job right.

12 It should be understood that going
13 into this legislation, that the energy to be
14 captured is likely to be modest in comparison with
15 the 55 megawatts of hydroelectric power already
16 being generated within the reservoir system and
17 the additional 15 megawatts under consideration.
18 Despite this the resource and technology
19 assessments are still worthwhile undertakings.

20 Ultimately the appropriate
21 direction needs to be data driven to ensure future
22 actions are technically sound and economically
23 feasible. The legislation cites a calculation by
24 the U. S. Department of Energy that suggest almost
25 40 megawatts of generation is available within

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2 wastewater treatment facilities. I believe this
3 estimate misrepresents the amount that can be
4 practically generated. My own calculations
5 suggest that the most easily available power at
6 New York City wastewater treatment facilities to
7 be much closer to 1.5 megawatts.

8 I support the spirit of the
9 legislation in seeking to find ways to more
10 completely leverage the sizable existing
11 infrastructure of the New York City public water
12 supply. I see many areas of opportunity for
13 exploring hydroelectric generation in and around
14 New York City within both the public water supply
15 and natural bodies of water. It may be possible
16 to conduct pilot studies in cooperation with
17 NYSERDA, NYPA, EPA, and DOE. This activity can
18 help create employment opportunities, especially
19 if New York based technologies are employed.

20 By enacting the legislation the
21 City Council is identifying hydropower to be
22 worthy of City resources, attention and priority,
23 thereby acknowledging the need to find the
24 financial resources necessary to implement the
25 legislation. I believe the New York City DEP also

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2 has interest in capturing energy throughout the
3 public water supply. And my experience with their
4 approach suggests that they understand that this
5 effort needs to be continuous through constantly
6 monitoring available resources and emerging
7 technologies to identify opportunities that are
8 both technically and economically sound.

9 I believe the DEP is already moving
10 in the right direction. I cannot speak to what
11 the DEP has done with regard to natural bodies of
12 water but certainly there have been demonstration
13 projects there as well. I'm not sophisticated in
14 the internal politics associated with the working
15 relationship between DEP and the Council. If
16 legislation is required to make the hydropower
17 assessment an imperative then perhaps it is
18 appropriate. Otherwise I'd be reluctant to
19 legislate something that's in the common interest
20 of both parties.

21 Thank you for your time.

22 CHAIRPERSON GENNARO: Thank you.
23 Thank you for your statement. Mr. Torrey, tell me
24 a little bit about AEC, your firm. Is it a
25 consulting firm? Do you have a technology that

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2 you market? Just tell me a little bit about the
3 company.

4 MR. TORREY: We basically started
5 as an engineering firm doing contract engineering
6 for other companies ranging from 3 or 4-person
7 companies up to the U. S. Navy and Department of
8 Energy. The projects we tend to get involved with
9 typically involve control of electrical energy and
10 the conversion of that energy, sometimes staying
11 in electrical form, sometimes being converted into
12 other forms such as in the hydropower case where
13 you're converting flow into electricity. We have
14 developed some technologies over the years that we
15 have patented. At this point we are interested in
16 trying to commercialize some of those
17 technologies. Perhaps through cooperation with
18 companies like Rentricity because they're
19 technology-agnostic.

20 CHAIRPERSON GENNARO: Okay. Do you
21 think the bill is a good idea to do? Something?
22 You know, is it--?

23 MR. TORREY: [Interposing] I think
24 it's a good idea to do because, you know, as you
25 have said--

2 CHAIRPERSON GENNARO: [Interposing]

3 Right.

4 MR. TORREY: --before, right, the
5 future is uncertain. And--

6 CHAIRPERSON GENNARO: [Interposing]

7 Right.

8 MR. TORREY: --unless it gets
9 written down that New York City is going to move
10 in this direction--

11 CHAIRPERSON GENNARO: [Interposing]

12 Right.

13 MR. TORREY: You know it can be
14 quietly forgotten about or not so quietly
15 forgotten about.

16 CHAIRPERSON GENNARO: Sure.

17 MR. TORREY: And so, you know, we
18 all have a vested interest infixing our energy
19 situation.

20 CHAIRPERSON GENNARO: Mm-hmm.

21 MR. TORREY: And there isn't going
22 to be a silver bullet. It's going to be done by
23 doing a lot of little things. And I see this as
24 putting in place a mechanism to ensure that those
25 little things get done.

