

**Veolia Energia Polska S.A.**

# Supplementary Report

Veolia Energy Recovery Facility Łódź

Final | August 2024



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Job number

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## Abbreviation List

Abbreviation	Full name
<b>BAT</b>	Best Available Techniques
<b>BDO</b>	Database on Products, Packaging and Waste Management
<b>CO<sub>2</sub></b>	Carbon dioxide, substance belonging to green house gases
<b>EC4</b>	Combined heat and power plant EC4
<b>ED</b>	Environmental Decision
<b>DBFOT</b>	Design, Build, Finance, Operate, Transfer
<b>E&amp;S</b>	Environmental and Social
<b>EBRD</b>	European Bank for Reconstruction and Development
<b>EFW</b>	Energy-from-Waste Facility
<b>EHS</b>	Environmental and Health and Safety
<b>EIA</b>	Environmental Impact Assessment
<b>EIRA</b>	Environmental Impact Reassessment
<b>ERF</b>	Energy Recovery Facility
<b>ES</b>	Environmental and Social
<b>ESAP</b>	Environmental and Social Action Plan
<b>MBT</b>	Mechanical-Biological Treatment
<b>RDF</b>	Refuse-Derived Fuel
<b>SEP</b>	Stakeholder Engagement Plan
<b>SPV</b>	Special Purpose Vehicle ( <i>polish: Spółka celowa</i> )
<b>SRF</b>	Solid Recovered Fuel

# 1. Introduction

The Investor consisting out of Veolia Energia Polska S.A. is planning the construction of an Energy Recovery Facility (“ERF” / “Project”/ “Investment”), which is to be constructed on the idle land site adjacent to existing EC4 in the outskirts of the city of Łódź (Poland) and away from residential and nature protected areas.

The Project is being carried out by Veolia Nowa Energia Sp. z o.o. („Veolia Nowa Energia” / „Developer” / „the SPV”), a special purpose vehicle established for the purpose of implementing the Investment, which belongs to Veolia Energia Polska S.A. (part of the international capital Veolia Group).

The European Bank for Reconstruction and Development (“EBRD”) and other Funding Institutions (referred collectively as “Lenders”) is considering providing finance to Veolia Nowa Energia for the Project. The loan will be used to finance the construction of the ERF.

The implementation of this Project will allow for the energy production from the combustible fraction of non-recyclable municipal waste – RDF/SRF. The undertaking represents a continuation of the project planned for implementation by the city of Łódź in 2010 and aligns with the strategy of Veolia Energia Łódź S.A. (“Veolia Energia Łódź”) regarding decarbonization of the Łódź district heating system and the systematic reduction of CO<sub>2</sub> emissions.

The Project was subject to environmental impact assessment (EIA) and was granted environmental decision which imposes environmental constraints that must be taken into account by the construction design and is attached to the application for the construction permit.

The EIA was conducted based on an EIA report prepared by the Investor Authority in 2010, which discusses in wide extent environmental and social impacts generated during construction, operation and dismantling of the facility. On 28th June 2010 Environmental Decision (ED) was issued by the Mayor of the City of Łódź (ref. no. OŚR.III.7626/25/10) based on the EIA Report from 2010 for the investment of the construction of a thermal waste transformation facility in Łódź.

This EIA report was available for review by all interesting parties in xxx.

The Project is considered for financing by the European Bank for Reconstruction and Development (the Bank, EBRD). As part of the detailed review against EBRD Environmental and Social Policy and Performance Requirements, a Gap Analysis Report has been prepared by Arup and concluded that, the national Re-evaluation of the environmental impact (EIRA) carried out in 2020/21 by ILF and approved by the competent authorities resulting in Agreement of Environmental Conditions of Regional Directorate for Environmental Protection in Łódź, 27<sup>th</sup> August, 2021, ref. no. WOOŚ.4222.7.2020.DKr.13 was in line with the EU EIA Directive, Habitat Directive, IED Directive and other relevant European Legislation.

The Gap Analysis Report identified that to meet EBRD Requirements the national EIA shall be supplemented with independent studies regarding:

- Impacts related to the project associated facilities.
- Source of RDF and potential noise and air emissions from transportation of the RDF
- Stakeholders engagement activities.
- Existing environmental and social management system.

Additional review of the Project, its technical documentation and planning activities undertaken to date covering the above topics is presented in this Supplementary Environmental and Social Analysis Report, prepared by Arup. In addition to Supplementary E&S Analysis Report, a Stakeholder Engagement Plan, Non-technical Summary and Environmental and Social Action Plan were prepared and will be part of the public

disclosure package. Moreover, a national EIA re-assessment report prepared by ILF will also be a part of the disclosure package.

### 1.1 Project background – decarbonization path of Veolia Energia Łódź

Veolia Capital Group has agreed for a commitment to “avoid emission of 15 million metric tons of CO2 by 2030, and cease use of coal in Europe by 2030”. The Capital Group’s goals and commitments cascade to all entities.

The Project is implemented by Veolia Nowa Energia Sp. z o.o. Its operation within the international Veolia capital group is outlined as follows:

- Veolia Environment SA (France) holds 99.99% of the shares in Veolia Energie International (France);
- Veolia Energie International holds 60% of the shares in Veolia Energia Polska S.A.(Poland);
- Veolia Energia Polska S.A. holds 100% of the shares in Veolia Nowa Energia Sp. z o.o. (Poland).

In Poland Veolia is organised within a tax capital group, with Veolia Energia Polska S.A. being the parent company.

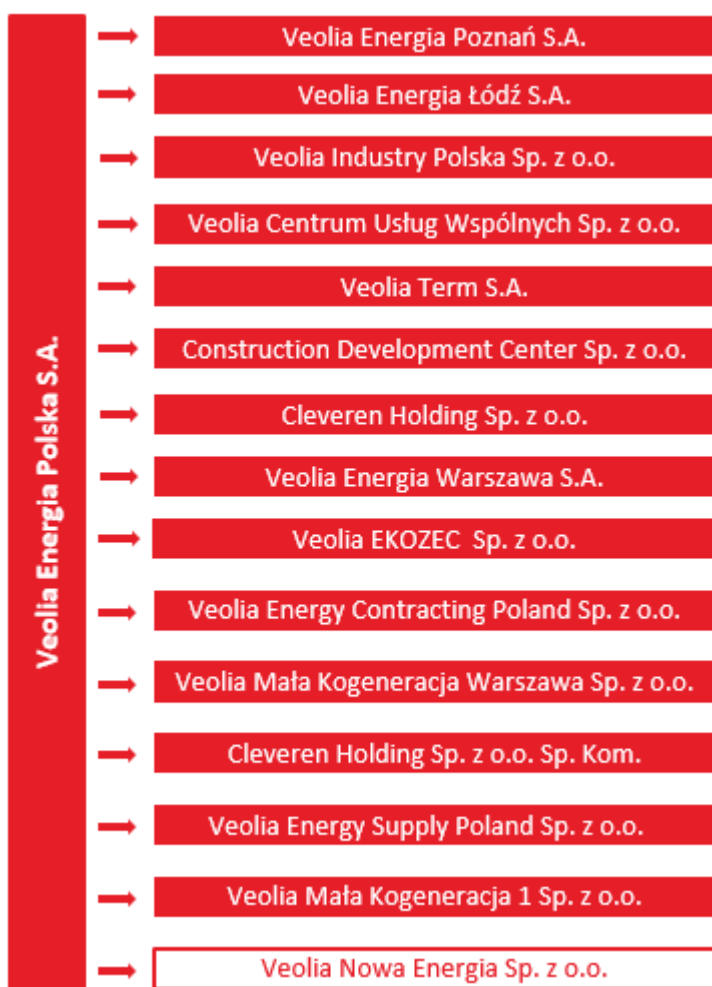


Figure 1 Organisational structure of Veolia Group in Poland

Source: Veolia Financial Statements

As a part of the Capital Group as shown above decarbonisation of the Veolia Energia Polska is a step towards the commitments. Decarbonizing the heating system of Łódź, as a part of it, involves the efficient use of resources, avoiding waste, or recovering and reusing them in the production of electricity and heat. The goal of Veolia Energia Łódź is to eliminate coal, thus reducing carbon dioxide emissions.

As part of Veolia Energia Łódź strategy, a biomass installation was launched in 2011 at the EC4 combined heat and power plant. This installation uses agricultural biomass and waste from the wood industry as fuel for producing district heat and electricity in cogeneration. During the expansion of EC4 to include the biomass installation (in Widzew, on J. Andrzejewska Street), a coal-fired boiler was replaced with a biomass-fired boiler. The investment also included the implementation of a complete biomass management system, which comprises the unloading, storage, and feeding lines for biomass in the form of wood chips, pellets, and straw. Currently, about 16% of district heat and 18% of electricity are produced using this type of fuel, resulting in an approx. 18% reduction in CO<sub>2</sub> emissions. Biomass is delivered to EC4 by trucks and rail transport. After unloading, it is either delivered directly to the boiler or stored in six silos. Biomass from the silos is transported via conveyor belt to the boiler, which is designed exclusively for burning biomass.

One of the key elements of the New Energy for Łódź Strategy was the decommissioning of the EC2 combined heat and power plant on Wróblewskiego Street. This occurred on March 31, 2015. It was made possible by a series of modernization investments in the remaining combined heat and power plants: EC3 (Bałuty, Pojezierska Street) and EC4 (Widzew, J. Andrzejewska Street), as well as in the heating network. Among other things, a heating main was constructed, which allowed for the continuation of heat deliveries from EC3 and EC4 to customers after the decommissioning of EC2.

The next stage of decarbonization was the expansion of the EC4 combined heat and power plant on Andrzejewska Street with a biomass installation. The introduction of biomass in 2011 resulted in approx. 17% of the heat and electricity from the Łódź combined heat and power plant being green energy. The investment in the Energy Recovery Facility at the EC4 plant is the next stage of decarbonization. Energy recovery from waste will make it possible to heat about 20,000 apartments, and CO<sub>2</sub> emissions will be reduced by approx. 12%. The next investment in decarbonizing the Łódź heating system will be a gas-steam block, which will also be built at the EC4 plant. This will further reduce CO<sub>2</sub> emissions by 37%. The final stage will involve using so-called black pellets as fuel in the EC3 combined heat and power plant on Pojezierska Street in the Bałuty district of Łódź. In line with the European Union's climate policy, Veolia's goal is to completely phase out coal within the next decade and achieve climate neutrality by 2050.

According to the Veolia document *Vision for the development of district heating systems until 2030 and by 2050, ŁÓDŹ, Stage 2 – summing up, Selection of the detailed scenarios* from February 2024, five potential scenarios for further heat generation source transformation are currently analyzed:

- Economical scenario 1 with the Southern Main Line (SO1-M),
- Economical scenario 2 with the Southern Main Line (SO2-M),
- Economical scenario 3 with the Southern Main Line (SO3-M),
- Average scenario of Energopomiar taking into account the construction of the Southern Main Line (SE),
- Scenario of maximum dispersion taking into account the construction of the Southern Main Line and the North-Eastern Main Line (SMR3).

These scenarios differ in terms of technology and schedules, however all of them assume shifting away from carbon-fired infrastructure in 2029 or 2030 and gas in 2035 (gas to be replaced by combustion of biomethane in gas units).

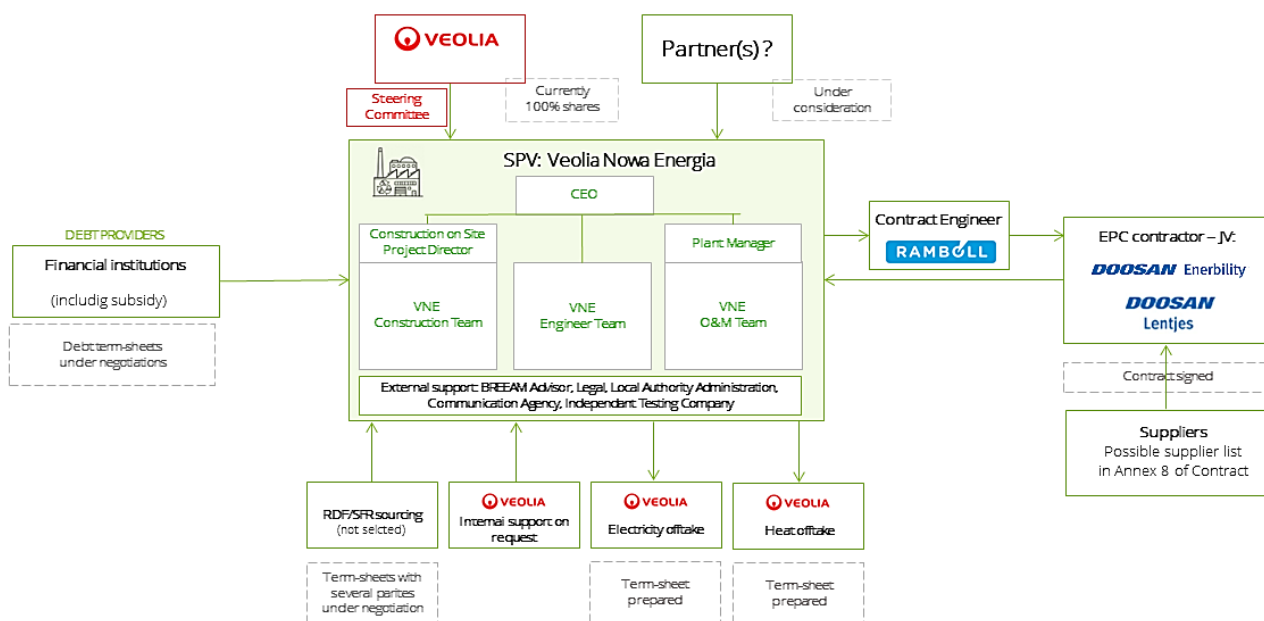
It is also worth mentioning that in September 2021, Veolia signed the Business Ambition for 1.5°C initiative as part of the Science-based Targets Initiative (SBTi) and joined the UNFCCC Race to Zero. In line with this commitment, the Group's action plan will be submitted to SBTi by the end of 2023 and will take into account significant changes in Veolia's operations (based on ESG Report).

The ERF will be developed as a part of the decarbonisation path for Veolia, and will be developed by Veolia Nowa Energia sp. z o.o. ("SPV"), an entity registered in 2011 as a special-purpose vehicle established solely for the implementation of the Project, which involves the construction of an Energy Recovery Facility for non-hazardous waste within the city of Łódź. The company's shares are 100% owned by the Client, i.e. Veolia Energia Polska S.A. The future ultimate shareholder structure is yet to be defined.

The financing structure will be further developed. The SPV is currently in the process of applying for financing.

In the context of both the Social and Governance scopes, the SPV will carry out activities in line with Veolia's policy in Poland, which means applying market best practices in both areas. At this point, the final investment financing and ownership partners are not determined. Nevertheless, one of the key aspects of partner selection, is their high level of responsibility towards all components of the business environment - stakeholders, communities and the environment.

