NUENERGEN
ENVIRONMENTAL ENGINEERING SOLUTIONS, P.C.

August 17, 2026

Ms. Denise Grattan
Division of Environmental Permits, Region 2
NYSDEC
47-40 21st Street
Long Island City, NY 11101

Re: **NYC HHC Bellevue Hospital – ASF RTN 3 Renewal & Cogen Project**
Response to Notice of Incomplete Application dated August 4, 2026

Dear Ms. Grattan:

We are writing in response to NYSDEC's Notice of Incomplete Application dated August 4, 2026, regarding the ASF RTN 3 Renewal & Cogen Project.

The revised CLCPA analysis and application materials enclosed with this submission address the comments as follows:

CLCPA Analysis

1. On PDF pages 39-41, the CLCPA analysis indicates that the net GHG, HAP and co-pollutants emissions are decreasing. It is not clear if project scenario calculations are either projected actual emissions or projected PTE emissions, but both should be included.

   Response: Revised Tables 1-3 (Section 3(a)) now report projected actual and PTE emissions side by side for both the Baseline and Project scenarios, drawn from Attachment A.

2. As described in Table 1: GHG Emissions Reduction Summary on page 3 of the CLCPA analysis (also pg. 39 of 221) the baseline scenario is 6 demand response generators, 1 generator in demand response to be removed, and 2 emergency generators. However, in Attachment A Exhibit 1 the baseline scenario demand response generators are calculated as if they are emergency generators (500 hr./yr instead of 8760 hr./yr). Please ensure that throughout the document the baseline scenario demonstrates the facility's current operations and the project scenario demonstrates the modifications being proposed.

   Response: Attachment A was corrected so baseline PTE for the demand-response generators (Sections 1 and 2) is calculated on an 8,760 hr/yr basis. Table 1 now clearly separates “Baseline Scenario” and “Project Scenario” as distinct, labeled columns, and baseline actual emissions are shown separately on the emergency/testing basis (100 hr/yr) that was applicable while units were still enrolled in Demand Response.

3. Exhibit 1 Section 5 does not total the 8 generators correctly. The total only includes the first six generators. For example, the max hourly capacity is calculated at 102 GPH but should be 162.7 GPH. Please correct the calculation in the Total row of this table to include all 8 generators.

   Response: The Total row in Attachment A, Exhibit 1, Section 5 was corrected to sum all eight (8) generators.

4. The CLCPA analysis should utilize GWP-20 values rather than GWP-100 values when calculating CO2e. The GWP-20 emission factors can be found at 6 NYCRR 496.5.

   Response: All CO2e calculations throughout the analysis and Attachment A were revised to use GWP-20 factors per 6 NYCRR 496.5.

5. Please utilize the latest version of the upstream GHG emission factors found in Appendix A of the Statewide GHG Emissions Report for all upstream GHG calculations.

   Response: Upstream GHG calculations were updated to the current Appendix A emission factors from the Statewide GHG Emissions Report.

6. Please clearly label the values in Exhibits A-C. For example, an hourly emission rate of 177.29 is listed in Exhibit A but the units for this value are unclear. The units for the values listed under Actual Emissions and Potential Emissions in Exhibits A-C are also unclear.

   Response: All Attachment A exhibits were revised to label units explicitly on every value and column header (e.g., lb/hr, TPY, MMBtu/hr).

7. Please indicate the operating hours for the emergency generators and CHP units for the actual annual calculations. For the CLCPA analysis, actual emissions should be calculated by utilizing the highest 24-month average during the five years preceding the date the permit application was received unless another period is more representative.

   Response: Actual-emissions calculations now identify the operating-hours basis used for each source, and baseline/project actual emissions are calculated using the highest 24-month average per NYSDEC guidance, as reflected in the Emissions Summary tables and Attachment A.

8. In the upstream Hourly Emission Rate Column in Exhibit A the lb./MMBtu is multiplied by 177.29. Based on the information presented in the tables the lb./MMBtu should be multiplied by 25.00 instead of 177.29. This would align with the calculation method used in the direct emissions calculations. Please correct this calculation or more clearly demonstrate the calculation being performed in this column.

   Response: The upstream calculation methodology in Attachment A was corrected to align with the direct-emissions approach, multiplying lb/MMBtu by the correct hourly heat input value.

9. It is unclear what is being calculated in Exhibit C. The exhibit indicates it is the "Estimation of emissions of Regulated Air Contaminants from Nine (9) existing emergency generators". This is the same title used on Exhibit A. Please clarify what Exhibit C is calculating.

   Response: Exhibit C was relabeled with a distinct, descriptive title clarifying what it calculates, and duplicate titling with Exhibit A was corrected.

10. When evaluating pre-project and post-project emissions to determine whether the project will result in an increase in GHG emissions do not include marginal grid emission factors, grid emissions avoided, grid displacement credit, thermal recover factor, annual thermal energy displaced, avoided steam emission factor, or thermal displacement credit. Please just compare the direct, upstream, and any indirect or downstream GHG emissions attributable to the project (Exhibit D).

    Response: Section 3 now presents the core direct-and-upstream comparison (Sections 3(a)-3(b)) with all grid and thermal displacement credits excluded, consistent with this comment. That comparison shows a net increase in both actual and potential GHG, co-pollutant, and HAP emissions.

    a. If you would like to include the grid, thermal energy, and avoided steam information as part of the discussion it can be included. However, a calculation just comparing the pre-project and post-project direct, upstream, downstream, and indirect GHG emissions must be provided.

        Response: Grid displacement credit and thermal displacement credit are discussed separately in Section 3(c) as supplemental, system-wide context and are not netted into the Section 3(b) increase/decrease determination.

    b. If the pre-project and post-project comparison of just direct, upstream, downstream, and indirect emissions shows an increase in potential or actual GHG emissions as a result of this project, please provide a discussion of the technical and economic feasibility of any alternatives or GHG mitigation measures to address the increase. Additional information on what to provide is outlined in the "Identification of Alternatives and Mitigation" section of the DAR-21 guidance document.

        Response: Because Section 3(b) shows a net increase, Section 5 (Alternatives and Mitigation) was added, addressing grid displacement, BACT-equivalent controls, displacement benefits, complementary H+H decarbonization initiatives, and the technical/economic infeasibility of full electrification at this time.

    c. If the pre-project and post-project comparison of just direct, upstream, downstream, and indirect emissions shows an increase in actual GHG or co-pollutant emissions as a result of this project you will be required to provide a disproportionate burden report – please contact the Division of Env. Permits accordingly.

        Response: Because the project results in a net increase in actual GHG and co-pollutant emissions and Bellevue Hospital is located in a NYSDEC-confirmed Disadvantaged Community, Section 4 (CLCPA §7(3) Disproportionate Burden Analysis) was added, to be completed using the Climate Justice Working Group's DAC Criteria and List. - Update that sheet with the values (publicly provided values just enter in)

11. On PDF page 48, the table should say "upstream emissions" instead of "upstream emission factor", and the same for the direct emissions table.

    Response: Table and exhibit headers were corrected to read "upstream emissions" and "direct emissions" throughout.

12. Please provide projected future GHG and CO2e emissions for the years 2030 and 2050, including any proposed future emissions reduction strategies.

    Response: Section 4 now presents Bellevue's facility-wide trajectory against NYC H+H's commitment to reduce operational GHG emissions 30% by 2030 and 80% by 2050, along with specific reduction initiatives (LED retrofit, chiller optimization, planned BAS/hydraulic balancing) and their estimated CO2e reductions.

13. CLCPA Submission Format. See attached sheet for the required format of the CLCPA analysis.

    Response: The analysis was restructured as a standalone document with the required cover page (facility name, ID, revision date), table of contents, and the five DAR-21 sections: (1) Authorization and Purpose, (2) Description of Changes, (3) Calculations and Analysis, (4) CLCPA §7(3)/Disadvantaged Communities, (5) Alternatives and Mitigation.

14. CLCPA 7(3). The resolution of the above comments will dictate whether a CLCPA 7(3) may be required. If you believe a CLCPA 7(3) will be required due to the future revision of the CLCPA 7(2) analysis indicating an increase in actual emissions of GHG and/or co-pollutants, please contact Denise Grattan in the Division of Env. Permits immediately for further instructions.