2 CHAIRPERSON GENNARO: That's
3 certainly fair enough and I certainly appreciate
4 your perspective on that and I thank you for that.
5 With regard to this calculation that we sort of
6 seized upon, the, you know, 40 megawatt versus
7 your assessment that it would be a lot lower.
8 That's, you know, certainly a big--

9 MR. TORREY: [Interposing] It's a
10 big difference.

11 CHAIRPERSON GENNARO: --difference.
12 Mm-hmm. And yeah, I mean I think a difference
13 that big is probably, you know, worth another like
14 60 seconds of just help me get comfortable--

15 MR. TORREY: [Interposing] Okay.

16 CHAIRPERSON GENNARO: --get
17 comfortable with that.

18 MR. TORREY: In the summer of 2009
19 the New York Power Authority actually issued a
20 request for quote to capture flow energy at the
21 Oakwood Beach Wastewater Treatment Plant on Staten
22 Island. I went to the bidder's meeting. I
23 believe somebody from Verdant was there as well.
24 Ultimately New York Power Authority pulled the
25 project. But the Oakwood Beach Wastewater

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2 Treatment Plant has an average flow of about 30
3 million gallons of water a day. And based on the
4 available head and that flow, it appeared that we
5 might be able to get about 25 kilowatts of power
6 out of that flow. I guess I can't speak to where
7 the Department of Energy got their numbers because
8 they weren't--

9 CHAIRPERSON GENNARO: [Interposing]
10 Right.

11 MR. TORREY: --in the proposed
12 legislation. But I can tell you where I got my
13 numbers. I got my numbers from the DEP website
14 which says that their wastewater treatment system
15 handles 1.3 billion gallons of water a day. And I
16 have been to the Oakwood Beach Plant twice, the
17 potential outfall there is less than 10 feet of
18 head. I've also been to the 26th Ward Plant in the
19 spring of 2009; the outfall potential there is
20 probably comparable.

21 So what I did was I assumed a head,
22 a vertical drop of 3 meters, so about 10 feet.
23 And multiplied that by the 1.3 billion gallons of
24 water per day because fundamentally the power
25 available is the head or the height that the water

1 falls times the flow rate. I came up with 1.675
2 megawatts. Putting those 2 two numbers together.

3
4 And then that doesn't even take
5 into consideration equipment efficiencies--

6 CHAIRPERSON GENNARO: [Interposing]
7 Right.

8 MR. TORREY: --and so forth. So--

9 CHAIRPERSON GENNARO: [Interposing]
10 It's like theoretical.

11 MR. TORREY: It's the absolute
12 upper limit of what you're going to get. Now.
13 You know, I agree that there is something useful
14 to be done at wastewater treatment facilities
15 because they are so power-hungry that anything
16 that could be done, should be done. But it has to
17 be done in a way so that it's not going to
18 interfere with the core mission of the plant which
19 is to process the wastewater. And so the
20 operators, you can just see from their body
21 language, that if you start talking about
22 inserting equipment within the plant itself, they
23 are under such a microscope from the EPA and other
24 authorities that they are very reluctant to do
25 anything except once they let go of the water and

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release it back to the environment.

And so I think to suggest that you could really pump that number up by installing equipment at other places in the plants, I think is an uphill battle.

CHAIRPERSON GENNARO: Well certainly good for us to know. That's why we have hearings. You know. To figure out what's the, you know, just to try to put some limits on the universe of what we're trying to do, you know.

MR. TORREY: Mm-hmm. And I guess I'd also offer that, you know, I have a certain sympathy to the comments made by Mr. Fiore this morning that they don't want to do anything to compromise their core mission. But--

CHAIRPERSON GENNARO: [Interposing] But there's a way to say it and there's a way not to say it. You know. So.

