

## Roger Lane

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**From:** Roger Lane [rogerlane@austin.rr.com]  
**Sent:** Tuesday, September 02, 2008 3:02 PM  
**To:** 'garry\_brown@dps.state.ny.us'  
**Cc:** 'judith\_lee@dps.state.ny.us'; 'gavin\_nicoletta@dps.state.ny.us'  
**Subject:** Retort to Utility's Comments  
**Attachments:** Retort to Utility Comments 2 pdf.pdf

Mr. Chairman,

I have reviewed the NY Utility's recommendations to the PSC regarding Stray Voltage.

The Utility's have made 4 recommendations that will, without question, reduce pedestrian safety.

I have attached a summary letter and a detailed retort for your review.

NY can be the first state to truly and effectively address energized objects in the pedestrian pathway.

The PSC must lead the Utilities into a new era of safety, responsibility and accountability.

As always I am available for further discussion.

Regards,

Roger

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September 1, 2008

Garry Brown,  
Chairman,  
New York State Public Service Commission,  
Three Empire State Plaza,  
Albany, New York 12203-1350

RE: CASE 04-M-0159 – Proceeding on Motion of the Commission to Examine the Safety of Consolidated Edison Company of New York, Inc.'s Electric Transmission and Distribution Systems.

Garry Brown,

The PSC wrote “The Commission would like input from interested persons on the proposal and associated issues before determining the measures that the utilities must undertake to ensure that the public is protected from stray voltage to the maximum extent possible.” The PSC’s focus is on pedestrian safety.

I have reviewed the Utility’s comments to the PSC regarding proposed changes to CASE 04-M-0159. The Utility’s have made 4 recommendations that are contrary to pedestrian safety. Furthermore these recommendations ignore what has been learned in NYC over the last 4 years.

<b>Utility Recommendations</b>	<b>Jodie S. Lane Public Safety Foundation Recommendations</b>
1. ConEd says “mobile scanning [SVD2000] should be permitted but not imposed”.	Mobile scanning must be required by the PSC because it is more effective and more comprehensive at detecting energized objects and less costly for the rate payer.
2. ConEd says they should mitigate Stray Voltage Findings i.e. “voltage conditions on electric facilities that should not ordinarily exist”.	Energized objects are never ordinary... Any energized object must be mitigated or proven safe [now and in the future] by engineering analysis.
3. NY State Utilities say they should mitigate any “confirmed stray voltage readings on an electric facility greater than or equal to 8vac measured using a voltmeter and a 500 ohm shunt resistor”.	Some energized objects are safe, almost all are not. It is not possible to determine safety from the measured voltage. Mitigate or prove safe every energized object at 1vac and above.

4. Utilities say "In the event of a finding on an electric facility during stray voltage testing, the utility shall test for stray voltage on all publicly-accessible metallic structures that are capable of conducting electricity within a minimum 10 foot radius of the electric facility."	You must look for energized objects both metallic and non metallic. You must look for energized objects both the Utility's facility and not the Utility's facility. A 30 foot radius is appropriate. Simply stated, you want every symptom of the failure to ensure you fully understand the failure's root cause and to ensure you fully mitigate the pedestrian risk.
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Please see details below.

NY can be the first state to truly and effectively address energized objects in the pedestrian pathway.

The PSC must lead the Utilities into a new era of safety, responsibility and accountability.

Regards,

Roger Lane,

Director

The Jodie S. Lane Public Safety Foundation

1. ConEd says “mobile scanning [SVD2000] should be permitted but not imposed”.

**This is not in the best interests of the pedestrian/rate payer. Mobile scanning must be required by the PSC because it is more effective and more comprehensive at detecting energized objects and less costly for the rate payer. The PSC must REQUIRE its use because the Utilities in spite of proof of effectiveness refuse to implement a better tool to mitigate pedestrian risk.**

More effective

In 2008 in NYC mobile detection [SVD2000] found 9 times more energized objects than manual scanning.

