



Annual Environmental Report (AER) 2023

Company Name: Great Island Generating Station

Licence Number: P0606-04

Address: Campile, New Ross, County Wexford

Class of Activity¹:3511

¹ See Appendix I

Purpose of this Report

One of the functions of the Environmental Protection Agency (EPA) is to licence and regulate the activities² of large scale industrial (e.g. chemical, food processors, power plants) and waste facilities. Submitting an Annual Environmental Report (AER) is a requirement of all EPA licences.

An AER is a public document. To this end, this format has been developed for industrial and waste licence holders (other than the intensive agriculture sector) to use as a template. This is to assist any member of the public to interpret and understand the environmental performance of the licensed facility.

The AER is a **summary** of environmental information for a given year. It includes:

- Details of the licence holder's environmental goals achieved, goals to maintain compliance and/or improve their environmental performance;
- Answers to questions regarding their facility's activities;
- Tables of results from monitoring emissions such as air, water, noise, and odour; and
- Details of waste generated, accepted and treated.

An AER does **not** provide detailed technical data. Such information is available in three ways:

- 1) Contacting the licence holder directly. The Contact Us section of this template enables the licence holder to provide details of where a member of the public can obtain further information on topics reported in this document.

² See Appendix I

- 2) Some documents³ are available on the EPA website via the licence details page for each individual licence. This can be found by browsing either the <http://www.epa.ie/licensing/> or <http://www.epa.ie/enforcement/> pages of the EPA website.
- 3) All formal enforcement correspondence exchanged between the EPA and a licence holder during the regulatory process is available for public viewing by appointment at any EPA Office.

If you have a question or query about an AER or an individual EPA licensed facility see the EPA's website or contact the relevant EPA office. See <http://www.epa.ie/about/contactus/> for contact details.

³ This includes EPA site inspection and compliance monitoring reports, licence holders' self-monitoring reports, AERs and special reports

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Glossary

Abatement Equipment	Technology used to reduce pollution
AER	Annual Environmental Report.
Beyond Compliance	Beyond compliance is concept to help deliver greater organisational performance and long-term value for the environment, society and the economy.
CRAMP	Closure, Restoration and Aftercare Management Plan.
ELRA	Environmental Liability Risk Assessment.
Emission Limit Value	Limits set for specified emissions, typically outlined in Schedule B of an EPA licence.
EMS	Environmental Management System.
Environmental Goal	An objective or target set by a licensee as part of an environmental management system (EMS).
Environmental Pollutant	Substance or material that due to its quantity and/or nature has a negative impact on the environment.
Facility	Any site or premises that holds an EPA industrial or waste licence.
FP	Financial Provision.
GJ	Giga joules, an international unit of energy measurement.

Groundwater	All water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
Incident	As defined by an EPA industrial or waste licence.
Inert Waste	Is waste that will not undergo physical, chemical or biological change thereby, is unlikely to cause environmental pollution or harm human health.
List of Wastes (LoW)	A list of wastes drawn up by the European Commission and published as Commission Decision 2014/955/EU.
Noise Sensitive Location	Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other installation or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.
Non-Renewable Resource	A resource of economic value that cannot be replaced at the same rate it is being consumed e.g. coal, peat, oil and natural gas.
Oil Separator	Separator system for light liquids (e.g. oil and petrol).
PRTR	Pollutant Release and Transfer Register.
Renewable Resource	Wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases.
Sanitary Waste	Waste water from toilet, washroom and canteen facilities.

Storm Water	Rain water run-off from roof and non-process areas.
Surface Water	Lakes, rivers, streams, estuaries and coastal waters.
Trigger Level	A value set for a specific parameter, the achievement or exceedance of which requires certain actions to be taken by the licence holder.
Volatile Organic Compounds	Gases produced from solids or liquids that evaporate readily in ambient conditions.
Waste	Any substance or object which the holder discards or intends or is required to discard.

Disclaimer

These are **not** legal definitions. Legal definitions can be found in the corresponding legislation.

Declaration

I, Jonathan Storey, Environmental & Chemistry Engineer, confirm that by ticking the box below, all information in this report is truthful and accurate to the best of my knowledge and belief.