Figure below presents an organogram for the ERF project up to date to July 2024. Veolia is a main steering committee with 100% shares currently and is considering including partners. Financial institutions engagement as debt providers is still under negotiations. Ramboll company is set as main contract engineer. The General Contractor is the Consortium of: Doosan Enerbility Co., LTD and Doosan Lentjes GMBH. The Contract was signed at 17th April 2023. The General Contractor is responsible for planning, organizing, and overseeing the construction of the Plant, ensuring it is completed safely and efficiently. The SPV will contain Construction team, engineering team and O&M team, which will be supported by external advisors. More specific SPV organisation structure for the construction and beginning of the operation is presented below.



**Figure 2 Project's specific organisation structure**

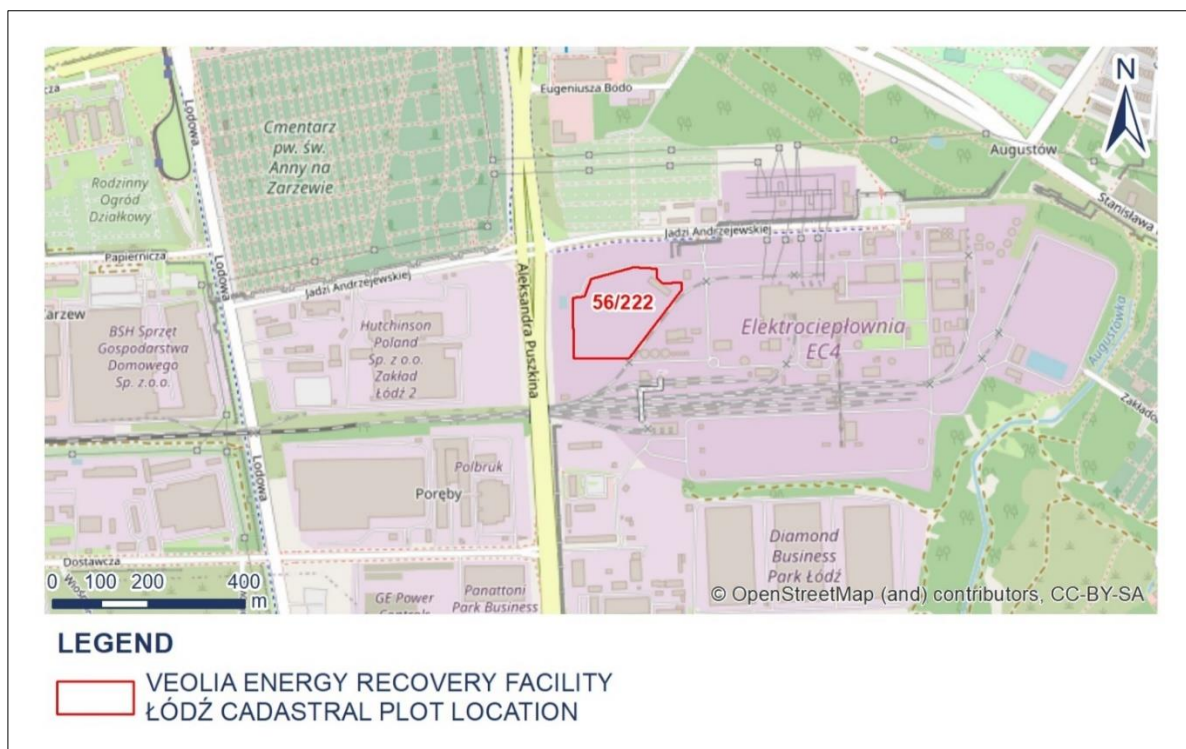
Source: own work based on data provided by Veolia

## 1.2 Project location

The planned Investment will be located in Poland, Łódź Voivodeship, in the city of Łódź, Widzew district, Olechów-Janów residential area, at 5 Jadzia Andrzejewska Street, in the northwestern part the idle land site adjacent to existing EC4. The Project area is located within an industrially developed area, in the city outskirts and away from residential and nature protected areas. The area designated for the Investment is covered with grass. Along part of the fence, there is a row of coniferous trees that may conflict with the planned Investment. The area of the Project constitutes a typical anthropogenic landscape, being a part of an industrial facility. There is no natural plant cover on the grounds of the combined heat and power plant.

On the northern side of Jadzia Andrzejewska Street, there are the Elektron Family Allotment Gardens, alongside which commercial and service facilities and petrol station are situated. On the southern side, the plot borders railway tracks, and beyond them, there are industrial buildings and loading warehouses. On the western side, the plot directly borders Puszkińska Street, and beyond it, there are industrial buildings and a cemetery Zarzew located to the northwest of the EC4 plant. On the eastern side, there is a cemetery located. Beyond the gate of the EC4, on the eastern side, adjacent to the Zakładowa Street, there is a stream called Augustówka.





**Figure 3 Location of the Investment Site with surrounding**

Source: own work by ARUP in ArcGIS based on OpenStreetMap

### 1.3 Project description

**The subject of co-financing by EBRD and possible other Lenders is the Investment consisting in the construction and operation of the Energy Recovery Facility (“ERF”).** The Investment is considered as part of the infrastructure providing heat and electricity and one of the stages in the decarbonization plan for the entire Łódź city system.

**The main subject of the Project is the construction of ERF with a nominal capacity of 200,000 tonnes of waste per year with a nominal calorific value of 12.5 MJ/kg. It is assumed that the facility will operate continuously – 24 hours a day, 7 days a week.**

The ERF will be thermally processing non-recyclable residual fraction of municipal solid waste (RDF, pre-RDF), with simultaneous production of electricity and heat in high-efficiency cogeneration technology:

- Electricity Production: 150 000 MWh;
- Heat Production: 470 000 MWh (1 700 000 GJ).

The generated heat will be received by Veolia Energia Łódź, and the electrical energy will be consumed by the thermal installation. Any surplus electrical energy beyond the internal requirements will be consumed externally, including by external consumers, such as Veolia Energia Łódź.

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 for the water/steam system working with a pressurized bleed and condensing turbine. Steam from the turbine (from the bleed and/or from behind the turbine) will be directed to heat exchangers or to an air condenser.

The facility will use RDF/SRF waste, which has assigned waste codes 19 12 12 and 19 12 10. The definition of alternative fuels by the Polish National Fund for Environmental Protection and Water Management states that RDF/SRF waste is „all materials and substances that can be used as fuel (other than conventional fuels)

produced exclusively or predominantly from municipal waste or municipal sewage sludge”<sup>1</sup>. **The planned ERF will use RDF/SRF waste produced exclusively, 100% from municipal, non-recyclable waste.** Nominally, the waste will have an average net calorific value of 12.5 MJ/kg.

## 2. Identification of associated facilities

The Investment is considered as part of the infrastructure providing heat and electricity and one of the stages in the decarbonization plan for the entire Łódź city system.

Besides of ERF, the infrastructure of the Łódź district heating and electricity network includes:

1. The entire EC4 plant along with coal boiler K7.
2. The biomass-fired unit BFB with future flue gas condensation system.
3. Future cogeneration gas unit.

As the EBRD Environmental and Social Policy (April 2019) clearly states that the client is supposed to conduct an environmental and social assessment not only of the project, but also any associated facilities, defined in Section II of the EBRD’s ESP as:

*“... facilities or activities that are not financed by [the] EBRD as part of the project but which in the view of [the] EBRD are significant in determining the success of the project or in producing agreed project outcomes. These are new facilities or activities: (i) without which the project would not be viable, and (ii) would not be constructed, expanded, carried out or planned to be constructed or carried out if the project did not exist.”*

the Consultant analyzed the function of the above-mentioned infrastructure projects in this matter.

Since the Investment is part of Veolia’s wider, consistent decarbonisation strategy, which elements need to exist interdependent, it is be assumed that the facility would not be constructed if associated facilities were not planned in parallel. These facilities include, among others, changes of energy generation technology in the existing EC4 plant.

The closure of the coal EC4 plant is considered an associated facility. The main operator of EC4 plant and entire infrastructure of heat and energy system in the City of Łódź is Veolia Energia Łódź S.A. Thus, E&S risks and benefits related to decommissioning and specifically the labour risks, included redundancies or retraining. Importantly, the ERF provides merely a small part of the Veolia’s net-zero roadmap (merely ca 10% of heat to be replaced by the ERF), hence the significance of EC4 closure with reference to the ERF investment should be treated proportionately.

Moreover, it was concluded that the new gas fired plant is not an associated facility, as it is technologically independent form of WtE facility. Therefore, the analysis made in this document will not consider the indicated equipment. In accordance with the EBRD requirements a facility can be classified as an associated facility if it meets **both** of the conditions: (i) *without which the project would not be viable*, and (ii) *would not be constructed, expanded, carried out or planned to be constructed or carried out if the project did not exist*. Neither of the specified conditions for the gas unit are met, as the installation is completely independent of the ERF and can operate without the implementation of the WtE project.

Transportation of RDF to and disposal from the ERF installation was also taken into account while analysing the possible associated facilities. Key risks related to the RDF supply are addressed under the traffic impacts related to road safety, noise emissions and air pollution. To mitigate the road safety for the RDF transportation

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<sup>1</sup> National Fund for Environmental Protection and Water Management - priority program 2.1 Rational waste management

a Rad Safety Impact Assessment (described in detail in chapter 4.5) has been developed to create a preferable route for the deliveries and shall be implemented by the suppliers.

Similarly, as with regards to the RDF supplier, the SPV is planning to entrust disposal and reuse of postprocessing waste to an operator, potentially with existing facilities (operating regardless of the construction of the ERF in Łódź). A letter of intent has been signed with PPU EKO-ZEC Sp. z o.o. (currently part of Veolia Group, since 2023 operating under the name Veolia EKOZEC Sp. z o.o.) stating the companies' willingness to cooperate in the field of collection and treatment of post-processing waste by EKO-ZEK. However, no binding contract has been signed and the ultimate waste treatment partner is yet to be selected.

Veolia EKOZEC is currently considering developing facilities for the treatment of post-processing ash and slag: processing hazardous ash waste and plant for slag processing (concrete batching plant). The facilities would be built next to the ERF, on the EC4 site and would be treating ERF waste.

Currently the facilities are in planning phase and no administrative procedures have been initiated to date. Although the facilities would be dedicated to processing post-process waste from the ERF plant, they will not be an integral part of this plant and both technologies will be able to operate independently. It is also possible that the facilities would accept waste from power plants EC3 and EC4.

In accordance with the EBRD requirements of qualification for associated two conditions must be met. A project can be classified as an associated facility if it meets **both** of the following conditions:

- facilities are indispensable for the project's viability
- facilities would not be constructed, expanded, carried out, or planned to be constructed or carried out if the project did not exist

The first condition is not met, as the facilities are not indispensable for the project's viability. The SPV has alternative solutions in place, including contracting EKOZEC (or any other legitimate waste management company) for treatment of waste in existing facilities (in case of EKOZEC in Poznań) or outsourcing waste treatment to other specialised and authorized companies.

The second condition is met, as the facilities' viability relies on the development of the ERF.

In view of the first EBRD condition not being met the facilities are not being defined as associated to the Project and disposal or reuse of the waste resulting from incineration is not being considered part of the Project. The screening was based on data provided by Veolia and publicly available information on current operating status and planned investments.

Required actions have been included in the ESAP in the event of the facilities being developed in the future. The SPV shall cooperate with the developer of the facilities (EKOZEC or any other future investor) and monitor Environmental Impact Assessment with regards to cumulative impact of air emission, noise, GHG emissions, social impact etc. It is expected that if EKOZEC develops the facilities, it will be under the corporate requirements of Veolia Group.

## 3. Closure of coal-blocks EC4 and other future commitments

### 3.1 Environmental, Health & Safety impacts

The main operator of EC4 plant and entire infrastructure of heat and energy system in the City of Łódź is Veolia Energia Łódź S.A. While Veolia Nowa Energia does not have the ultimate authority over the EC4 decommissioning process, it will, on a best-efforts basis, endeavour to monitor the process.

Currently, the Operator of EC4 does not yet have detailed plans for the process of closure coal-blocks of EC4. The first and most significant environmental impact will be the change in the energy and heat production

source from a coal-fired boiler to a gas-fired boiler. The process of decommissioning the coal-fired boiler can also cause short-term negative environmental impacts related to the production of procedural and dismantling waste. The Investor will implement the decarbonization process in accordance with current EU and national regulations and the existing EHS management systems at Veolia corporate level.

It is known that natural gas is a less CO<sub>2</sub>-emissive source than hard coal. As a result, the indicated change in the source will have a positive impact on urban air quality. Positive long-term benefits will also be noticeable in terms of human health.

Decommissioning work shall be carried out in accordance with H&S principles based on national and EU legislation. Requirements in this regard are described in the section below *3.1.3 Decommissioning health & safety guidelines*.

An important aspect in carrying out decommissioning or demolition work is the proper management of waste generated at the demolition site. Requirements in this regard are described in the section below *3.1.2 Decommissioning waste management guidelines*.

A significant social concern is the loss of jobs for skilled workers in the coal sector management. Phasing out the coal block will result in job losses for these workers. In this regard, Veolia has specific actions outlined and is developing new projects to mitigate negative impacts. The investor's plan in this regard is described below.

### 3.1.1 Labour risks – redundancy, retrained and retired labour

Due to the future decommissioning of coal-fired boilers in EC4 plant operated by Veolia Energia Łódź S.A., personnel currently involved in the operation of equipment related to this coal-block will be forced to retrain or change jobs. It is also known that a large number of employees working on coal blocks are of advanced age and will become eligible for retirement on the day the boilers are decommissioned.

Veolia Group are implementing a policy of phased-out labour and retired labour. In response to the generational gap plan, the company continuously assesses its workforce to ensure operational continuity and initiates internal recruitment processes for successors of employees retiring within 6 to 12 months. These efforts primarily focus on managerial positions at middle and senior levels (from team leaders upwards) as well as expert roles that are difficult to replace, where acquiring unique knowledge is time-consuming and labour-intensive.

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.

Since June 2024, the Veolia Group 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.

Described on the basis of documents provided by the Investor:

- HR strategy card for the project,
- ZLZ.02-ZAS.01 Rules Recruitment Applicable In Group Companies Veolia In Poland,
- PROJECT CARD Annex No. 1 to PMO.03-POD.01.

### 3.1.2 Decommissioning waste management guidelines

The decommissioning of a coal boilers equipment in a heating installation will generate various types of construction waste. The vast majority of waste from construction and demolition is inert waste, so construction and demolition work provides an opportunity to divert construction and demolition waste from the landfill back into the building materials cycle. Type of waste that is expected to be generated:

- concrete and concrete rubble,
- steel and other metal elements, such as pipes, support structures, shields,

- insulation materials,
- refractory bricks and other materials resistant to high temperatures,
- pipelines and conduits supplying fuel, venting exhaust gases, and water pipes,

and other non-hazardous or hazardous waste.

According to the EU Waste Framework Directive, hazardous wastes are wastes that exhibit at one or more of the hazardous properties listed in Annex III. In the 2016 EU protocol on the management of construction and demolition waste construction and demolition hazardous waste is defined as waste having hazardous properties that may prove to be harmful to human health or the environment.