More comprehensive

	Mobile detection with SVD 2000	Manual detection with HD Probe
Detects metallic energized objects on Utility’s facilities	yes	yes
Detects non-metallic energized objects on Utility’s facilities	yes	no
Detects metallic energized objects not on Utility’s facilities	yes	no
Detects non-metallic energized objects not on Utility’s facilities	yes	no

Less expensive

Manual detection costs about \$10 per asset tested in 2007. With about 750,000 ConEd assets the total cost for one scan was about \$7.3M. In 2007 this manual scan detected 678 energized objects or \$10,767/detected energized object. The cost of a mobile scan with the SVD2000 is about \$0.5M/scan. Based on YTD July 2008 data 6 scans costing a total of \$3M have been completed finding 4461 energized objects or \$672/ detected energized object.

\$3M for 6 scans vs. \$7.3M for one scan [mobile scanning is 14X less expensive]

\$672/detected energized object vs. \$10,767/detected energized object [16X less expensive]

**Utilities choose an ineffective and costly manual approach in spite of proof of effectiveness of mobile testing.**

National Grid has been shown in 3 separate occasions that the SVD2000 is effective in their service area. The SVD2000 found more energized objects in days than the utility found in a year.

The PSC must choose to lead on occasions when commonsense logic is not followed by the utility. The PSC must require the use of the SVD2000.

**Mobile scanning must be required by the PSC because it is more effective and more comprehensive at detecting energized objects and less costly for the rate payer.**

**It is time for the PSC to lead.**

- Require all utilities in NY State to use mobile scanning technology [SVD2000].
- Require all utilities in upstate NY to start one mobile test scan using the SVD2000 in the next 90 days to be completed by 12/31/2008.
- Require all utilities in upstate NY to perform no less than 2 complete mobile scans in 2009.
- Require each utility in NY State [upstate & ConEd] to double its scans year over year when more energized objects are found year over year.
- If the count of energized objects does not increase year over year the scan rate should remain unchanged.

## 2. ConEd says they should mitigate Stray Voltage Findings i.e. “voltage conditions on electric facilities that should not ordinarily exist”.

**This definition obscures the safety issue for the pedestrian. Any energized object must be mitigated or proven safe [now and in the future] by engineering analysis.**

**Energized objects are not ordinary. Mitigation must not be restricted to electric facilities.**

ConEd says energized objects “ordinarily exist” on electric facilities. This is incorrect as 99.9% of the electric facility is not energized [above 0.99 volts]. Energized objects are unusual, not commonplace and not ordinary. Each energized object is a warning that there is a strong likelihood that something is wrong and dangerous. More than 40% of energized objects are not on the electric facility.

**Most energized objects are from “Contact Voltage” which is lethal.**

After 20,000 detected energized objects ConEd has provided only one engineering analysis of about 30 light posts that were not contact voltage [NEV]. John Miksad Sr. VP of ConEd said the most common cause of SV in NYC is failed insulation of underground cable. In every case this leads to contact voltage.

**An engineering analysis is required to determine the root cause of an energized object and its safety.**

Some energized objects are safe, almost all are not. It is not possible to determine safety from the measured voltage.

**Any energized object must be mitigated or proven safe [now and in the future] by engineering analysis**

In order to ensure responsibility and accountability the engineering analysis must have 3 steps:

- The engineering analysis must be serialized.
- If an object is proven safe then the engineer who certified this must be recorded along with the “Safe” voltage.
- A tag must be placed on the object [virtually or actually] indicating that any voltage in excess of the originally detected voltage must be considered unsafe and therefore mitigated. E.g. “This object may have up to 1.5 volts. Measurements above 1.5 volts must be mitigated ...engineering analysis # 000305”.

3. The joint comments from NY State Utilities say they should mitigate any “confirmed stray voltage readings on an electric facility greater than or equal to 8vac measured using a voltmeter and a 500 ohm shunt resistor”. This is in contrast to current practice of 1vac in NYC and 4.5vac upstate.