MR. TORREY: I'm not going to get into--

CHAIRPERSON GENNARO: [Interposing] Right.

MR. TORREY: --the semantics--

CHAIRPERSON GENNARO: --no, of

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course. No, no, no, no, no, no.

MR. TORREY: --but the--

CHAIRPERSON GENNARO: --nor should you. Right.

MR. TORREY: But I think it may be something for the Council to consider that these demonstration projects, you know, there's a way of validating the technology before it actually gets inserted into the system. Right? There are hydraulic labs where you can take pieces of equipment like this and have them evaluated independently--

CHAIRPERSON GENNARO: [Interposing] Right.

MR. TORREY: --and I would encourage that to be a part of the process. Evaluate the technologies, kind of do a fit of the technologies to the opportunities and then validate the technologies before it actually gets inserted into the system. That way you're slowing up the process a little bit but when you finally insert something into the system you have a lot more confidence that it's not going to interfere with the core mission.

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2 CHAIRPERSON GENNARO: Right. And
3 we wouldn't want to do that. And certainly
4 anything that we would do it would certainly be
5 our preference to do it in concert with DEP and
6 with the Administration and the Office of Long
7 Term Planning and Sustainability which is, you
8 know, like the Mayor's whole Office for
9 Sustainability. And you've given us a very good
10 perspective Dr. Torrey and we certainly
11 appreciate that.

12 And Mr. Smith I'd like to thank you
13 for your very specific language, recommendations,
14 that you make that could, you know, broaden the
15 bill in such a way that it takes into account
16 everything that it could and arguable should. And
17 I continue to follow your project with great
18 interest. And I think it's terrific what you're
19 trying to do. And if you want to add something to
20 that I'd be happy to hear it.

21 MR. SMITH: Yeah. I just wanted
22 to--the timing of the hearing is, for our project,
23 is extremely good because we do expect to have a
24 FERC license within 2 to 3 months from now. And
25 that will be a major milestone in the project and

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2 potentially we, like I said, we'll be deploying up
3 to a megawatt over the next year and a half or so
4 along the lines of what you were just talking
5 about in terms of deploying these technologies, I
6 mean for us as we have done the work in the East
7 River, you know we have had multiple permits and
8 we have worked with the regulatory agencies very
9 closely to ensure that we were doing thing on a
10 very, very scalable and low risk way. So that
11 they were comfortable that there was not--

12 CHAIRPERSON GENNARO: [Interposing]
13 Right.

14 MR. SMITH: --going to be the
15 environmental impacts that they could potentially
16 envision. So we've come a long way and we're at
17 that point where working with the City will be,
18 for us, very important in terms of what the future
19 of this project will be here in the City, the
20 opportunities to do others around the City, but
21 also over the long term as, you know, folks come
22 to see this project from around the world.

23 CHAIRPERSON GENNARO: And next time
24 there is a large gathering, you indicated there
25 were hundreds of people that gathered to focus on

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2 this technology, whatever, next time that happens,
3 just, you probably let us know the last time but I
4 get so caught up in a lot of things, just make
5 sure that we know that that's happening and--

6 MR. SMITH: [Interposing] Yeah. We
7 will. And just a last comment, don't forget that
8 idea that you just commented on a New York City
9 renewable energy credit or renewable energy--

10 CHAIRPERSON GENNARO: [Interposing]
11 Yes. Yes. I have that--

12 MR. SMITH: --that could be a
13 valuable--

14 CHAIRPERSON GENNARO: [Interposing]
15 Right.

16 MR. SMITH: --contribution to--

17 CHAIRPERSON GENNARO: [Interposing]
18 I made my note right there. Right there, camera,
19 right there I think. Yeah, 'cause that sounds
20 like a really good idea. And I'm so happy that I
21 thought of it, you know. And so--

22 MR. SMITH: [Interposing] Thanks
23 again for the time.

24 CHAIRPERSON GENNARO: Thank you
25 both. I thank you this panel. You've given us a

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2 great perspective. So we've had, yeah, three
3 really solid panels and so I'm very happy with
4 what we were able to do and I thank you both for
5 your testimony. And the final witness, Mr. Wesson
6 from the Bronx. And so...