These include contaminated soil and spoils from dredging, materials and substances that may include adhesives, sealants and resins (flammable, toxic or irritant), tar (toxic, carcinogenic), materials containing asbestos in the form of respirable fibers (toxic, carcinogenic), wood treated with fungicides, pesticides, etc. (toxic, ecotoxic, flammable), coatings of flame retardants containing halogen compounds (ecotoxic, toxic, carcinogenic), appliances containing PCB compounds (ecotoxic, carcinogenic), lighting components containing mercury (toxic, ecotoxic), systems that contain CFC compounds, insulation containing CFC compounds, containers intended for hazardous substances (solvents, paints, adhesives, etc.), and waste packages that are likely to be contaminated.

For the management of construction waste, refer to the document *Guidelines for waste control prior to demolition and renovation of buildings. Construction and demolition waste management in the EU* prepared by European Commission at May 2018. According to EU requirements, the entity planning to implement the demolition will follow best practices and legal requirements for waste management. Every demolition, renovation, or construction project shall be well planned and managed to minimize its impact on the environment and health, while also ensuring significant cost benefits.

Waste inspections (or pre-demolition inspections in accordance with the EU Demolition Protocol) for materials to be reused or recycled, as well as hazardous waste shall be carried out prior to the start of a renovation or demolition. Waste controls take full account of local markets for construction and demolition waste and materials reused and recycled. The waste inspection shall be conducted by a qualified expert. It is necessary to know the type and quantity of elements and materials that will be deconstructed or demolished, and to make recommendations for further handling. It is also possible to assess feasible ways to recover the materials (including reuse and the potential value of reuse, on-site and off-site recycling, and associated cost savings and energy recovery).

Waste control shall also take into account any relevant regulations, such as requirements for decisions on environmental conditions if the waste is to be used on site or in the case of any waste that may be hazardous and that must be managed in accordance with specialized waste regulations. Ideally, waste inspections shall be conducted prior to the issuance of an invitation to tender and shall be included in the terms of reference for the terms and conditions of the contract. However, they shall be carried out at least before applying for a permit for demolition or renovation. The inspection findings support the authorities' decision to approve the planned work. The inspection report shall be reviewed in light of the final results of the construction process, demolition or renovation.

The waste inspection may be supplemented with recommendations on how to manage waste on site in regard safe disposal of hazardous waste or possible precautions for the protection of health and safety. The waste inspection report will be signed by an expert verifying the accuracy of its contents.

Pre-demolition inspection is the basis for the development of a preliminary waste management plan, in which the waste manager includes input on the possibilities for storage, processing and end markets in the region. Product manufacturers can also influence the design of the preliminary waste management plan with regard to quality or technical requirements for various processes of recycling and recovery of materials.

The site waste management plan shall:

- specify how various items, materials and waste are to be collected and stored on site,
- specify how where they are to be transported, and

- determine the destination of elements/materials/waste recovered from landfills.

The preliminary waste management plan shall take into account all possible flows of materials from construction and surplus waste and consider how best to monitor, record and track these flows.

Demolition waste shall be managed according to the well-known waste management hierarchy in general. The first step in the hierarchy is to avoid waste generation through effective planning of construction processes and minimizing the generation of unnecessary materials. The next step is preparation for reuse, which includes dismantling and segregating construction materials for future use. If reuse is not possible, recycling of materials is recommended to recover raw materials and minimize the need for new natural resources. Alternatively, waste can be subjected to other forms of recovery, such as energy recovery by incinerating waste to produce heat or electricity. The final solution in the hierarchy is the safe disposal of waste that cannot be subjected to any of the above methods, ensuring minimal impact on the environment and public health. Hazardous waste shall undergo treatment and proper disposal. If it's not possible to transform these hazardous wastes into other materials or non-hazardous substances, the final step is their storage while strictly adhering to safety principles for both people and the natural environment. This is essential to minimize the risk of negative impacts from these wastes on human health and ecosystems. Storage shall be conducted in accordance with applicable standards and regulations that ensure isolation and control over potential hazards arising from the presence of hazardous wastes.

All generated waste, immediately upon its creation, shall be transferred to an external recipient. Any potential storage will be done selectively, within a covered shed or room inaccessible to unauthorized persons. Assuming proper waste management policies are followed (selective storage, waste collection by specialized units, etc.), no adverse environmental impact is anticipated from the proposed investment during its operational phase.

With regard to the management of demolition-type waste, Veolia does not have a plan in place or a likely partner selected. However, it can be assumed that Veolia will express an interest in managing the post-decommissioning waste using companies within its own resources. It can be anticipated that, similarly to the management of post-process waste from the ERF, the post-decommissioning waste can be handled by the Veolia EKOZEC company, or outsourced to any other legitimate waste management company.

At this moment, it is not yet known who will be the entity responsible for managing and handling waste during the decommissioning phase. This matter is to be decided by Veolia Energia Łódź. Veolia Nowa Energia will be responsible for reviewing the entity to ensure it meets all required permits and requirements.

The future partner will supervise the management (transportation and treatment) of waste generated both during construction and full operation of the installation (on terms that will be mutually and separately agreed upon). The partner will need to be registered in the BDO (official Database on Products, Packaging and Waste Management) and have obtained permits for collection and processing of waste, as well as integrated permits.

### **Required action**

Veolia Energia Łódź and the future Contractor responsible for the decommissioning of coal blocks will be obliged, based on the ESAP for this Project, to prepare a *Decommissioning Waste Management Plan*. It will be required, on a best efforts basis, that Veolia Nowa Energia and the Supervision Engineer approve the specified plan. Veolia Nowa Energia will monitor the decommissioning process.

### **3.1.3 Decommissioning health & safety guidelines**

Veolia Energia Łódź, which is an operator of EC4 plant, currently does not have a plan for managing the phase-out of coal blocks, and as a result, no contractor has been selected to carry out the decommissioning. Veolia Nowa Energia will monitor the decommissioning process with regard to health and safety.

Only guidelines are provided for carrying out the indicated decommissioning based on legal requirements for occupational safety and health, as well as construction law regarding demolitions.

According to Polish Health & Safety regulations, decommissioning and demolition work should be carried out in accordance with the Regulation of the Minister of Infrastructure on occupational safety and health during construction work. Journal of Laws 2003.47.401 - Regulation of the Minister of Infrastructure of 6 February

2003 on occupational safety and health during construction works. In chapter 18 of this ordinance we have the following guidelines:

*§ 240 Demolition work - documentation, securing of site, disconnection from network*

- (1) Demolition works should be carried out on the basis of project documentation.*
- (2) The area where demolition works of a building are carried out should be fenced and marked with warning signs.*
- (3) Before starting demolition works, the object should be disconnected from gas, heat, electricity, telecommunication, water and sewage networks.*

Decommissioning and dismantling works involve a number of risks due to the way they are carried out and their location. The work involves a number of tasks that are classified as particularly hazardous, such as: demolition work on part or all of a building, demolition and dismantling work carried out at a height of more than 5 m for which the use of personal protective equipment is required, dismantling work on items weighing more than 1 tonne, demolition and dismantling work carried out in the vicinity of power lines.

Under Polish construction law, demolition is a type of construction work involving the dismantling and removal of a specific building or part of a building. A 'Demolition Log' may be required in connection with demolition work. This is done this in the case of the demolition of structures where a building permit is required.

Demolition is the process of disassembling various structural elements mostly for the purpose of dismantling them or ensuring that they can be reused elsewhere.

Demolition work is carried out either by traditional methods (by hand or using mechanical equipment) or by explosive methods (known as blasting).

The basis for undertaking demolition and dismantling works, irrespective of their type, is the preparation of a Method Statement (IBWR) for the specific task, using the

The basis for undertaking demolition and dismantling work, irrespective of the type of work involved, is the preparation of an Method Statement (IBWR) for the specific task, using the Health and Safety Plan (Health and Safety Plan) and the detailed design and technical specifications for the specific type of work.

The document authorizing demolition and dismantling work and dismantling works, classified as particularly hazardous works, is the permit "Protocol for securing particularly hazardous works" and the start sheet for particularly hazardous works - demolition works, foundation shoring, structural upgrades.

Depending on the task to be carried out as part of demolition work and dismantling:

1. Provide employees with the necessary personal protective equipment: head, hearing, eye, upper respiratory tract, hand and fall protection.
2. The area where demolition work is to be carried out shall be demarcated and clearly marked. Hazardous areas shall be marked with signs indicating the type of hazard and other means of preventing hazards, such as nets.
3. It shall be established whether demolition or dismantling work will be carried out using machinery and equipment for which special authorization is required, including building scaffolding subject to technical inspection.
4. Check that the machines and equipment subject to technical inspection have a current operating authorization issued by a competent body.
5. Check that operators of machinery and equipment used for demolition and dismantling work for which a special authorization is required have the appropriate authorization category.

6. Check that heavy construction equipment and means of transport used for demolition and dismantling work are fitted with an operational audible reversing signal and a lighted "traffic light".
7. If there is no audible reversing signal, employees shall be designated to supervise the execution of reversing manoeuvres in order to prevent other employees from entering the danger zone.
8. During demolition and dismantling work, the danger zone shall be designated and marked as follows a danger zone of generally 1/10th of the height from which objects or materials may fall shall be designated and marked. However, this shall not be less than 6 m.
9. When structural elements are to be toppled, the danger zone shall be extended to the size of the elements to be toppled, taking into account the spread of materials and structural elements.
10. In the case of demolition work using the blasting method, the developer is obliged to notify the following in writing 7 days prior to the planned commencement of blasting work:
  - the county building inspector,
  - the police chief in charge of the demolition site,
  - owners or managers of neighbouring properties,
  - the fire marshal with jurisdiction over the demolition site,
  - the municipal fire brigade commander.

In connection with the performance of demolition work by explosive method, consideration shall be given to the harmful effects of detonation of explosive charges due to such hazards as pressure wave, parasitic vibration, scattering of fragments, direct fall of the demolished building, dust, toxic and thermal effects.

Prior to blasting, all persons in the demolition area shall be notified of the date of demolition with explosives and ensure that third parties possibly present in the area leave the area.

The blasting area shall be cordoned off and protected in such a way that there is strict control of persons entering and leaving the blasting area and of persons entering the area.

The area for demolition work is to be cordoned off and protected in such a way that there is strict control of persons and vehicles entering and leaving it.

The building to be demolished is to be disconnected from the gas, heating, electricity, telecommunications, water and sewage networks.

Demolition and dismantling work using heavy earthmoving and loading equipment, tower cranes and truck-mounted cranes as well as the erection of building scaffolding within the area of an active power line may not be carried out directly under the power line, and the horizontal distance from the edge of the wires shall be horizontally the distance from the outermost conductors - not less than:

- 3 m - for low voltage lines up to 1 kV,
- 5 m - for high voltage lines from 1 to 15 kV,
- 10 m - for high-voltage lines with voltage from 15 kV to 30 kV,
- 15 m - for high-voltage lines with voltage from 30 to 110 kV,
- 30 m - for high-voltage lines above 110 kV.

When carrying out demolition work by means of tipping ropes, the length of the fixed ropes shall be three times the height of the object. The ropes shall be checked each time before they are used again.



When demolition work is carried out by means of mechanized methods: excavators and backhoe loaders with demolition hammers, the cabins of the operators of such equipment shall be additionally protected with metal mesh to prevent them from being hit by falling objects.

All demolition and dismantling work carried out at height shall be protected by guard rails 1.1 m high, with a 0.15 m high kerb board at the bottom and an intermediate handrail fixed at half height. The space between the top handrail and the kerbstone plank may be filled in by other means to prevent people falling out.

Regulatory requirements:

- *Regulation of the Minister of Infrastructure on occupational safety and health during construction work. Journal of Laws 2003.47.401 - Regulation of the Minister of Infrastructure of 6 February 2003 on occupational safety and health during construction works*
- *Article 30b(1) in conjunction with paragraph 4 of the Act of 7 July 1994. – Polish Construction Law (Journal of Laws of 2020, item 1333, as amended).*

*Standard 16.1 Demolition and dismantling works for Safety in Construction Industry in Poland*

### **Required action**

Due to possible historical contamination caused by hard coal storage on the Site, it is recommended that the decommissioning plan include soil testing for contamination and hazardous substances, if any earthworks will be foreseen.

Veolia Energia Łódź and the future Contractor responsible for the decommissioning of coal blocks will be obliged, based on the ESAP for this Project, to prepare a *Decommissioning Health & Safety Management Plan*. It will be required, on a best efforts basis, that Veolia Nowa Energia and the Supervision Engineer approve the specified plan. Veolia Nowa Energia will monitor the decommissioning process.

## **4. RDF supply chain**

### **4.1 Identified risks**

The daily transport of RDF to the ERF can potentially impact the environment and local communities. An increased number of trucks on the roads can lead to higher emissions of air pollutants. The intensification of truck traffic can result in increased noise and vibrations, affecting the quality of life of residents near transport routes. Additionally, the transport can lead to a higher risk of road accidents, impacting the safety of local communities, however a traffic management plan has been prepared to identify the best transport routes eliminating the risk.

The social impact with regards to RDF transportation has been identified as material for this Project. This has been addressed in a separate document – *The Traffic and Road Safety Impact Assessment*.

The purpose of this report is 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 ERF site, as well as transportation of post-processing waste from the ERF for further treatment. The Investor is considering several potential partners with MBT facilities in various parts of Poland, focusing on seven market players with transportation options from Łódź and other locations across the north, east, south, and west of Poland.

The impact on the local community's quality of life is an important consideration, hence this report includes consideration of this social impact through sensitivity analysis of specific types of buildings, where highest weights are assigned to educational, scientific and cultural building, sports buildings and hospital buildings and other healthcare buildings and in other aspects of residential or non-residential building. Impact on environmental conditions was considered negatively affect air quality in the vicinity of transportation routes based on analysis of impact of additional traffic on nearby roads.

The analysis covers scenarios and criteria for selecting the transportation route for the future supplier, with a detailed examination of the route from Łódź to the ERF as an example of traffic and road management approaches. Two supply options were analyzed: from MPO Łódź and from other partners across Poland, considering access from key national roads.

The GHG Analysis in the document *Green Economy Transition and Paris Alignment Assessment Report*, include indirect emissions related to transportation activities. This encompasses the delivery of RDF raw materials to the installation and the collection of post-process products such as slag. Additionally, emissions arise from maintenance-related transports such as sludge and waste from gas purification devices, occurring at varying frequencies. The analysis, based on data from the Environmental Impact and Risk Assessment report, estimates an approx. 50 heavy-duty vehicles delivering and collection waste daily. The assessment focuses on likely RDF suppliers like MPO Łódź and PreZero, with specific routes and transport logistics under scrutiny to mitigate environmental impacts. In terms of the distance over which waste will be transported and collected, the analysis considered the furthest waste treatment facilities and installations. The assessment factors in the distances from these remote facilities to ensure comprehensive coverage of potential greenhouse gas emissions associated with transportation.

