# Permitting Decisions- Bespoke Permit

We have decided to grant the permit for Framptons CHP operated by Pure World Energy Limited.

The permit number is EPR/VP3825SP.

The application is to operate a combined heat and power (CHP) plant to provide electricity and steam to Framptons Limited at their Shepton Mallet Egg Processors and Contract Packers installation. The CHP is a Medium Combustion Plant (MCP) and is permitted as a Directly Associated Activity (DAA) to the Frampton's permit (EPR/BN9551IT).

The CHP plant is fired on natural gas and has a total rated thermal input of 4.8 MWth. The MCP started operation in 2022 and is therefore classified as new Medium Combustion Plant under the Environmental Permitting (England and Wales) (Amendment) Regulations 2018.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

## Purpose of this document

This decision document provides a record of the decision making process. It summarises the decision-making process to show how the main relevant factors have been taken into account.

## Key issues of the decision

### Air emissions

The Combined Heat and Power Plant has a thermal input of 4.8 MW making it a Medium Combustion Plant (MCP). This means that emission limit values and monitoring apply according to the Medium Combustion Plant Directive 2015 (MCPD). The CHP will release oxides of nitrogen dioxide ($NO_x$) and carbon monoxide (CO) into the atmosphere which have the potential to adversely impact human health and ecological receptors. There are several human health receptors including residential properties, sports clubs, schools and a prison within the vicinity of the site. There are also three local wildlife sites and three Sites of Special Scientific Interest (SSSIs) within the 2km screening distance, and two Special Areas of Conservations (SACs) within the 10km screening distance.

The potential impact of $NO_x$ and CO upon sensitive receptors was considered by the applicant who submitted air dispersion modelling to support their application. An initial screening demonstrated that CO had a negligible impact compared to $NO_x$. The air dispersion modelling was based on the CHP being operated for 8,760 hours per year at the emission limit value of 95 mg/$Nm^3$ $NO_x$ [note1] which is applicable under MCPD to a new engine fired on natural gas. We reviewed the modelling and associated report and concluded that the CHP should be permitted to operate for 8,760 hours with emissions limited to 95 mg/$Nm^3$ $NO_x$ as required by MCPD to prevent breaches of environmental standards at any sensitive receptor. Monitoring of both CO and $NO_x$ is required by MCPD and is included in the permit.

**Methodology:**

A methodology for risk assessment of point source emissions to air is set out in our guidance - Air emissions risk assessment for your environmental permit - GOV.UK (www.gov.uk), and has the following steps:

- Describe emissions and receptors
- Calculate process contributions
- Calculate predicted environmental concentrations.
- Screen out insignificant emissions that do not warrant further investigation.
- Decide if detailed air modelling is needed
- Assess emissions against relevant standards
- Summarise the effects of emissions.

We use this methodology to assess the impacts on air quality in the determination of applications.

The methodology uses a concept of “process contribution (PC)”, which is the estimated concentration of emitted substances after dispersion into the receiving environmental media at the point where the magnitude of the concentration is greatest. The methodology provides a simple method of calculating PC, primarily for screening purposes, and for estimating process contributions where environmental consequences are relatively low. It is based on using dispersion factors. These factors assume worst case dispersion conditions with no allowance made for thermal or momentum plume rise and so the process contributions calculated are likely to be an overestimate of the actual maximum concentrations. More accurate calculation of process contributions can be achieved by mathematical dispersion models, which take into account relevant parameters of the release and surrounding conditions, including local meteorology.

Air dispersion modelling enables the PC to be predicted at any environmental receptor that might be impacted by the emissions from a plant. Once short-term and long-term PCs have been calculated in this way, they are compared with Environmental Standards (ES).

PCs are considered insignificant if:

- the long-term process contribution is less than 1% of the relevant ES; and
- the short-term process contribution is less than 10% of the relevant ES.

The long term 1% process contribution insignificance threshold is based on the judgements that:

- It is unlikely that an emission at this level will make a significant contribution to air quality; and
- the threshold provides a substantial safety margin to protect health and the environment.