In addition, I confirm that all monitoring and performance reporting required by our EPA licence and summarised herein is available for inspection by the EPA.

Tick here



1) Introduction

See below a brief description of our facility and a summary of our environmental performance this year.

Great Island is licensed for the following activity:

- The operation of combustion installations with a rated thermal input equal to or greater than 50MW

11 Complaints were received in 2023, predominantly the complaints were regarding foam formation and water quality at the outfall.

Two EPA reportable incidents occurred in 2023.

- INCI026401 Breach of ELV - 19/10/2023
- INCI025510 Breach of ELV - 15/06/2023

Station running hours increased by circa 86% in 2023 (6286 hours) compared to 2022 (3379 hours) due to a significant breakdown and a major outage in 2022.

The site received a new IEL in 2023.

The site was recertified to ISO14001:2015 standard in 2021 and will be completing the recertification process in 2024.

Contact Us

If you have any questions or would like further information on any aspect of our licensed activity, please contact us directly.

See below details:

Jonathan Storey

Environmental & Chemistry Engineer

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2) How we Manage our Facility

Environmental Management System

Explanation

To ensure our facility's activities do not cause environmental pollution we are required to have detailed documentation systems in place to help us manage and track our environmental performance. These systems are referred to as Environmental Management Systems (EMS). We review our EMS every year and set up-to-date **environmental goals** to continually improve our environmental performance.

The information below sets out the environmental goals for our facility to help us prevent environmental pollution and reduce our impact on the environment. Target dates for completing each goal and progress towards achieving the goal are outlined in Table 1.

Table 1 Environmental Goals

Environmental Goal	Target Date	Progress
Adhere to all licence conditions - 0 non conformances	Ongoing	2 ELV breaches' (May 2023 & September 2023)
Retain ISO14001 2015 Standard	Ongoing	On track
The reduction of chlorine emissions to water including alternatives to the use of biocide for maintaining the cooling water system	December 2024	On track
The reduction of fish entrainment and fish impingement including measures for the safe passage of	December 2024	On track

fish in the vicinity of the cooling water intake back to the estuary.		
Reduction in council supplied water consumption on-site	December 2024	On track
Foam Reduction at the Outfall	December 2024	On track
Improve food waste recycling	December 2024	Complete
Achieve biodiversity net gain by 2025.	December 2025	On track
Reduce the time taken to close all interceptors on site	December 2024	Complete
Monitor all ELV parameters of new sewage system to ensure complete compliance	December 2024	Complete

Add rows as necessary

Comment

All (except the first line in the table) environmental objectives and targets on track for completion.

Beyond Compliance

Explanation

We are legally required to comply with our environmental licence. However, the EPA realise that some sites go further than just complying with their environmental licence requirements. Some projects carried out at facilities can have long term positive impacts on the environment and local communities.

The EPA's beyond compliance initiative is encouraging us to identify and report on these environmental and sustainability projects. For example, the project could involve renewable energy, biodiversity, water conservation or exemplar community engagement.

Did any project completed on your site in the reporting year go beyond your licence requirements?

Yes

No

If yes, provide details of one case study in Appendix III that demonstrates how the project went beyond compliance of your licence.

3) Energy & Water

Energy

Explanation

Fossil fuels such as coal, gas and oil are non-renewable resources. As a result, our EPA licence requires that we measure our energy use and set targets to improve the energy efficiency of our activities and reduce our overall use, where possible. Where we have the means and technology on-site to generate energy, this is also captured in this report.

The information below summarises the energy used this year compared to the previous year and includes renewable and non-renewable energy types.

Table 3 Energy Used

Energy Used	Quantity (GJ)	% Increase/ decrease on previous year
Electricity	158836	+80.7%
Heavy Fuel Oil	0	
Light Fuel Oil	11673	-62.0%
Natural Gas	12718071	+77.1%
Coal / Solid Fuel	0	
Peat	0	
Renewable Biomass	0	
Renewable Energy Generated On-site	0	
Total Energy Used	12888590	+76.6%

Comment

All energy figures are supplied to sea on a monthly basis. Energy used within Great Island is all dependant on the running regime of the station. This is the same for natural gas consumption. Distillate (light oil) is a backup fuel and usage is dependent on test runs as dictated by Eirgrid.