## 4.2 Noise emission

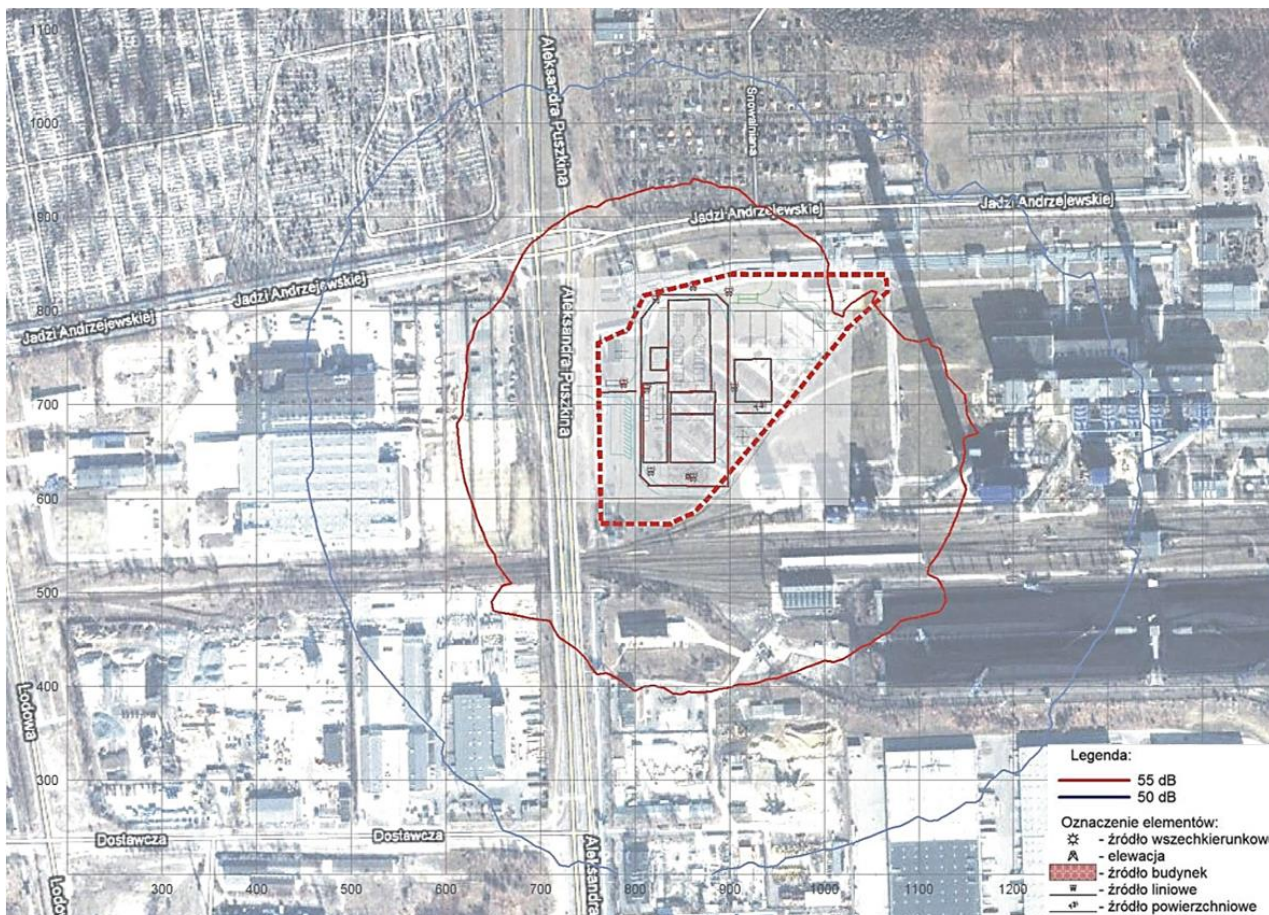
### 4.2.1 Estimated noise emissions of operation phase

The investment area and adjacent areas are **not covered by a local spatial development plan (MPZP)**. In connection with this, the President of the City of Łódź (sign DEK-OŚR-I.6254.30.2020), has determined the classification of the adjacent areas in accordance with art. 115 of the Environmental Protection Law.

The areas **closest to the investment and acoustically protected are the allotment gardens “Elektron”** located to the north. In accordance with definition based on Act of 13 December 2013 on family allotment gardens, the allotment gardens are areas designated for recreational and leisure purposes, **intended for temporary human occupancy**. According to Polish law, the allotment gardens are not intended for residential purposes, **it is prohibited to reside on the allotment gardens** by definition. The noise permissible levels have been established for such areas only during daytime.

An 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. The significant sources responsible for approximately 52% of noise emissions are considered to be the fly ash curing halls, condenser, movement of heavy-duty vehicles, exhaust gas cleaning unit, and transformer. The acoustic analysis also included **the movement of heavy vehicles (5.4 veh./hour) on internal roads** within the site.

According to the below noise map for acoustically protected areas (allotment gardens), noise level close by exceedances were recorded during the daytime. The isophone with a value of 50 dBA - below the permissible level, spreads over acoustically protected areas. Meanwhile, the isophone of 55 dBA, which reaches the permissible level for daytime for allotment garden areas, has its boundary at the fence of the gardens.



**Figure 4 The noise map for the operation phase without the acoustic minimalization – day time**

Source: Appendix *Analysis of noise* to document of Environmental Impact Assessment Report (2010) authored by Socotec Polska Sp z o.o.

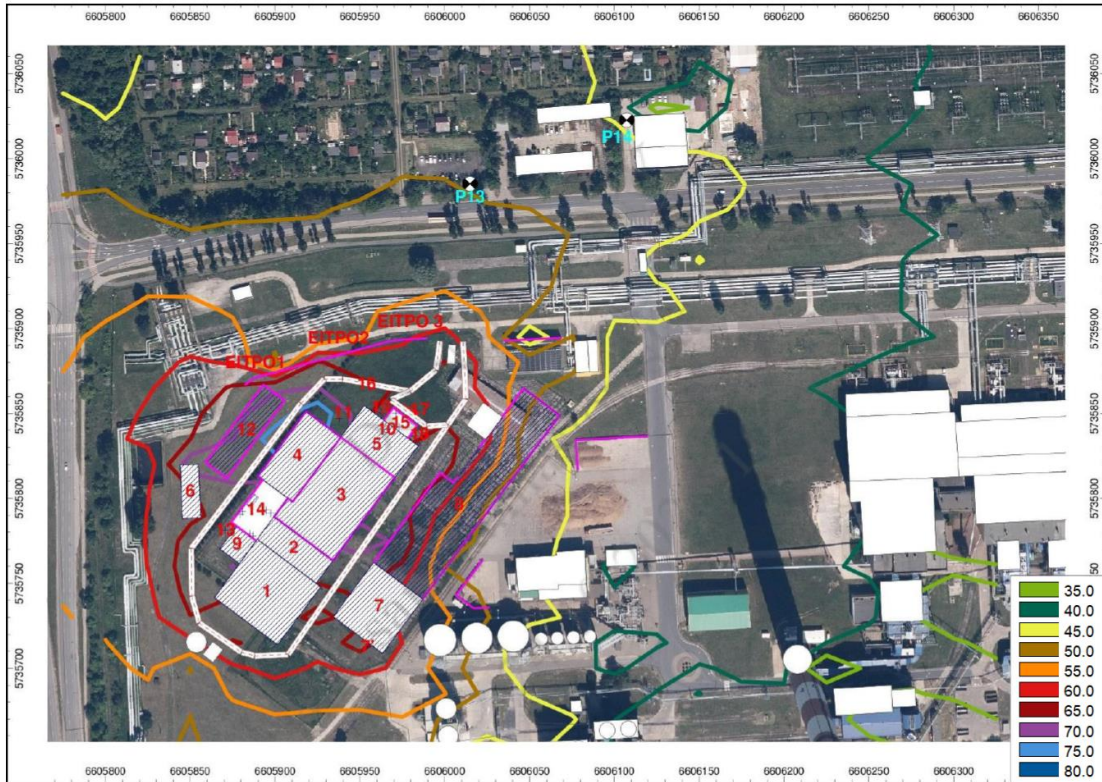
According to the Environmental Decision requirements (ref. no. OŚR.III.7626/25/10) from 2010 and the Agreement (ref. no. WOOŚ.4222.7.2020.DKr.13) from 2021, the installation of sound barriers is required to reduce noise impact on nearby allotment areas. Additionally, in accordance with the requirements of the Environmental Decision, external partitions with specific acoustic insulation will be applied in cubic structures. Below is the noise map and table with calculation after the implementation of acoustic barriers.

**Table 1 Calculated noise levels for the operation stage with acoustic minimalization**

Receiver	Type of construction	Receiver height [m]	Calculated level		Permissible level		Exceedance
			Day L <sub>Aeq</sub> (dB)	Night L <sub>Aeq</sub> (dB)	Day L <sub>Aeq</sub> (dB)	Night L <sub>Aeq</sub> (dB)	
<b>P13</b>	Andrzejewska Street – the allotment gardens, at the border of the plot	1.5	48.5	46.9	55.0	No permissible level has been established	NO
<b>P14</b>		1.5	44	42.5	55.0		NO

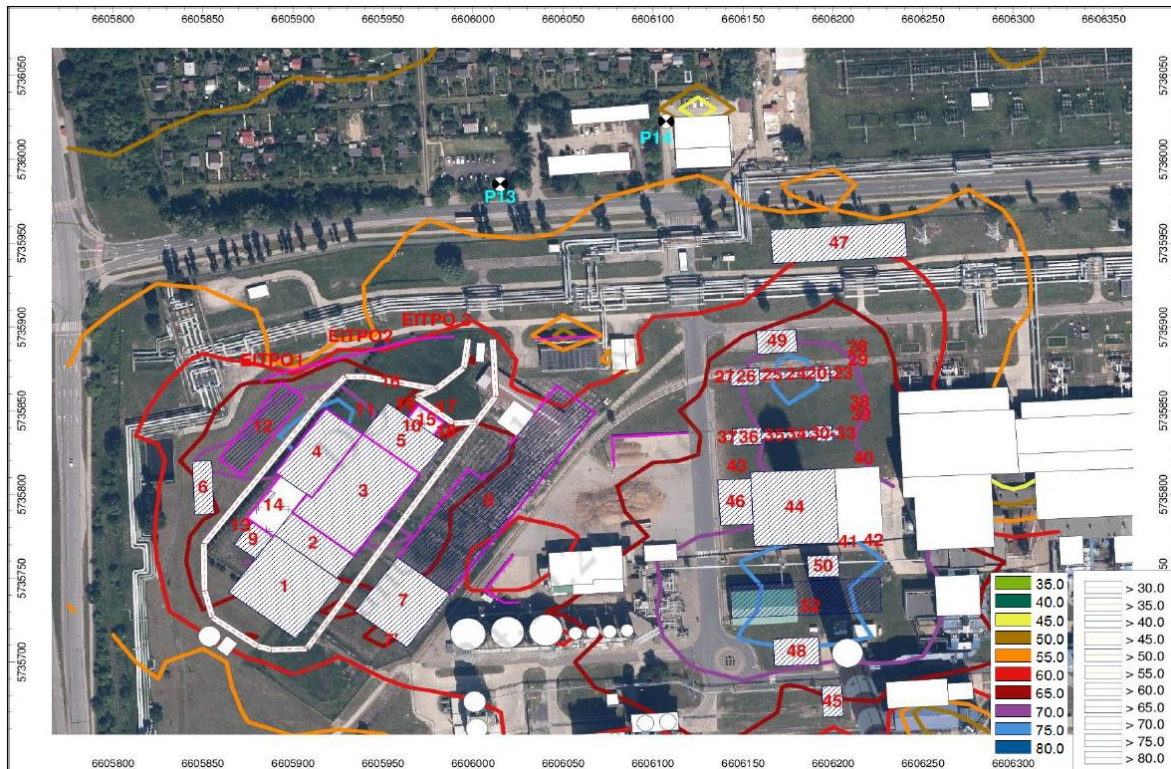
Source: Appendix *Analysis of noise* to document of Environmental Impact Reassessment Report (2020/2021) authored by ILF Consulting Engineers.

In both cases, for receiver P13 and P14, the calculated daytime noise levels are below the permissible noise levels (55.0 dB). Permissible noise levels for the night have not been established for either receiver. No exceedances of permissible noise levels were found in any case, indicating that noise levels comply with the set daytime standards. These data indicate the effective application of noise minimization measures during the operational stage, ensuring that noise levels remain within acceptable limits for the daytime period.



**Figure 5 The industrial noise map for the operation phase with implementation acoustic barriers – day time**

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



**Figure 6 The industrial noise map for the operation phase with cumulative impacts from EC4 plant – day time [dBA]**

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

In ARUP's opinion, the assessment of the impact on environmental components in terms of acoustic climate was performed adequately. Measures to minimize specific impacts were proposed and technology was used. The permissible standards were close to exceeded during the day for garden plots, but acoustic insulation screens were proposed to minimize the impacts.

#### 4.2.2 Transportation noise of ERF and EC4 deliveries

In the Environmental Impact Reassessment Report, an analysis was made of the estimated number of vehicles in connection with the delivery of waste and other raw materials or products to the ERF installation.

According to the provided materials, it is anticipated that 4 trucks will pass through within an hour. Vehicle traffic will occur between 6:00 a.m. to 4:00 p.m. In total, during the working day, 40 trucks will complete their routes. In addition to the transport of processing raw materials, a maximum of 8 vehicles per day will be required to transport post-products included slug. In summary 54 vehicles per day will deliver sources and products.

Other required transports, including:

- post-process waste – 5 per week;
- urea to denitrification systems, activated carbon, bicarbonate to the desulfurization system, chemicals for water treatment plants – 1 – 2 per month;
- heating and diesel oil, industrial sewage – 1 – 5 per year.

In accordance with the requirements for agreeing on the environmental decision, communication services at the implementation stage shall be provided from ul. J. Andrzejewskiej, from the existing entrance via existing internal roads. The final access will be provided by a designed road. Traffic forecasts for these locations were conducted, taking into account deliveries and pickups from the waste processing facility and transport route variants. ARUP was conducted indicated analysis in the document *Traffic and Road Safety Assessment*.

Measurements of actual traffic intensity in the intersection of Puskina and Jadzia Andrzejewska streets were conducted in the year 2020. Traffic volume studies were based on determining the average daily traffic (SDR) for Puskina and Jadzi Andrzejewskiej streets. According to the order content, the area scope included three road cross-sections in the vicinity of the intersection of the above-mentioned streets:

1. Puskina Street between Jadzi Andrzejewskiej and Dostawcza streets,
2. Jadzi Andrzejewskiej Street between Lodowa and Puskina streets,
3. Jadzi Andrzejewskiej Street between Puskina and Snowalniana streets.



**Figure 7 Locations of measurements of actual traffic intensity**

Source: Analysis of measurements of actual traffic intensity, Eutra, Krzysztof Rosiek, 2020.

Puskina Street is classified as a county road, while Jadzi Andrzejewskiej Street is an internal road. The determination of SDR for county roads can be carried out according to the methodology contained in the "Instruction for Assessing the Effectiveness of Road and Bridge Projects for County Roads" (IBDiM, Warsaw, February 2008). To determine the SDR, traffic volume measurements were carried out at the mentioned three cross-sections, whose locations are shown on the attached orientation plan. According to the Instruction,

measurements of motor vehicle traffic volume were conducted over two working days of one week (February 19 and 20, 2020 - Wednesday and Thursday) from 6 AM to 10 PM. The measurements were performed considering the type structure (divided according to the 2020 General Traffic Measurement) and directional structure. The results of traffic volume measurements.

