

Lysander Data Center Advisory Committee Meeting

September 18th, 2026



Electricity Concerns



Electricity Concerns from the spreadsheet

- Electricity overall priority: 2.4
 - Electricity Usage/Brown Outs/Capacity 2.8
 - Battery Storage 1.8
 - Nuclear Power generation onsite 2.1
 - Generator Usage 2.4
 - also covered in other areas
 - Who pays for Infrastructure upgrades? 3.0



Background:

- We already recommend that any water infrastructure upgrades for the project be paid for by the developer
- The planning board typically requires developers to pay for any required infrastructure additions
- The town does not manage or maintain the electric grid or electricity prices in any way
- The town has an existing moratorium on Battery Energy Storage Systems (BESS)
- The town is actively working on updating its BESS ordinance



Background:

- The town can designate that any on-site or “behind the meter” electrical power generation over a specific threshold (say 5 Megawatts) is a separate, or prohibited land use
- The town can explicitly limit on-site electrical power generation to emergency battery storage and generators meant solely for temporary use during blackouts
- The town can mandate security perimeters for high voltage generation or specialized fuel systems
- The town may be able to restrict high voltage transmission switch yards within the zone
- Existing town code (320-51) "There shall be no activities which emit radioactivity dangerous to health or adversely affecting the operation of any equipment."



Town vs Others Responsibilities

- New York Independent System Operator (NYISO) operates New York's high-voltage electric grid, runs competitive wholesale electricity markets, and plans for the state's future power needs
- New York Power Authority and companies like Constellation Energy own and operate the actual power generation plants
- National Grid owns the wires and delivers power to the end users, they do not generate the power
- The Public Service Commission (PSC) sets delivery charges, Service Classifications, and demand caps
- NYISO sets the supply charges



Town vs Others Responsibilities

- The town has no say in power delivery or rates
- The DEC has the authority to regulate generator air emissions, fuel types, and fuel storage
- The town can regulate the use of generators, including size, operating hours (outside of emergencies), setbacks, noise, etc. through code
- While the DEC regulates generator emissions, the town can influence generator types and pollution through the Planning Board SEQRA process



On-Site Power



On-Site Backup Power and Generation

- Generators
 - Diesel
 - Natural Gas
 - bi-fuel
- Gas Turbines
- Battery Energy Storage System (BESS)
- Nuclear, or Small Modular Reactor (SMR)



Background:

- There are two separate major power transmission lines crossing at the site
 - The second transmission line may mitigate the need for additional back up power, but that is unlikely
- There is a large Natural Gas main running beneath the proposed data center site
- NRC guidelines for population density would prevent a large scale nuclear reactor at this site based on the combined population of Lysander, Van Buren, Salina, and Clay



Generators

- **Diesel Generators (3.5-4 MW)**
 - PROs
 - Higher energy density per gallon, more fuel efficient
 - Lower upfront equipment costs
 - Last longer under heavy use, fewer ignition parts
 - ***Starts up relatively quickly (10-15 seconds)***
 - CONs
 - ***Requires significant on-site diesel storage***
 - Stored fuel needs stabilizers
 - Higher fuel costs
 - ***Produce more greenhouse gasses, soot, and carbon emissions***
 - ***Are louder when running, and should require vibration dampening***



Image source: Remsa USA



Generators

- **Natural Gas Generators (2.5-5 MW)**
 - PROs
 - Connects to municipal pipeline, no on-site fuel storage
 - Lower fuel costs
 - ***Quieter***
 - ***Burns more cleanly, far fewer carbon emissions***
 - May be less expensive in the long term
 - CONs
 - ***Longer startup times (45-90 seconds), requires BESS***
 - Lower energy density, less efficient
 - Upfront equipment costs are typically higher
 - Requires regular maintenance of ignition components



Image source: PowerLink Energy US



Generators

- **Bi-Fuel Generators (4 MW)**
 - PROs
 - Fast startup, same time as diesel generators
 - Overall lower fuel costs
 - ***Burns more cleanly than diesel but can settle at 70% gas / 30% diesel***
 - ***Should Not require BESS***
 - May be less expensive in the long term
 - CONS
 - ***Comparable noise to Diesel generators***
 - Still requires on-site fuel storage
 - ***Can be tuned to use more diesel***
 - Upfront equipment costs are typically higher than diesel only
 - Requires regular maintenance of ignition components
 - Vibration dampening may be required

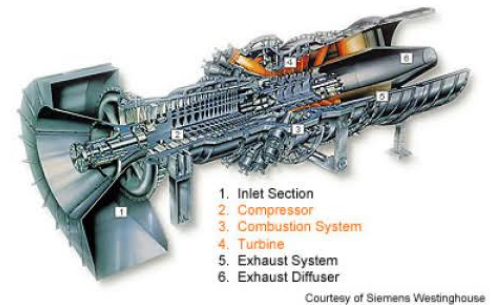


Image source: Generac



Turbines

- **Natural Gas Turbines (34-50 MW)**
 - PROs
 - Connects to municipal pipeline, ***no on-site fuel storage***
 - Lower fuel costs
 - Far fewer units to maintain
 - ***Burns more cleanly, fewer carbon emissions***
 - CONs
 - Overall quieter, but make a ***High Pitched whine***
 - Take longer to start up (5-10 minutes), requires BESS
 - Lower energy density, less efficient
 - ***Upfront costs are prohibitively high for a backup only scenario***
 - Requires regular maintenance of ignition components



