Volta Energy
Solutions Hungary

Non-Technical Summary

Volta Energy Solutions Hungary Kft.

Non-Technical Summary

This Non-Technical Summary (NTS) provides an overview of the environmental and social issues, benefits and adverse impacts associated with Volta Energy Solutions Hungary's copper foil manufacturing capacity expansion Project.

This NTS summarizes the planned project and Impact Assessment undertaken in line with best practice and national legislation.

Contact details at Volta Energy Solutions for this project are:

Name of the person and title	Contact Information
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Volta Energy Solution Hungary new plant is strategically located in Central Europe, because Hungary, in line with EU mobility and transport policy[1], embarked on promoting clean transport and supporting electric vehicles production and development of the supporting infrastructure. In the East of the country BMW is building an electric car manufacturing plant in Debrecen[2]; Mercedes-Benz Hungary is planning to start purely electric vehicle production in its Kecskemet plant in Q4 2021[3]. Audi Hungary is preparing to produce electric drives in Gyor[4]. Samsung Hungary supplies battery cells for BMW and Volkswagen, among others from its manufacturing site in God, which is being expanded from 30 GWh production capacity to 40 GWh[5]. SK Hungary supplies battery cells for BMW and Volkswagen, among others from its manufacturing site in Komárom, which is being expanded from 7.5 GWh production capacity to 10 GWh and a new plant is being built in Iváncsa[6]. In 2022 LG Chem Poland is expanding its EV battery plant to 70 GWh in Wroclaw[7].

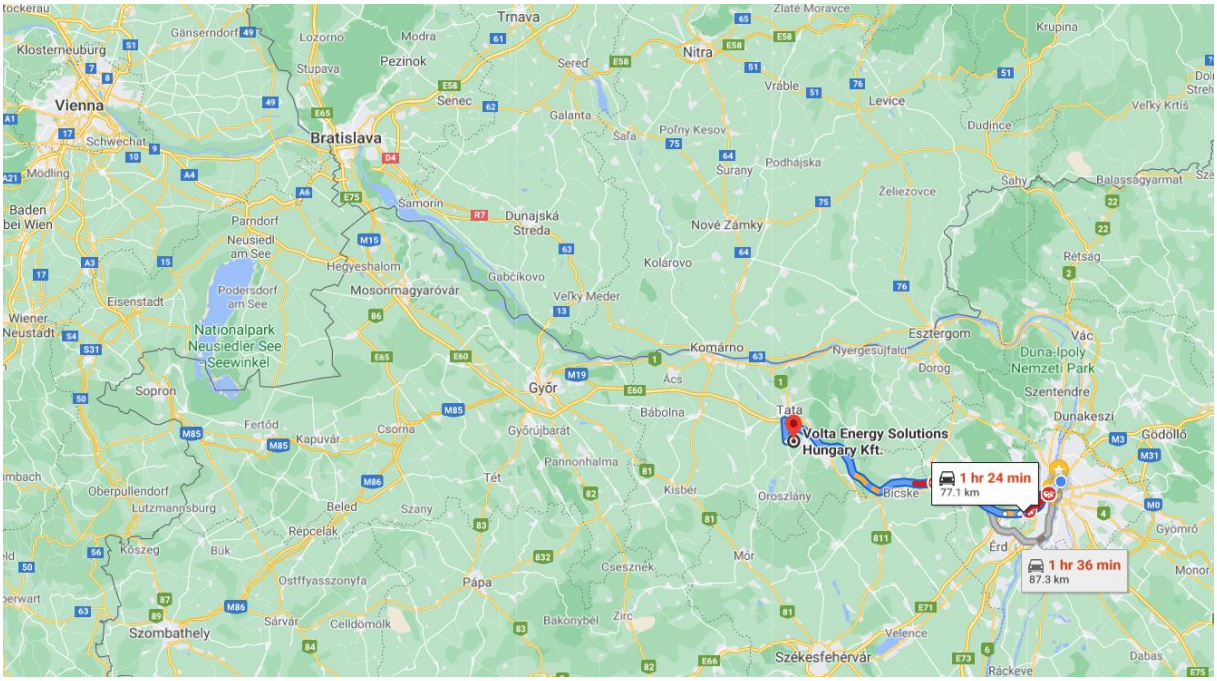
The EU target is to increase the present 1.4 million electric car fleet to 30 million by 2030[8], encouraged by a series of policy measures[9].