7 [Pause]

8 CHAIRPERSON GENNARO: You know,
9 what you have to do is just press the button,
10 press the button there and make the light go off,
11 probably, and just state your name for us before
12 you proceed with your testimony.

13 MR. A. WEISMAN: A. Weisman.
14 You're passing laws that are not being enforced.
15 A number of seasons back you passed the Mr. Softy
16 laws to put a curb on them, nothing has changed.
17 Nobody is enforcing the law. I'm asking you to
18 revisit the law and mandate a switch to be put on
19 these music wagons that automatically cuts it off
20 once they stop which is what the law states. And
21 that would solve the problem.

22 CHAIRPERSON GENNARO: That's, I'm
23 glad you came forward, it's good for us to hear,
24 you know, the laws that are working and not
25 working. I do have some ownership of that

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2 particular element of that bill because this was
3 the noise bill that was put forward by the
4 Bloomberg Administration and a Mayor's bill as
5 written indicated that no ice cream vendor could
6 have, you know, any kind of bell or chime or
7 whatever.

8 And it was my understanding and my
9 belief and those of my colleagues that we had to
10 figure out some way for the kids to know like when
11 the ice cream man was coming or the ice cream
12 person was coming and we thought that a sensible
13 compromise was, as you know, that when they're
14 moving they can ring the chimes and when you stop
15 you can't. And good for us to know that and very
16 timely because it is my understanding, Counsel to
17 the Committee, that we're having a noise hearing
18 this month. Are we not?

19 [Off mic comment]

20 CHAIRPERSON GENNARO: Yes. So next
21 month we're having a noise hearing and that so
22 Monday, next Monday, what date is that?

23 MS. SWANSTON:: The 27th.

24 CHAIRPERSON GENNARO: June 27th were
25 having basically an oversight hearing on that very

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2 bill that you're talking about. So that would be,
3 so you're a little early. But if there's any
4 possible way that you could, you know, come down
5 to that hearing and hear some of that testimony,
6 because we need folks to sort of bear witness, you
7 know, to what is happening and not happening.

8 And there will be representatives
9 from the Administration who will be here that will
10 have the ability to, you know, hear your good
11 testimony on how the chimes are sounding. And
12 it's been my experience that sometimes it is not
13 actually the actual Mr. Softy people who are doing
14 that, sort of like the Mr. Softy rip-off people
15 who play the Mr. Softy jingle when they are not
16 indeed Mr. Softy like at all, they just play his
17 song and they sometimes give Mr. Softy a bad name.
18 They're not Mr. Softy vendors.

19 They're kind of like Mr. Softy
20 wanna-be's and so that it also is a phenomenon but
21 not to, you know, go too far into that otherwise I
22 am feeling like some ice cream now, now that you
23 mentioned this.

24 [Chuckling]

25 CHAIRPERSON GENNARO: And I think

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2 that's just going to happen. You know I think
3 that's just going to happen. But Mr. Weisman, you
4 can kind of consider yourself a very, you know,
5 welcomed witness for that hearing that we're going
6 to have on the 27th. Staff will give you the
7 details on that. And with that said I'd like to
8 thank everyone for coming today.

9 I think we had a really good
10 hearing and I'm very grateful to those from the
11 industry that, you know, came from near and far to
12 give us the benefits of their views so we could
13 have a greener City. We thank you very much for
14 that. And with that said and no more witnesses
15 wishing to be heard, this hearing is adjourned.

16 [Gavel]

C E R T I F I C A T E

I, Laura L. Springate certify that the foregoing transcript is a true and accurate record of the proceedings. I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

A handwritten signature in cursive script that reads "Laura L. Springate". The signature is written in black ink on a light-colored background.

Signature _____ Laura L. Springate _____

Date _____ July 1, 2011 _____