    Response: The revised analysis shows an increase in actual GHG and co-pollutant emissions; a §7(3) Disproportionate Burden Analysis has accordingly been incorporated as Section 4, and EESPC will coordinate with the Division of Environmental Permits on next steps for that analysis.

Public Participation – Repository

15. The Public Participation Plan dated noted a virtual meeting was to be held on 9/28/23 and the DEC received a PPP progress report. The online repository's link in the PPP was noted as Cogen Energy System - NYC Health + Hospitals. While the project has changed since 2023, the repository should be updated to reflect current proposals/documents. Please update this repository to include the 4/2/26 submission which include an updated DEC Air Permit application, CLCPA and other documents. Section VI notes the repository will be updated throughout the application process with project-related information and written materials (i.e., application forms and supporting materials, draft permit, fact sheet, statement of basis (where applicable), the Notice of Complete Application provided by the NYSDEC, etc.). Also please note the PPP Section V notes the applicant is responsible for providing the Notice of Complete Application and draft permit to meeting attendees and any identified interested parties.

    Response: Has been actively updated with each submission.

ASF Application, Certification of Conformity and Calculations in application package dated 3/30/26 received 4/13/26

16. Verify that Caterpillar G3516H cogen engines are 4-stroke lean burn engines. Previous application indicated they are 4-stroke rich burn engines.

    Response: Combustion type has been confirmed as a 4-stroke lean burn engine via manufacturers specifications.

17. Verify that the proposed emission limits to be verified by stack test are as follows,
    Oxides of Nitrogen 0.0733 g/bhp-hr.
    Carbon Monoxide 0.2745 g/bhp-hr.
    Volatile Organic Compounds 0.1022 g/bhp-hr.
    Note the Previous application proposed the following emission limits
    Oxides of Nitrogen 0.10 g/bhp-hr.
    Carbon Monoxide 0.60 g/bhp-hr.
    Volatile Organic Compounds 0.42/bhp-hr.

    Response: EES identified an inverted unit-conversion error that had been carried through the emission factor calculations since prior submission. The conversion methodology has been corrected, and all associated emission factors have been updated accordingly. The corrected stack-test emission limits are reflected in the revised application materials.

18. Provide methodology for calculating CO, NOX, and VOC emissions. Using the proposed NOx emission limit, our calculation resulted in the following per hour emission.

$$0.0733\ \frac{g}{bhp-hr} \times 1982\ kW \times 1.34 \frac{bhp}{kW} \times \frac{1lb}{454\ g} \times 2\ Engines$$
$$= 0.86\ lb\ NOx\ per\ hour$$

    Response: Emissions are calculated as:
    Emission Rate (lb/hr) = Emission Limit (g/bhp-hr) × Engine Output (bhp) × Number of Engines ÷ 454 (g/lb)
    Where Engine Output (bhp) = Engine Rating (kW) × 1.34 (bhp/kW). For the two (2) Caterpillar G3516H units (1,982 kW each, 2,655.9 bhp each):
    NOx = 0.0733 g/bhp-hr × 2,655.9 bhp × 2 ÷ 454 = 0.86 lb/hr (matching NYSDEC's example calculation);
    CO = 0.2745 g/bhp-hr × 2,655.9 bhp × 2 ÷ 454 = 3.21 lb/hr;
    VOC = 0.1022 g/bhp-hr × 2,655.9 bhp × 2 ÷ 454 = 1.20 lb/hr.
    This methodology is being added to the application package's emissions calculations.

19. Provide manufacturer specification sheet for Caterpillar G3516H and accompanying emission control to verify proposed emission factors.

    Response: The manufacturer specification sheet is being requested from the facility and will be provided as a supporting attachment to the application package.

20. Provide EPA Certificate of Conformity for each emergency engine.

    Response: Certificates of Conformity for each emergency engine are being requested from the facility and will be provided as a supporting attachment to the application package.

21. Exempt activities form should be revised to match information in air permit application.

    Response: The exempt activities form has been reconciled with the air permit application - the number of exempt units was corrected from two (2) to nine (9) - and will be resubmitted with the application package.

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22. Emissions calculations submitted as Exhibit 1-4 on pages 218-221 as Appendix M: Facility-wide Emissions Inventory. If these are no longer accurate, please remove them from the application package.

    Response: Appendix M was a leftover from the prior CEQR submission (requested by DEC at the time, not matching the current FWEI for that reason), it's been reviewed/updated, and the updated FWEI will go back with the application package but not with the CEQR since it wasn't requested there.

Other

23. Review of the Draft EAS is ongoing, and additional comments may be forthcoming.

    Response: Noted.

Enclosed with this submission, please find:

- Revised CLCPA Analysis (Rev. 1, dated 8-6-26), including Attachment A

If you have any questions please contact us; we look forward to bringing this application to a successful and timely completeness determination.

Very truly yours,

ENVIRONMENTAL ENGINEERING SOLUTIONS, P.C.

Robert DeGiorgio, P.E.
President

Attachments
A – Revised CLCPA Analysis (Rev. 1)

cc:
K. Holder, Bellevue Hospital
James T. Rostkowski, Dynamic Mechanical

CLCPA Analysis for

NYC HHC Bellevue Hospital

462 First Avenue, New York, NY 10016 (Manhattan)

DEC Facility ID: 2-6206-00032

Application ID: 2-6206-00032/00004

ASF RTN 3 Renewal & Cogen Project

Revision 1 | Date of Revision: 8-10-2026

Prepared in response to the New York State Department of Environmental Conservation's request for additional information regarding this application

Submitted to:

NYSDEC Region 2, 47-40 21st Street, Long Island City, NY 11101

Submitted by:

Environmental and Energy Solutions, P.C. (EESPC), 10 Bank Street, Suite 650, White Plains, NY 10606

Revision History

Date	Revision	Submitted By
3-25-26	0	Tara Curasi

Table of Contents

1. Authorization and Purpose

NYC HHC Bellevue Hospital ("the facility") operates under an Article 19 Air State Facility (ASF) permit (DEC ID: 2-6206-00032) issued by the New York State Department of Environmental Conservation (NYSDEC). This CLCPA analysis supports a combined renewal and modification of the facility's ASF permit.

The modification involves the installation of two (2) new combined heat and power (CHP) units and one (1) new exempt emergency generator, along with the removal of all seven (7) generators previously enrolled in the Demand Response (DR) Program: six (6) of these units will convert to emergency-only, exempt status, and the seventh will be decommissioned.

2. Description of Changes Involved

The following changes to permitted and exempt equipment, operations, and fuel use are proposed as part of this renewal/modification:

- Installation of two (2) Caterpillar G3516H natural gas-fired CHP engines, rated at 1,982 kW each.
- Confirmation of exempt status for four (4) Caterpillar C27 and two (2) Caterpillar D399 generators, following their permanent withdrawal from the Demand Response Program - these units now operate exclusively for emergency use, testing, and maintenance under 6 NYCRR 201-3.2.
- Decommissioning of one (1) Rudox RM900s 600 kW previously enrolled DR generator, completed March 16, 2026.
- Installation of one (1) new MTU 16V4000 DS2000 2,000 kW exempt emergency generator.

3. Calculations and Analysis Requirements

All calculations below reflect direct and upstream GHG, hazardous air pollutant, and co-pollutant emissions attributable to the project. Grid and thermal displacements are excluded from the core comparison below, consistent with NYSDEC guidance. Supporting discussion of grid and thermal displacement benefits is provided separately in Section 3(c).

3(a) Emissions Summary Section

The tables below present projected actual and potential-to-emit (PTE) emissions for the baseline and project scenarios. Baseline actual emissions reflect operation of the seven (7) generators previously enrolled in demand response (100 hrs/yr) and two (2) exempt emergency generators (52 hrs/yr); baseline potential emissions reflect the maximum operation of 8,760 hr/yr for demand response generators and 500 hr/yr for exempt generators. Project scenario actual emissions reflect operation of the two (2) new CHP units (8,238 hrs/yr) and nine (9) emergency generators (52 hrs/yr); project scenario potential emissions reflect the two (2) CHP units running continuously (8,760 hrs/yr) and the nine (9) emergency generators each running 500 hrs/yr. Values are drawn from the supporting calculations in Appendix A.