1 Project Description.

Volta Energy Solutions, the Hungarian subsidiary of the South Korean Solus Advanced Materials(Solus), began to obtain authorisation for the planned activity in 2018. Solus is specialising in the production of electronic materials and components, whose member companies operate in several sectors worldwide.

[1] Electric vehicles | Mobility and Transport (europa.eu)
[2] BMW to manufacture electric cars in Debrecen - autopro.hu
[3] Production of a purely electric vehicle starts at Mercedes-Benz's Kecskemét plant
[4] Audi plant in Győr prepares for e-drives for PPE electric cars - MagCars
[5] Samsung SDI expands battery production in Hungary - electrive.com
[6] SK Innovation To Build Third EV Battery Plant In Hungary (insideevs.com)
[7] EV battery gigafactory in Poland granted €250m - Energy Live News
[8] EU Aims to Have 30 Million Electric Cars on the Road by 2030 - Bloomberg
[9] Road transport: Reducing CO2 emissions from vehicles | Climate Action (europa.eu)

The project site is located in Tatabanya Industrial Park, 70 km West of Budapest (2851 Környe, Han Folyó u. 1.), where a 15,000 ton/y copper foil production facility, the so-called Phase 1, was built in 2019-2020 and commissioned in July 2021.



The preliminary environmental examination procedures were carried out by the Government Office of Komárom-Esztergom. The details of the decisions closing the preliminary examination procedure are given in the table below:

Approval Number	Activity	Capacity
4599-18/2018.	Metals and plastics with electrolytic or chemical processes surface treatment plant	100-200 million m^2/year
KE-06/KTO/00828-18/2020.	Scrap (including car wrecks) collection, pre-treatment and recovery plant	31 t/day or 11,000 t/year

Copper foil is produced from non-hazardous metal copper waste; therefore, it is classified as waste recovery. The collection and recovery of non-hazardous metal copper waste is currently carried out on the site in accordance with the waste management permit KE-06/KTO/00755-11/2020, as amended in 2020.

The copper foil is produced by an electrolytic process, but no surface treatment is used, only the film form is developed by facilitating and separating of copper. The surface treatment of the manufactured film, the so-called chromate conversion coating (CCC) is carried out in smaller units placed above the tanks by continuous immersion. The total size of the chromate coating units, i.e. the volume of all treatment tanks is less than 30 m^3 (100 litres per unit, i.e. 8,000 litres for 80 treatment units). Chromate coating in the dilute chromium-acid bath is also an electrically supported process.

In parallel with the Phase 1 test trial, the company initiated the Phase 2 approval process:

Activity	Capacity of Phase 1+2	Increase
Metals and plastics with electrolytic or chemical processes surface treatment plant	225 – 450 million m^2/year	+227 %
Scrap (including car wrecks) collection, pre-treatment and recovery plant	72 t/day*, 25 000 t/year	+227 %

*The amount of waste collected shall not exceed 150 t/day, but the amount of waste recovered shall not exceed 72 t/day.