The information below summarises the energy we generated on our site this year with specific focus on renewable energy generation.

Table 4 Energy Generated

Energy Generated	Quantity (GJ)	% Increase/ decrease on previous year
Renewable Energy	0	
Total Energy Generated	7049610	+79.7%

Comment

No renewable energy generated at Great Island CCGT
--

Water

Explanation

Water is a natural resource and we are required by our EPA licence to identify ways to reduce our use where possible. Water used in industry can be extracted from groundwater, rivers and lakes (surface water), taken from public water supplies (Irish Water), recycled from the facility's processes or harvested from rainwater.

The information below summarises and compares the quantity of water used this year compared to the previous year.

Table 5 Water Used

Source of Water Used	Quantity (m³/year)	% Increase/ decrease on previous year
Groundwater	0	
Surface Water	205900958	+82.9%
Public Supply	125814	+22.1%
Recycled Water	0	
Rainwater	0	
Total Water Used	206026772	+82.8%

Comment

All surface water abstracted from the river is used for cooling within a closed system and 100% is returned to the river. Therefore, 125,814 m³ water was consumed at the Facility in 2023.

4) Environmental Complaints

Explanation

Our EPA licence requires that activities do not cause environmental nuisance such as odour, dust or noise. Our licence also requires that we have procedures in place to record, investigate and respond to environmental complaints if or when they arise.

We have an environmental complaints procedure in place where you can contact us⁴ directly. You can also contact the EPA⁵ if you wish to make an environmental complaint, confidentially or not.

See the information below for a summary of **all** the environmental complaints relating to our activities made directly to us and to the EPA this year.

Table 6 Summary of All Environmental Complaints Received in 2023

Type of Complaint	Number of Complaints	Number Closed
Odour / Smells	0	
Noise	1	1
Dust	0	
Water Quality	9	9
Air Quality	0	
Waste	0	
Litter	0	
Vermin/Flies/Birds	0	
Soil Contamination	0	
Vibration	0	
Other	1	1

⁴ See Section 1, Introduction – Contact Us

⁵ If you wish to contact the EPA to make an environmental complaint about an EPA licenced facility, please go to <https://lema.epa.ie/complaints>

Comment

9 complaints received in 2023 relating to foam and water quality at the outfall, all complaints are closed.

1 complaint of noise from the Evacuation Alarm System complaint closed.

1 complaint regarding excess road tanker movements to site

(unsubstantiated complaint as the road tankers were not for Great Island CCGT)

5) Environmental Incidents

Explanation

It is our responsibility as an EPA licensed facility to ensure we have systems in place to prevent incidents that have the potential to cause environmental pollution. If an incident occurs, we are required to report it to the EPA, investigate the cause and fix the problem.

The EPA classify environmental incidents into 5 categories based on the potential impact on the environment:

- Minor
- Limited
- Serious
- Very Serious
- Catastrophic

See Table 6 for the number of the environmental incidents we reported to the EPA this year.

Table 7 Number of Environmental Incidents

Incident Category	Minor	Limited	Serious	Very Serious	Catastrophic
Abatement Equipment Offline					
Breach of Ambient ELV					
Breach of Emission Limit	2				
Explosion					
Fire					
Monitoring Equipment Failure					
Odour					
Spillage					
Breach of trigger Level					
Uncontrolled Release					

Incident Category	Minor	Limited	Serious	Very Serious	Catastrophic
Other					

Comment

Two reportable incidents both related to a breach of an ELV at emission point SW13.

6) Our Environmental Emissions

Explanation

We are required to ensure the emissions from our activities do not cause environmental pollution.

We are required to monitor any of the following emissions that we make:

- Storm water
- Waste water
- Air
- Groundwater
- Noise

We regularly test any such emissions for specific pollutants and materials to ensure they do not contain levels of pollution that exceed emission limit values (ELVs) or cause environmental pollution. If monitoring of an emission indicates an ELV is exceeded, we are required to report this to the EPA⁶.