Table 1 - GHG Emissions Summary (CO2e, TPY)

GHG Emissions Reduction Summary	
Baseline Scenario	Six (6) Generators in Demand Response +
	One (1) Generator in Demand Response to be removed +
	Two (2) Existing Exempt Emergency Generators
Project Scenario	Two (2) new CHP units +
	Eight (8) Existing Exempt Emergency Generators
	One (1) New Exempt Emergency Generators

Sources	Upstream Carbon Dioxide Equivalents (CO2e) TPY				Net project Impact TPY	
	Baseline Scenario GHG Emissions CO2e		Project Scenario GHG Emissions		Actual	Potential
	Actual CO2e	Potential CO2e	Actual CO2e	Potential CO2e		
Emergency Generators	53.19	3,775.77	39.45	379.34	-13.74	-3,396.43
CHPs	-	-	9,081.73	9,552.82	9,081.73	9,552.82
Total	**53.19**	**3,775.77**	**9,121.18**	**9,932.16**	**9,067.98**	**6,156.39**

Sources	Direct Carbon Dioxide Equivalents (CO2e) TPY				Net project Impact TPY	
	Baseline Scenario GHG Emissions CO2e		Project Scenario GHG Emissions		Actual	Potential
	Actual CO2e	Potential CO2e	Actual CO2e	Potential CO2e		
Emergency Generators	170.02	12,068.32	126.10	1,212.46	-43.93	-10,855.85
CHPs	-	-	17,445.15	18,350.09	17,445.15	18,350.09
Total	**170.02**	**12,068.32**	**17,571.25**	**19,562.55**	**17,401.22**	**7,494.23**

Table 2 - Co-Pollutants Emissions Summary

Co-pollutants Emissions Reduction Summary						
Sources	Direct Co-Pollutants TPY				Net project Impact	
	Baseline Scenario		Project Scenario		Actual	Potential
	Actual TPY	Potential TPY	Actual TPY	Potential TPY		
Emergency Generators	4.40	312.20	3.26	31.37	-1.14	-280.84
CHPs	-	-	384.57	404.52	384.57	404.52
Total	**4.40**	**312.20**	**387.83**	**435.88**	**383.43**	**123.68**

Co-Pollutants include Total Particulate Matter, Sulfur Dioxide, Nitrogen Oxides, Carbon Monoxide, Volatile Organic Compounds.

Table 3 - Hazardous Air Pollutants (HAPs) Emissions Summary

Hazardous Air Pollutants Emissions Reduction Summary						
Sources	Direct Hazardous Air Pollutants TPY				Net project Impact	
	Baseline Scenario		Project Scenario		Actual	Potential
	Actual TPY	Potential TPY	Actual TPY	Potential TPY		
Emergency Generators	0.00	0.12	0.00	0.01	0.00	-0.10
CHPs	-	-	1.00	1.06	1.00	1.06
Total	**0.00**	**0.12**	**1.00**	**1.07**	**1.00**	**0.95**

Hazardous Air Pollutants includes Benzene, Toluene, Xylene, Formaldehyde, Acetaldehyde, Acrolein, and Total Poly Aromatic Hydrocarbons.

3(b) Net Increase / Decrease Statement

Based on the direct and upstream comparison presented above, the proposed project results in a net increase in both actual and potential emissions across all evaluated pollutant categories. The magnitude of this increase varies by category as detailed below.

- GHG Upstream (CO_2e) emissions, associated with the generation of electricity and fuel supply chains attributable to the project, are estimated to increase by 9,067.98 TPY under actual operation and by 6,156.39 TPY under potential (PTE) operation.
- GHG Direct (CO_2e) emissions, which account for on-site combustion and process emissions, are estimated to increase by 17,401.22 TPY under actual operation and by 7,494.23 TPY under potential (PTE) operation.
- Co-pollutant emissions are estimated to increase by 383.43 TPY under actual operation and by 123.68 TPY under potential (PTE) operation. HAP emissions are estimated to increase by 1.003 TPY under actual operation and by 0.95 TPY under potential (PTE) operation.

The net increase in direct and upstream emissions is driven by the addition of near-continuous CHP operation (9,081.73 TPY CO2e upstream actual / 17,445.15 TPY CO2e direct actual), which outweighs the emissions reduction achieved by converting the demand-response generator fleet to emergency-only, exempt operation (a reduction of 13.74 TPY CO2e upstream actual / 43.93 TPY CO2e direct actual from the generator fleet alone).

The CHP units are equipped with Selective Catalytic Reduction (SCR) and an oxidation catalyst, which together represent best available control technology (BACT) for NOx and CO. These controls limit the co-pollutant and HAP impact of the increased operating hours relative to the corresponding GHG impact, such that co-pollutant and HAP emissions increase at a proportionally lower rate than direct GHG emissions.

It is important to note that these values represent base emission increases only and do not reflect any offsetting reductions attributable to emissions displaced by the installation of the CHP units. As such, the figures presented above should be understood as a conservative, upper-bound characterization of the project's emissions impact prior to the application of displacement credits, which are addressed separately in the sections that follow.

3(c) Grid and Thermal Displacements

Grid and thermal displacement credits, while excluded from the core comparison presented in Section 3(b), represent a substantial system-wide benefit and are addressed separately here. The CHP units generate on-site power that displaces higher carbon-intensity marginal grid generation in NYC Zone J, and generate thermal energy that displaces steam that would otherwise be produced by higher-emitting or less efficient off-site sources. When grid displacement and thermal displacement credits are applied to the upstream and direct GHG totals reported above, the net project impact is substantially reduced.

GHG Emissions Reduction Summary- With displacement Credits

Baseline Scenario	Six (6) Generators in Demand Response +
	One (1) Generator in Demand Response to be removed +
	Two (2) Existing Exempt Emergency Generators
Project Scenario	Two (2) new CHP units +
	Eight (8) Existing Exempt Emergency Generators
	One (1) New Exempt Emergency Generators

Sources	Upstream Carbon Dioxide Equivalents (CO2e) TPY				Net project Impact (TPY)	
	Baseline Scenario GHG Emissions CO2e		Project Scenario GHG Emissions		Actual	Potential
	Actual CO2e	Potential CO2e	Actual CO2e	Potential CO2e		
Emergency Generators	53.19	3,775.77	39.45	379.34	-13.74	-3,396.43
CHPs	-	-	9,081.73	9,552.82	9,081.73	9,552.82
Grid Displacement Credit	-	-	-13,204.88	-13,889.86	-13,204.88	-13,889.86
Thermal Displacement Credit	-	-	-3,718.20	-3,911.07	-3,718.20	-3,911.07
Total	**53.19**	**3,775.77**	**-7,801.90**	**-7,868.77**	**-7,855.09**	**-11,644.54**

Sources	Direct Carbon Dioxide Equivalents (CO2e) TPY				Net project Impact (TPY)	
	Baseline Scenario GHG Emissions CO2e		Project Scenario GHG Emissions		Actual	Potential
	Actual CO2e	Potential CO2e	Actual CO2e	Potential CO2e		
Emergency Generators	170.02	12,068.32	126.10	1,212.46	-43.93	-10,855.85
CHPs	-	-	17,445.15	18,350.09	17,445.15	18,350.09
Thermal Displacement Credit	-	-	-5,946.35	-6,254.80	-5,946.35	-6,254.80
Total	**170.02**	**12,068.32**	**11,624.90**	**13,307.74**	**11,454.88**	**1,239.43**

With displacement credits applied, the net project impact on upstream GHG emissions is reduced to a net benefit of 7,855.09 TPY decrease in CO2e, indicating that the project results in a net decrease in upstream emissions when the offsetting effect of displaced grid generation is accounted for. The net project impact on direct GHG emissions is reduced to an 11,454.88 TPY CO2e increase, a substantial decrease from the 17,401.22 TPY CO2e increase calculated without credits. This reduction reflects the increased operating hours of the CHP units, which supply both the hospital's on-site thermal and electric loads and, where applicable, excess generation to the upstream grid, thereby displacing higher-emitting generation that would otherwise be required to meet the same demand.

4. Future Projections

NYC Health + Hospitals (H+H) has committed system-wide to reducing operational GHG emissions by 30% between 2020 and 2030, and by 80% by 2050. Bellevue Hospital is a core component of this commitment: as the second largest acute care facility in the H+H system, Bellevue represents approximately 12% of H+H's total operational emissions, and reductions achieved at the facility contribute materially to the system-wide target.