**Utilities must mitigate any energized object of 1 vac and above or prove that the energized object is safe now and in the future.**

The utilities argue that an 8vac mitigation trigger is correct for two reasons:

- This 8vac cut off will separate stray voltage from the voltages that ordinarily exist on electric facilities
- The 8vac trigger will be consistent with the detection equipment which is certified to 5vac

Both of these arguments are incorrect.

**Energized objects are not ordinary. Almost all energized objects are from contact voltage. It is not possible to determine safety from the measured voltage. A single criterion of 8vac will allow utilities to ignore thousands of dangerous contact voltages.**

Voltage does not ordinarily exist on electric facilities. As measured in NYC over the past 4 years less than 1 in 1000 electric facilities were found to have any voltage above 0.99vac. Voltage on electric facilities is not ordinary. It must be said that non lethal root causes for measured voltage do exist. These include NEV, Induced and others. It is also true that when they occur they are at low voltage levels. The problem is that you cannot tell if an energized object at 4 volts [or 10, or 8, or 6, or 2 volts] is NEV or induced or contact voltage from a single measurement of shunt voltage. The utilities would have you ignore half of the energized objects [below 8vac] without knowing for sure that they are not contact voltage. ConEd has mitigated more than 20,000 energized objects since 2004. They have provided only one engineering analysis that showed that less than 30 energized objects were in fact not contact voltage [refer to the Aaron Prazen presentation at the 2008 Jodie Lane Conference, Neutral to Earth Voltage in Co-Op City ]...30 objects out of 20,000 were not contact voltage! John Miksad, Sr. VP at ConEd said that the lion’s share of SV is caused by insulation failure on underground lines...this is contact voltage.

**An 8vac mitigation cutoff is grossly inconsistent with the capability of detection and measurement accuracy of shunt voltage.**

Each detected stray voltage starts with brute force detection and is then followed by a precise measurement with a voltmeter and a shunt resistor. There is no doubt about the precision of this final shunt measurement. Measurement between 1 and 8vac are just as accurate as those above 8vac. There is no reason to exclude below 8vac energized objects.

After 20,000 energized object detections, with more than half below 8vac, it is clear that current manual and mobile methods are capable of detecting and accurately measuring below 8vac energized objects.

### A mitigation trigger of 1vac is safer than an 8vac trigger

ConEd uses a 1vac mitigation trigger, 1 manual detection and frequent [12] mobile detection. ConEd points to a significant reduction in reported shocks over the last 3 years.

National Grid uses a 4.5vac mitigation trigger, 1 manual detection and no mobile detections. National Grid's reported shocks are increasing.

**The issue is pedestrian safety. Any energized object of 1vac must be mitigated or proven safe [now and in the future] by engineering analysis.**

4. Utilities say "In the event of a finding on an electric facility during stray voltage testing, the utility shall test for stray voltage on all publicly-accessible metallic structures that are capable of conducting electricity within a minimum 10foot radius of the electric facility."

**During any test of the Utility's assets if an electric facility is found to be energized it is prudent to look for all other energized objects in the vicinity. You must look for energized objects both metallic and non metallic. You must look for energized objects both the Utility's facility and not the Utility's facility. A 30 foot radius is appropriate.**

Many energized objects are not metallic

17% of the energized objects are concrete sidewalks

Many Energized objects are not part of the Utility's facility.

More than 40% of the detected energized objects were not the Electric Facility.

100% of all energized objects were energized by the Utility's power.

20% of all electric facility failures create multiple energized objects. This 20% creates 45% of all energized objects

Every detected energized object is an opportunity to protect the pedestrian.

Every detected energized object that is de-energized is proof that the root cause of the electric facility failure has been completely mitigated.

Simply stated, you want every symptom of the failure to ensure you fully understand the failure's root cause and to ensure you fully mitigate the risk.