

Veolia Energia Polska S.A.

Non-Technical Summary

Veolia Energy Recovery Facility Łódź

Final | 13 August 2024



This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1. Introduction to the ERF Project in Łódź

Veolia is planning the construction of a Waste to Energy plant (otherwise referred to as an Energy Recovery Facility or „ERF”) (“The Project”). The Project is being carried out by Veolia Nowa Energia Sp. z o.o. (SPV), a company specifically created to carry out the Project. The SPV was created by and belongs to Veolia Energia Polska S.A. (part of the international capital Veolia Group). The facility is to be located on an idle land site adjacent to the existing Veolia heat production plant running on coal (EC4), in the city outskirts of Łódź (Poland) away from residential and nature protected areas.

The implementation of this Project will allow for the energy production from RDF¹, i.e. the non-recyclable municipal waste with high calorific value. The development is part of with the strategy of Veolia Energia Łódź S.A. consisting in decarbonization of the Łódź district heating system and the systematic reduction of CO₂ emissions. The main objectives of the Project include:

- Increase in the production of the electrical and thermal energy by use of high-efficiency cogeneration;
- Reduction of coal consumption in the energy production process;
- Reduction of harmful emissions resulting from the combustion of coal.

A local Environmental Impact Assessment (EIA) was undertaken in 2010 (EIA 2010) which included stakeholder engagement in line with Polish national regulations and resulted in Project receiving an Environmental Decision (ED) in the year 2010 (ED 2010). The second EIA was prepared in 2021 and the Building Permit was issued in 2022.

The Project was categories as 'A' in line with EBRD Environmental and Social Policy (ESP 2019) and therefore requiring an Environmental and Social Impact Assessment (ESIA) to the standards of international lenders (EBRD). At the same time the project has been assessed to Equator Principles (EP4 2020) EP4 standards and classified as Category B project, considering its size and complexity.

The Contract with the General Contractor was signed on April 17, 2023. Construction work will commence after the Notice of Proceed of work has been signed, which is anticipated in Autumn 2024. Construction work will commence soon after this date. According to schedules, construction works will take 39 months, and the installation starting of commissioning is expected in the first quarter of 2027. The third or fourth quarter of 2027 is the expected date of final commissioning the installation.

Veolia introduced BREEAM International New Construction 2016 on level Very Good within the EPC contract - an environmental performance standard for use in assessing new buildings.

The submitted documentation was analysed for compliance with the requirements of PR 1 to PR10 according to EBRD ESP 2019 and Principle 1 to Principle 8 of Equator Principle EP4 2020 requirements. The project was prepared in accordance with the requirements of Polish law, EU regulations and in most aspects it is aligned with the EBRD and EP4 2020 requirements.

This document is a non-technical summary (NTS) of environmentl and social analysis conducted for the Project to the standards of international Lenders. The NTS outlines the findings in a non-technical language, together with the mitigation measures proposed by Veolia for the management of the Projects environmental and social issues. The Environmental and Social Action Plan (ESAP) provides all actions that the SPV will undertake to close compliance gaps and to ensure the Project's ongoing compliance with the Lendsrs' requirements.

¹ The ERF is designed to use RDF (Refuse Derived Fuel) and SRF (Solid Recovered Fuel), which is referred to in this document as “RDF”. The Regulation of the Minister of the Environment of 9 December 2014 on the catalogue of waste defines the term as waste with code 19 12 12 (RDF) – Other waste (including mixed substances and objects) from mechanical treatment of waste other than those listed in 19 12 11 and waste with code 19 12 10 (SRF) - combustible waste (alternative fuel). The facility will be able to process waste also with the following codes: 19 12 08 (textiles); 19 12 07 (wood other than that mentioned in 19 12 06); 19 12 04 (plastics and rubber); 19 12 01 (paper and cardboard).

2. What is Veolia and the ERF Project

2.1 Project context

The ERF is to be realised and operated by the special purpose vehicle Veolia Nowa Energia Sp. z o.o. currently 100% owned by Veolia Energia Polska S.A. Veolia Group is one of the global leaders in the energy, water and waste sectors, with operations in 58 countries, generating revenue of 42 885 billion EUR and employing over 213 000 people.

In Poland Veolia is organized within a tax capital group, with Veolia Energia Polska S.A. being the parent company. Veolia is active in 123 local Polish local authorities, where they manage 58 district heating networks.

Among various business sectors, the company is a producer and supplier of district heat to the city of Łódź, and it actively takes measures to ensure efficient operations and environmentally sustainable solutions are implemented into their production and delivery streams. The company is aiming towards green transition, including progressive reduction of raw material in the production of heat and electricity, and gradual decarbonization of the district heating system through the use of alternative fuels.

The Project is part of the wider decarbonization process of Veolia. It will allow the combustible fraction of municipal waste to be used for energy production with a reduced carbon footprint compared to the baseline, i.e. current landfilling practice. The Project will fill an infrastructural gap in the region's in Poland's waste management system, as this will be the first ERF in the region. Moreover, there is currently oversupply of RDF on the waste market in Poland i.a. due to deficiency in waste to energy facilities. At the same time the ERF will allow simultaneous recovery of electricity and generation of heat from waste.

The successful implementation of the Project will contribute to meeting the waste targets currently in force across EU member states (decrease of landfilling). The project will increase the volume of effectively managed waste, minimize the landfilling of waste that has not been recovered or recycled, thereby contributing to a reduction in carbon emissions.

This fulfils the standards recommended by the Council of Europe and the requirements of Directives 2018/851 amending Directive 2008/98/EC on waste and Directive 2018/850 amending Directive 1999/31/EC on the landfill of waste, which are being implemented in Polish legislation.

The Project will result in:

- reduction in the amount of waste landfilled (below EU 10% target levels, for waste generated in the Municipality of Łódź the landfilling is estimated to reach <1%);
- reduction in CO₂ emissions through change of heat source from coal to waste (by ca 36%);
- increase of annual heat production by 1 700 000 GJ / annually and electricity production by 150 000 MWh annually.

Integrating the project within European, national, and regional regulatory frameworks is essential for ensuring legal compliance and successful implementation. By carefully analyzing and addressing regulatory requirements, constraints, and targets, the Project can mitigate risks and maximize its chances of achieving its objectives while maintaining regulatory compliance. At the European level, the project must adhere to various regulations and directives set forth by the European Union (EU).

The ERF in Łódź will contribute to the objectives of the directives by increasing waste management efficiency, minimizing landfill and reducing the amount of waste sent to landfill.

2.2 Project location

The Project is located in Poland, in the city of Łódź (Łódź Voivodeship, Widzew district, Olechów-Janów residential area, J. Andrzejewskiej 5 Street, cadastral parcel 56/222, cadastral district W-32), next to the existing combined heat and power plant EC4 owned and operated by Veolia Energia Łódź S.A., with buildings and facilities connected to the EC4.