NYC HH- Bellevue's 2030 & 2050 Commitment

Scenario Year	Future Emissions Reduction Strategies	Approximate CO2e Reduction (tpy)	Total CO2e Reduction (tpy)	Projected CO2e Emissions (tpy)
2030	LED Retrofit: Replacement of 30,000 fixtures	1,108.92	3,161.43	14,409.82
	Chiller Optimization: Installation of an air-cooled chiller for winter use and ongoing plant control optimization	415.57		
	Future Infrastructure: Planned updates to the Building Automation System (BAS) and hydraulic balancing of the chilled water system are estimated to reduce an additional	1,636.93		
2050	Future Infrastructure: Planned updates to the Building Automation System (BAS) and hydraulic balancing of the chilled water system are estimated to reduce an additional	1,636.93	2,745.85	11,663.97
	LED Retrofit: Replacement of 30,000 fixtures	1,108.92		

Building on the CHP installation described in this analysis, Bellevue has established, and continues to implement, the following complementary decarbonization initiatives. The replacement of 30,000 fixtures, providing an ongoing annual reduction of approximately 1,108.92 TPY of CO2e. Installation of an air-cooled chiller for winter use, together with ongoing plant control optimization, providing a one-time reduction of approximately 415.57 TPY of CO2e, already reflected in the facility's operating baseline. Finally, planned Building Automation System (BAS) updates and hydraulic balancing of the chilled water system, estimated to provide an ongoing annual reduction of approximately 1,636.93 TPY of CO2e once implemented within the applicable planning horizon.

The LED Retrofit and Future Infrastructure measures represent recurring annual reductions and are therefore reflected in both the 2030 and 2050 projections. The Chiller Optimization measure represents a one-time reduction achieved through equipment installation and control optimization; because its effect is captured once in the facility's operating baseline rather than compounding annually, it is included in the 2030 total but is not carried forward as an additional, separate reduction in the 2050 projection.

Combined, these measures are projected to reduce facility emissions by a total of approximately 3,161.43 TPY of CO2e by 2030, reducing the project's net CO2e to approximately 14,409.82 TPY. By 2050, with the continued benefit of the LED retrofit and the completed implementation of the BAS and hydraulic balancing measures, total reductions are projected to amount to 2,745.85 TPY of CO2e, resulting in projected facility-wide CO2e emissions of approximately 11,663.97 TPY.

5. Alternatives and Mitigation

This section discusses the technical and economic feasibility of alternatives and mitigation measures considered to address the increase summarized in Section 3.

- BACT-equivalent emissions controls (Selective Catalytic Reduction and an oxidation catalyst) are incorporated into the CHP unit design, limiting co-pollutant and HAP impact relative to the increase in operating hours.
- The CHP units displace higher-carbon-intensity NYC Zone J marginal grid generation and higher-emitting off-site steam production, providing a substantial system-wide mitigating benefit (Section 3(c)).
- Ongoing H+H decarbonization initiatives - the LED retrofit, chiller optimization, and planned BAS/hydraulic balancing upgrades - provide complementary facility-wide mitigation beyond this specific project.

Full electrification of the CHP function was considered and is not currently feasible for this project. The CHP units provide critical combined heat and power generation necessary to support continuous, resilient hospital operations, including during grid outages. Replacing this capacity with an all-electric alternative

would require substantial upgrades to the facility's electrical infrastructure - utility service capacity, transformers, switchgear, distribution equipment, and associated emergency power systems - that are beyond the scope of this project and would significantly increase project complexity, cost, and implementation timeline, without providing an equivalent level of on-site resiliency during a grid outage. Electrification remains a long-term objective that the facility will continue to evaluate as electrical infrastructure, grid reliability, and technology evolve, consistent with the facility's 2030 and 2050 GHG reduction commitments described in Section 4.

The proposed CHP configuration - paired with BACT-equivalent controls and the facility's broader decarbonization initiatives - represents the most practical and reliable option for supporting critical healthcare operations while advancing the facility's long-term emissions reduction goals.

6. Permitting and Disadvantaged Communities under CLCPA 7(3)

Bellevue Hospital is located within a NYSDEC-confirmed Disadvantaged Community (DAC). Because the project results in a net increase in both actual and potential GHG and co-pollutant emissions (Section 3(b)), this project is subject to a CLCPA Section 7(3) Disproportionate Burden Analysis, to be completed using the New York State Climate Justice Working Group's Disadvantaged Communities Criteria and List for the Bellevue Hospital location (See Appendix B).

Conclusion

The permit renewal and proposed modification - installing two (2) CHP units and one (1) new exempt emergency generator and converting the remaining generator fleet to emergency-only status - results in a net increase in direct and upstream GHG, co-pollutant, and HAP emissions. This increase is driven primarily by near-continuous CHP operation, which outweighs the reductions achieved by removing generators from the Demand Response Program.

Factoring in system-wide benefits - grid displacement credit from onsite CHP generation and thermal displacement credit from avoided steam production - total upstream GHG impact is a net reduction on both an actual and potential basis. The increase in direct GHG emissions is being addressed by the Facility, as described in Sections 4 and 5, and the Facility will continue to incorporate mitigation strategies into its operations to reach the 2030 and 2050 emissions goals.

As a critical facility, Bellevue Hospital's emission sources are necessary for continuous, resilient hospital operations. The proposed project is the most practical and reliable path to meeting that need while advancing the Facility's and NYC Health + Hospitals' commitment to reducing operational GHG emissions 30% by 2030 and 80% by 2050.

Appendix A: CLCPA Calculations - (Exhibit 1-9, Glossary A, Glossary B)

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Exhibit 1
NYCHH- Bellevue Hospital
462 First Ave, New York, NY 10016

BASELINE SCENARIO- MAXIMUM POTENTIAL AND ACTUAL FUEL OIL AND NATURAL GAS CONSUMPTION OF NINE (9) GENERATORS

NO. 2 FUEL OIL/DIESEL

	#	MANUFACTURER/MODEL	LOCATION	RATING [kW]	MAX HEAT INPUT [million BTU/hr]	MAX HOURLY CAPACITY [GPH]	ACTUAL ANNUAL USAGE [GPY]	MAX POTENTIAL ANNUAL USAGE [GPY]
GENERATORS	1	Caterpillar C27	13th Floor/Main Building	750	2.55	18.21	1,821	159,557
	2	Caterpillar C27	13th Floor/Main Building	750	2.55	18.21	1,821	159,557
	3	Caterpillar C27	13th Floor/Main Building	750	2.55	18.21	1,821	159,557
	4	Caterpillar C27	13th Floor/Main Building	750	2.55	18.21	1,821	159,557
	5	Caterpillar D399	Ground	600	2.04	14.57	1,457	127,646
	6	Caterpillar D399	Ground	600	2.04	14.57	1,457	127,646
	7	Rudox RM900S	13th Floor/Main Building	600	2.04	14.57	1,457	127,646
	8	Caterpillar 3512C	Basement	1,500	5.10	36.43	1,894	18,214
	9	Cummins DFHD-5622268	Roof	1,000	3.40	24.29	1,263	12,143
			GENERATOR TOTALS	**7,300**	**24.82**	**177.29**	**14,814**	**1,051,523**

NOTES

1. Actual generator usage calculated based on actual estimated hours of operation (52 hrs for emergency testing)
2. Maximum Annual Capacity for generators = Maximum Hourly Capacity (GPH) x Maximum number of operating hours per year
3. Ratings in kW for generators provided by facility.
4. The four (4) Caterpillar C27 and two (2) Caterpillar D399 were previously enrolled in demand response.
5. Rudox RM900S was also previously enrolled in demand response and to be removed from the facility.

