Sol Environment Limited
Unit 5.3, Paintworks, Bristol,
BS4 3EH

t. +44 (0) 1179 372811
enquiries@sol-environment.co.uk

Tasha Malik-Agrawal
Environment Agency
Quadrant 2,
99 Parkway Avenue
Sheffield,
S9 4WF

27th March 2026

Our Ref: SOL_25_P007_ENG

Dear Tasha,

RE: ENGIE RENEWABLE GASES UK LTD, HOME FARM GRANGE AD FACILITY – EPR/NP3829LW/A001

Further to your letter dated 2nd March 2026, please find below a response to each of your questions in turn.

Section 1 - General

1. *Site Plans*

   Please send an updated emission point plan that includes the following missing emission points:

   a. *Identified emissions from 'Purge gas from CO2 condenser' and 'Regeneration gas' from the CCS.*
   b. *Identified emission point A16 (Lagoon vents) and A23 (Tanker Filling Point Vent).*

   Reason: Emission point A16 and A23 are identified in the legend of the emission point plan but are not labelled in the drawing

   c. *Identified odour concentration monitoring points for the tank vents connected to abatement within the feedstock building.*

   Notes: Please clarify if this is connected to the stack and therefore already being monitored.

Response: Please see updated emission point plan in Appendix A of this letter.

We can clarify that any vents routed to the abatement within the feedstock building is connected to the odour abatement unit stack and therefore monitored as part of the stack monitoring arrangements.

2. *Emergency Diesel Generators*

   a. *Confirm the size of the emergency diesel generators*

Response: The emergency diesel generator is 753 kW net rated thermal input.

Section 2 – Carbon Capture

3. *Venting of CO_2*
   a. *Provide an assessment of the impact of venting, that includes the following:*
      i. *A description of all potential venting scenarios, including the possibility of full inventory venting;*
      ii. *Information that shows how modelling has been or is intended to be used to inform the process design and management of the risks associated with venting of CO_2;*
      iii. *Confirmation that the design is in line with industry best practice such as that from the Energy Institute, or equivalent;*
      iv. *A description of the operating techniques that will be used to minimise venting-related risks;*
      v. *A vent management plan setting out how the risks from venting of CO_2 will be managed (if the design is not finalised, the vent management plan may be developed prior to start of operations and secured through a pre-operational condition).*

Response: Please see the technical note provided in Appendix B of this letter which provides a summary of CO_2 venting from the proposed carbon capture process covering points i – ii above.

Point iii: the operator confirms that the design is in accordance with DMT's standard design, technical specifications, and standards, which comply with the following (inter)national guidelines and/or legislation:

Code	Description
EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN ISO 13849-1	Safety of machinery - Safety-related parts of control systems – Part 1: General principles for design
EN ISO 13849-2	Safety of machinery - Safety-related parts of control systems – Part 2: Validation
EN 60204-1	Safety of machinery - Electrical equipment of machines – Part 1: General requirements
EN 61508	Functional safety of electrical/electronic/programmable electronic safety related systems
EN 61511	Functional safety. Safety instrumented systems for the process industry sector Framework, definitions, system, hardware, and software requirements
EN 62061	Safety of machinery - Functional safety of safety-related electrical, electronic, and programmable electronic control systems
EN IEC 60079-14	Electrical apparatus for explosive gas atmospheres – Part 14: Electrical installations in hazardous areas (other than mines)
EN IEC 60079-10	Electrical apparatus for explosive gas atmospheres – Part 10: Classification of hazardous areas

2014/30/EU	Electric Magnetic Compatibility Directive
2014/34/EU	ATEX 114
1999/92/EC	ATEX 153
2006/42/EC	Machinery Directive
2014/68/EU	Pressure Equipment Directive
2014/35/EU	Low Voltage Directive

Point iv: The operating techniques to minimise venting related risks are as follows:

- Continuous analysis of the CO_2 stream is the primary measure preventing contamination of the tank. If the analysis flags the CO_2 as being out of specification, this can be diluted out before having to vent a whole tank inventory, otherwise it will be partially vented before shutting down if the quality doesn't improve quickly enough. Dilution involves distributing small amounts of poor quality gas throughout the 2 storage tanks.
- There is also carbon filtration within the CO_2 plant which can be tailored to remove anything out of the ordinary that could cause issues. However, the majority of contaminants are removed in the Biogas Upgrading Unit upstream to avoid any damage to the membranes so the risk at the CO_2 plant is minimal.
- There is also the option to sell the CO_2 as non-food grade to a different offtaker rather than venting.
- Engie have experience at existing sites and have never had to vent down an entire tank in 5 years of operational experience.