Construction of the building for the production hall and the additional service infrastructure started already in the autumn of 2020. The preliminary environmental investigation concluded that the extension of the envisaged copper foil production plant and the eventual abandonment of production do not have significant environmental effects. On the basis of a more detailed assessment appropriate to each environmental element and their systems, the effects can be assessed as follows:

Impact to Media	Installation (construction)	Implementation (operation)
Landscape	Acceptable	acceptable
Wildlife	Acceptable	acceptable
Soil	Negative	acceptable
Groundwater	Neutral	neutral
Surface water	Neutral	acceptable
Air quality	Negative	acceptable
Noise, vibration	Acceptable	acceptable
Built environment	Acceptable	acceptable

In terms of cumulative impact, the effects of additional plants operating mainly in the Industrial Park area (Henkel glue factory, Bridgestone tyre factory), as well as other plant installations, should be considered. This will increase freight traffic on neighbouring roads in the longer term, increase utilisation of utility services and other resources, and increase emissions to environmental compartments, depending on technology.

2 Background

Solus acquired its first European production plant by purchasing Circuit Foil Luxembourg (CFL) in 2014. For decades, CFL has played a leading role in the production and sale of copper foil for circuits. The operation of the LiB film production lines at the Luxembourg plant served as a direct sample for the design and assessment of the operational characteristics of the plant in Hungary, where the plant:

(a) intends to produce general-purpose copper foil of 6 to 8 micrometres thickness to be used in **lithium-ion batteries** (LiB);

(b) has a captive market:

- major automotive investments are being made in order to increase electrical mobility worldwide, including major developments in the European Union and Hungary from which Volta Energy Solutions Hungary has an order;
- during the trial period a customer audit was carried out which resulted in excellent results;
-

(c) meets the technical requirements and standards applicable to its intended purpose:

- no legal requirements, Hungarian or international standards have been established for copper foil. The technical requirements for the purpose of the manufactured copper foil are set out in the product specifications. The product definition consists of 3 different types of specifications:

  (1) product specification: film roll width, length and associated weight;

  (2) quality requirements: the final quality standards of the film are hardness, holes, joints, etc.;

  (3) packaging provisions.

In all cases, the quality control checks shall be carried out on the basis of laboratory and administrative control plans. The controlled rolls of packed products prepared for transport are labelled with a unique identification label for unambiguous identification and traceability.

Copper foil, as an automotive supplier product, should be produced according to the quality management system set by industry supplier standards. The IATF 16949 system clarifies the requirements of ISO 9001 for automotive production. With the technical specification IATF 16949, a single standard has been developed that sets uniform requirements for quality management systems operated by car industry actors worldwide. All manufacturers accept the IATF 16949 certification, which can be applied throughout the supply chain in the production of Sera, parts, car production, services such as heat treatment, painting, galvanisation or other surface treatments.

(d) its use does not have an overall adverse effect on the environment or human health:

- copper foil in form of film is in elemental metal condition, which is not known to be harmful to human health. During passivation, the layer of chromium formed on the film is present in reduced form (Cr (III) oxide), which is a stable form of metal. Copper foil is used only for the construction of battery for electric cars, its physical properties are adapted to this purpose by the additives added to the production process. At the end of the battery life, the extracted copper can be used as an additional raw material.
- The preliminary environmental study found that, in the case of cumulative environmental impact caused by emission after the capacity increasing investment in the Industrial Park would have to take into account the emissions from existing plants as a base load. Accordingly, the load will be reduced over time. At present it has not reached the critical value, the emission limit values can be maintained well. In case of operating noise, the calculation of the emission also takes into account the emissions from the neighbouring Bridgestone plant.
- Based on the location of the site and preliminary model calculations, no transboundary environmental effects are expected.

3 Process

On the increase of the capacity of the site (Phase 2) preliminary examination procedures were carried out by the Komárom-Esztergom County Government Office. The Environmental Protection Authority has not classified the site or project as an activity subject to the EIA obligation according to the Hungarian Government Order 314/2005. (XII. 25.) on Environmental Impact Assessment. They declared that the preliminary examination has been carried out in all respects in accordance with the relevant Hungarian legislation. Environmental Impact Assessment has not been carried out according to the authority's decision, so the mandatory public consultation and publication and objection management have not been carried out.