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Exhibit 2
NYCHH- Bellevue Hospital
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PROJECT SCENARIO- MAXIMUM POTENTIAL AND ACTUAL FUEL OIL AND NATURAL GAS CONSUMPTION OF TWO (2) CHP UNITS AND NINE (9) GENERATORS

							NO. 2 FUEL OIL/DIESEL			*NATURAL GAS*		
	#	MANUFACTURER/MODEL	LOCATION	RATING [kw]	MAX HEAT INPUT [million BTU/hr]	MAX HOURLY CAPACITY [GPH]	ACTUAL ANNUAL USAGE [GPY]	MAX POTENTIAL ANNUAL USAGE [GPY]	MAX HOURLY CAPACITY [CFH]	ACTUAL ANNUAL USAGE [CFY]	MAX POTENTIAL ANNUAL USAGE [CFY]
CHP UNITS	1	Caterpillar G3516H	Main Building	1,982	17.87	-	-	-	17,520	145,906,560	153,475,200
	2	Caterpillar G3516H	Main Building	1,982	17.87	-	-	-	17,520	145,906,560	153,475,200
		BOILER TOTALS		**3,96**	**35.74**	-	-	-	**35,040**	**291,813,120**	**306,950,400**
EXISTING GENERATORS	1	Caterpillar C27	13th Floor/Main Building	750	2.55	18.21	947.14	9,107	-	-	-
	2	Caterpillar C27	13th Floor/Main Building	750	2.55	18.21	947.14	9,107	-	-	-
	3	Caterpillar C27	13th Floor/Main Building	750	2.55	18.21	947.14	9,107	-	-	-
	4	Caterpillar C27	13th Floor/Main Building	750	2.55	18.21	947.14	9,107	-	-	-
	5	Caterpillar D399	Ground	600	2.04	14.57	757.71	7,286	-	-	-
	6	Caterpillar D399	Ground	600	2.04	14.57	757.71	7,286	-	-	-
	7	Caterpillar 3512C	Basement	1,500	5.10	36.43	1,894.29	18,214	-	-	-
NEW GENERATOR	8	Cummins DFHD-5622268	Roof	1,000	3.40	24.29	1,262.86	12,143	-	-	-
	9	MTU 16V4000 DS2000	Generator Housing	2,000	6.80	48.57	2,525.71	24,286	-	-	-
		GENERATOR TOTALS		**8,70**	29.58	211.29	10,986.86	105,643	-	-	-
							ACTUAL ANNUAL 10,987	***MAX ANNUAL 105,643***		***ACTUAL ANNUAL 291,813,120***	***MAX ANNUAL 306,950,400***

NOTES

1. For two (2) Caterpillar G3516H- Maximum Hourly Capacity- CFH- Data provided by facility from Manufacturer specifications- 292 cf/min
1. Actual generator usage calculated based on actual estimated hours of operation (52 hrs for emergency testing)
2. Maximum Annual Capacity for generators = Maximum Hourly Capacity (GPH) x Maximum number of operating hours per year
3. Ratings in kW for generators provided by facility.
4. The four (4) Caterpillar C27 and two (2) Caterpillar D399 were previously enrolled in demand response.
5. Rudox RM900S was also previously enrolled in demand response and to be removed from the facility.

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Exhibit 3
NYCHH- Bellevue Hospital
462 First Ave, New York, NY 10016

Estimation of emissions of Regulated Air Contaminants from Nine (9) existing generators- BASELINE SCENARIO

				Actual Annual Emission Rate		*Potential Annual Emission Rate*	
	Pollutant	**Diesel Emission Factor [lb/ MM BTU]**	**Hourly Emission Rate [lb/hr]**	**[lb/y]**	**[tpy]**	**[lb/y]**	**[tpy]**
Upstream GHG Emissions	Carbon Dioxide (CO2)	30	740.99	61,919	30.96	4,395,005	2,198
	Methane (CH4)	0.25	6.29	525.82	2.63E-01	37,323	18.66
	Nitrous Oxide (N2O)	5.51E-04	1.37E-02	1.14	5.72E-04	81.14	4.06E-02
	CO2 Equivalents				**53.19**		**3,776**
Direct GHG emissions	Carbon Dioxide (CO2)	163	4,046.96	338,170	169.09	24,003,438	12,002
	Methane (CH4)	6.61E-03	0.16	13.72	6.86E-03	973.64	0.49
	Nitrous Oxide (N2O)	1.32E-03	3.28E-02	2.74	1.37E-03	194.73	9.74E-02
	CO2 Equivalents				**170.02**		**12,068**
Hazardous Air Pollutants	Acetaldehyde	2.52E-05	6.25E-04	5.23E-02	2.61E-05	3.71	1.85E-03
	Acrolein	7.88E-06	1.96E-04	1.63E-02	8.17E-06	1.16	5.80E-04
	Benzene	7.76E-04	1.93E-02	1.61	8.05E-04	114.24	5.71E-02
	Formaldehyde	7.89E-05	1.96E-03	0.16	8.18E-05	11.62	5.81E-03
	Propylene	2.79E-03	6.92E-02	5.79	2.89E-03	410.72	2.05E-01
	Total Poly Aromatic Hydrocarbons	2.12E-04	5.26E-03	0.44	2.20E-04	31.21	1.56E-02
	Toluene	2.81E-04	6.97E-03	0.58	2.91E-04	41.37	2.07E-02
	Xylene	1.93E-04	4.79E-03	0.40	2.00E-04	28.41	1.42E-02
				Total:	**1.63E-03**	**Total:**	**0.12**
Co-Pollutants	Carbon Monoxide	0.85	21.10	1,762.90	0.88	125,131	62.57
	Nitrogen Oxides	3.20	79.42	6,637	3.32	471,082	235.54
	Particulates	0.10	2.48	207.40	1.04E-01	14,721.32	7.36
	Sulfur Dioxide	1.52E-03	3.76E-02	3.14	1.57E-03	223.03	0.11
	Total Organic Compounds (TOCs)	0.09	2.23	186.66	9.33E-02	13,249.19	6.62
				Total:	**4.40**	**Total:**	**312.20**

Reference Values and Tables

Table 1 -Generator Reference Values		
Max hourly consumption	177	GPH
Actual annual consumption	14,814	GPY
Max potential annual consumption	1,051,523	GPY

NOTES

1. U.S. EPA Air Pollution Engineering Manual (AP-42), dated 4/93, Chapter 3.4, tables 3.4.1-3.4.5, downloaded from SCRAM BBS.
   Emission Factors are for generators sized ABOVE 600 HP (447 KW) -
2. Annual Emission Rate (lb/yr) = Emission Factor (lb/million BTU) x Fuel Consumption (BTU/yr).
   BTU/yr calculated per POTENTIAL annual fuel consumption hours
3. Total Emission Rate (ton/yr) = Annual Emission Rate (lb/yr) / 2000 (lb/ton).
4. CO2 Equivalents = [Carbon Dioxide (CO2) Total Annual Emissions (TPY) x CO2 GWP Value] + [Methane (CH4) Total Annual Emissions (TPY) x CH4 GWP Value] + [Nitrous Oxide (N2O) Total Annual Emissions (TPY) x N2O GWP Value]

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Exhibit 4
NYCHH- Bellevue Hospital
462 First Ave, New York, NY 10016

Estimation of emissions of Regulated Air Contaminants from Nine (9) exempt generators- PROJECT SCENARIO