The project area is situated within an anthropogenic landscape, specifically as part of an industrial facility. Unlike natural environments, there is no existing plant cover on the grounds of the combined heat and power

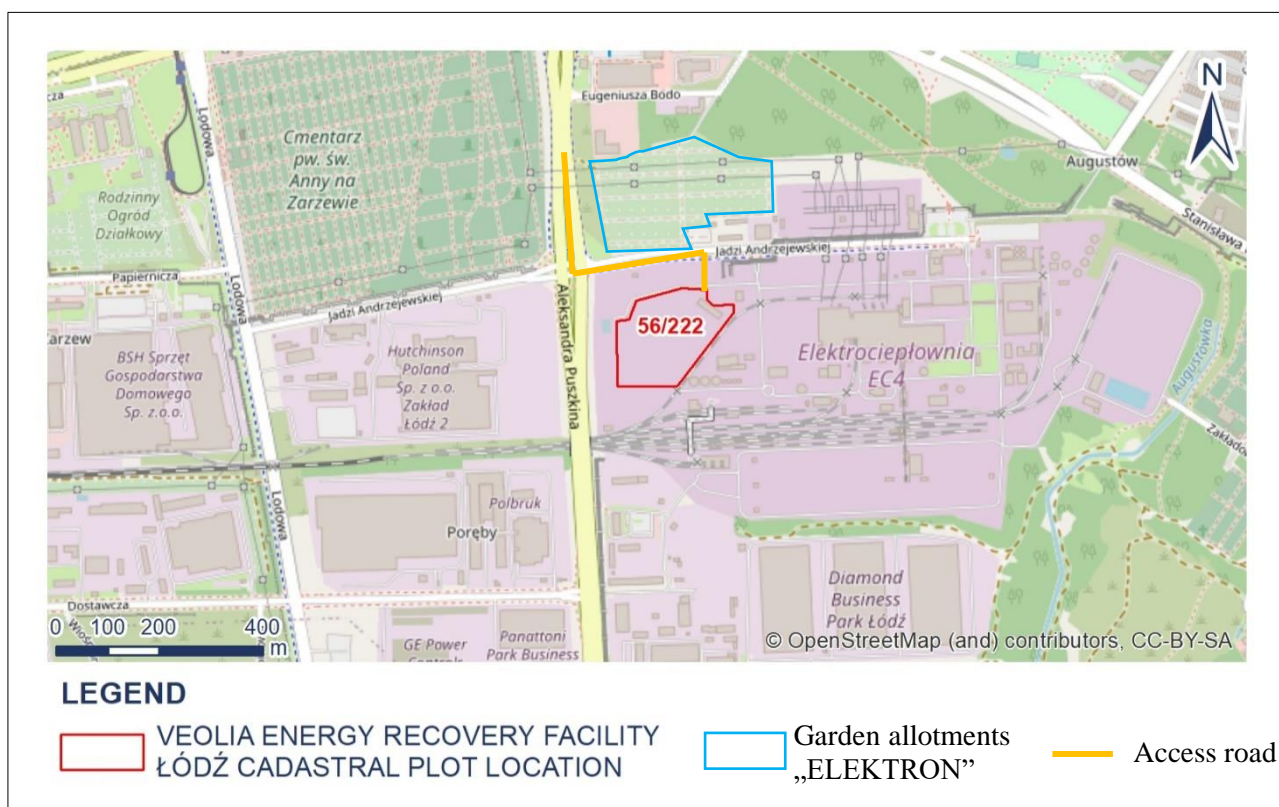
plant. However, to create a buffer between the plant complex and residential areas, green spaces with trees and bushes have been established in the north-eastern direction.

The key features surrounding the project area include:

- North-East: Adjacent to the Elektron Family Allotment Gardens, commercial facilities, and a petrol station;
- South: Borders railway tracks and industrial buildings;
- West: Directly borders Puszkina Street, with additional industrial buildings and the Zarzew Cemetery beyond;
- East: Adjacent to Zakładowa Street, where a stream called Augustówka flows, along with another cemetery near the gate of EC4.

Despite the lack of a specific local spatial development plan, the area falls within a closed zone designated for industrial purposes (specifically for EC4). The previous spatial development plan (from 1993) had marked this area for industrial-storage districts, industrial plants, and technical service zones. Currently, it is part of a general urban zone (symbol AG2), functional-spatial unit – intended for economic activities with significant inconveniences. Quality of road network and traffic flow in area surrounding the Project is important due to the requirements for transportation of RDF to the facility. It has been assessed that the Project will not impact the traffic flow in a substantial way and access roads are sufficient to accommodate the new traffic.

In summary, the project area represents an industrially influenced landscape, devoid of natural vegetation, and surrounded by various features, including adjacent green spaces and neighboring industrial zones. The closest residential areas are c.a. 600 m to the North and over 1200 m to South East or West of the Project site. The nearest nature protection area (Nature Reserve Właczyn) is ca 7 km from the Project site.



Location of the Project Site with surrounding

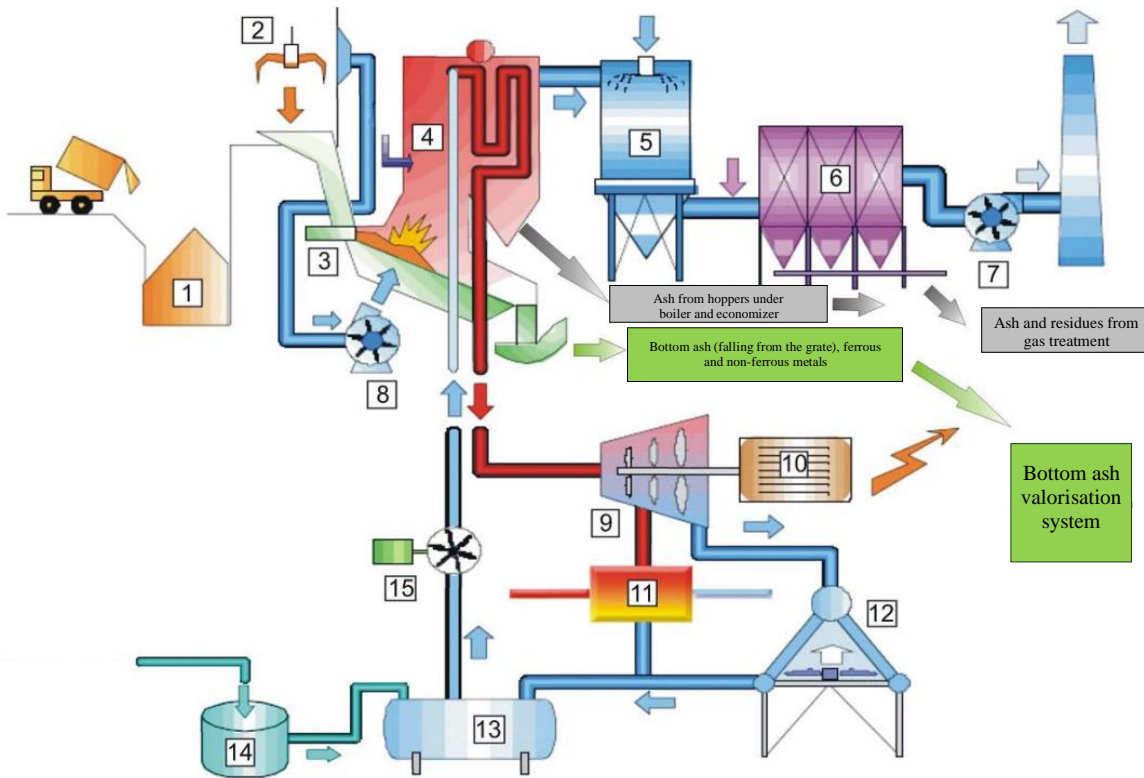
Source: Arup based on OpenStreetMap

2.3 Operation of incineration plants and the RDF market in Poland

The project involves the construction of a plant for thermal conversion of non-recyclable residual fraction from municipal waste in Łódź, and will constitute an important component of the waste management system in the Łódzkie Voivodeship. The Project will involve the construction of an ERF with a nominal capacity of 200 000 tonnes of waste per year with a nominal calorific value of 12.5 MJ/kg. Continuous operation of the facility 24 hours a day, 7 days a week is assumed (approx. 7 800 h/year). The facility will be equipped with two

independent process lines for thermal waste conversion, each consisting of a grate boiler and a flue gas cleaning plant. Both process lines will be used to recover energy and injecting it to the water/steam system via a pressurized bleed and condensing turbine. Steam from the turbine will be directed to heat exchangers or to an air condenser. Thermal energy will be supplied to the municipal district heating network in Łódź (operated by a company from Veolia Group) and electricity will primarily be consumed by the facility. Any surplus electrical energy beyond the internal requirements will be consumed externally, including by external consumers, such as Veolia Energia Łódź.