4 Environmental Benefits, Adverse Impacts and Mitigation Measures

Land use planning

The site is located in the Környe Extension area of the Tatabanya Industrial Park, north-west of Környe and west of Tatabanya. Site preparation and rough landscaping were carried out by IPH Ltd. The CÉH Design was commissioned to design the production plant, who engaged subcontractors for the preparation of specific technical plans (e.g. fine landscaping) of Phase 2. Major landscaping works were no longer needed to be carried out for the investment because these were carried out in connection of Phase 1.

Water resources, impacts and management measures

The site has separate (1) drinking water, (2) purified process water and (3) cooling water systems. Multi-purpose water use is carried out only on a drinking water basis.

The water demand of the site will be met regardless of the purpose of use on the basis of the quota purchased according to a non-public public service contract concluded with the North-Transdanubia Waterworks Plc.

The production of purified technological water is carried out in the plant's own system. Technological water treatment is aimed at producing clean water for use in production.

Wastewaters leave the area at the connection point to the public sewer network, which is the recipient of the onsite integrated sewage streams. A 500 m long gravity channel (NA300/KGPVC) was built along to the road next to the site, and an about 650 metres (D225/PE) pressurised pipe system is connecting the sewage along Buda Road into the main sewage pipe at Búzavirág Road. In this respect, the company has a declaration of acceptance from the North-Transdanubia Waterworks Plc, which is up to the level of the quota purchased under the public service contract. Gravity and pressure channels are used together to develop the Industrial Park, i.e. Volta Energy Solutions Hungary Ltd does not own or operate it.

There is no on the site treatment of communal wastewater, precipitation and the not contaminated waters used in the cooling system and reverse osmosis water treatment system. Waste water pre-treatment is carried out only in the case of technological waste water for which has been authorised to operate in accordance with permit 35800/5162-11/2020 issued by the Department of Disaster Management of Gyor-Moson-Sopron County. The site's waste water pre-treatment facility has chemical and mechanical waste water treatment technology for two types of technological waste water, copper and chromium with pH adjustment. The pre-treatment operation parameters are set for automatic operation, based on the appropriate level of instrumentation.

Habitats, ecology (flora and fauna) and nature conservation, impact and management measures

The area is part of Bársonyos micro region. It is located on the Northern outskirts of the village of Környe, West of Tatabanya-suburb. The natural cover of the micro region is no longer found in the area; it is replaced by large cultivated fields and industrial facilities, as well as built up areas of the municipalities.

The area and its environment are populated by arthropods in the largest number of species and individuals. No detailed examination has been carried out for groups of other animals (invertebrates), as protected species are unlikely to occur in the area, which is not affected by any natural habitat.

The bird world is spectacular and well-studied in the area. Most detected bird species fly over the area and do not land on the area. Highly protected species of birds do not nest in the area

and in its surroundings. There is no coastal wall suitable for nesting of bee-eater or sand martin in or near any area. For birds of prey, there is no suitable nesting area or larger grassland for feeding in the area. A strong limiting factor for large bird species is the system of middle and high voltage electrical air lines which often cover the landscape (a transformer station is located 400 m from the investment area). The bird population of the area and its environment is composed of common species related to agriculture and the human environment. Rare, interesting or highly protected species have not been observed and are unlikely to be permanently present or nesting due to dense transport and urban environment.

Mammal species were not detected in the area of the property under investigation. The establishment, reproduction or regular occurrence of protected mammal species or specially protected by disturbance of the surrounding landscape (transport) is not likely to occur in the area. Rodents can live on the ground (mainly field mouse), which can provide feeding for predator birds and mammal species day and night.

Landscape and visual impacts, impacts and management measures

The micro region, including the surrounding area of the examined settlement, is a slightly hilly area cut apart by valleys. Its main surface forms are valleys and hills at different stages of erosion development.