	Pollutant	Diesel Emission Factor [lb/ MM BTU]	Hourly Emission Rate [lb/hr]	*Actual Annual Emission Rate* [lb/y]	*Actual Annual Emission Rate* [tpy]	*Potential Annual Emission Rate* [lb/y]	*Potential Annual Emission Rate* [tpy]
Upstream GHG Emissions	Carbon Dioxide (CO2)	30	883.10	45,921	22.96	441,551	220.78
	Methane (CH4)	0.25	7.50	389.97	1.95E-01	3,749.69	1.87
	Nitrous Oxide (N2O)	5.51E-04	1.63E-02	0.85	4.24E-04	8.15	4.08E-03
	CO2 Equivalents				**39.45**		**379.34**
Direct GHG Emissions	Carbon Dioxide (CO2)	163	4,823	250,800	125.40	2,411,542	1,206
	Methane (CH4)	6.61E-03	0.20	10.17	5.09E-03	97.82	4.89E-02
	Nitrous Oxide (N2O)	1.32E-03	3.91E-02	2.03	1.02E-03	19.56	9.78E-03
	CO2 Equivalents				**126.10**		**1,212**
Hazardous Air Pollutants	Acetaldehyde	2.52E-05	7.45E-04	3.88E-02	1.94E-05	0.37	1.86E-04
	Acrolein	7.88E-06	2.33E-04	1.21E-02	6.06E-06	0.12	5.83E-05
	Benzene	7.76E-04	2.30E-02	1.19	5.97E-04	11.48	5.74E-03
	Formaldehyde	7.89E-05	2.33E-03	0.12	6.07E-05	1.17	5.83E-04
	Propylene	2.79E-03	8.25E-02	4.29	2.15E-03	41.26	2.06E-02
	Total Poly Aromatic Hydrocarbons	2.12E-04	6.27E-03	0.33	1.63E-04	3.14	1.57E-03
	Toluene	2.81E-04	8.31E-03	0.43	2.16E-04	4.16	2.08E-03
	Xylene	1.93E-04	5.71E-03	0.30	1.48E-04	2.85	1.43E-03
				Total:	**1.21E-03**	**Total:**	**0.01**
Co-Pollutants	Carbon Monoxide	0.85	25.14	1,307	0.65	12,572	6.29
	Nitrogen Oxides	3.20	94.66	4,922	2.46	47,328	23.66
	Particulates	0.10	2.96	153.82	7.69E-02	1,479	0.74
	Sulfur Dioxide	1.52E-03	4.48E-02	2.33	1.17E-03	22.41	0.01
	Total Organic Compounds (TOCs)	0.09	2.66	138.43	6.92E-02	1,331	0.67
				Total:	**3.26**	**Total:**	**31.37**

Reference Values and Tables

Table 1 -Generator Reference Values		
Max hourly consumption	211	GPH
Actual annual consumption	10,987	GPY
Max potential annual consumption	105,643	GPY

NOTES

1. U.S. EPA Air Pollution Engineering Manual (AP-42), dated 4/93, Chapter 3.4, tables 3.4.1-3.4.5, downloaded from SCRAM BBS.
   Emission Factors are for generators sized ABOVE 600 HP (447 KW) -
2. Annual Emission Rate (lb/yr) = Emission Factor (lb/million BTU) x Fuel Consumption (BTU/yr).
   BTU/yr calculated per POTENTIAL annual fuel consumption hours
3. Total Emission Rate (ton/yr) = Annual Emission Rate (lb/yr) / 2000 (lb/ton).
4. CO2 Equivalents = [Carbon Dioxide (CO2) Total Annual Emissions (TPY) x CO2 GWP Value] + [Methane (CH4) Total Annual Emissions (TPY) x CH4 GWP Value] + [Nitrous Oxide (N2O) Total Annual Emissions (TPY) x N2O GWP Value]

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Exhibit 5
NYCHH- Bellevue Hospital
462 First Ave, New York, NY 10016

Estimation of emissions of Regulated Air Contaminants from Two (2) new CHP Units- PROJECT SCENARIO

				Actual Annual Emission Rate		*Potential Annual Emission Rate*	
	Pollutant	**Natural Gas Emission Factor [lb/ MM BTU]**	**Hourly Emission Rate [lb/hr]**	**[lb/y]**	**[tpy]**	**[lb/y]**	**[tpy]**
Upstream GHG Emissions	Carbon Dioxide (CO2)	11	392.71	3,270,490	1,635	3,440,141	1,720
	Methane (CH4)	0.60	21.27	177,173	88.59	186,364	93.18
	Nitrous Oxide (N2O)	1.32E-04	4.73E-03	39.37	1.97E-02	41.41	2.07E-02
	CO2 Equivalents				**9,082**		**9,553**
Direct GHG Emissions	Carbon Dioxide (CO2)	117	4,181	34,817,857	17,409	36,623,970	18,312
	Methane (CH4)	2.20E-03	0.08	656.20	3.28E-01	690.24	3.45E-01
	Nitrous Oxide (N2O)	2.20E-04	7.88E-03	65.62	3.28E-02	69.02	3.45E-02
	CO2 Equivalents				**17,445**		**18,350**
Hazardous Air Pollutants	Acetaldehyde	8.36E-03	0.30	248.83	0.12	262	0.13
	Acrolein	5.14E-03	0.18	152.99	7.65E-02	161	0.08
	Benzene	4.40E-04	1.57E-02	13.10	6.55E-03	14	0.01
	Formaldehyde	5.28E-02	1.89	1,572	0.79	1,653	0.83
	Total Poly Aromatic Hydrocarbons	2.69E-05	9.61E-04	0.80	4.00E-04	1	4.21E-04
	Toluene	4.80E-04	1.72E-02	14.29	7.14E-03	15	0.01
	Xylene	1.84E-04	6.58E-03	5.48	2.74E-03	6	0.00
				Total:	**1.00**	**Total:**	**1.06**
Co-Pollutants	Carbon Monoxide	1.74	62.11	51,724	25.86	54,407	27.20
	Nitrogen Oxides	8.69E-01	31.05	258,619	129.31	272,035	136.02
	Particulates	9.99E-03	0.36	2,974	1.49	3,128	1.56
	Sulfur Dioxide	5.88E-04	0.02	175	0.09	184.10	0.09
	Total Organic Compounds (TOCs)	1.47	52.54	437,545	218.77	460,241	230.12
	Volatile Organic Compounds (VOCs)	0.61	21.74	18,103	9.05	19,042	9.52
				Total:	**384.57**	**Total:**	**404.52**

Reference Values and Tables

Table 1 -Generator Reference Values		
Max hourly consumption	35,040	GPH
Actual annual consumption	291,813,120	GPY
Max potential annual consumption	306,950,400	GPY

NOTES

1. U.S. EPA Air Pollution Engineering Manual (AP-42), Uncontrolled Emission Factors for 4-Stroke Lean-burn Engines [Table 3.2-2]
2. Annual Emission Rate (lb/yr) = Emission Factor (lb/million BTU) x Fuel Consumption (BTU/yr).
   BTU/yr calculated per POTENTIAL annual fuel consumption hours
3. Total Emission Rate (ton/yr) = Annual Emission Rate (lb/yr) / 2000 (lb/ton).

4. CO2 Equivalents = [Carbon Dioxide (CO2) Total Annual Emissions (TPY) x CO2 GWP Value] + [Methane (CH4) Total Annual Emissions (TPY) x CH4 GWP Value] + [Nitrous Oxide (N2O) Total Annual Emissions (TPY) x N2O GWP Value]
5. Emission factors for CO & VOC are from Manufacturer specs
6. Applied 90% reduction factor for HAPS, CO & VOC for CHP Units- Multiplied by 0.1

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Exhibit 6
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Parameters	Unit	Direct Emissions		Upstream	
		Actual Values	Potential Values	Actual Values	Potential Values
CHP Direct Emissions	CO2e TPY	**17,445.15**	**18,350.09**	9,081.73	9,552.82
CHP Electricity Production /1	MWhr/yr	-	-	33,012.19	34,724.64
Marginal Grid Emission Factor /2	lb/MWhr	-	-	800.00	800.00
Grid Emissions Avoided /3	lb/yr	-	-	26,409,753.60	27,779,712.00
Grid Displacement Credit	CO2e TPY	-	-	13,204.88	13,889.86
Thermal Recover Factor /4	%	41%	41%	41%	41%
Annual Thermal energy displaced /5	MMBtu/yr	122,033.52	128,363.78	122,033.52	128,363.78
Avoided Steam Emission Factor /6	lb CO2e /MMBtu	97.45	97.45	60.94	60.94
Thermal Displacement credit	TPY	5,946.35	6,254.80	3,718.20	3,911.07
Net CLCPA Impact	**TPY**	**11,498.80**	12,095.28	-7,841.35	-8,248.11

/1 CHP electricity production = Capacity (Kw)* Annual Operating hours(hrs) |Convert to MWHR- Divide by 1000 | Multiply by 2 for 2CHP
/2 Marginal Grid Emission Factor, avg value - https://mis.nyiso.com/public/
/3 Grid Emission avoided= CHP electricity produced* Marginal Grid Emission Facto
/4 Thermal Recovery Factor= Verified for Cogen on internet
/5 Annual Thermal Energy Displaced = Heat Input (MMBtu/hr) * Number of CHPs * Thermal Recovery Factor * Operating Hour
/6 It is EPA factor for CHP Engines

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Exhibit 7
NYCHH- Bellevue Hospital
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GHG Emissions Reduction Summary