The facility will use a high-calorific fraction of the waste generated in the mechanical processing of mixed municipal waste - RDF. It typically comprises materials that have not been previously separated during the selective collection process at source, such as plastics, textiles, etc and that cannot be recycled.



Thermal waste treatment process simplified example diagram

Source: Environmental Impact Report of the Construction of the ERF in EC4 Veolia Energia Łódź S.A.

Legend:

- | | |
|------------------------------------|---------------------|
| 1. Waste delivery | 2. Waste loading |
| 3. Dosing of waste on the grate | 4. Boiler |
| 5. Gas treatment reagent injection | 6. Bag filter |
| 7. Draft fan | 8. Primary air |
| 9. Turbine | 10. Generator |
| 11. Heat exchanger | 12. Condenser |
| 13. Condensate tank | 14. Water treatment |
| 15. Feed pump | |



Preliminary concept drawings for the ERF

Source: <https://www.nowaenergialodz.pl>

The planned ERF has been designed to meet the emission standards and Best Available Techniques (BAT) requirements for waste incineration plants. It will also have the continuous emissions monitoring system required for this type of facility.

Current annual production of residual waste fraction converted to exceeds the capacity of existing waste to energy facilities in Poland. Currently no ERF is in operation in Łódzkie Voivodeship, and the proposed facility in Łódź is set to be the first one.

3. Legislative context of the project

According to Polish legislation (Regulation of the Council of Ministers of 10 September 2019 on projects likely to have a significant impact on the environment) the Project was qualified as *likely to always have a significant impact on the environment* and as a consequence an Environmental Impact Assessment (EIA) is required prior to obtaining a building permit. In line with the EBRD Environmental and Social Policy (ESP 2019), the project has been categorised as 'A'. Additionally, the project has been classified as Category B under the Equator Principles (EP4 2020), reflecting its size and complexity. The EIA procedure was open to the public. A detailed EIA and Environmental Impact Reassessment (EIRA) were prepared by the Investor Authority in 2010 and in 2020/2021, respectively. On 28 June 2010 an Environmental Decision (ED) was issued by the Mayor of the City of Łódź based on the EIA Report from 2010 for the investment of the construction of a thermal waste transformation facility in Łódź. The Agreement on the environmental conditions for the implementation of the Project was issued by the Mayor of the City of Łódź on 27 July 2021 based on the EIRA Report from 2020/2021.

The Project obtained all required legal consents. After the environmental terms of the project were agreed upon by the Regional Director for Environmental Protection, the project required obtaining an Amendment Building Permit due to technical changes in the project. The permit was issued on 27th November 2023. Despite the rigor of immediate enforceability of the environmental decision, the proceedings pending before the Supreme Court regarding the second extension of the validity of the environmental decision poses a certain risk for the Project. At the time of preparation of this NTS the Supreme Court has not published the final verdict. The General Contractor (Consortium of: Doosan Enerbility Co., LTD and Doosan Lentjes GMBH) was appointed in April 2023.

4. Project consequences for the environment

The EIA Report, together with several clarifications and addenda, the ED, BREEAM requirements and BAT 2019 cover the issues required by the regulations and identified potential adverse impacts. Appropriate measures to minimize their environmental and social impact have been put in place where required.

The main impacts of the Project on the environment are associated with noise, air quality, odour, as well as technological wastewater.

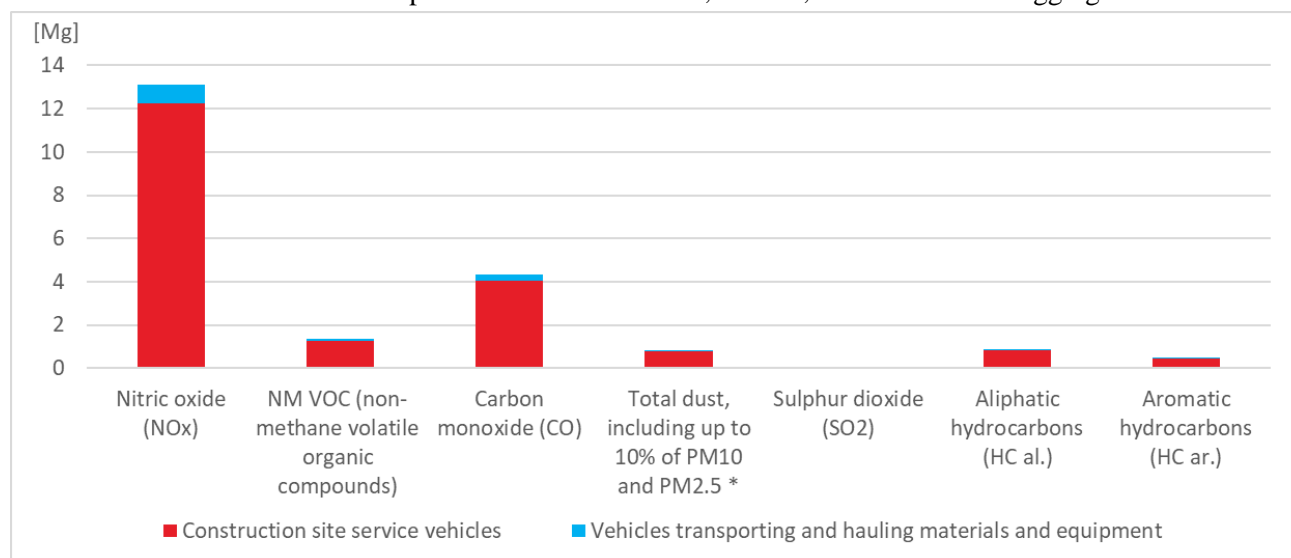
The number of resources – water, energy, waste, materials used on the construction and operational site will be monitored, and usage of them will be limited, where it is technically feasible, in both the construction and operational stages.

The Regional Directorate for Environmental Protection (authority responsible for environmental conditions affecting the investment) has imposed the obligation of continuous monitoring of all above mentioned parameters. The SPV is also required to report the measurement results to the appropriate inspection authorities. Additionally, the SPV is obligated to conduct a post-implementation analysis within 12 months from the date of putting the installation into operation.

4.1 Air emissions

Anticipated impacts on air quality during construction phase include:

- emission of combustion products from fuels in construction engines, and pollution resulting from vehicles movement;
- movement within the construction site area;
- emissions due to the transportation of earth masses, cement, and construction aggregates.



Estimated volume of pollutant emissions from the construction site – total emissions

Source: Appendix *Analysis of air impact* to document of Environmental Impact Reassessment Report (2020/2021) authored by OS Konsulting.

The emissions may vary in intensity, but the construction phase will not cause lasting damage to the environment. In the operational stage, dust and air pollutants typical of thermal waste conversion processes will be released. These include PM10 and PM2.5 particulate matter, sulphur dioxide, carbon monoxide, and nitrogen oxides. These will be released from burning fuel oil during start-up and in the power generator unit. PM10 and PM2.5 will come from the containers for process waste and the bottom ash valorisation hall.