Units Required for a 270 MW Data Center

Type	Min Power	Max Power	Min Units	Max Units (calculated)	Redundancy	Total Units
Diesel Generator	3.25	4.00	68	83	10	78-93
Nat Gas Generator	2.50	5.00	54	108	10	64-118
Bi-Fuel Generator	4.00	4.00	68	68	10	78
Nat Gas Turbine	34.00	50.00	5	8	1	35-51



On-Site Diesel Storage Requirements

- Standard industrial backup generators consume about 70 gallons of diesel fuel per hour per Megawatt
- That's about 450,000 gallons for a 24 hour outage at a 270 MW data center.
- Industry Standard is to have a 48 hour supply on hand, so 900,000 gallons.
- These numbers are reduced by $\sim 2/3$ for bi-fuel generators (157,500 gallons for 24 hours, and 315,000 gallons for 48)
- There are priority delivery contracts they can use to guarantee resupply times, which may reduce the amount they need to store on site



Noise Considerations

- The Decibel scale is logarithmic, sound doubles every 3 decibels
- Two generators are twice as loud as one, so two generators are 3dB louder
- Four generators are twice as loud as two, so four generators are 3dB louder than 2, but 6 dB louder than one
- Distance reduces the sound level
- Doubling the distance from a sound reduces the its level by 6dB

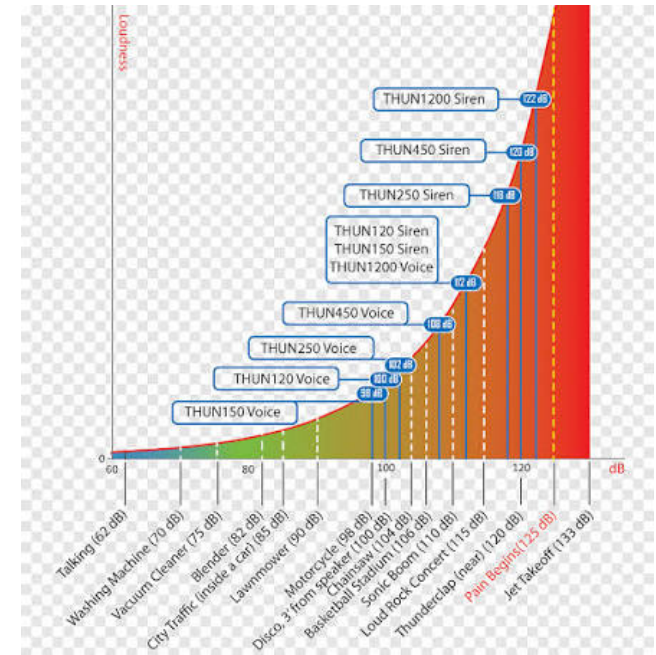


Image source: PNGEgg



Generator Decibels at the property line (assuming 400 foot setback)

Type	Units	dBA per unit	Combined dBA	dBA at property line without mitigation
Diesel Generator	86	78	97	73
Nat Gas Generator	91	73	93	68
Bi-Fuel Generator	78	75	94	69
Nat Gas Turbine	58	83	101	75

* These numbers are dBA only and do not consider low frequency sound. Further research is required for dBC levels



Noise Considerations

- Possible Noise Mitigation strategies (to be discussed further during the Noise discussion)
 - Require sound-proof enclosures
 - Require they install vibration dampening systems
 - Require intake and exhaust air diffusers
 - Require mufflers / silencers on exhaust
 - Require VFD cooling fans instead of belt driven fans
 - Require they install trees or Berms
 - Require a large setback
 - Require sound barriers
 - Locate buildings between the generator farm and the property line
 - Require staggered testing rather than full fleet testing



Generator Recommendations



Generator Recommendations

- Recommend that we only allow Natural Gas Generators or Bi-Fuel Generators for emergency backup power
 - These are the two quietest options
 - Eliminates or greatly reduces the need for on-site diesel storage
 - They create dramatically fewer greenhouse gas, carbon, and soot emissions than standard Diesel generators
 - They don't produce the high pitched whine of turbines
- Recommend an immediate shutdown trigger if bi-fuel generators fall below 70% natural gas utilization during a test
- Recommend that generators are only allowed to be used for backup power during an outage, no behind the meter uses of generators or turbines are allowed



Generator Recommendations

- Recommend full environmental impact study to look at noise and environmental issues before any approval is given
- Recommend scheduled inspections by a certified third party to ensure units are working as expected
- Recommend generator testing can only be performed during specific weekday and daytime hours, and specify the max number of units to be tested at a time
 - Cap the number of testing hours per year
 - Perhaps specify they be tested during peak ambient noise hours? Maybe the opposite, we should discuss
- Recommend a separate decommissioning bond for generator farms
- Define these Generator Farms as a special use requiring a separate review and permit



Next Steps



Next Steps

- Continue the discussion on electricity usage and on-site generation
- Begin talking about Battery Storage
- What did we miss?
- What needs clarification?



Thank You