The average daily traffic per year on individual sections is:

1. on Puskina Street between Jadzi Andrzejewskiej and Dostawcza Streets – 19,370 veh./day, including 973 HGV
2. on Jadzi Andrzejewskiej Street between Lodowa and Puskina Streets – 671 veh./day, no data about heavy duty vehicle
3. on Jadzi Andrzejewskiej Street between Puskina and Snowalniana Streets – 1,682 veh./day, including 232 HGV

Additionally, the document *Traffic and Road Safety Impact Assessment* does not recommend using road Jadzi Andrzejewskiej Street between Lodowa and Puskina Streets for traffic, and therefore, it is not anticipated that the operation of the ERF will increase traffic on this part of the road.

In the *Traffic and Road Safety Assessment* was conducted the analysis on significance on the noise impacts on Aleksandra Puskina Street from the north and Jadzi Andrzejewskiej Street, regarding the increase in the number of trucks involved in RDF deliveries. The comprehensive analysis considers all directions of supply for RDF transport, regardless of the final option. The assessment relies on the key assumption, that the transport of waste to and from the ERF in Łódź involves 54 vehicles per day in one direction.

**Table 2 Estimated impact for traffic on nearby road of ERF**

Location	Average daily traffic [veh./day]	Heavy traffic [%]	Increase o daily traffic [%]	Increase of heavy traffic [%]
Puskina Street	671	9%	1%	6%
Jadzi Andrzejewskiej Street (West)	1,682	19%	16%	85%
Jadzi Andrzejewskiej Street (East)	19,370	14%	6%	45%

Source: Calculation based on documents and data provided by Investor.

Based on the analysis of individual streets, it can be confidently concluded that the impact of additional traffic will be negligible. The existing road infrastructure can accommodate the proposed RDF delivery routes without creating significant traffic problems.

The analysis with regard to transport vehicles on the EC4 site is as follows:

Based on the data provided by the Investor, it is known that the collection of products after processing from EC4 results in a total of 19 vehicles per day. Deliveries of raw materials, such as coal and biomass, are carried out via railway tracks, bypassing public roads. The table below presents the individual transports carried out for the maintenance of EC4. The transports listed below were accounted for in the 2020 traffic volume study (described above).

**Table 3 Transportation of products for EC4**

Type of delivery for EC4	Total weight of the product in 2023 [Mg]	Average load capacity of one transport truck [Mg]	Number of working days in year	Estimated number of deliveries per day [veh./day]
Ash	64 757 Mg	25 Mg	230	11

Bottom ash	17 304 Mg	25 Mg	230	3
Post-reaction product	17 531 Mg	17 Mg	230	5
<b>Estimated total numbers of deliveries</b>				<b>19 veh./day</b>

Source: Data provided by Investor.

Consequently, the total number of vehicles anticipated to increase traffic on the streets adjacent to the EC4 and ERF area will be the difference between the transports currently carried out for EC4 (19 veh./day) and the anticipated vehicles for ERF (54 veh./day). Therefore, the actual increase in the number of vehicles carrying out deliveries due to the operation of ERF is 35 vehicles per day.

**Table 4 Estimated changes of traffic volume on Puszkin and Jadzi Andrzejewskiej Streets**

Number of delivery for EC4 [veh./day]	Number of deliveries for ERF [veh./day]	Actual increase in the number of vehicles [veh./day]	Actual number of transport operations [veh./day]	Name of street	Average daily traffic [veh./day]	The actual percentage share of vehicles relative to the traffic volume [%]
19	54	35	70	Jadzi Andrzejewskiej Street between Lodowa and Puskina Streets***	671	10,4%
				Jadzi Andrzejewskiej Street between Puskina and Snowalniana Streets	1,682	4,2%
				Puskina Street between Jadzi Andrzejewskiej and Dostawcza Streets	19,370	<1%

\*\*\* The Traffic and Road Safety Impact Assessment does not recommend using this road for traffic, and therefore, it is not anticipated that the operation of the ERF will increase traffic on this section of the road.

Source: Calculation based on documents and data provided by Investor.

The data indicates that there is no significant increase expected in the number of vehicles on both streets. The number of vehicles that will increase on the section of Puskina Road located west of the ERF is less than 1%, indicating that the ERF will not cause increased traffic on this part of the road. In actuality, there is a projected increase of 35 vehicles per day (70 transport operation per day) on Jadzi Andrzejewskiej from Puszkin Street, which represents a minor percentage relative to the average daily traffic of 1,682 vehicles.

Similarly, on Jadzi Andrzejewskiej Street on north from ERF, a projected increase of 35 vehicles per day (70 transport operation per day) equates to 4% of the total traffic. Despite the slight increase in vehicle numbers, no impact on noise emissions is anticipated on either street. The current percentage shares of vehicles relative to total traffic volume are relatively low indicating stability or minimal changes in noise emissions.

For Jadzia Andrzejewska Street between Lodowa and Puskina Streets, a potential increase in traffic by approximately 10% has been indicated. Despite this significant increase, no risk has been identified because based on the findings from the analysis performed within the *Traffic and Road Safety Impact Assessment* this street is not recommended to be used for heavy traffic as described in chapter 4.5 .

Currently, taken the Project definition is extended to include EC4 closure, also heavy traffic resulting from EC4 can be included as decreasing the total traffic. The additional data received from Veolia indicate that currently there are 19 vehicles operating daily to collect post-processing waste (ashes) from the EC4. After EC4 closure these vehicles will no longer be operating and will be deducted from the ERF traffic values. This will Project decrease the traffic impact.

The below map shows the levels of traffic noise in the vicinity of the planned ERF investment.



**Figure 8 Acoustic map of the City of Łódź for years 2017 – 2022.**

Source: <https://mapa.lodz.pl/akustyczna/>

The noise on Puskina Road reaches 80-85 dBA. At a distance where the protected areas are located - allotment gardens - the noise reaches values of 55-60 dBA, indicating this area is within the impact zone of this county road. This means that the background noise emission levels generated along Puskina Road are high and to some extent of the allotments already exceed the maximum. Along the internal road of Jadzi Andrzejewska, noise levels are identified at 50-55 dBA. Part of this street also falls within the impact zone of Puskina Road. The noise emission caused by traffic on Jadzi Andrzejewska wasn't estimated. The traffic on Jadzi Andrzejewska is expected to increase noise levels by c.a. 1 dB in the vicinity of the street (the allotments), which is a very small value compared to existing acoustic conditions.

## Conclusion

The implementation of ERF and associated transportation will only result in a slight increase of less than 1% in current traffic on Puskina Road and 4% on Andrzejewska Road. It is predicted that noise emissions will be negligible. It can be confidently concluded that the impact of additional traffic will be negligible. The existing road infrastructure can accommodate the proposed RDF delivery routes without creating significant traffic issues.

Due to the existing values of traffic noise generated from the Puskina street and the low share of additional traffic added from RDF supply, it is not recommend to provide additional acoustic modelling for the roads of J. Andrzejewskiej and A. Puskina. This is expecting the additional modelling not to change the existing acoustic map in a way impacting the allotment gardens in significant manner. Industrial acoustic impacts and traffic acoustic impact are not added together, therefore to understand impact from RDF supply only traffic acoustic analysis could be provided, however taken the above conclusions, this would not be Consultant's recommendation.

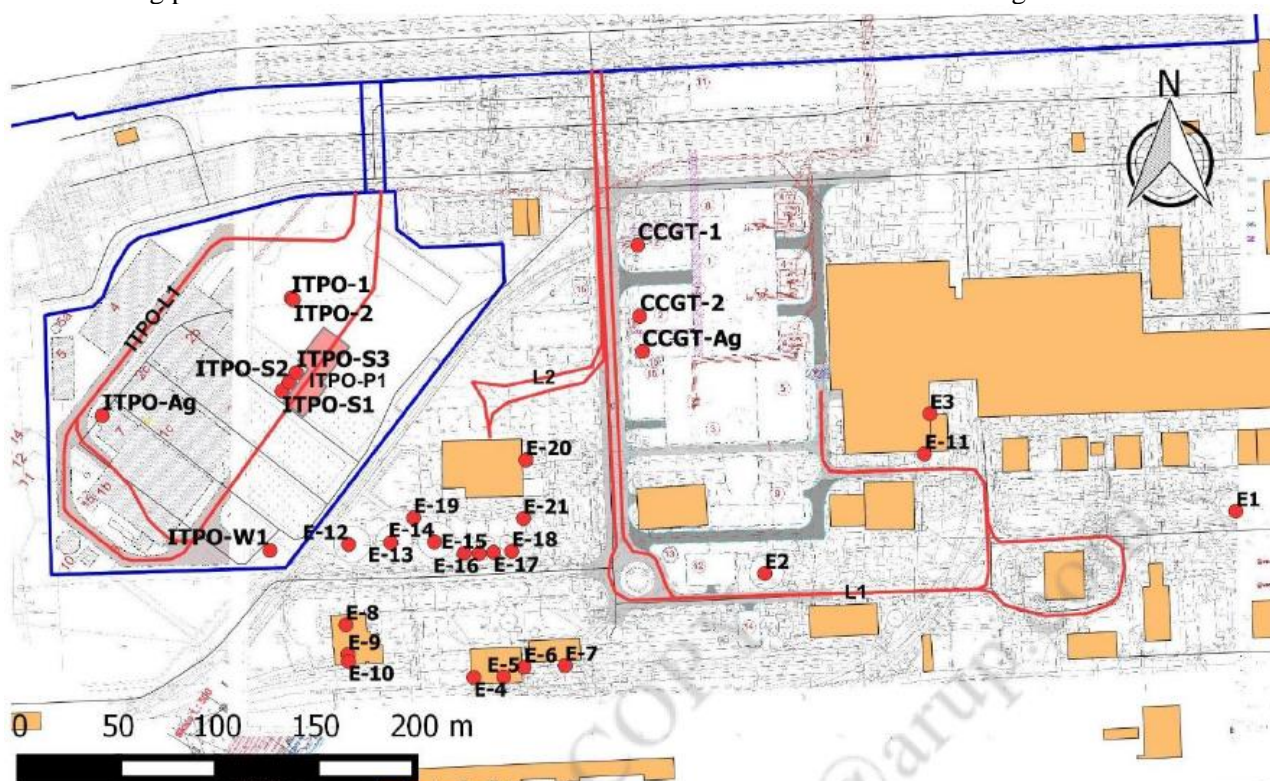


## 4.3 Air pollution emission

### 4.3.1 Estimated air pollution emissions of operation phase

For the purpose of the Environmental Impact Reassessment Report (2020/2021), an analysis of the spread of possible air pollutants on operational phase was conducted using the OPERAT FB program. Emissions from both organized and unorganized sources were taken into account, along with cumulative impacts from existing and planned sources from the thermal waste conversion installation and the coal-burning installation in the EC4 power plant. The figure below presents the locations of the emitters included in the calculations.

In the operational stage, the occurrence of dust emissions and air pollutants typical for thermal waste conversion processes is anticipated. Emissions of PM<sub>10</sub> and PM<sub>2.5</sub> particulate matter, sulphur dioxide, carbon monoxide, and nitrogen oxides will result from activities such as **burning fuel oil during the start-up of the installation and in the power generator unit**. The primary sources of PM<sub>10</sub> and PM<sub>2.5</sub> particulate matter will be the containers for process waste and the discharge points of the bottom ash valorisation hall. The emissions of nitrogen oxides, sulphur dioxide, carbon monoxide, particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>, hydrocarbons) will be caused by **vehicles moving on manoeuvring areas and internal roads transporting raw waste to the plant and removing products from thermal conversion**. Pollutants will be emitted in an unorganized manner.



**Figure 9 Location of emitters included in the EIA modelling**

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

The air quality status in the area of the planned investment has been determined by the Chief Inspectorate of Environmental Protection, in a statement reference number DM/ŁD/063-1/300/20/DR, document number 723/ŁD, dated May 26, 2020. The background pollution values (annual average concentrations of substances) specified in the aforementioned statement are presented in the table below and compared with the permissible levels averaged for the calendar year, as defined in the Regulation of the Minister of the Environment of August 24, 2012, on the levels of certain substances in the air (Journal of Laws of 2012, item 1031, as amended). According to the calculations in the table below, the air in its current state is already polluted with various substances. The lowest available level has been determined for PM<sub>2.5</sub> particles. The background level is 19 µg/m<sup>3</sup>, giving the lowest available level of only 1 µg/m<sup>3</sup>.

The table below shows the permissible levels and available levels of emission of certain substances.

**Table 5 The air quality status in the area of the planned investment**

Substance	Emission background [ $\mu$ g/m <sup>3</sup> ]	Annual permissible level [ $\mu$ g/m <sup>3</sup> ]	Available value (permissible level – emission background) [ $\mu$ g/m <sup>3</sup> ]
Total dust of PM <sub>10</sub>	27	40	13
Total dust of PM <sub>2.5</sub>	19	20	1
Sulphur dioxide (SO <sub>2</sub> )	4	20	16
Nitric dioxide (NO <sub>2</sub> )	17	40	23

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

Reference values for substances in the atmospheric air are considered met if, beyond the area for which the entity introducing pollutants into the air has legal title, the following conditions are fulfilled:

- The calculated frequency of exceeding the D1 value, through 1-hour average concentrations, is not greater:  
**than 0.274% of the time in a year for sulphur dioxide,  
and 0.2% of the time in a year for other substances;**
- The calculated annual average concentration is not higher than the permissible annual average concentration (or reference value) D1 minus the background air pollution concentration;
- The precipitation of dust norm is maintained.

Calculations were carried out for the following substances, for which permissible levels or reference values have been determined:

**Table 6 Summary of standardized substances introduced into the air**

Substance	Number of CAS	D <sub>1</sub> [ $\mu$ g/m <sup>3</sup> ]	D <sub>a</sub> [ $\mu$ g/m <sup>3</sup> ]
Total dust of PM <sub>10</sub>	-	280	40
Total dust of PM <sub>2.5</sub>	-	No permissible level has been established	20
Sulphur dioxide (SO <sub>2</sub> )	7446-09-5	350	20
Nitric dioxide (NO <sub>2</sub> )	10102-44-0 / 10102-43-9	200	40
Hydrogen chloride (HCl)	7647-01-0	200	25
Arsen (Ar)	7440-38-2	0,2	0,006
Nickel (Ni)	7440-02-0	0,23	0,02

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

The table below shows estimated levels of emission of certain substances for the ERF emitters.