The next sub-sections of this report summarise our compliance with any ELVs set in our EPA licence. Some emissions monitored do not have specific ELVs, but we still carry out monitoring and report all incidents that may give rise to environmental pollution.

⁶ See section 5, Incidents

Storm Water

Explanation

Storm water is rain water run-off from roof and non-process areas of a facility, e.g. car parks, and generally shall not contain any pollution. Storm water is usually released into a local water body after a basic form of treatment. Our EPA licence requires that we manage storm water to ensure no polluting substances or materials are released into the environment.

The information below summarises how the storm water from our facility is treated, where it is released and the results of monitoring this year.

1. Storm water from our facility is managed prior to release by;

All storm water from site passes through silt traps and Class 1 oil separators prior to release.

2. Storm water from our facility is released into the following water bodies:

Estuary of River Barrow and River Suir meeting point

Table 8 Summary of Storm Water Monitoring

Parameter measured	No. of Samples	% Compliant⁷	Comment
Suspended Solids	63	98	One ELV exceedance
THP	63	100	
BOD	12	100	
COD	12	100	
Ammonia	12	92	One ELV exceedance
Phosphorous	12	100	
Trichloromethane	4	100	
Free Chlorine	308	100	

Add rows as necessary

Comment

Emission point SW7 re-introduced into new IEL with new sampling requirements, samples taken from September 2023 onwards.

⁷ % compliant = [(number of samples compliant) / (number of samples taken)] x 100. Compliance could refer to emission limit values or trigger levels. The EPA commonly use trigger levels on stormwater discharges.

Waste Water

Explanation

There are two types of waste water that can be produced:

- Process waste water produced from the activities and;
- Sanitary waste water from toilets, washrooms and canteens.

Our EPA licence requires us to manage our waste water on or off-site and ensure that it does not cause environmental pollution when discharged into the environment.

The information below summarises how we treat the waste water produced from our activities, where it is released and the results of monitoring this year.

1. Waste water produced by our activities is treated as follows before discharge to a receiving waterbody;

On-site wastewater treatment plant

2. Treated waste water from our facility is released into the following water bodies:

Estuary of River Barrow and River Suir meeting point

Table 9 Summary of Waste Water Monitoring

Parameter measured	No. of Samples	% Compliant	Comment
Suspended Solids	0		No discharge from this point
THP	0		No discharge from this point
BOD	0		No discharge from this point
COD	0		No discharge from this point
Ammonia	0		No discharge from this point
Phosphorous	0		No discharge from this point
pH	0		No discharge from this point

Add rows as necessary

Comment

Wastewater treatment plant out of action, all waste water taken off-site via road tankers.

Air

Explanation

Generally, three types of air emissions are monitored from industry in Ireland: gases, dust (particulates) and odour. Our EPA licence requires us to ensure that any air emissions from our activities do not cause air pollution or create an odour nuisance.

The information below details the number of air emission points we monitor, the results from testing the air emissions and any odour assessments carried out by us and the EPA this year.

1. We monitor air emissions from the following number of emission points at our facility.

A2-1

Table 10 Summary of Air Emissions Monitoring

Parameter measured	No. of Samples	% Compliant	Comment
CO	CEMS	100	
NOx	CEMS	100	
SOx	CEMS	100	
Particulates	CEMS	100	

Add rows as necessary

Comment

All air emissions are covered by CEMs and no exceedances of IEL ELV's. Great Island has two fully independent calibrated and serviced CEMS systems, one in duty and one in standby.

Table 11 Summary of Odour Assessments Carried Out

Assessment Conducted By	No. of Odour Assessments	% Compliant⁸	Comment
Licence Holder	1	100	Complied with reference to the EPA Air Guidance Note 5: (AG5) Odour Impact Assessment Guidance for EPA Licensed Sites 2019
EPA	0		

Add rows where necessary

Comment

The results of the odour assessment indicate that operations within SSE did not have an impact on odour levels at each of the locations monitored at the time of the assessment.