The Project will not exceed allowed exhaust gas limits. The SPV ensures that the facility will be designed and operated to prevent this, with continuous emission monitoring and an exhaust gas cleaning system. This system includes:

- desulfurization of exhaust gases to reduce acidic compounds such as SO₂, HF, HCL, and particulates;

- flue gas dedusting using a fabric filter;
- flue gas denitrification to reduce NO_x emissions.

The mentioned solutions are in accordance with the requirements of the BAT Conclusion under IED Directive.

The facility will closely monitor its processes and emissions of volatile gases. In case of malfunctions they will be rectified and the process will be restarted. Regular measurements of substances in the flue gases (lead, chromium, and mercury) will be made. The SPV is committed to continuous monitoring of pollutant emissions according to environmental guidelines and in line with the requirements of the latest Best Available Techniques Conclusion (BAT). Heavy metals will be reduced through the implementation of minimisation activities (consistent with the requirements of the Environmental Decision and the BAT convention).

To prevent odors, the SPV implemented a series of preventative and mitigating measures. Waste unloading stations and the waste bunker hall will be covered to isolate the process from the outside. These areas will have negative pressure to keep air from escaping. The captured air will be used in combustion, neutralizing odorous substances. In emergencies, activated carbon filters will handle deodorization.

Pollution prevention measures and monitoring will be included in an Air Quality Management Plan.

4.2 GHG emissions

Implementation of the Project aims to move away from high-emission combustion sources and is part of a broader strategy for decarbonisation of heat generation sources in Łódź. In line with this strategy, energy from waste generated in the ERF will replace coal-based energy from the EC4 plant (which will be gradually decommissioned – as mentioned in Section 5.1). Consequently, the new waste heat technology will enable in a reduction of CO₂ emissions. Taking an approach of deducting emissions in baseline scenario from investment scenario, it was found that the anticipated CO₂ emissions from the Project will be lower by 36% compared to baseline. The baseline includes emissions from EC4 at the level of heat generation that is planned from the ERF and emissions from landfilling waste that will be managed at the ERF as a result of Project implementation.

The investment scenario assumes less coal combustion (shifting heat generation from coal to waste) and less landfill gas release (redirecting waste from landfill to ERF), hence emissions are reduced. As the baseline scenario includes only Scope 1² calculation for EC4 energy and heat production, it should be noted that the actual decrease in CO₂ emissions would be higher than the calculated 37%.

Estimated volume and savings of CO₂ from implementation of the Project

Stage	Scope	Emissions [t CO ₂ /yr]	Total [t CO ₂ /yr]
Baseline	Energy and heat production	277 235.00	291 901.67
	Waste disposal at landfill	14 666.67	
Project	Construction phase	233.63	184 014.74
	Scope 1	183 034.33	
	Scope 2	0.00	
	Scope 3	746.77	
Potential emissions reduction			107 886.93 (37%)

Source: Arup analysis based on: IPCC, 2006, *Guidelines for National Greenhouse Gas Inventories 2006, Volume 5 Waste, Chapter 5 Incineration and Open burning of waste*, EIB, *Managing refuse-derived and solid recovered fuels Best practice options for EU countries*, 2024; Artur MALINOWSKI 1, Wojciech CHWIAŁKOWSKI: *Characterization of Refuse Derived Fuels from Selected Municipal Solid Waste Management Plants with an example of their valorization into gas fuel and chemicals*, 2017.

² Scope 1 – direct emission - covers emissions from sources that an organisation owns or controls directly; Scope 2 – indirect emission - emissions that a company causes indirectly and come from where the energy it purchases and uses is produced; Scope 3 – indirect emission - emissions related to the company's external activities, such as emissions from suppliers, transport, product use and waste.

4.3 Noise emissions

In the vicinity of the Project (North of the site), there are allotment gardens “Elektron” which have the status of acoustically protected area.

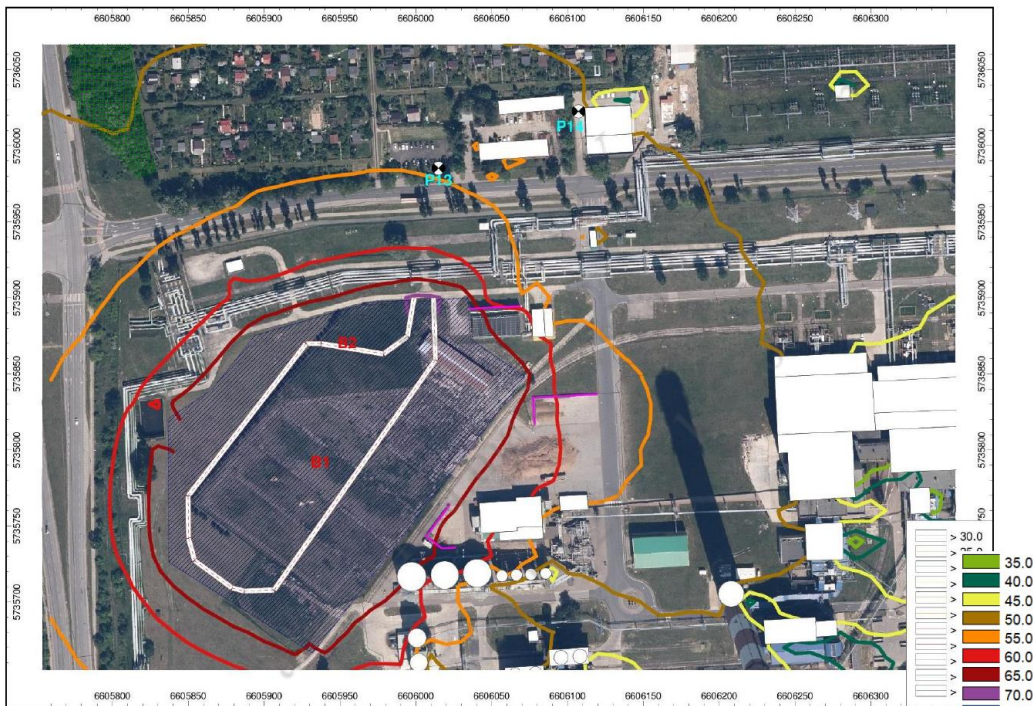
The loudest stage of the construction will be the compacting of the walls with a sealant. Additionally, a high level of noise will be generated during the operation of vehicles and construction equipment. According to the plan, heavy equipment work will be conducted during the daytime (6:00 AM - 10:00 PM). For the construction phase, there are no expected breaches of permissible noise levels..

The conducted simulation analysis of noise sources during the operation of the installation has shown that the most significant source is the energy recovery unit, especially the ventilation intakes. During the operational phase of the project, the modeled noise levels are close to the permissible levels; however, no exceedances are recorded. For acoustically protected areas (allotment gardens), no exceedances of the permissible levels are observed during the daytime, for which the permissible levels are established. Due to the specific of the allotment gardens, where people are present only during the daytime, no permissible levels are established for the night time.

Calculated noise levels for the construction stage

Receiver	Type of construction	Receiver height [m]	Calculated level		Permissible level		Exceedance
			Day L _{Aeq} (dB)	Night L _{Aeq} (dB)	Day L _{Aeq} (dB)	Night L _{Aeq} (dB)	
P13	Andrzejewska Street - allotment gardens, at the border of the plot	1.5	51.3	-	55.0	-	NO
P14		1.5	48.2	-	55.0	-	NO

Source: Appendix *Analysis of noise* to document of Environmental Impact Reassessment Report (2020/2021) authored by ILF Consulting Engineers.