Point v: It would be proposed to provide a Vent Management Plan as part of a pre-operational condition.

4. Carbon Capture Process

a. What contingency measures are in place if the CCS unit is down?

Response: Until the CCS is installed, the Biogas Upgrading Unit (BUU) will operate in its proposed configuration, during which CO_2 will be vented to atmosphere. The BUU is a three-stage membrane system designed to minimise methane slip, achieving a methane loss of approximately 0.5% during normal operation. The installation of the CCS will not further reduce methane emissions. As such, methane slip will remain at 0.5% both before and after the CO_2 plant is installed.

b. What purity (%) is the carbon dioxide from the biogas captured and upgraded to?

Response: The process flow provided in Appendix C shows the purity of the CO_2 at the inlet (node 1) and the outlet (node 4). This shows that the CO_2 is initially 44.5%vol, and is upgraded to >99.1%vol.

Section 3 – Best Available Techniques (BAT) and Appropriate measures

Best Available Techniques (BAT) Reference Document for Waste Treatment sets the standard to which facilities must comply, with the relevant appropriate measures providing guidance on how BAT is applied. (Biological waste treatment: appropriate measures for permitted facilities - Guidance - GOV.UK). In line with these, we require responses to the following questions:

5. *Environmental Management System (EMS)*
   a. *Please update and resubmit the EMS summary to include the following:*
      - *The consideration of the environmental impacts from the eventual decommissioning of the plant at the stage of designing a new plant as part of the Environmental Management System as required by BAT 1.*

Response: Please see updated EMS Summary provided in Appendix D of this letter.

6. *Biogas Flaring*
   a. *BAT 15 requires that flaring is only used for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns) by using defined techniques including the correct plant design which includes the provision of a gas recovery system with sufficient capacity and the use of high-integrity relief valves.*
   b. *On review of your process your CHPs only operate on natural gas, with the boilers only being operated on biogas when heat is required. It is therefore not clear how your plant has been correctly designed to manage biogas in the event that the biogas upgrade plant is not operational.*
      Note: We do not consider the use of the flare to manage the biogas upgrading plant downtime BAT.
   c. *If the biogas upgrading plant is offline, initial storage will be undertaken within the gas bag for up to 32.2 hours. How will it be guaranteed that flaring will be kept to a minimum in line with the BAT in the event the biogas upgrading plant is offline?*

Response: The management of biogas in the event that the biogas plant is not operational is as follows.

Biogas would be routed to storage within the dome. To clarify, contingency storage within the dome is for 3.22 hours (unfortunately a typo was included in our Validation Response). Within this time it is considered that the biogas plant would be fixed and back online. To facilitate this, critical spare parts are kept onsite and a maintenance team of appropriately qualified and trained engineers is available 24/7. The site operators will ensure that for up to 99% of any unplanned biogas plant shutdowns, repair can be carried out within 1 hour, for more in-depth investigation increasing to 2 hours.

Additionally, in the event that an issue cannot be fixed within the first hour (or other timescale pre-agreed as part of the emergency procedure), process management controls would be implemented to effectively stop production of biogas within the digesters. This includes ceasing of feeding any materials which produce gas within the short term (e.g. whey starts to digest and produce gas within an hour of being fed to the digester, as opposed to manures and crops which only begin gassing in approximately 24 hours. Therefore, whey would stop being fed and gas will almost immediately stop being produced. Additionally, boiler activity will be increased to use up some of the gas in the short term, thereby further increasing the storage time capacity of the dome.

Only if the biogas upgrading plant is not be operational after the storage capacity is reached, would flaring be undertaken as opposed to venting. As previously noted, similar Engie operated AD plants with a similar level of contingency storage have recorded flare usage of less than 1% of operational hours. Flares are utilised as opposed to venting only in emergency situations.