⁸ A compliant odour assessment is based on EPA Odour Impact Assessment Guidance available at [Air Enforcement | Environmental Protection Agency \(epa.ie\)](https://www.epa.ie/enforcement/air/odour/)

Fugitive Solvent Emissions

Are you required to monitor fugitive solvent air emissions from your facility?

Yes

No

Explanation

The use of solvents is regulated under Irish and European Union (EU) Regulations⁹. Solvents are chemicals that, by their nature, are volatile (evaporate readily under ambient conditions). Solvents can be found in many inks, glues and cleaning agents. Due to the volatility of solvents some emissions may be released into the atmosphere during our activities before being captured in our air treatment system. This type of emission is called a **fugitive solvent emission**.

The information below summarises the quantity of solvents used this year, the percentage of fugitive solvent emissions (% of total quantity used) and whether the percentage complied with the targets set in the EU Regulations.

Table 12 Summary of Fugitive Solvent Emissions

Quantity of Solvents Used (Kg)	% Fugitive Solvent Emissions	Compliant

Comment

No solvents used at Great Island

⁹ See Annex VII of the Industrial Emissions Directive

<https://ec.europa.eu/environment/industry/stationary/ied/legislation.htm>

Groundwater

Explanation

Groundwater is an important and sensitive resource in Ireland. Our EPA licence requires that we monitor groundwater to ensure our activities do not cause groundwater pollution.

Understanding how groundwater flows through soil and rock layers and eventually into surface and coastal waters is a complex science. Sometimes groundwater pollution that occurred in the past can take years and even decades to disappear. Therefore, it is important that experts help us monitor and interpret results from groundwater monitoring and testing.

The information below is a basic summary of the condition of the groundwater this year.

1. Do you have a groundwater monitoring programme in place?

Yes

No

2. Have the groundwater monitoring results over the last 5 years indicated the presence of groundwater pollution?

Yes

No

Table 13 List of Groundwater Pollutants Identified

Pollutants
Total and Faecal coliforms

Add rows as necessary

3. Give details of the investigations and subsequent actions taken, where applicable, to manage the groundwater pollution.

There are widespread Total and Faecal coliforms contamination across survey site. The source of coliform contamination could be either local agricultural runoff or waste decomposition in the cells. Water in this area is not used for drinking or domestic use.

Comment

Groundwater is not used for drinking or domestic use so does not pose a significant risk. Direct discharges of pollutants into groundwater (i.e. disinfection by biocides) are prohibited by the Water Framework Directive.

Noise

Explanation

Our EPA licence requires that we monitor noise emissions from our facility. Noise monitoring can be conducted at the boundary of our facility and/or at locations beyond the boundary referred to as “noise sensitive locations”. Noise monitoring requires the use of special noise monitoring equipment. Our EPA licence requires that noise produced by our facility shall not exceed the noise limit values and/or give rise to nuisance.

The information below gives a summary of when and where we conducted noise monitoring this year and if results complied with our EPA licence limits.

1. We conducted noise monitoring on the following dates this year:

26-10-2023 – 27-10-2023

2. Where was the noise monitoring carried out?

- i. the boundary of our facility;
- ii. noise sensitive locations off-site; or
- iii. both.

ii. noise sensitive locations off-site

3. Were measured noise levels compliant with your EPA licence limits?

Yes

No

If No, we took the following actions to address the noise level exceedances?

N/A

Comment

The findings of the report indicate that noise sensitive locations are not affected or impacted by activities at Great Island

7) Waste

Waste Generated

Explanation

Our EPA licence requires us to manage the waste we generate in a manner that does not cause environmental pollution.

We manage, store and record hazardous, non-hazardous and inert waste we generate in accordance with our licence. We ensure that this waste is subsequently treated or disposed of in accordance with the relevant waste Regulations.

The information in Table 14 is a summary of waste we generated this year and the percentage increase or decrease on the previous year. The percentage recovery is the amount of total waste generated that was reused, recycled or recovered.