Noise map - construction impact - day [dBA]

Source: The noise impact analysis for “The construction of the new gas cogeneration unit in Łódź” was conducted by ILF Consulting Engineers Polska Sp. z o.o. in March 2024



Noise map – operation impact - day [dBA]

Source: Appendix *Analysis of noise* to document of Environmental Impact Reassessment Report (2020/2021) authored by ILF Consulting Engineers

In order to prevent noise during construction period, construction works with heavy machines will be carried out during the day. In order to limit noise propagation, a technique will be used to properly locate devices and buildings that are the source of noise, in such a way as to be as far away as possible from acoustically protected areas.

During operational period noise will be prevented and mitigated through: low-noise equipment, acoustic barriers and acoustic insulation (including panels facing the allotment gardens), planning and design solutions such as proper location of devices and buildings as far as possible from acoustically protected areas, regular inspections and maintenance of equipment, provisions for noise control during maintenance activities.

Moreover, noise levels will be measured within 3 months of commissioning the installation. After a period of 12 months of use of the installation, control noise measurements will be performed, as part of the post-implementation analysis.

All prevention actions will be included in a noise management plan.

4.4 Wastewater

The selected technology will only generate industrial wastewater, which will not be directly discharged into the environment. In line with the design, the wastewater for technological purposes, specifically to supplement losses in bottom ash processing. Rainwater and snowmelt from sealed areas will be collected through a system of channels, pre-cleaned, and then discharged into the stormwater sewer system. For the most optimal management of all water sources, an integrated water management system has been designed.

In terms of monitoring the impact of the Project during operational phase, the Environmental Decision has imposed an obligation to equip the installation with continuous monitoring of emissions of pollutants into the water. The installation will be equipped with automatic monitoring of treated technological wastewater at the point of discharge into the municipal sewer system. As part of water management, the installation will be equipped with a water treatment plant for raw water from municipal network and for industrial sewage, rainwater and snowmelt.

5. Compliance with EU and EBRD requirements

5.1 Identification of associated facilities

The Project is part of Veolia's wider, consistent decarbonisation strategy and the facility would not be constructed if other investments were not planned in parallel. This includes closure of the coal EC4 plant, which is an associated facility to the Project. This means that it has been incorporated into the assessments and ESAP actions where relevant (E&S risks and benefits related to decommissioning include i.a. labour risks such as redundancies or retraining).

Transportation of RDF to the ERF is also considered an associated facility. RDF supply is addressed under the traffic impacts related to noise emissions and air pollution.

Disposal or reuse of the waste resulting from incineration is not being considered part of the Project. The SPV is planning to entrust disposal and reuse of postprocessing waste to an operator / operators with existing facilities.

In case of any new facilities being developed in the future with relation to this Project, the SPV will be obliged to monitor their cumulative impact with relation to the ERF.

5.2 Construction and site operation H&S impact

Existing EIA that is in place, did not include detailed information on the expected impacts on health and safety. Veolia Group in Poland has attained ISO certification, underscoring their commitment to effectively managing health and safety (H&S) risks. Corporate documents, including policies such as human rights, health and safety, anti-corruption policy, highlight the importance placed by the company on ensuring health and safety standards are upheld.

The Company has established comprehensive procedures and plans aligned with their requirements and local and national regulations. These include detailed emergency plans, first aid procedures, noise management procedures, and Occupational Health and Safety (OHS) procedures. Each procedure delineates responsible individuals for specific tasks, showcasing a structured approach to H&S management. Documentation indicates the company capabilities in effectively addressing H&S risks. Veolia Group in Poland makes every effort to provide services in accordance with customer expectations and according to strictly defined quality standards, guided by the principles of sustainable development. The implemented certified management system of the Group meets the following standards:

- ISO 9001 Quality management systems;
- ISO 14001 Environmental management systems;
- PN-N-18001:2004 Occupational health and safety management systems;
- ISO 17025 General requirements for the competence of testing and calibration laboratories;
- ISO 50001 Energy management systems;
- ISO/IEC 27001 Information security management systems.

The Special Purpose Vehicle is now obliged to implement all standards, policies and ISO certifications applicable in the Veolia Group to secure conformity with these standards within the ERF Project. The Environmental, Health, Safety, and Social Management System (EHSSMS) will be developed based on the existing policies and systems adopted by the Veolia Group. Project specific management plans that will be put in place and enforced through the ESAP.

5.3 Best Available Techniques (BAT)

At the stage of Reassessment of the Environmental Impact (2020), design solutions were revised to meet the requirements of the BAT conclusions. In addition to the technology used, BAT requirements include regular monitoring of pollutant emissions. The installation will also be equipped with a monitoring and automatic control system configured to detect emergency situations. The monitoring and automatic control system for the combustion process will be configured to be able to measure the required parameters of the combustion

process. In relation to periodic measurements, locations allowing for sample collection will be designated to conduct the necessary studies. The Project was prepared in accordance with the requirements of the latest requirements of the BAT conclusions no. C(2019)7987 in accordance with the European Parliament and Council directive 2010/75/UE regarding waste incineration.

As an ESAP action the SPV will report in regard monitor design development and Project development to verify compliance with BAT. Compliance will be assessed prior to facility operation start as well as during operation. The indicated installation requires obtaining an integrated permit, which confirms the appropriate application of BAT and guarantees compliance with the required permissible emission levels.

5.4 Cumulative air and noise emissions impacts

The impact of the Project may accumulate with other projects in terms of emissions of typical traffic-related pollutants. However, it should be noted that the impact during the implementation phase will be short-term and limited to the construction site. Emissions from the construction site will be characterized by significant variability in time and space, resulting from the activities carried out and the location of the work front. Since the investments will be carried out on the premises of EC-4, a construction work organization plan will be developed before the commencement of construction works. Organization in construction works will be regulate the Construction Environmental and Social Management Plan. This will ensure that the cumulative impact during the construction phase will not have a significant and lasting effect on the atmospheric air.

During the operational phase no significant air emissions impacts are anticipated. Air pollution modelling has shown no exceedances of permissible emission levels for maximum annual average concentrations s a result of the mitigations put in place.



Locations of air pollutions emitters at the area of EC4 plant.

Source: Project Information Sheet for “Modernization of the flue gas discharge system from the biomass boiler BFB in EC-4 Łódź”, RAMBOLL, May 2024

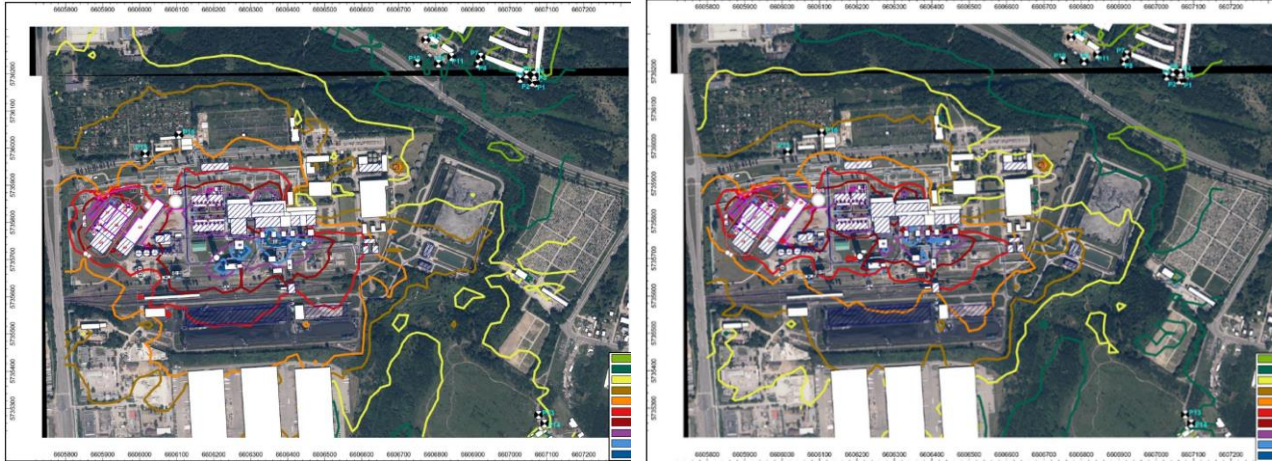
*ITPO – Energy Recovery Facility’s equipment
E – EC4 coal equipment and storage tanks

BG – Biogas installation
E-BFB – Biomass installation

The cumulative impacts were analysed in terms of noise emissions for both the construction and operational phases. The overlapping of construction work for all projects primarily means the accumulation of construction machinery, material bases, and workers performing various investments at the same time, which will increase noise levels across the entire area where the tasks are being carried out. Before the commencement of construction works and organization plan shall be developed to reduce noise emissions.