The short term 10% process contribution insignificance threshold is based on the judgements that:

- spatial and temporal conditions mean that short term process contributions are transient and limited in comparison with long term process contributions; and
- the threshold provides a substantial safety margin to protect health and the environment.

Where an emission is screened out in this way, we would normally consider that the applicant's proposals for the prevention and control of the emission to be acceptable. However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.

For those pollutants which do not screen out as insignificant, we determine whether exceedances of the relevant ES are likely. This is done through detailed audit and review of the applicant's air dispersion modelling, taking background concentrations and modelling uncertainties into account.

Where the PC is greater than these thresholds, the assessment must continue to determine the impact by considering the predicted environmental concentration (PEC). The PEC is the combination of the PC substance to air and the background concentration of the substance which is already present in the environment. The PECs can be considered 'not significant' if the assessment has shown that both the following apply:

- proposed emissions comply with associated emission levels (AELs) or the equivalent requirements where there is no AEL; and
- the resulting PECs won't exceed 100% of the environmental standards.

As the Environmental Standards are often given for $NO_2$ rather than $NO_x$, for combustion processes where no more than 10% of nitrogen oxides are emitted as nitrogen dioxide, worst case conversion ratios to nitrogen dioxide of:

- 35% for short-term average concentrations; and
- 70% for long-term average concentrations.

Are used (see Environmental permitting: air dispersion modelling reports - GOV.UK (www.gov.uk).

**Methodology for local nature sites:**

Emissions at local nature sites (including ancient woods, local wildlife sites and national/local nature reserves) can be considered insignificant if the short- and long-term PCs are less than 100% of the environmental standard. The release of $NO_x$ can impact ecological receptors directly, but also indirectly through the deposition of acid and nitrogen. Environmental Standards for acid and nitrogen deposition are location and habitat specific and can be identified using the Air Pollution Information System (APIS) Air Pollution Information System | Air Pollution Information System (apis.ac.uk).

**Air quality assessment:**

The conclusion to permit the CHP to operate under the conditions specified in the permit was made based on the following considerations:

Human receptors:

- The maximum long-term and short-term $NO_2$ process contributions (PCs) from the installation were not insignificant (≥ 1% or ≥ 10% respectively of the relevant environmental standards). However, the predicted environmental concentration (PEC), including background concentrations, did not exceed the relevant environmental standards (40 µg/$m^3$ $NO_2$ and 200 µg/$m^3$ $NO_2$ [note2] for assessing long- and short-term impacts respectively) at any human receptor.

- The maximum long-term PEC at any sensitive human receptor was predicted by the applicant's modelling to be 12% of the relevant environmental standard of 40 µg/$m^3$ $NO_2$. The maximum short-term PEC at any sensitive receptor was predicted by the applicants' modelling to be 17% of the environmental standard of 200 µg/$m^3$ $NO_2$ [note2].

- Our audit of the air dispersion modelling corroborated the applicant's conclusions that at an emission limit of 95 mg/$Nm^3$ $NO_x$, the relevant environmental standards would not be exceeded at any sensitive human receptor.

Ecological receptors

The applicant modelled the potential impact upon the eight ecological receptors identified within the screening distance. The impact upon these sites was found

to be insignificant (the process contribution from the installation was less than the relevant environmental standard in each case).

- The maximum predicted annual mean process contribution of $NO_2$ at any nature site was 4% of the environmental standard of 30 µg/$m^3$ $NO_2$. The maximum predicted process contribution averaged across a 24-hour period was 18% of the environmental standard of 75 µg/$m^3$ $NO_2$.
- The maximum predicted annual process contribution of nitrogen deposition was 5.8% of the lower critical load.
- The maximum predicted annual process contribution of acid deposition was 1.45% of the maximum critical level.

Note 1: this is the normalised concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 15%.

Note 2: this is calculated as the 99.79$^{th}$ percentile of the 1 hour 200 µg/$m^3$ $NO_2$ mean to account for allowed exceedances.

# Decision considerations

## Confidential information

A claim for commercial or industrial confidentiality has not been made.

## Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential.

The decision was taken in accordance with our guidance on confidentiality.

## Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

Health and Safety Executive

No responses were received.