Table 14 Waste Generated

Type	Quantity (Tonnes)	% Increase/ decrease on previous year	% Recovery
Hazardous	352.16	79.26	24.11%
Non-Hazardous	1080.24	-41.49%	100.0%
Inert	0	-	N/A
Total Tonnes	1432.4	-29.87%	

Comment

Major outage in 2022 resulted in more waste generated onsite.

Waste Accepted

Did you accept waste onto your facility for storage, treatment, recovery or disposal this year?

Yes

No

Explanation

Our EPA licence requires us to manage the waste we accept in a manner that does not cause environmental pollution.

We manage, store and record all incoming and outgoing hazardous, non-hazardous and inert waste. The waste we accept may be treated, recovered, disposed or stored at our facility depending on our licence requirements.

The information in Table 15 provides a summary of waste we accepted this year and the percentage increase or decrease on the previous year. The percentage recovery is the amount of total waste accepted that was reused, recycled or recovered.

Table 15 Waste Accepted

Type	Quantity (Tonnes)	% Increase/ decrease on previous year	% Recovery
Hazardous			
Non-Hazardous			
Inert			
Total Tonnes			

Comment

100 word limit

8) Financial Provision

Explanation

Our EPA licence requires us to assess the risk our activities pose to the environment if we cease our activities or if an incident occurred. If we are identified as a high risk facility¹⁰ by the EPA, we are required to put provision in place such as a financial bond or insurance to cover the cost of restoring our site to a satisfactory condition. This financial provision can then be used to cover the cost of managing the restoration or clean up should such an event occur.

1. Are you required to have an agreed financial provision in place?

Yes

No

2. What year was your Closure, Restoration and Aftercare Management Plan (CRAMP) last agreed by the Agency?

02/04/2020

3. What year was your Environmental Liability Assessment Report (ELRA) agreed by the Agency?

23/03/2020

4. Has there been any significant changes on your site since the last agreements?

Yes

No

If yes, have you submitted details to the EPA?

Yes

No

N/A

¹⁰ See Appendix II

Appendix I

Class of Activity

Industrial and waste facilities are classed into different sectors depending on the nature of their activity and its potential impact on the environment. The EPA Act 1992 as amended, outlines these as follows:

Class 1	Minerals and other materials
Class 2	Energy
Class 3	Metals
Class 4	Mineral fibres and glass
Class 5	Chemicals
Class 6	Intensive Agriculture ¹¹
Class 7	Food and drink
Class 8	Wood, paper, textiles and leather
Class 9	Fossil fuels
Class 10	Cement, lime and magnesium oxide
Class 11	Waste
Class 12	Surface Coatings
Class 13	Other Activities

¹¹ This reporting template is not applicable to the **intensive agriculture sector**. Their annual environmental reporting structure is different and can be found at [Compliance & Enforcement: Licensees: Reporting Publications | Environmental Protection Agency \(epa.ie\)](#)

Appendix II

High Environmental Risk Categories

If an industrial or waste licence falls into one of these categories it is deemed, by the EPA, as a high environmental risk. As a result, the licence holder is required to have financial provision in place. See section 8, Financial Provision.

1. Landfills
2. Non-Hazardous Waste Transfer Station
3. Incineration and Co-Incineration Waste Facilities
4. Category A – Extractive Waste Facilities
5. Upper and Lower Tier Seveso Facilities
6. Hazardous Waste Transfer Stations
7. High Risk Contaminated Land
8. Exceptional Circumstances

NOTE:

This list is subject to change.

See the link below for further information.

[Compliance & Enforcement: Financial Provisions Publications | Environmental Protection Agency \(epa.ie\)](#)

Appendix III

Beyond Compliance

The case study below shows how we went beyond the requirements of our licence in the reporting year.

A report was commissioned by SSE Thermal to undertake a Biodiversity Net Gain (BNG) assessment and review for Great Island Power Station. The study involved a Site visit to map habitats present using UKHab survey protocols and an assessment of the baseline condition of each habitat recorded. The condition data was then used to inform baseline biodiversity unit calculations, before highlighting opportunities for enhancing the condition of habitats present and / or creating new habitats for biodiversity. The assessment will aid developing a site biodiversity management / action plan.