The analysis of the noise level emission modelling results indicates that the Project, when combined with existing and concurrently planned sources, will not have an excessively adverse impact on the nearby areas subject to acoustic protection standards.

Below are the maps showing the propagation of cumulative noise for the analysed sources during day and night time periods.



Noise map - cumulative operational impact - day [dBA]

Noise map - cumulative operational impact - night [dBA]

Source: The noise impact analysis for “The construction of the new gas cogeneration unit in Łódź” was conducted by ILF Consulting Engineers Polska Sp. z o.o. in March 2024

5.5 Impact of RDF transportation

A Traffic and Road Safety Impact Assessment has been prepared as part of the project to establish and enforce appropriate constraints to minimize road-traffic collisions and ensure the implementation of effective traffic and road safety measures in terms of delivery of RDF to the Project site, as well as transportation of post-processing waste from the ERF for further treatment.

Project assumptions include a total of 54 vehicle movements per day to the site. After EC4 closure 19 vehicles will no longer be operating, resulting in decreasing the traffic impact. The analysis was preceded by traffic impact assessment in the closest vicinity of the Site (entrance to J. Andrzejewskiej Str.) to assess the impact of additional traffic within the existing road infrastructure and current traffic flows. It was concluded that the impact of additional traffic will be negligible. The existing road infrastructure can accommodate the proposed RDF deliveries without creating significant traffic problems.

The ultimate RDF supply partners for the Project have not been selected yet, however the SPV is considering a number of potential partners with RDF-producing Mechanical-Biological Treatment (MBT) facilities situated in various locations across Poland or whose investment plans cover development of such facilities.

Various scenarios are being covered within this traffic effectiveness and road safety analysis to provide clear guidance for the selection steps and selection criteria of the transportation route for the ultimate supplier, once chosen to minimize potential risks related to local communities, road safety, noise emissions. The routes shall be aligned with the guidelines of the Traffic and Road Safety Management Plan (included in ESAP) to minimize the impact on the community.

The significance on the noise and air emissions impacts on streets neighbouring with the allotment gardens regarding the increase in the number of trucks involved in RDF deliveries was assessed. No need to conduct additional noise modelling for these roads were recommended, as changes in noise and air emissions as a result of RDF supply were found insignificant with relation to the whole Project.

5.6 Social and Health and Safety impact

The primary social effects during the construction and dismantling phases will involve inconveniences for the local community, risks due to increased traffic, and health and safety hazards for construction workers. Additionally, in view of decommissioning of the EC4 in along with initiating alternative heat sources, such as the ERF, there occurs a risk of job loss. The risk is managed via policies developed by Veolia.

Veolia Group continuously assesses its workforce to ensure operational continuity and initiates internal recruitment processes for successors of employees retiring within 6 to 12 months. The company is implementing a project focused on providing career counselling for employees (in the context of ecological transformation and the need for reskilling and upskilling). The aim of the project is to retrain employees and ultimately retain them within the organization

In the case of decommissioning coal-dedicated units, personnel qualified in this field are retrained for other sectors. For those nearing retirement age, in accordance with their preferences, positions in other sectors are offered due to their unique experience and knowledge.

Social impact poses potential risks to the community from the construction activities, during the operational and dismantling phase of the Project. Execution of construction works during the Project will pose certain risks and may result in negative impacts for community H&S. Following impacts may occur:

- During the transport of materials - incidents involving vehicles and other roads users, as a result of failure to follow traffic rules, or lack of awareness of the community about the heavy traffic expected;
- In the area of execution of construction works – if working areas are not secured, marked and fenced, and pedestrian and vehicle movements not clearly planned, defined and organised, it may lead to community members encroaching onto the construction site, exposing themselves to risks;
- Construction works may also result in air/dust and noise emissions, as well as vibration impacts and nuisance.

These impacts will be mitigated through effective management by SPV and the General Constructor via

- an Occupational Health and Safety Management Plan which will define control and mitigation measures;
- a Community Health, Safety and Security Management Plan, which will define control and mitigation measures;
- a Traffic and Road Safety Management Plan;
- a Site Waste Management Plan;
- an Emergency Response Plans for all areas of work taking into account different stages of the works and ensuring that all Contractor's / Subcontractor's Personnel on Site, including visitors, are properly instructed in the emergency response procedures.

Veolia management follows the national labour laws and regulations. Ethical code and relevant documentation support a good HR management system. HR policies and practices of the company are in line with national regulatory requirements. Before signing the employment contract, all employees are clearly informed about their working conditions including contract conditions, working hours, available benefits, employment policies and guidelines leave entitlement. At any time, employees can access that information through the HR team.

The Company possess HR policies that cover various issues, showcasing their capability to handle working relationships at an appropriate level. The company have implemented policies that explicitly forbid any form of discrimination and harassment within organization. Code of Ethics recognizes the existence of an internal grievance mechanism, allowing individuals to file complaints through email or phone channels.

Veolia has well-defined provisions in its Code of Ethics and Human Rights policies that explicitly prohibit both child and forced labour, providing a comprehensive framework for prevention and addressing such issues. However, since Veolia policies are robust and encompassing, they should be deemed applicable to the project, covering all workers, including those directly employed, contracted, or within the supply chain. Existing policies comprehensively cover organizational development, job analysis and evaluation, recruitment processes, salaries, performance reviews, and compensation and benefits.

The Environmental, Health, Safety, and Social Management System (EHSSMS) will be developed based on the existing policies and systems adopted by the Veolia Group. These policies will be cascaded to the SPV level.

Air quality

The Project is compliant with national, EU and EBRD requirements for air quality as:

- It meets the objectives required by European Directives and Regulations e.g. Directive 2010/75/EU on industrial emissions or Regulation (EC) No 595/2009;
- It meets the objectives required by national legislation e.g. Law on air pollution;

- The SPV is committed to continuous monitoring of pollutant emissions according to environmental guidelines and in line with the requirements of the latest Best Available Techniques Conclusion (BAT);
- The SPV ensures that the facility has been equipped, designed, and will be operated in such a way as not to exceed the permissible emission values in exhaust gases;
- The SPV will implement appropriate management plans, such as a Construction Work Organisation Plan or Air Quality Management Plan, to reduce the impact of the Project on the atmosphere.