## Operator

We are satisfied that the applicant (now the operator) is the person who will have control over the operation of part of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.

## The regulated facility

We considered the extent and nature of the facilities at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN2 'Defining the scope of the installation' and Appendix 1 of RGN 2 'Interpretation of Schedule 1'.

The operator has provided the grid reference for the emission point from the medium combustion plant.

The extent of the facilities are defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

This permit applies to only one part of the installation – the operation of the CHP plant located within the Energy Centre. The names and permit numbers of the operators of other parts of the installation are detailed in the permit's introductory note.

## The site

The operator has provided a plan which we consider to be satisfactory.

These show the extent of the site of the facility including the discharge points.

The plan shows the location of the part of the installation to which this permit applies on that site.

The plan is included in the permit. The part of the installation to which this permit applies is marked in green. The wider installation boundary is marked in red.

## Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat

designations identified in the nature conservation screening report as part of the permitting process.

We consider that the application will not affect any site of nature conservation, landscape and heritage, and/or protected species or habitats identified.

We have not consulted Natural England as the air quality assessment (as described under **Key Issues**) was assessed and approved under a previous variation application for the wider installation (EPR/BN9551IT/V006).

The decision was taken in accordance with our guidance.

## Environmental risk

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator's risk assessment is satisfactory.

## Operating techniques

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

## General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

## Operating techniques for emissions that do not screen out as insignificant

Emissions of oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) cannot be screened out as insignificant at all receptors. We have assessed whether the proposed techniques are Best Available Techniques (BAT).

The proposed techniques/ emission levels for emissions that do not screen out as insignificant are in line with the techniques and benchmark levels contained in the technical guidance and we consider them to represent appropriate techniques for the facility. The permit conditions enable compliance with relevant MCPD Emission Limit Values (ELVs).

## Operating techniques for emissions that screen out as insignificant

Emissions of carbon monoxide have been screened out as insignificant, and so we agree that the applicant's proposed techniques are Best Available Techniques (BAT) for the installation.

We consider that the emission limits included in the installation permit reflect the BAT for the sector.

## National Air Pollution Control Programme

We have considered the National Air Pollution Control Programme as required by the National Emissions Ceilings Regulations 2018. By setting emission limit values in line with technical guidance we are minimising emissions to air. This will aid the delivery of national air quality targets. We do not consider that we need to include any additional conditions in this permit.

## Raw materials

We have specified limits and controls on the use of raw materials and fuels.

The fuel for the CHP plant is restricted to natural gas.

## Emission Limits

Emission Limit Values (ELVs) have been added for the following substances:

- Oxides of Nitrogen (NO and $NO_2$ expressed as $NO_2$). ELVs have been set at 95 mg/$Nm^3$ at an oxygen reference condition of 15%, which are in line with the Schedule 25A (Medium Combustion Plant) of the Environmental Permitting (England and Wales) (Amendment) Regulations 2018.

ELVs are in accordance with MCPD requirements for new natural gas fired CHP plant.

## Monitoring

We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.

- Oxides of nitrogen (NOx)
- Carbon monoxide (CO)

These monitoring requirements have been included in line with Schedule 25A (Medium Combustion Plant) of the Environmental Permitting (England and Wales) (Amendment) Regulations 2018.

We made these decisions in accordance with MCP technical guidance which provides minimum standards for monitoring under MCPD.

## Reporting

We have specified reporting in the permit for the following parameters:

- Oxides of nitrogen ($NO_x$)
- Carbon monoxide (CO)

These reporting requirements have been included in order for the Operator to demonstrate compliance with the emission limits specified in the permit for the CHP. We made these decisions in accordance with MCPD.

We have also specified reporting in the permit of annual water use in $m^3$ and energy usage in KWh.

Water is required by the CHP and as the site will be providing energy and steam to the Frampton's Limited Site, it will help both installations to comply with their obligations to regularly review water and energy consumption in accordance with the Reference Document on Best Available Techniques for Food, Drink and Milk Industries (BREF) 2019.

## Management System

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

## Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.

Paragraph 1.3 of the guidance says:

"The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation."

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.