**Table 7 Estimated volume of pollutant emissions from the operational stage - total emissions**

Substances	Total 1-hour emission [ $\mu\text{g}/\text{m}^3$ ]				Total annual emission [ $\mu\text{g}/\text{m}^3$ ]			Exceeded
	$D_1$ [ $\mu\text{g}/\text{m}^3$ ]	$S_{\text{mm}}$ [ $\mu\text{g}/\text{m}^3$ ]	P (D1) [%]	P(D1) calc. [%]	$D_a$ [ $\mu\text{g}/\text{m}^3$ ]	$D_a - R$ [ $\mu\text{g}/\text{m}^3$ ]	$S_{a \text{ max}}$ [ $\mu\text{g}/\text{m}^3$ ]	
Total dust of $\text{PM}_{10}$	280	99,4	0,2	0	40	13	0,664	NO
Total dust of $\text{PM}_{2,5}$	No permissible level has been established	98,4	-	0	20	1	0,663	NO
Sulphur dioxide ( $\text{SO}_2$ )	350	131,0	0,274	0,09	20	16	0,819	NO
Nitric dioxide ( $\text{NO}_2$ )	200	287,6	0,2	0	40	23	3,347	NO
Hydrogen chloride (HCl)	200	35,7	0,2	-	25	22,5	0,159	NO
Arsen (Ar)	0,2	0,23	0,2	0,04	0,006	0,0054	0,002	NO
Nickel (Ni)	0,23	0,23	0,2	0,01	0,02	0,018	0,002	NO

\*Legend:

$D_1$  - Permissible concentration or reference value (maximum one-hour concentrations)

$S_{\text{mm}}$  - Maximum calculated maximum 1-hour concentration

P (D1) – Permissible frequency of exceeding the maximum concentration [%] - 0.274% of the time in a year for sulphur dioxide, and 0.2% of the time in a year for other substances;

P(D1) calc. - Calculated frequency of exceeding the permissible concentration [%]

$D_a$  - Permissible concentration or reference value (annual average concentrations) [ $\mu\text{g}/\text{m}^3$ ]

$D_a - R$  - Disposable concentration (permissible annual average concentration minus background) [ $\mu\text{g}/\text{m}^3$ ]

$S_{a \text{ max}}$  - Maximum calculated annual average concentration [ $\mu\text{g}/\text{m}^3$ ]

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

The calculated maximum 1-hour air concentration values of substances are lower than the reference values of permissible level for  $\text{PM}_{10}$ , sulphur dioxide, and hydrogen chloride. For  $\text{PM}_{2.5}$  1-hour averaged target values are not applicable (neither Polish regulations nor WHO specify reference values). In the case of nitrogen dioxide, arsenic, and nickel, the calculated maximum 1-hour concentration values are higher than the 1-hour averaged reference values, however, the calculated frequencies of exceeding the  $D_1$  values are significantly lower than the permissible values.

The calculated annual average concentration values are significantly lower than the available values for all substances. Regarding the critical pollutant,  $\text{PM}_{2.5}$ , the calculated forecasted annual average concentration of  $\text{PM}_{2.5}$  due to emissions from ERF and EC4 after the implementation of planned investments is relatively low, which is approximately 3.5% of the permissible concentration. This indicates that emissions from ERF and EC4 will have a minimal impact on the annual average concentration of  $\text{PM}_{2.5}$  in the analysed area. This is due to the significant reduction in particulate emissions emitted in an organized manner. The main existing contributors to  $\text{PM}_{2.5}$  concentrations in the air in the analysed area are primarily low emissions associated with domestic fossil fuel combustion and transport.

### 4.3.2 Transportation air emissions of ERF

In regard the transportation on ERF site, it is estimated that the number of heavy trucks entering and leaving the premises of the planned Plant will be approximately 54 vehicles per day. Assuming that traffic will occur between 6 AM and 4 PM (10 hours per day), the average hourly traffic intensity will be 5.4 vehicles per hour. The emission time for vehicle traffic is assumed to be 230 days/year x 10 hours/day = 2300 hours/year.

Additionally, the ERF site plans for 6 parking spaces for passenger cars for employees and visitors of the Plant. Assuming a complete turnover of vehicles in the parking lot during each 8-hour shift, the daily traffic intensity of passenger cars moving within the plant premises could be 18 vehicles per day. Unorganized emissions from passenger car traffic will be negligible compared to emissions from other sources, having no significant impact on air quality. Therefore, emissions from passenger car traffic have been excluded from the calculations.

For transport emissions, the heavy vehicles of a specific type were taken into account:

- Rigid chassis: 7.5-12 t - HD Euro IV (8% share) or V (12% share) - speed 20 km/h - load factor 50%
- Tractor units: 20-28 t HD Euro IV (32% share) or V (48% share) - speed 20 km/h - load factor 50%.

The table below shows estimated air emission for transportation on ERF site.

**Table 8 Summary of air emission from vehicle traffic within the ERF**

Substance	Instantaneous emission [kg/h]	Annual emission [Mg/year]
Carbon monoxide (CO)	0,000618	0,001421
Nitric oxide (NOx)	0,01256	0,02889
Dust (including 100% PM <sub>10</sub> and 49.40% PM <sub>2,5</sub> )	0,000682	0,001595
Sulphur dioxide (SO <sub>2</sub> )	0,000923	0,002148
Aliphatic hydrocarbons (HC al.)	0,0000595	0,000139
Aromatic hydrocarbons (HC ar.)	2,2750E-5	5,32E-5

Comparing the expected emission levels from vehicle traffic, as presented in the above table, with the organized emission levels, it should be noted that unorganized emissions will have a negligible contribution to the total emissions from the ERF.

## Conclusion

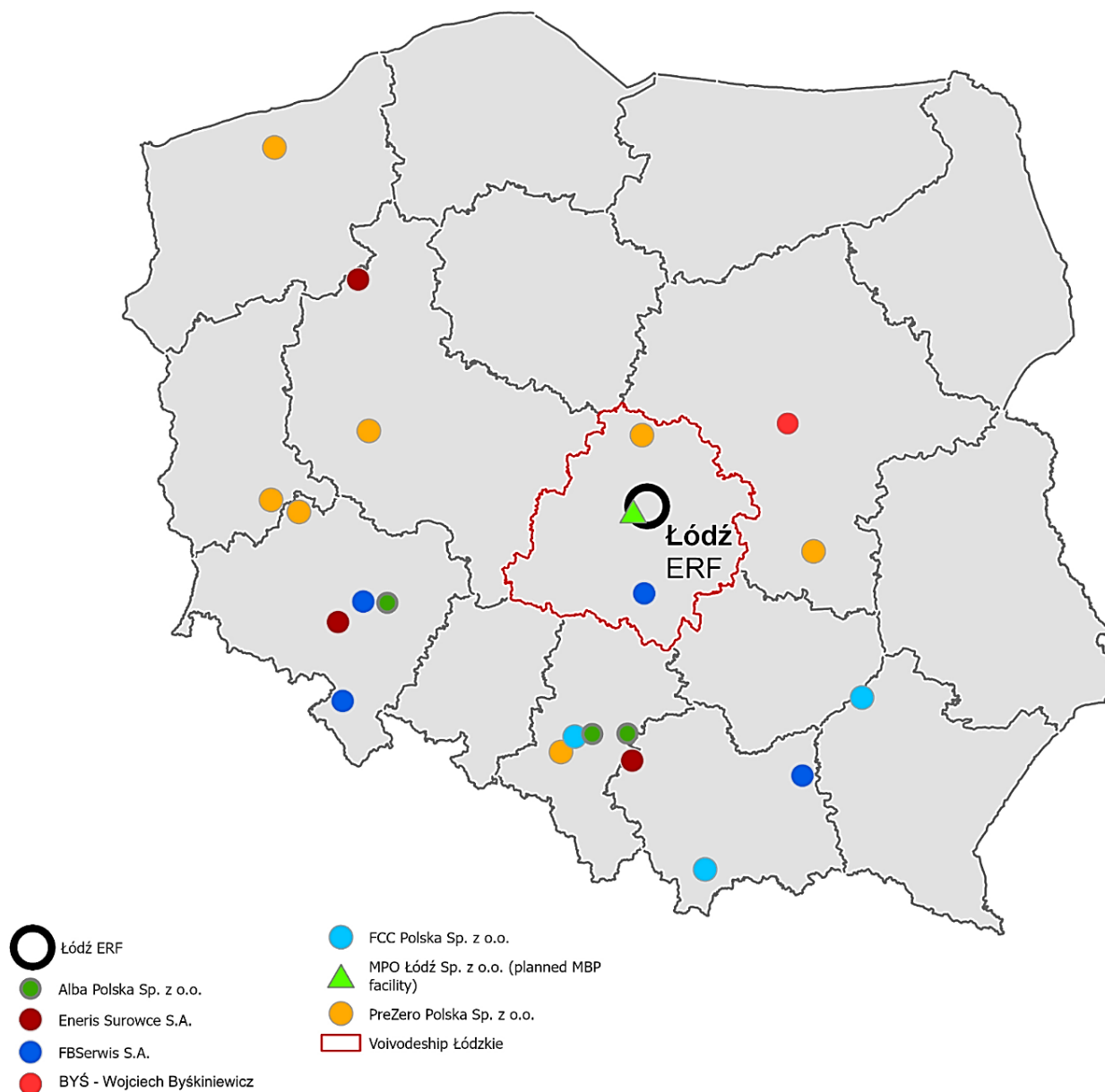
The air pollution from traffic movements on the facility does not cause significant emissions and do not influence significantly the atmospheric air quality. As there is no exceeding on the facility in the modelling (including trucks and industrial sources), it is highly unlikely or even improbable that the emission from only transport will cause exceedances on the street. Worth mentioning that the current air pollution status for the area of Jadzi Andrzejewskiej street is already incorporated into the modelling results. Similarly, to noise emission, it is anticipated that the impact to air emission associated with the increased number of heavy-duty vehicles involved in RDF transport will be negligible.

## 4.4 Key RDF suppliers and permitted facility

The ultimate supplier of the fuel (RDF/SRF) for the facility has not been selected yet. Currently the Investor is conducting market research, considering various supply options, and negotiating terms with short-listed suppliers operating on the Polish market. Veolia has procured an analysis / overview of the selected suppliers' RDF production facilities, their plans to build new facilities or to expand/modernize existing facilities for alternative fuel production. The analysis is based on desktop research and aims to determine the capacity of the short-listed companies to supply RDF to the planned ERF in Łódź. Out of the seven companies only one does not currently operate an MBT facility, i.e. MPO Łódź sp. z o.o. Others are currently operating several installations in Poland. The MBT market (potential suppliers of RDF/DRF to the Investor) is currently very mature in Poland.

In case of MPO Łódź S.A. the company is currently operating in the municipal waste treatment market in Łódź and is planning an expansion of its waste sorting facility through construction of the Łódzkie Recycling Centre, with capacity of treating 180 ktpa and producing RDF/SRF of around 70 ktpa. As stated in the Letter of Intent

with the Investor, the intention of MPO Łódź is to process the RDF/SRF produced in their facility in energy recovery facilities, such as the one planned by Veolia. It is not determined, however, if the MBT will be constructed in order to or with relation to the construction of the ERF in Łódź.



**Figure 10 Location of MBT facilities operated / planned by RDF suppliers short-listed by Veolia**

Source: Arup

To conclude, the market of RDF suppliers is a mature market in Poland. Veolia is in the process of negotiations of terms with several operators of existing facilities or operators of facilities that are planned regardless of the construction of the ERF in Łódź. The SPV have signed letters of intent with several suppliers, while term sheets have been signed with PreZero, Eneris and Byś. At this moment none of the suppliers is being considered as preferred.

#### 4.4.1 Alba Polska

The ALBA Group has been present on the Polish market since 1995. Over the years, it has become the third-largest private company in Poland, offering waste collection services. At present, the ALBA Group operates through twelve companies and their subsidiaries located throughout the country.

ALBA is specialized in providing comprehensive services to businesses. Its services include collection, transport and management of industrial waste, hazardous waste, recyclables, municipal waste and the cleaning of separators and tanks. The company also provides support with advice on waste management methods and comprehensive services including in-house logistics and the takeover of the client's employees or waste-dedicated facilities.

Alba Polska operates three mechanical-biological municipal waste treatment facilities in Chorzów, Dąbrowa Górnicza and Wrocław:

- The MBP facility in Chorzów has all the necessary permits for waste processing, generation and collection. The integrated permit OS-PZ.7222.00007.2016 was issued on 14.03.2016;
- The MBP facility in Dąbrowa Górnicza also holds all necessary permits for waste processing, generation and collection. The Waste Collection Permit was issued under Decision WER.6233.3.1.2015.AW of 30.11.2015. The latest integrated permit 2062/OS/2015 is dated 30.11.2015;
- The MBP facility in Wrocław has all the necessary permits for waste processing, generation and collection. The latest integrated permit WSR-E.6223.3.2018.AG was issued on 27.07.2018, while the current waste processing permit WSR-GO.6233.93.2018.MK was issued on 04.10.2019.

According to BDO, all three facilities have the necessary permits required by law.

#### 4.4.2 ENERIS Surowce

The ENERIS Group comprises three companies: ENERIS Surowce, ENERIS Woda and ENERIS Energia. ENERIS Surowce is one of the largest Polish companies operating in the municipal economy sector. The company provides its services in 100 municipalities in Poland, where it collects more than 400,000 tonnes of waste per year. The annual capacity of the mechanical-biological treatment facilities owned by ENERIS is 322,000 Mg.

ENERIS provides a comprehensive range of waste management services, including collection, transportation and disposal of solid, hazardous and non-hazardous waste. It also offers industrial customers a full range of services, including collection and recycling of raw materials and management of liquid waste. Additionally, it provides specialist cleaning of tanks and separators.

ENERIS Surowce operates three mechanical-biological treatment facilities for municipal waste in Balin, Jarosów and Kłoda:

- The MBP facility in Balin has all the necessary permits for waste processing, generation and collection. The most recent integrated permit SR-III.7222.1.2021.AS was issued on 20.01.2023;
- The MBP facility in Jarosów also has all the necessary permits for waste treatment, generation and collection. The most current integrated permit DOW-S-V.7222.33.2020.AKu (21.5.2023) M was issued on 29.08.2023;
- The MBP facility in Kłoda has a valid integrated permit DSK-IV.7222.25.2022 issued on 15.11.2023. The permit covers the treatment and generation of waste.

According to BDO data, all three installations have the legally required permits.

#### 4.4.3 FBSerwis

FBSerwis S.A. was established in 2012 by Ferrovial Services Ltd and Budimex S.A. The FBSerwis Group, of which FBSerwis S.A. is the principal entity, comprises five companies engaged in waste management (collection, waste management and processing, and maintenance of cleanliness). FBSerwis operates municipal waste treatment facilities in the Łódzkie and Małopolskie Voivodeships, as well as two in the Dolnośląskie Voivodeship. The company also manages three landfills, two in the Dolnośląskie Voivodeship and one in the Łódzkie Voivodeship.

FBSerwis operates four mechanical-biological treatment facilities for municipal waste in Ruszczyn, Ścinawka Dolna, Tarnów and Kryniczno:

- The MBP facility in Ruszczyn has the necessary permits for waste processing and generation. The latest integrated permit ŚRIII.7222.163.2021.KM was issued on 29.12.2023;
- The MBP facility in Ścinawka Dolna has the necessary permits for waste processing and generation. The latest integrated permit DOW-S-V.7222.2.2021.AKu was issued on 08.08.2022;
- The MBP facility in Tarnów has a valid Integrated Permit SR-III.7222.40.2020.MP issued on 24.05.2024. The permit covers the treatment and production of waste;
- The MBP facility in Kryniczno has a valid Integrated Permit DOW-S-V.7222.4.2018.KD issued on 15.11.2023. The permit covers the treatment and generation of waste. A separate permit for waste collection was issued by decision DOS-Z-I.7244.30.2022HP dated 12 July 2023.

According to BDO, all four facilities have the legally required permits.

#### 4.4.4 FCC Polska

FCC Polska has been operating on the Polish market for over 20 years. The company offers a comprehensive range of waste management services, including collection, processing and recycling of municipal, industrial and hazardous waste. Its services are provided to 35 municipalities in 11 locations across Poland.