Baseline Scenario	Six (6) Generators in Demand Response +
	One (1) Generator in Demand Response to be removed +
	Two (2) Existing Exempt Emergency Generators
Project Scenario	Two (2) new CHP units +
	Eight (8) Existing Exempt Emergency Generators
	One (1) New Exempt Emergency Generators

Sources	Upstream Carbon Dioxide Equivalents (CO2e) TPY				Net project Impact TPY	
	Baseline Scenario GHG Emissions CO2e		Project Scenario GHG Emissions		Actual	Potential
	Actual CO2e	Potential CO2e	Actual CO2e	Potential CO2e		
Emergency Generators	53.19	3,775.77	39.45	379.34	-13.74	-3,396.43
CHPs	-	-	9,081.73	9,552.82	9,081.73	9,552.82
Total	**53.19**	**3,775.77**	**9,121.18**	**9,932.16**	**9,067.98**	**6,156.39**

Sources	Direct Carbon Dioxide Equivalents (CO2e) TPY				Net project Impact TPY	
	Baseline Scenario GHG Emissions CO2e		Project Scenario GHG Emissions		Actual	Potential
	Actual CO2e	Potential CO2e	Actual CO2e	Potential CO2e		
Emergency Generators	170.02	12,068.32	126.10	1,212.46	-43.93	-10,855.85
CHPs	-	-	17,445.15	18,350.09	17,445.15	18,350.09
Total	**170.02**	**12,068.32**	**17,571.25**	**19,562.55**	**17,401.22**	**7,494.23**

Hazardous Air Pollutants Emissions Reduction Summary

Sources	Direct Hazardous Air Pollutants TPY				Net project Impact	
	Baseline Scenario		Project Scenario		Actual	Potential
	Actual TPY	Potential TPY	Actual TPY	Potential TPY		
Emergency Generators	0.00	0.12	0.00	0.01	0.00	-0.10
CHPs	-	-	1.00	1.06	1.00	1.06
Total	**0.00**	**0.12**	**1.00**	**1.07**	**1.00**	**0.95**

Hazardous Air Pollutants includes Benzene, Toluene, Xylene, Formaldehyde, Acetaldehyde, Acrolein, and Total Poly Aromatic Hydrocarbons.

Co-pollutants Emissions Reduction Summary

Sources	Direct Co-Pollutants TPY				Net project Impact	
	Baseline Scenario		Project Scenario		Actual	Potential
	Actual TPY	Potential TPY	Actual TPY	Potential TPY		
Emergency Generators	4.40	312.20	3.26	31.37	-1.14	-280.84
CHPs	-	-	384.57	404.52	384.57	404.52
Total	**4.40**	**312.20**	**387.83**	**435.88**	**383.43**	**123.68**

Co-Pollutants include Total Particulate Matter, Sulfur Dioxide, Nitrogen Oxides, Carbon Monoxide, Volatile Organic Compounds.

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Exhibit 8
NYCHH- Bellevue Hospital
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GHG Emissions Reduction Summary- With displacement Credits

Baseline Scenario	Six (6) Generators in Demand Response +
	One (1) Generator in Demand Response to be removed +
	Two (2) Existing Exempt Emergency Generators
Project Scenario	Two (2) new CHP units +
	Eight (8) Existing Exempt Emergency Generators
	One (1) New Exempt Emergency Generators

Sources	**Upstream Carbon Dioxide Equivalents (CO2e) TPY**				**Net project Impact (TPY)**	
	Baseline Scenario		**Project Scenario**		**Actual**	**Potential**
	GHG Emissions CO2e		**GHG Emissions**			
	Actual CO2e	**Potential CO2e**	**Actual CO2e**	**Potential CO2e**		
Emergency Generators	53.19	3,775.77	39.45	379.34	-13.74	-3,396.43
CHPs	-	-	9,081.73	9,552.82	9,081.73	9,552.82
Grid Displacement Credit	-	-	-13,204.88	-13,889.86	-13,204.88	-13,889.86
Thermal Displacement Credit	-	-	-3,718.20	-3,911.07	-3,718.20	-3,911.07
Total	**53.19**	**3,775.77**	**-7,801.90**	**-7,868.77**	**-7,855.09**	**-11,644.54**

Sources	**Direct Carbon Dioxide Equivalents (CO2e) TPY**				**Net project Impact (TPY)**	
	Baseline Scenario		**Project Scenario**		**Actual**	**Potential**
	GHG Emissions CO2e		**GHG Emissions**			
	Actual CO2e	**Potential CO2e**	**Actual CO2e**	**Potential CO2e**		
Emergency Generators	170.02	12,068.32	126.10	1,212.46	-43.93	-10,855.85
CHPs	-	-	17,445.15	18,350.09	17,445.15	18,350.09
Thermal Displacement Credit	-	-	-5,946.35	-6,254.80	-5,946.35	-6,254.80
Total	**170.02**	**12,068.32**	**11,624.90**	**13,307.74**	**11,454.88**	**1,239.43**

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Exhibit 9
NYCHH- Bellevue Hospital
462 First Ave, New York, NY 10016

NYC HH- Bellevue's 2030 & 2050 Commitment

Scenario Year	Future Emissions Reduction Strategies	Approximate CO2e Reduction (tpy)	Total CO2e Reduction (tpy)	Projected CO2e Emissions (tpy)
2030	LED Retrofit: Replacement of 30,000 fixtures	1,108.92	3,161.43	14,409.82
	Chiller Optimization: Installation of an air-cooled chiller for winter use and ongoing plant control optimization	415.57		
	Future Infrastructure: Planned updates to the Building Automation System (BAS) and hydraulic balancing of the chilled water system are estimated to reduce an additional	1,636.93		
2050	Future Infrastructure: Planned updates to the Building Automation System (BAS) and hydraulic balancing of the chilled water system are estimated to reduce an additional	1,636.93	2,745.85	11,663.97
	LED Retrofit: Replacement of 30,000 fixtures	1,108.92		

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GLOSSARY A
NYCHH- Bellevue Hospital
462 First Ave, New York, NY 10016

EMISSION FACTORS FOR BOILERS & GENERATORS

Pollutants	Cogeneration Unit Natural Gas				Large Generators Diesel	
	Emission Factor	Unit	Emission Factor	Unit	Emission Factor	Unit
Hazardous Air Pollutants						
Acetaldehyde	-	-	8.36E-03	lb/MMBtu	2.52E-05	lb/MMBtu
Acrolein	-	-	5.14E-03	lb/MMBtu	7.88E-06	lb/MMBtu
Benzene	-	-	4.40E-04	lb/MMBtu	7.76E-04	lb/MMBtu
Formaldehyde	-	-	5.28E-02	lb/MMBtu	7.89E-05	lb/MMBtu
Propylene	-	-	-	lb/MMBtu	2.79E-03	lb/MMBtu
Total Poly Aromatic Hydrocarbons	-	-	2.69E-05	lb/MMBtu	2.12E-04	lb/MMBtu
Toluene	-	-	4.80E-04	lb/MMBtu	2.81E-04	lb/MMBtu
Xylene	-	-	1.84E-04	lb/MMBtu	1.93E-04	lb/MMBtu
Criteria Pollutants						
Carbon Monoxide	2.00	g/HP-hr	1.74	lb/MMBtu	0.85	lb/MMBtu
Nitrogen Oxides	1.00	g/HP-hr	8.69E-01	lb/MMBtu	3.2	lb/MMBtu
Particulate (Total)	-	-	9.99E-03	lb/MMBtu	0.1	lb/MMBtu
Sulfur Dioxide	-	-	5.88E-04	lb/MMBtu	1.52E-03	lb/MMBtu
Total Organic Compounds (TOCs)	-	-	1.47	lb/MMBtu	0.09	lb/MMBtu
Volatile Organic Compounds (VOCs)	0.70	g/HP-hr	0.61	lb/MMBtu	-	-

GHG Emission Factors

UPSTREAM		
GHG Emission Rate	**Fuel Type**	
g/mmbtu	**Natural Gas**	**Diesel/Distillate Fuel**
CO2	4,984	13,542
CH4	270	115
N2O	0.06	0.25
CO2e (20 yr GWP)+	27,641	23,249

https://dec.ny.gov/sites/default/files/2024-12/appendix2024clcpaemissionfactors.pdf

DIRECT		
GHG Emission Rate	**Fuel Type**	
g/mmbtu	**Natural Gas**	**Diesel/Distillate Fuel**
CO2 kg/mmbtu	53.06	73.96
CH4	1	3
N2O	0.10	0.60
CO2e (20 yr GWP)+	44,205	25,375

https://www.epa.gov/system/files/documents/2025-01/ghg-emission-factors-hub-2025.pdf

Fuel	Heating Value	Unit
No. 2 Fuel Oil/Diesel	140,000	BTU/gal
Natural Gas	1,020	BTU/cu. Ft.