To guarantee that flaring will be kept to a minimum in line with BAT, should flaring be required, cessation of digester feeding would occur to reduce operations to a minimum.

7. Diffuse Emissions

a. Provide explanation of how the carbon filters fitted to vents from the lagoon will be effective and meet the requirements of the Biological Waste Treatment: appropriate measures guidance..

Response: The proposed abatement for the lagoon vents comprises Exeons SKC1 units. This is a skid mounted carbon system with fan, controls and carbon vessel which can handle up to 1,000m^3/hour. This system has been installed on two existing EA permitted facilities at Biowatt Brains Farm and Vida Bioenergy. The system will be designed to ensure that a worst case scenario for air flow rate is catered for. Exeon will work with the cover system to design appropriate extract ports and extraction rates for the lagoon.

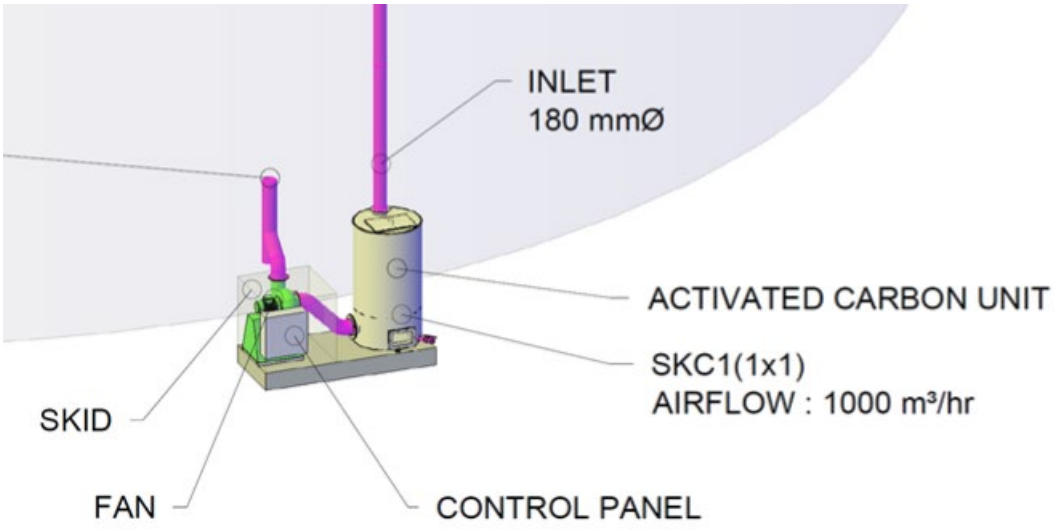


Figure 1: Schematic of Exeons SKC1 Odour Abatement Unit

Following detailed design finalisation, the specification of the lagoon abatement including calculations and design parameters can be provided to the EA.

b. The current solid waste feedstock delivery to site procedure does not currently meet the requirements of the Biological Waste Treatment: appropriate measures guidance.. Propose an alternative that will provide an equivalent level of environmental protection.

Reason: To comply with Section 11.8 of the Emissions control measures as part of the Biological Waste Treatment: appropriate measures guidance, you can only accept odorous wastes using special handling and storage arrangements such as in adequately covered or air contained and abated areas.

Notes: We would expect waste feedstock to be delivered into the building to help ensure that diffuse emissions are abated/contained.

Response: The primary reason that the concrete apron delivery was proposed was because the delivery vehicles for chicken litter would not be able to fit into the feedstock building and unload (HGVs with tip delivery). The site now propose to ensure that all waste feedstocks delivered to site will be in delivery vehicles that can enter the building and unload internally. This will be ensured through feedstock contract requirements. The concrete apron will therefore no longer be utilised for delivery of waste feedstock.