The FCC has a comprehensive range of waste management facilities, including:

- Three plants for the mechanical-biological treatment of municipal waste;
- Three waste sorting plants;
- Three plants for biodegradable waste;
- Three selective collection points for municipal waste;
- A landfill site for hazardous waste.

FCC Polska manages three installations for the mechanical-biological processing of municipal waste in Zabrze, Nowy Targ and Tarnobrzeg.

- The MBP facility in Zabrze has the necessary permits for waste processing, generation and collection. The most recent integrated permit 1531/OE/2024 was issued on 23.04.2024.
- The MBP facility in Nowy Targ has the necessary permits for waste processing, generation and collection. The most recent integrated permit SR-III.7222.35.2020.MD was issued on 14.02.2024.
- The MBP facility in Tarnobrzeg has a valid integrated permit OS-I.7222.17.12.2023.MD issued on 30.01.2024. The permit covers waste processing, generation and collection.

According to BDO data, all three installations have the legally required permits.

#### 4.4.5 MPO Łódź

MPO-Łódź Sp. z o.o. operates in the city of Łódź. In addition to their core business of waste collection, they are planning to expand its current infrastructure with a new facility for mechanical-biological treatment of municipal waste. MPO-Łódź is a municipal company (100% of the shares in the company are held by the Municipality of Łódź). MPO Łódź has state-of-the-art waste collection equipment, such as vehicles adapted for collecting waste from containers and bins.

The company leases the waste sorting plant from the Łódź City Municipality and manages the gravel dump located next to the sorting plant. Furthermore, the company offers a range of additional services, including vehicle diagnostics, tyre and air conditioning services, locksmith services, and mobile advertising or container sales.

MPO Łódź has the legally required permits for waste processing, generation and collection. The latest decision ŚRIV.7243.158.2021.SS dated 06.07.2022 includes a permit for waste generation, processing and collection

activities. In accordance with the tender information, the construction of the MBP facility is currently at the preliminary market consultation stage for the selection of a construction company for the project.

#### 4.4.6 PreZero Polska

PreZero is a waste management and environmental services company. As a provider of collection, transportation and waste management services, it supports the development of a circular economy. They provide solutions for plastics, compost, glass, asbestos, alternative fuels, hazardous waste and segregated handling. PreZero has a Energy from Waste Plant adapted for the thermal conversion of mixed, non-hazardous municipal waste.

PreZero Polska operates seven installations for the mechanical-biological processing of municipal waste in Krzyżanówek, Radom, Knurów, Kielcz, Piotrów Pierwszy, Mirów and Głogów.

- The MBP facility in Krzyżanówek has the necessary permits for waste processing and generation. The most current integrated permit RŚVI.7222.132.2016.ML was issued on 30.01.2017.
- The MBP facility in Radom has a valid integrated permit PZ-OP-II.7222.53.2021.MS issued on 11.08.2021. The permit covers waste processing and generation. The permit for waste collection was issued under a separate decision PZ-OP-I.7244.97.2020.UR dated 12.10.2021.
- The MBP facility in Knurów has the necessary permits for waste treatment and generation. The most current integrated permit 1549/OE/2022 was issued on 28.04.2022.
- The MBP facility in Kielcz has a valid integrated permit DŚ.II.7222.117.2021 issued on 23.11.2021. The permit covers the processing, generation and collection of waste.
- The MBP facility in Piotrowo Pierwsze has a valid integrated permit DŚ.II.7222.117.2021 issued on 08.04.2019. The permit covers the processing, generation and collection of waste.
- The MBP facility in Mirów has a valid integrated permit WOŚ-II.7222.42.2022.KB issued 04.04.2023. The permit covers waste processing.
- The MBP facility in Głogów has a valid integrated permit PZ 226.4/2020 issued on 20.04.2020. The permit covers waste processing, generation and collection.

According to BDO data, all facilities have the legally required permits.

#### 4.4.7 BYŚ – Wojciech Byśkiniewicz

The company "BYŚ" Wojciech Byśkiniewicz has been operating in the waste collection and management market for over 25 years. They provide a comprehensive waste collection and management service, from the moment waste is collected at the producer's premises to the moment it is subjected to recovery, recycling and disposal processes.

The 'BYŚ' company provides comprehensive services related to grounds maintenance, winter and summer traffic route maintenance, liquid waste disposal and servicing of portable toilets. The company operates a waste processing plant in Warsaw, situated at 249 Wólczyńska St. The plant comprises a number of installations, including an alternative fuel production facility.

BYŚ - Wojciech Byśkiniewicz manages one facility for the mechanical-biological processing of municipal waste in Warsaw.

- The MBP facility in Warsaw has the necessary permits for waste processing, generation and collection. The most current integrated permit DZŚ-III.285.24.2017.DS was issued on 20.03.2017 and includes a permit for waste processing and generation.

According to BDO data, the installation has the legally required permits.



#### 4.4.8 Geminor

Geminor is one of Europe's leading resource management companies established in 2004 and providing waste treatment and logistics services and solutions to the waste and recycling industries. Geminor has treatment facilities and offices in Norway, Sweden, Denmark, Finland, the UK, Germany, Poland, France and Italy, and employs around 140 professionals and experts. Their subsidiaries offer services that include treatment and handling of refuse-derived fuel (RDF), solid recovered fuel (SRF), waste wood, paper, cardboard, plastic, hazardous waste etc.

In total, they handle around 2.4 million tons of waste annually, and have contracts with around 360 waste producers and 260 incineration and recycling plants. Geminor has an annual turnover of more than EUR 240 million. They sort, shred, and bale waste fractions in their processing facilities, or at their customers locations. Then they arrange for efficient transport, storage and recovery.

No information in BDO regarding permits held for treatment, generation or collection of waste.

#### 4.4.9 Veolia Energy Contracting Poland

Veolia Energy Contracting Poland (VECP) is a multi-energy company that was created out of the need to concentrate in one place competences and experience in the field of energy efficiency and transformation, sales of energy, gas and heat, purchase of energy from renewable energy sources and purchase and logistics of fuels (coal and biomass) for companies in the Veolia Group.

It provides services to corporate clients (small and medium-sized enterprises and large corporations) and institutional clients in the following areas:

- Sales of energy and gas;
- Repurchase of energy from renewable energy sources;
- Energy efficiency services;
- Hybrid Energy Systems;
- Connections to the heating network.

The company is active in the energy sector - trading electricity and natural gas, as well as property rights, which are purchased on the Energy Commodity Exchange (the VECP is a direct participant in the exchange) and from Group companies that produce electricity in their own CHP or cogeneration facilities, and then supplied to customers in accordance with contracts. Possibly Veolia Energy Contracting could establish an RDF trading platform and coordinate supplies of RDF to the ERF via the platform.

#### 4.5 Road Safety

A Traffic and Road Safety Impact assessment has been developed 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 Site, as well as transportation of post-processing waste from the ERF for further treatment.

The ultimate RDF supply partners for the Project have not been selected yet, however the Investor is considering a number of potential partners with Mechanical-Biological Treatment (MBT) facilities situated in various locations across Poland. As indicated above, with the current focus on seven market players, transportation of the fuel for the ERF could be expected in one case from within the City of Łódź and several cases from out of Łódź.

All scenarios were covered within 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. The road route from the facility in the city of Łódź (the planned MPO MBT facility) to the ERF was examined in depth as an example of how traffic and road management systems will be approached for future routes within the city.

The analysis included two options, to cover the best possible traffic and road safety evaluation methods of different locations of suppliers:

Option 1 – Supply from MPO Łódź, located at Zamiejska 1 Street, Łódź - considering access options within the city of Łódź;

Option 2 - Other partners across Poland - considering access options from key national roads.

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 road traffic.

The Project definition was extended to include EC4 coal block closure (as associated facility), therefore heavy traffic resulting from EC4 will be included as decreasing the total traffic. Currently there are 19 vehicles operating daily to collect post-processing waste from the EC4. After EC4 closure these vehicles will no longer be operating and can be deducted from the ERF traffic values, resulting in decreasing the traffic impact.

To identify the best routes a quantitative analysis was conducted

Potential risks associated with RDF transportation can impact various aspects and areas. General hazards include:

- **Local Community Impact:** Residents living near routes used by RDF transport vehicles may experience noise, vibrations, and other inconveniences. The impact on the local community's quality of life is an important consideration, hence this report includes consideration of this social impact through sensitivity analysis of specific types of buildings, where highest weights are assigned to educational, scientific and cultural building, sports buildings and hospital buildings and other healthcare buildings.
- **Road Safety:** Accidents related to RDF transportation pose a risk to drivers, pedestrians, and other road users. Adhering to safety measures and proper traffic management is essential, hence this report includes consideration of this social impact through sensitivity analysis of specific types of buildings where high weights are assigned to residential buildings and other non-residential buildings.
- **Environmental Pollution:** RDF transport can lead to emissions of air pollutants such as nitrogen oxides, suspended particles, and other substances. This can negatively affect air quality in the vicinity of transportation routes. However, as indicated in Section Traffic impact, the impact of additional traffic will be negligible (increase of between 1%-16% in total traffic on the intersections of closest streets).
- **Emergency Hazards:** In the event of accidents, breakdowns, or substance leaks related to RDF, there is a risk to human health and the environment. Preparedness plans and response procedures are necessary
- **Road Infrastructure:** Intensive RDF transport can result in wear and tear on road infrastructure, including road surfaces, bridges, and intersections. Additional investments may be needed for maintenance and repairs. However, as indicated in Section Traffic impact, the impact of additional traffic will be negligible.
- To avoid areas of significant risk each building group, within the buffer of 45m for two-lane streets and 23m for one-lane street, had assigned a weight based on its sensitivity to heavy vehicle transport. The higher the weight, the more risk is associated in terms of social impact. The weighting applied on building types is a reflection of social risk associated with transportation of RDF across urbanized areas.
- These were applied to verify the two options:

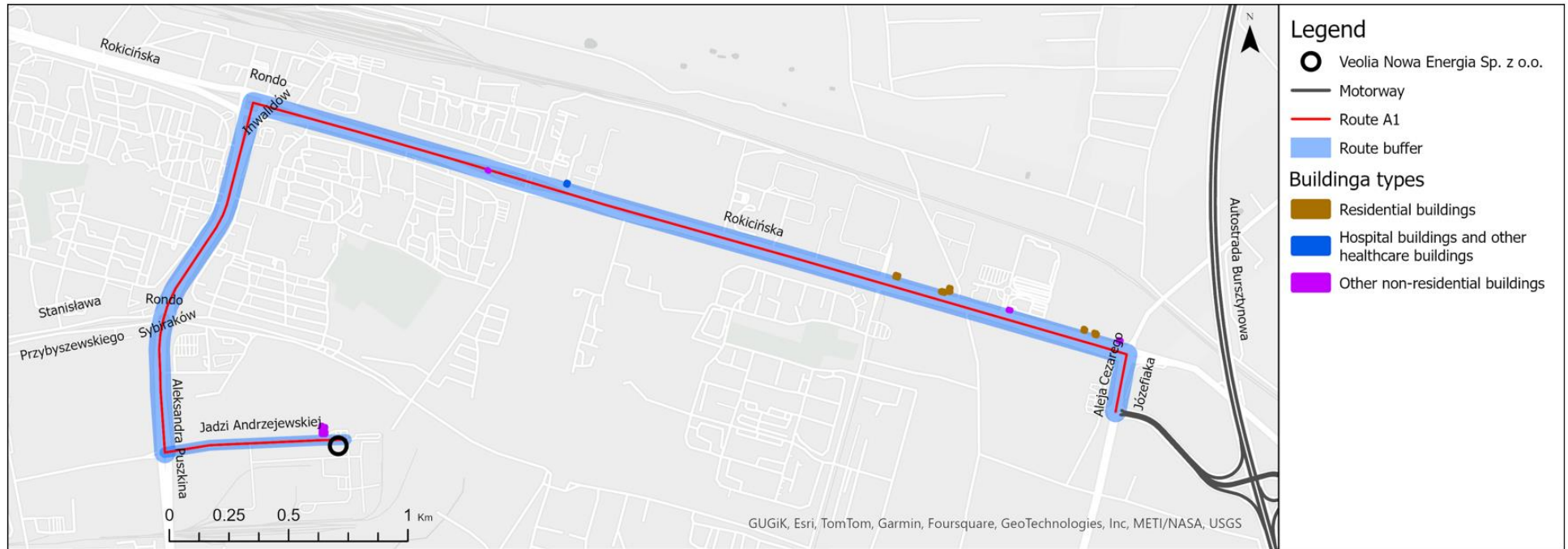
Figure 11 Transport routes analysis for inner-city transport

Option 1 – RDF supplier – MPO Łódź  
Routes overview



Figure 12 Transport routes analysis for out of the City transport

Option 2 – RDF supplier – Other partners throughout Poland  
Route - overview



- The analysis of sensitive objects along the transportation routes indicates that within Option 1 Route A is the optimal (causing least social impact) considering the lowest final score and will be recommended for the transportation of RDF from the MPO Łódź to the ERF Site.
- For all transportation routes from beyond the City of Łódź (Option 2) the A1 motorway was selected as the most efficient access for RDF transportation to the Site.
- For the specific origin-destination pair analyzed, i.e. MPO Łódź (Zamiejska 1 Str, Łódź) to Veolia ERF Łódź (J. Andrzejewskiej 5 Str., Łódź) transport shall be carried out mainly along Route A, with Route C serving as an alternative (in the event of traffic disruptions, temporary closures or detours).
- The specific future route selection process, when considering traffic and road safety for the ultimate RDF supplier to the ERF, as well as transportation of post-processing waste from the ERF for further treatment.

## 5. Environmental and Social Management System

The Veolia Poland Group has established a robust Integrated Management System that outlines its policies, practices, and procedures. The policy of the Integrated Management System underscores the implementation of the Group's business objectives in Poland in alignment with the Code of Ethics and values of the Veolia Group. This implementation is carried out in accordance with the Policies and guidelines of the Veolia Group, which are based on the principles of Compliance, Sustainable Development Goals, and the Diversity Charter.

The foundation for constructing the Integrated Management System is rooted in the Veolia's Integrated Management System Policy, which defines the objectives regarding the direction of development and improvement of the system, i.e.:

- process maintenance and optimization,
- minimizing the customer's risk in terms of customer service,
- systematic improvement of the quality of multi-technical services for buildings,
- continuous optimization and expansion of the scope of services provided,
- limiting the load of emitted pollutants,
- systematic monitoring, assessment and planning of improvement of occupational health and safety at individual workplaces,
- successive efforts to minimize the number of failures and accidents.

The Integrated Management System in the Veolia Group in Poland meets the requirements of the following standards dedicated to generation, transmission, distribution and sale of heat and electricity, i.e.:

- 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).

Moreover, Veolia decided to introduce BREEAM International New Construction 2016 on level Very Good an environmental performance standard for use in assessing new buildings.

When it comes to the ESG Strategy of the Veolia Group, it has launched a Strategic Impact Plan 2023, in the year 2020, where environmental, social and governance (ESG) criteria central to the Group's operations through multifaceted performance were specified. It's been treated as a tool for steering and transforming the Group not just reporting itself.