Noise

The Project is compliant with national, EU and EBRD requirements for noise impact as:

- It meets the objectives required by European Directives and Regulations e.g. Environmental Noise Directive (Directive 2002/49/EC) or Directive 2003/10/EC;
- The way in which the noise generated during the various phases of the project will be managed is determined by the requirements of the Environmental Decision (ref. no. OŚR.III.7626/25/10) from 2010 and the Agreement (ref. no. WOŚ.4222.7.2020.DKr.13) from 2021;
- Noise abatement measures will be taken to meet environmental noise requirements, e.g. low-noise equipment or acoustic barriers;
- The SPV will implement appropriate management plans, such as Noise Management Plan to reduce the impact of noise emissions on the surroundings.

Social and Health and Safety

The Project is compliant with national, EU and EBRD requirements for H&S as:

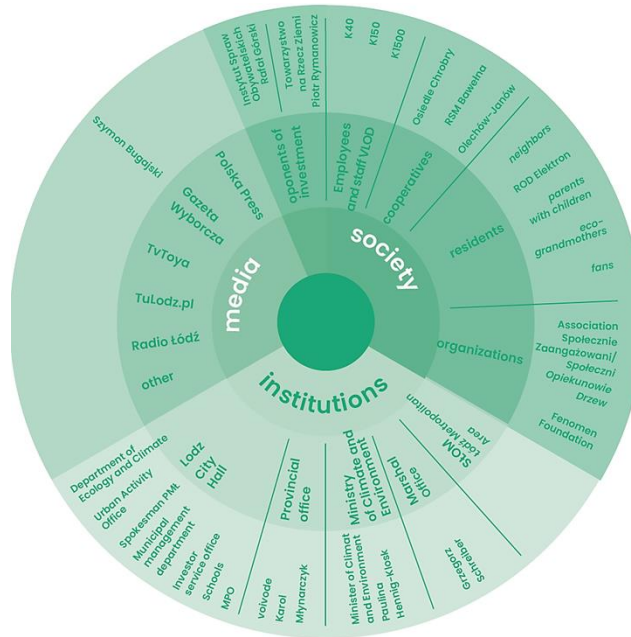
- It meets the objectives required by European Directives and Regulations e.g. OSH Framework Directive, Directive 89/391/EEC, Directive 2007/30/EC, Directive 89/654/EEC;
- The SPV will follow national labour laws and regulations. Veolia Group ethical code and relevant documentation to be incorporated by the SPV support a good HR management system;
- The SPV will implement appropriate management plans such as Occupational Health and Safety Management Plan, Community Health, Safety and Security Management Plan, Traffic and Road Safety Management Plan or Emergency Response Plans.

6. Stakeholder engagement overview

The ERF Investors carried out stakeholder identification and analysis on an ongoing basis at each stage of the Project to date. Among the stakeholders identified were mainly representatives of society and institutions, including:

- owners of Elektron allotment gardens, families with children;
- cooperatives, housing associations i.e. Estate Chrobry, Olechow-Janow;
- organizations and associations: Socially Involved, Social Tree Guardians, Fenomen Foundation;
- institutions i.e.: Municipal Management Department, Spokesman of Mayor of City Łódź, Marshal Office;
- media i.e.: journalist for the climate – Szymon Bugajski, Gazeta Wyborcza, Radio Łódź, Polska Press.

All of the identified stakeholders are presented on the diagram.



Map of stakeholders for the Project

Source: Client resources.

From the beginning of the project, the principles of transparency were adopted, and extensive information was provided about each stage of the investment implementation. All project related details were made public via local media channels (press, TV, radio). The SPV addressed all inquires from the media, NGO's, residents and other stakeholders. When communicating with residents, particularly those living in housing estates closest to the ERF, direct and regular communication channels were utilised. Detailed information about the Project was accessible both during the meetings and at the cooperative's offices.

Stakeholder engagement Plan (SEP) has been developed and its implementation is included as an action in the ESAP. The SEP includes:

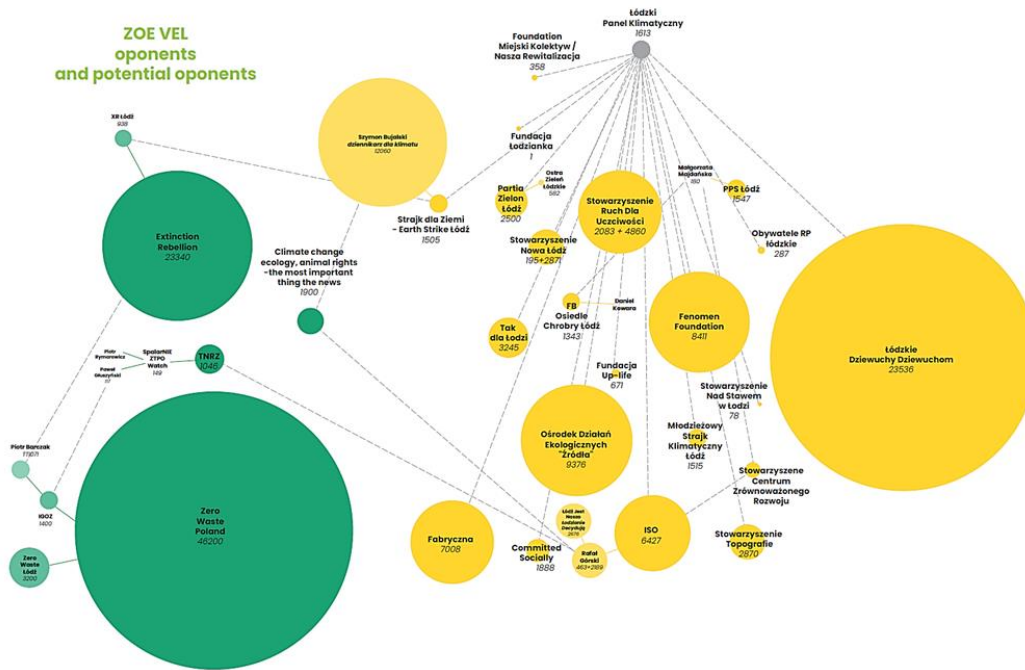
- identification of stakeholders and possible means of communication with them;
- stakeholder programme for each stakeholder group. The primary objectives of the stakeholder programme are disclosure of relevant information about the ERF during the construction, operation and decommissioning phases to enable awareness of the possible social and environmental impacts of the Project and how to manage these impacts; this disclosure will be done primarily by publishing and making information available through public and free communication channels, providing information to representatives of communities and stakeholder groups for dissemination and, if necessary, providing information through direct consultation – so that the stakeholder engagement process is always based on the receipt of timely and relevant information about the ERF. The Stakeholder programme also aims to offer stakeholders the opportunity to voice their opinions, expectations, concerns, requests or complaints so that, if they wish, they can be involved in the process of developing and operating the ERF. Thanks to this, measures to minimise the Project's impact on the environment can be adapted and developed;
- application of grievance mechanism including procedure for handling complaints and requests regarding the ERF;
- Management plan for the SEP.

The communications strategy for the ERF plant during and after the construction phase based on several pillars:

- Active communication based on positive, proactive message about the course and progress of the Project, starting from the cornerstone, through other important and interested stages;
- Direct communication with various stakeholder groups in the context of "keeping promises", including the immediate neighbours;
- In the longer term and depending on needs, possible involvement of a social factor (e.g. in the form of a social council), which will be regularly informed about progress on the construction site and after starting the ERF installation in terms of operation and emission control;
- Cyclical internal communication to Veolia's employees about the status of the project;

- Educational communication in Veolia Energia Łódź channels – profile and website;
- Reactive communication based on answering questions related to the Project with the proviso of not entering into direct polemics with opponents of the construction of ERFs with a limited social base.

Among the stakeholders, there are also a confirmed and potential opponents, as presented in the daigram below.