8. *Accident Management Plan (AMP)*

Provide an updated Accident Management Plan which includes the following:

a. *The measures that are in place in the event of abatement failure.*

Reason: Your accident management plan must identify the hazards, risk and mitigation measures that will protect the environment in the event of an accident or event. This should include the event of abatement failure to help meet the requirements of the AMP as part of the Biological Waste Treatment: appropriate measures guidance.

b. *A contingency plan that details the arrangements that are in place to divert waste feedstock in the event of plant shutdown or capacity is reached. The plan must include the following:*
   - *The capacity (volume) of all contingency options and the length of time for which it would be available or needed.*
   - *Potential environmental and health and safety risks and hazards of all contingency options (for example, odour and emission generation, or leachate production from longer-term storage).*
   - *Any legal restrictions or constraints for each contingency option*
   - *If relevant, details of the permitted waste facilities that could accept and manage your waste if site holding capacity is reached.*

     Reason: You must implement a contingency plan as stated in Section 5.10 of the Biological Waste Treatment: appropriate measures guidance to ensure compliance during maintenance or shutdown of the site.

     Notes: You must identify your contingency options for use over the short term (1 to 2 weeks), medium term (4 to 6 weeks) and the long term (up to 6 months).

c. *Update Table 3.1 to include:*
   - *What may be emitted in the event of the accident scenario and if relevant, how much.*
   - *Where will the emissions go in the event of the accident scenario.*

d. *Identify the following:*
   - *The roles and responsibilities of the staff involved in managing accidents.*
   - *How you will communicate with relevant authorities, emergency services and neighbours (as appropriate) before, during and after an accident.*
   - *How you will implement emergency procedures, including for safe plant shutdown and site evacuation.*
   - *How you will implement post-accident procedures that include doing an assessment of the harm an accident caused (or may have caused) and actions you will take to prevent further accidents.*
   - *How you will test the accident management plan by carrying out emergency drills and exercises.*

Response: Please see updated AMP incorporating all of the requested additional information in Appendix E of this letter.

9. *Odour Management Plan (OMP)*

Update and resubmit the Odour Management Plan to include the following:

a. *Site description*
   - *The days and hours of operation of the facility.*

b. *Odorous material entering and leaving site*
   - *Frequency of deliveries to site.*
   - *How the vehicles delivering odorous material to site are covered and/or contained.*

c. *Monitoring of odour concentration*
   - *Identify the points where bi-annual monitoring of odour concentration will be undertaken.*
   - *Reason: BAT 8 requires that you "monitor channelled emissions to air", sets the frequency and identifies the applicable EN standards. BAT 34 specifies that emission limits that will be applied. On review of your BAT assessment, you have stated that "Emissions from the feedstock building odour abatement unit will be monitored every 6 months". We also note that monitoring will be required for all point source emissions to air from the abatement identified in line with BAT 8 and BAT 34. This includes:*
   - *Tank vents connected to abatement within the feedstock building;*
   - *Emissions from liquid digestate storage lagoon vents*

d. *Control measures and process monitoring*
   - *How will you ensure that the maximum storage time for each waste type is not exceeded?*
   - *If the maximum storage time for a waste type is reached, what associated control measures are in place to ensure potential odour impacts are minimised?*
   - *Notes: E.g. First In / First Out and how it is implemented*

e. *Contingency measures*

As stated in the Odour management: comply with your environmental permit - 6. Writing an odour management plan - Guidance - GOV.UK guidance, the amount of material a site can handle is not defined by the permit limit alone. Instead, the amount depends on practical factors, including the type of materials and how they are managed. Considering how the site can handle and store odorous material, identify:

   - *The process triggers for when the site is reaching capacity.*
     Notes: E.g. Bay 1 is full and not being emptied, Bay 2 is more than half full (this would be a warning the site is reaching capacity).
   - *For each odorous source, provide the contingency actions taken if they are outside their process parameter.*
     Notes: E.g. If reception storage is reaching capacity, materials will be processed immediately, and waste deliveries will be ceased until the process is back under control.

Response: Please see the updated OMP provided in Appendix F of this letter.

Should you have any further questions in relation to the above please do not hesitate to contact me.

Yours sincerely,



Emily Hingston

Annex A – Updated Emission Point Plan

Annex B – Technical Note: CO_2 Venting

Annex C – CO2 Block Diagram

Annex D – Updated EMS Summary

Annex E – Updated Accident Management Plan

Annex F - Updated Odour Management Plan