GWP 20 Values	
Pollutant	**GWP Values**
CO2	1
CH4	84
N2O	264

https://dec.ny.gov/sites/default/files/2024-12/summaryreportnysghgemissionsreport.pdf

Conversion Factors:		
1 kW =	3.40E-03	MMBTU/hr
1 MMBTU =	1,000,000	BTU
1b(1,000 gal) =	1,000	gallons
lb/MMBTU =	0.6470	g/kWh
1 lb/(1,000 gal) =	7,140	lb/10^12 BTU
1 lb/10^12 BTU =	1.38E-04	lb/(1,000 gal)
1 kW =	1.34	hp
1 g =	2.20E-03	lb
1kg =	2.20	lb
1 MMscf =	1,000,000	scf
1 ton =	2,000	lb
lb/MMBTU =	0.87	g/hp-hr

Notes

/1 Large Generators- US EPA AP42 factors Table 3.4- https://www.epa.gov/system/files/documents/2025-04/c03s04_april2025.pdf
/2 Cogens - US EPA AP42 factors Table 3.2-3
Emission factors for CO, NOx & VOC are from Manufacturer specs CO- 2.00 g/Hp-hr, NOx- 1.00 g/Hp-hr & VOCs- 0.70 g/Hp-hr
/3- GHG Upstream Emission Factors- 2025 NYS Statewide GHG Emission Report- Appendix A Table A1
/4- GHG Direct Emission Factors- 2025 GHG Emission Factors for Greenhouse Gas Inventories- Table 1

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GLOSSARY B
NYCHH- Bellevue Hospital
462 First Ave, New York, NY 10016

HOURS OF OPERATION

#	Equipment Type	MANUFACTURER/MODEL	Actual Annual Consumption (Oil)		Potential Hour of Operation (Oil)		Actual Annual Consumption (Natural Gas)		Potential Hour of Operation (Natural Gas)	
			Baseline Scenario Hours per Year	Project Scenario Hours per Year	Baseline Scenario Hours per Year	Project Scenario Hours per Year	Baseline Scenario Hours per Year	Project Scenario Hours per Year	Baseline Scenario Hours per Year	Project Scenario Hours per Year
1	Generator	Caterpillar C27	100	52	8760	500	-	-	-	-
2	Generator	Caterpillar C27	100	52	8760	500	-	-	-	-
3	Generator	Caterpillar C27	100	52	8760	500	-	-	-	-
4	Generator	Caterpillar C27	100	52	8760	500	-	-	-	-
5	Generator	Caterpillar D399	100	52	8760	500	-	-	-	-
6	Generator	Caterpillar D399	100	52	8760	500	-	-	-	-
7	Generator	Rudox RM900S	100	-	8760	-	-	-	-	-
8	Generator	Caterpillar 3512C	52	52	500	500	-	-	-	-
9	Generator	Cummins DFHD-5622268	52	52	500	500	-	-	-	-
10	Generator	MTU 16V4000 DS2000	-	52	-	500	-	-	-	-
11	CHP	Caterpillar G3516H	-	-	-	-	-	8328	-	8760
12	CHP	Caterpillar G3516H	-	-	-	-	-	8328	-	8760

Appendix B: Disproportionate Burden Analysis

CLCPA Section 7(3) Disproportionate Burden Analysis Worksheet

DEC Application No. (if known):	2 - 6206 - 00032 / 00004
Name of Applicant:	
Email:	Phone:
Mailing Address:	Street:
	City: State: Zip:
Project Location:	NYC-HHC Bellevue Hospital
	Street: 462 First Avenue
	City: New York State: NY Zip: 10016

Project Description:
The proposed project to install the two (2) cogeneration units that would allow the hospital to generate its own heat and electricity thus becoming non-reliant on utility services. The Proposed action is to install two natural gas fired engines, Caterpillar G3516H with 1982 kW rating each.

This worksheet lists disadvantaged community (DAC) indicators that are potentially related to air quality or air-related health effects. The full lists of DAC indicators are contained in Tables 2 and 3 of the New York State Climate Justice Working Group Draft Disadvantaged Communities Criteria and List Technical Documentation (March 9, 2022) and the disadvantaged community criteria maps. The worksheet should be used to identify DAC indicators that are relevant to the potential greenhouse gas (GHG) and co-pollutant impacts of a specific action.

Using Table 1 of this worksheet, applicants should enter the percentile values for each DAC indicator from the disadvantaged communities criteria map and then identify the DAC indicators that are relevant to the specific project. Where a relevant DAC indicator is identified, a qualitative response whether the action will have a positive or negative impact on the pollution burdens or health vulnerabilities associated with the indicator should also be provided. The response should be based on the action without measures that may reduce or eliminate GHG and co-pollutants (i.e., “design measures”).

The impacts of the action on the environmental burdens and health vulnerabilities identified by the relevant DAC indicators must be discussed in the disproportionate burden analysis provided with the permit application. The analysis must also identify and discuss any proposed measures to reduce or eliminate GHG and co-pollutant impacts from the proposed action.

See Table 1 on page 2.

Table 1. CLCPA Section 7(3) Disproportionate Burden Analysis Worksheet

DAC Indicator	%tile[1]	Relevant?		Impact?	
Potential Pollution Exposures					
Traffic: number of vehicles	90%	✔ Yes	___ No	___ Positive	___ Negative
Traffic: diesel trucks	89%	✔ Yes	___ No	___ Positive	___ Negative
Particulate matter (PM 2.5)	95%	✔ Yes	___ No	___ Positive	✔ Negative
Benzene concentration	96%	✔ Yes	___ No	___ Positive	✔ Negative
Land Use and Facilities Associated with Historical Discrimination or Disinvestment [2]					
Proximity to remediation sites	0%	___ Yes	✔ No	___ Positive	___ Negative
Proximity to regulated management plan sites	72%	✔ Yes	___ No	___ Positive	___ Negative
Proximity to major oil storage facilities	0%	___ Yes	✔ No	___ Positive	___ Negative
Proximity to power generation facilities	57%	✔ Yes	___ No	___ Positive	___ Negative
Proximity to active landfills	0%	___ Yes	✔ No	___ Positive	___ Negative
Proximity to municipal waste combustors	0%	___ Yes	✔ No	___ Positive	___ Negative
Proximity to scrap metal processors	0%	___ Yes	✔ No	___ Positive	___ Negative
Industrial/manufacturing/mining land use	6%	___ Yes	✔ No	___ Positive	___ Negative
Health Outcome Sensitivities					
Asthma emergency department visits	69%	✔ Yes	___ No	___ Positive	✔ Negative
COPD emergency department visits	38%	✔ Yes	___ No	___ Positive	✔ Negative
Heart attack (MI) hospitalization	9%	___ Yes	✔ No	___ Positive	___ Negative
Premature deaths	33%	___ Yes	✔ No	___ Positive	___ Negative
Low birthweight	56%	✔ Yes	___ No	___ Positive	✔ Negative
Percent without health insurance	37%	✔ Yes	___ No	___ Positive	___ Negative
Percent with disabilities	55%	___ Yes	✔ No	___ Positive	___ Negative
Percent adults age 65+	64%	___ Yes	✔ No	___ Positive	___ Negative

[1] Enter the indicator percentile value obtained from the disadvantaged community criteria map for the disadvantaged community the project is located in or may affect. The disadvantaged communities criteria maps are located on-line at: **https://climate.ny.gov/Resources/Disadvantaged-Communities-Criteria**

[2] If the proposed action involves a land use listed in this section and has the potential to emit GHG or co-pollutants that affect or are likely to affect a disadvantaged community, the DAC indicator is relevant.