Map of opponents and potential opponents of the Project

Source: Client resources

7. How will the project manage the identified risks?

Veolia Polska Group has a robust Integrated Management System in place, describing its policies, practices and procedures, which adhere to Polish regulations. Integrated Management System Policy emphasizes that the Group's business goals in Poland are implemented in accordance with the Code of Ethics and values of the Veolia Group and in accordance with the policies and guidelines of the Veolia Group.

The Integrated Management System in the Veolia Group in Poland meets the requirements of the following standards (Scope: Generation, transmission, distribution and sale of heat. Generation, transmission and distribution of electricity. Provision of energy services):

- ISO 9001:2015 Quality Management Systems;
- ISO 14001:2015 Environmental Management Systems;
- ISO 50001:2011 Energy Management System;
- ISO 45001:2018 Occupational health and safety (OH&S) Management System;
- BS OHSAS 18001:2007 Occupational Health and Safety Management Systems (for the Veolia Group).

Veolia is committed within ESAP to introduce BREEAM International New Construction 2016, Very Good status, an environmental performance standard for use in assessing new buildings. The standards were implemented by the SPV, designer, and will also be used by the main contractor.

In accordance with the requirements of the national EIA, the Environmental Decision, BREEAM requirement, EBRD requirements and the Environmental and Social Action Plan, Veolia will develop and implement comprehensive monitoring measures to ensure effective oversight of environmental and social management measures and commitments, as well as adherence to regulatory requirements. These detailed monitoring measures will be outlined in each Environmental and Social Management Plan and will include a description of the parameters to be monitored, the monitoring methodology, the frequency, and the designated monitoring personnel. The comprehensive environmental management systems and policies implemented by Veolia Group **shall be adequately adopted by Veolia Nowa Energia (the SPV), and the General Contractor.** The

Environmental, Health, Safety, and Social Management System (EHSSMS) will be developed based on the existing policies and systems adopted by the Veolia Group. Project specific management plans that will be put in place and enforced through the ESAP.

The structure of the Project financing has not been confirmed yet, however, it is assumed that the SPV will appoint their Independent Environmental and Social Consultant (IESC) and Lenders Technical Advisor (LTA) to regularly monitor development of the management plans by Veolia and the Contractor and compliance to the plans throughout the construction and operational stages (loan repayment period).

According to the Contract between the SPV and the General Contractor, the Contractor is obliged to introduce Quality Control and Assurance Programme in order to recognise and comply with the Project technical and quality requirements. The General Contractor has provided a detailed framework Project Management Plan, which serves as a comprehensive guide to managing the Project effectively, safely, with clear structure for communication and documentation, outlines the general responsibilities of the Project team, it includes the roles of the Control Manager, Administration Manager, Quality Assurance & Control Manager, and EHS (Environmental, Health, and Safety) Manager.

The General Contractor is also obliged to provide the technology in accordance with BAT Requirements, IED Directive and all applicable law requirements based on issued Environmental Decision, take all necessary steps to protect the environment, respect the environmental Polish regulation and limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations including BREEAM New Construction 2016 Guidelines for the Contractor. Prior to commencement of works, the Contractor shall prepare and implement suitable environmental management plan.

The General Contractor's Environmental Management Plans and EHSS policies will be deemed appropriate only if they are consistent with similar documents developed by Veolia Nowa Energia. SPV, as a short operating company, has not yet established and adopt all Environmental, Health & Safety and Social procedures and relevant EHSS Management Plans:

- Supply Chain Management Plan;
- Occupational Health and Safety Management Plan;
- Community Health, Safety and Security Management Plan;
- Hazardous Materials Safety and Management Plan;
- Traffic and Road Safety Management Plan;
- EHSS Policy;
- Construction E&S Management Plan (CESMP);
- Site Waste Management Plan;
- Operational Environmental and Social Management Plan (OESMP);
- Environmental monitoring program for operation phase;
- Gender-Based Violence and Harassment (GBVH) Policy;
- Worker Accommodation Policy;
- Collective Dismissal Policy;
- Due Diligence of Material Third Parties Policy;
- Emergency Response Plans;
- Stakeholder Engagement Plan (SEP) (to include grievance mechanisms);
- Air Quality Management Plan;
- Noise Management Plan.

Monitoring requirements imposed on the SPV, include:

Table Summary of monitoring requirements

Parameter	Monitoring requirements
Air	<ul style="list-style-type: none"> • ERF shall be equipped with continuous measurement of flue gas emissions so as not to exceed permissible levels. • Monitoring will be conducted based on continuous and periodic measurements of emission quantities and required parameters of the combustion process along with regular monitoring of the technical condition of equipment and its proper maintenance. The results of these measurements will be reported to the relevant environmental protection authorities. • The installation must be equipped with full monitoring of process parameters and monitoring of emissions of volatile gases into the air. In the event of a process malfunction, it is necessary to stop and restart the process after the malfunction has been rectified. • Periodic measurements of the content of heavy metals in the flue gases, including lead, chromium, copper, manganese, nickel, arsenic, cadmium, mercury (also continuous monitoring), cobalt, tungsten, antimony, dioxins, and furans, are also required at least once every 6 months. • The installation will be equipped with a continuous monitoring and automatic control system configured to detect emergency situations.

	<ul style="list-style-type: none"> After a period of 12 months of use of the installation, control air emission measurements will be performed, which will be part of the post-implementation analysis required in accordance with the Environmental Decision. Monitoring data will be published online.
Water and wastewater	<ul style="list-style-type: none"> The installation will be equipped with automatic monitoring of treated technological wastewater at the point of discharge into the municipal sewer system. Underground monitoring for the duration of the project and for a minimum of 5 years after commissioning will be ensured.
Waste	<ul style="list-style-type: none"> Monitoring of site impacts related with transportation of construction materials and waste. As part of the post-implementation analysis after the first year of operation a post-execution analysis including monitoring of waste generated will be performed. Tests will be conducted on slag and combustion ashes regarding their organic carbon content and loss on ignition, as well as tests on waste from the flue gas cleaning process. In accordance with the BREEM guidelines, the General Contractor is obliged to set goals regarding the amount of waste and minimize the amount of waste (including hazardous waste) and constant monitoring of set goals.
Noise	<ul style="list-style-type: none"> Noise levels will be measured within 3 months of commissioning the installation and results submitted to the relevant environmental protection authority. After a period of 12 months of operation, control noise measurements will be performed.
Biodiversity	<ul style="list-style-type: none"> Reporting and monitoring of all environmental protection activities.
Resources efficiency and Utility consumption	<ul style="list-style-type: none"> Monitor media consumption, measure elements related to media flow. Monitoring of site impacts related with transportation of construction materials and waste. Monitoring, recording and reporting water and energy consumption. Monitoring of water consumption in the form of water meters will be installed in the municipal network.

Source: Based on EIA Report and various requirements provided by Veolia Nowa Energia.

Management plans such as the Air Quality Management Plan and Noise Management Plan will mitigate the risk of exceeding permissible emission levels and ensure compliance with Polish and European regulations.

Moreover, the integrated permit must be in place when the plant starts to be operated.

Also monitoring of cumulative ambient and Project emissions in the occurrence of new facilities development on the site shall be performed by the SPV. Cumulative impacts from the closure of the coal EC4 plant and the supply chain of RDF as well as other potential associated facilities will be monitored and managed by the SPV on best efforts basis through development of the Associated Facilities E&S Risk Assessments. In accordance with ESAP, the SPV will verify and monitor of implementation Waste and Health & Safety Management Plans during decommissioning of the coal block of EC4.