In 2023, the Veolia Polska Group launched a project called "ESG Reporting", which aims to prepare the Group to meet the requirements of the Corporate Sustainability Reporting Directive. This Directive obliges companies to detailed non-financial reporting, which will soon become a mandatory part of component of the financial statements subject to audit by a certified auditor.

Reporting will cover issues related to the following areas:

**Environment:** with environmental management and risk mitigation in the field of climate change, waste and emissions, impact on biodiversity, resource consumption, supply chains and implementation of circular economy principles.

**Social,** e.g. activities for employee development and involvement, equality and diversity, human rights, employee health and safety, supporting employee volunteering and social involvement, employees in the value chain, impact on the environment and on consumers and end users.

**Governance,** i.e. corporate governance, management structures, principles of ethics and anti-corruption, risk management system, including ESG risk, self-regulation in the field of compliance with the law and good market practices, and supply chain management.

The new regulations will formally apply to the Veolia Polska Group in 2026 for the 2025 reporting year, but due to the obligations towards its own shareholders and the expectations of business partners, it is considered necessary to provide access to all required information and indicators as soon as possible.

As a company operating in the energy sector, the Client perfectly understands the importance of activities for sustainable development and undertakes numerous initiatives in this area, also of a strategic and transformational nature, including key decarbonization projects. ESG reporting is therefore treated in the Client's structures as an obligation, but also an opportunity to show its achievements based on reliable indicators, which is the basis for running a responsible business and building a lasting competitive advantage.

With reference to EBRD requirements and the Client's assurances comprehensive environmental management systems and ESG policies implemented by Veolia Group and discussed above shall be adequately adopted by Veolia Nowa Energia, a special purpose company (SPV), which was established for the purpose of the ERF Project implementation. Moreover, the General Contractor, which consists of the Consortium of Doosan Enerbility Co., LTD and Doosan Lentjes GMBH, is obliged to do the same (the Contract was signed on April 17, 2023).

According to the Contract between the SPV and the General Contractor, Contractor is obliged to introduce Quality Control and Assurance Programme in order to recognise and comply with the Project technical and quality requirements. Procedures for tests and measurements shall constitute an element of the programme, which shall be based on ISO9001 norm.

By the time this Supplementary Report was prepared, the General Contractor provided the SPV with a detailed framework document Project Management Plan PL-CI-S90-XXX-XX-DEN-ABG-101, which is required by the Contract. This Plan serves as a comprehensive guide to managing the Project effectively, ensuring that all team members understand their roles and responsibilities, and that there is a clear structure for communication and documentation.

The General Contractor's Project Management Plan regulates several key aspects of the Project:

- it defines the Contractor's Scope of Work, specifying the tasks and responsibilities assigned to the Contractor,
- it presents the structure of the Consortium, integrating all parties involved,
- it provides details on the Site Organization, referencing the Consortium's integrated structure and elaborating on site-specific organizational details in subsequent Project phases,
- it outlines the general responsibilities of the Project team,
- it identifies the roles of the Site Director, Site Manager, and various Construction Managers (Mechanical, Electrical, Civil & Building),
- it includes the roles of the Control Manager, Administration Manager, Quality Assurance & Control Manager, and EHS (Environmental, Health, and Safety) Manager.

The Contract regulate the General Contractor's performance guarantees and the damages that will apply for failure to achieve the guarantees. The General Contractor is obliged to provide the technology in accordance with BAT Requirements, IED Directive and all applicable law requirements based on issued Environmental Decision. Moreover, the Contractor shall take all necessary steps to protect the environment (both on and off the Project site), 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 CEMP - construction environmental management plan to comply with the requirements of the EIA, the ED and Building Permits.

The Contractor's Construction Environmental and Social Management Plan (CESMP) will be compliant with Veolia's Environmental and Social Management System (ESMS), based on the contractual requirements. This means that the CESMP will adhere to the guidelines, standards, and protocols established by Veolia's ESMS to ensure that all environmental and social impacts during construction are managed effectively. The SPV is

already developing the ESMS for the projects and this will be covenanted in the ESAP. It is assumed that the SPV will develop these documents based on clear and transparent procedures used by Veolia Group.

Thus, the development of below mentioned Project-specific EHSS Management Plans for both construction and operation phases by the SPV is pending:

- 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.

The General Contractor – Doosan – will prepare a Construction Environmental and Social Management Plans (CESMP) before commencing the Project construction phase to outline all relevant requirements and responsibilities including the requirements from the SPV’s ESMP aligning with EIA Report, ED, national legislation, EBRD PRs, BREEAM’s and good international practice. The Contractor will, in turn, use this framework to develop Project-specific Construction E&S Management Plans before initiating construction. Plans shall be approved by the SPV and Lenders Advisors prior to commencement of construction works and regularly revised by the General Contractor to reflect ongoing course of works.

The SPV and the General Contractor shall ensure that relevant biodiversity mitigation and compensation measures are included in the Construction and Operation ESMP. Thus, the CESMP will be ready before starting even the field preparatory works of the Project (e.g. cutting trees and bushes). Construction and Operation ESMP will provide an adequate mitigation and compensation monitoring plans to check the effectiveness of implemented actions. This will ensure the possibility to react quickly if any corrective / replacement actions are needed.

### 5.1 Monitoring and reporting of E&S issues

Monitoring requirements were imposed on the Investor in the Building Permit in accordance with the provisions of the Regional Directorate for Environmental Protection. The scope and time frames for individual environmental components were indicated and are presented in the table below. The need for a post-implementation analysis was stated (post-implementation analysis shall be carried out after a year of normal operation; the results shall be submitted to the competent authorities within 6 months of the analyses). It must be conducted in order enable mitigating actions to be put in place if unexpected impacts are found and to verify the actual impact of the Project on air quality, acoustic climate (noise emission measurements shall be carried out with special consideration of allotment garden areas), the condition of the soil and water environment, water and wastewater management, and waste management.

**Table 9 Summary of monitoring requirements**

Parameter	Monitoring requirements
<b>Air</b>	<ul style="list-style-type: none"> <li>• ERF shall be equipped with <b>continuous measurement</b> of flue gas emissions so as not to exceed permissible levels. The measured substances: total dust, nitrogen compounds, carbon monoxide, hydrochloric acid; hydrofluoric acid; organic substances in the form of gases and vapours expressed as total organic carbon; particulate matter at the outlet of the bottom ash valorisation emitter; mercury, oxygen, flue gas flow velocity or dynamic pressure of flue gases, temperature of flue gases at the measuring cross-section, static pressure of flue gases, humidity coefficient.</li> <li>• Monitoring will be conducted based on continuous and periodic measurements of emission quantities and required parameters of the combustion process. Regular monitoring of the technical condition of equipment and its proper maintenance will also be conducted. The results of these measurements will be reported to the relevant environmental protection authorities (Mayor of City, the Voivodeship Inspector of Environmental Protection). Additionally, information about the types and quantities of</li> </ul>



Parameter	Monitoring requirements
	<p>pollutants released into the air will be submitted annually to the appropriate authorities as part of the reporting related to the calculation of fees for environmental use and in the form of <b>annual reports</b> to the Chief Inspectorate of Environmental Protection (KOBIZE).</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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 <b>at least once every 6 months</b>.</li> <li>• The installation will also be equipped with a <b>continuous monitoring and automatic control system</b> configured to detect emergency situations.</li> <li>• After a period of <b>12 months of use of the installation</b>, control air emission measurements will be performed, which will be part of the post-implementation analysis required in accordance with the Environmental Decision.</li> </ul>
<b>Water and wastewater</b>	<ul style="list-style-type: none"> <li>• The installation will be equipped with <b>automatic monitoring</b> of treated technological wastewater at the point of discharge into the municipal sewer system.</li> <li>• Underground monitoring for the duration of the project and for a <b>minimum of 5 years</b> after commissioning will be ensured.</li> </ul>
<b>Waste</b>	<ul style="list-style-type: none"> <li>• Monitoring of site impacts related with transportation of construction materials and waste.</li> <li>• According to the Construction Permit, as part of the post-implementation analysis after the first twelve months of operation the operator will be obliged to perform a post-execution analysis for the project, including monitoring of waste generated.</li> <li>• In accordance with the BREEAM 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. For this purpose, General Contractor is obliged to prepare a Site Waste Management Plan (SWMP) containing, among others, provisions confirming the amount of waste generated and comparing the amount of waste generated with the assumed goals. SWMP also covers waste selection into individual waste groups with assigned waste code in accordance with the regulation and the amount and proportion of waste that will be reused, recycled or sent directly to the landfill.</li> <li>• After a period of <b>12 months of use of the installation</b>, control waste measurements will be performed, which will be part of the post-implementation analysis required in accordance with the Environmental Decision. In this scope, 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.</li> </ul>
<b>Noise</b>	<ul style="list-style-type: none"> <li>• Noise levels will be measured within <b>3 months of commissioning the installation</b>. The Investor will submit the results of these measurements to the relevant environmental protection authority.</li> <li>• After a period of <b>12 months of use of the installation</b>, control noise measurements will be performed, which will be part of the post-implementation analysis required in accordance with the Environmental Decision.</li> </ul>
<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>• Reporting and monitoring of all environmental protection activities.</li> </ul>
<b>Resources efficiency and Utility consumption</b>	<ul style="list-style-type: none"> <li>• Monitor media consumption, measure elements related to media flow.</li> <li>• Monitoring of site impacts related with transportation of construction materials and waste.</li> <li>• 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.</li> </ul>

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

Moreover, the integrated permit must be in place when the plant starts to be operated. The integrated permit specifies, among others: emission limit values, requirements ensuring environmental protection, e.g. requirements regarding emission monitoring mechanisms, requirements for regular maintenance and supervision of emission prevention measures taken. The Environmental Protection Inspectorate supervises the compliance with the guidelines included in integrated permits. In addition, the integrated permit shall specify the degree of compliance with the requirements of the conclusions of the Best Available Techniques (BAT), and the Authority responsible for issuing the permit verifies compliance with BAT conditions.

It should be noted here, that the Project was prepared by Veolia Nowa Energia in accordance with 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. Compliance with BAT requirements has been verified in the EIA report by the relevant authority and the technical due diligence. The authors of the Report analysed compliance of technologies proposed for the planned Project with current BAT. 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.

## 6. Legal standing of the Environmental Decision and administrative process

A detailed national environmental impact assessment (EIA) and re-evaluation of EIA has been prepared by the Investor Authority in 2010 and 2020/2021 respectively. On 28<sup>th</sup> June 2010 Environmental Decision (ED) was issued by the Mayor of the City of Łódź (ref. no. OŚR.III.7626/25/10) 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<sup>th</sup> July 2021 (ref. no. WOOŚ.4222.7.2020.DKr.13) based on the EIRA Report from 2020/2021.

Re-evaluation of the environmental impact carried out in 2020/21 resulted in issuing a Building permit and its amendment (Decision of Building Permit of Mayor of the City of Łódź, 15<sup>th</sup> November, 2021, ref. no. DPRG-UA-1.2914.2021 preceded by obtaining Agreement of Environmental Conditions of Regional Directorate for Environmental Protection in Łódź, 27<sup>th</sup> August, 2021, ref. no. WOOŚ.4222.7.2020.DKr.13, Decision of Amended Building Permit of Mayor of the City of Łódź, 11<sup>th</sup> November, 2023, ref. no. DPRG-UA-1.2175.2023).

As a result of changes in legal regulations 'validity' period of the environmental decisions has been extended twice:

- First “extension decision” was issued on 25<sup>th</sup> August 2014 by the Mayor of Łódź (ref. no.: DSS-OŚR-II.6220.122.2014) and extended the usability term until 8<sup>th</sup> November 2016;
- Second “extension decision” was issued on 20<sup>th</sup> June 2016 by the Mayor of Łódź (ref. no.: DSS-OŚR-II.6220.100.2016) and extended the usability term until 8<sup>th</sup> November 2020.

It should be noted that administrative-procedural proceedings regarding the refusal to initiate proceedings to annul the second extension have been carried out. It was initiated by the complaint of one of the NGOs, Society for the Earth, the decision of the Local Government Appeal Board in Łódź of 4<sup>th</sup> May 2022, which upheld the decision of this authority of 7<sup>th</sup> April 2022 refusing to initiate proceedings to declare the invalidity of the second extension decision. The provincial administrative court in Łódź revoked both decisions of the Local Government Appeal Board in Łódź in a verdict of 22<sup>nd</sup> September 2022.

On 6<sup>th</sup> March 2023, the Society for the Earth filed a cassation complaint in response to the verdict maintaining in force the decision (issued by The Provincial Administrative Court in Łódź on January 17, 2023) approving the construction project and granting a building permit issued by the Mayor of the City of Łódź on November 15, 2021, ref. no. DPRG-UA-1.2914.2021, sign: DPRG-UA-1.6740.22.2020, which was issued after appeals by the Society for the Earth and Sustainable Development Center. Both NGOs raised in their complaint the allegation that the investor did not submit a valid environmental decision, as the submitted decision expired in 2014, and the required decision determining the location of the investment for public purposes.

Furthermore, the appeal raised the objection to the issuance of the building permit based on flawed determinations. The appeal process may result in the annulment of the decision in question, which poses a risk of repeating the entire administrative process. The legal consequences for the project have been outlined in the legal due diligence. The proceedings are still ongoing. The Investor is awaiting the final verdict in this matter and provided information that the process is to be resolved soon.

## A.1 List of Documentation Submitted for Review

No.	File name
1	Analysis of measurements of actual traffic intensity, Eutra, Krzysztof Rosiek, 2020.
2	Contract Agreement for “Construction of the Energy Recovery Facility in CHP Plant No. 4 Veolia Energia Łódź” by and between Employer Veolia Nowa Energia Sp. z o.o. and Consortium of: Doosan Enerbility Co., LTD. And Doosan Lentjes GMBH dated 17 <sup>th</sup> April 2023, Warsaw, Poland with appendices
3	Decision of Amended Building Permit of Mayor of the City of Łódź, 11 <sup>th</sup> November 2023, ref. no. DPRG-UA-1.2175.2023
4	Decision of Building Permit of Mayor of the City of Łódź, 15 <sup>th</sup> November 2021, ref. no. DPRG-UA-1.2914.2021
5	Documentation of the proceedings in the appeal procedure of the Environmental Decision of Local Government Appeal Board and Voivodship Administrative Court
6	Environmental Decision of Mayor of the City of Łódź, 28 <sup>th</sup> June 2010, ref. no. OŚR.III.7626/25/10
7	Environmental Impact Assessment Report, Socotec Polska sp. z o.o., 12 <sup>th</sup> March, 2010 with attachments
8	Environmental Impact Reassessment Report, ILF Consulting Engineers Polska sp. z o.o., 10 <sup>th</sup> September 2020 with attachments
9	First decision to extend the validity of the Environmental Decision of Mayor of the City of Łódź, 25 <sup>th</sup> August 2014, ref. no. DSS-OŚR.II.6220.122.2014
10	Guidelines for waste control prior to demolition and renovation of buildings. Construction and demolition waste management in the EU, European Commission, May 2018
11	Second decision to extend the validity of the Environmental Decision of Mayor of the City of Łódź, 20 <sup>th</sup> June 2016, ref. no. DSS-OŚR.II.6220.100.2016