The area is relatively poor in surface waters, two major surface watercourses are worth mentioning: the Által Creek East of the site and the Naszályi-Grébicsi Stream on the West. Both watercourses lead to the Danube. It is also necessary to mention the Patári Stream, which flows 650 m South of the site and transmits the periodical waters into the Által Creek and the Szentgyörgy Creek, which borders the industrial park on the North. There is no natural or artificial water pond within a 1 km radius of the area.

The landscape of the area is dominated by the impact of human activity: the investment site itself is among large fields of arable land and a forest patch of invasive Acacia trees. Large agricultural fields are on the North and East, while industrial areas define the landscape in the South and West. According to the http://erdoterkep.nebih.gov.hu/ database there is no forest in the area.

Air quality, impacts and management measures

The site obtained for Phase 1 an air emission permit, KE-06/KTO/306-2/2019, which states that adequate air emission control system is installed on low-altitude point sources of the cleaning unit in production hall for which the emission limit values set out in the permit must be complied with: point sources P2 - P9.

The point sources are related to the three hot water boilers (P2-4) and the five stacks of the production technology (P5-P9). There are no ESPs connected to the boilers and the technological point sources are equipped with wet scrubbers.

The plant has three standby aggregators (P10-12) which are tested once a year.

The plant extension will result in 3.75 times increase in emissions.

Effects of Phase 2 development

The Phase 2 plant will be equipped with three more aggregators (P13-15) and three more natural gas boilers (one of them will be also prepared for emergency operation of oil) (P16-P18). Only combustion components specific to the use of natural gas are released within the limit regulated by the Government Decree No 53/2017 (X.18.) on operating conditions and emission limit values for combustion plants with a total rated thermal input of 140 kWth or more but less than 50 MWth.

Sulphuric acid, copper and chromium are emitted from process point sources (P19-25) with a measuring frequency of 3 years for sulphuric acid and copper, while chromium emission measurements shall be repeated annually.

Traffic, noise and vibration; impacts and management measures

In the present state, Bridgestone Tatabanya Ltd. and AGC Glass Hungary Ltd. are the most prominent sources of noise in the area. Other low emission point sources close to the industrial park (Henkel Magyarország Ltd., Becton Dickinson Ltd.) and Glass Factory Street, which increases noise emissions during shifts due to increased passenger and bus traffic.

The state of the current noise emission has been assessed by an on-site measurement in 2020. Based on the results of the measurements, noise from traceable installations currently exceeds the limit value in the field of indirect impact both during the day and at night. The noise from the plant in the night period is close to the limit on the South Side of Szentgyörgypuszta, but remains below the limit both in the area of the Phase 2 plant and at the nearest protected façade. The sensitive areas closest to the site are residential houses located in the area of Szentgyörgypuszta, approximately 750 m from the edge of the site, and residential buildings approximately 1,700 m north-east of the site, located in the residential area of Tatabanya, along Szőlődomb Street.

Applicable limit values

KE-06/KTO6282-6/2014. Issued by the Tatabanya District Office of the Komárom-Esztergom County Government Office:

Properties	Limit value (L_{TH}) L_{AM} (dB)	
	Day: 06-22 hr	Night: 22-06 hr
Környe, Dob István u. odd numbers side: 7-39 Környe, Dob István u. even number side: 26-34	45	35

Construction and related transport

The noise emitted from the installation works comes from the investment area and its immediate environment, in addition, workers' access and transport are accompanied by significant noise, which can be observed outside the work area. There is a new road to the investment area that connects to Üveggyár Street. Traffic related to the planned construction is predominantly in the direction of the M1 motorway on Üveggyár Street and Tatai Road.

Operation and related transport

The main sources of operating noise are cooling towers outside the building and air treatment outlets on the roof. In-service technological noise is adequately shielded by the sandwich panel structure wall.

During the operating period, workers' access and transport traffic are superimposed on current traffic. Noise emission from workers' vehicles can be taken into account as a fluctuating maximum at shift change hours, while noise from transport can be taken into account as an evenly distributed periodic load. Workers shall enter from the Tatabanya and its surroundings and from the direction of M1 motorway.

Waste management

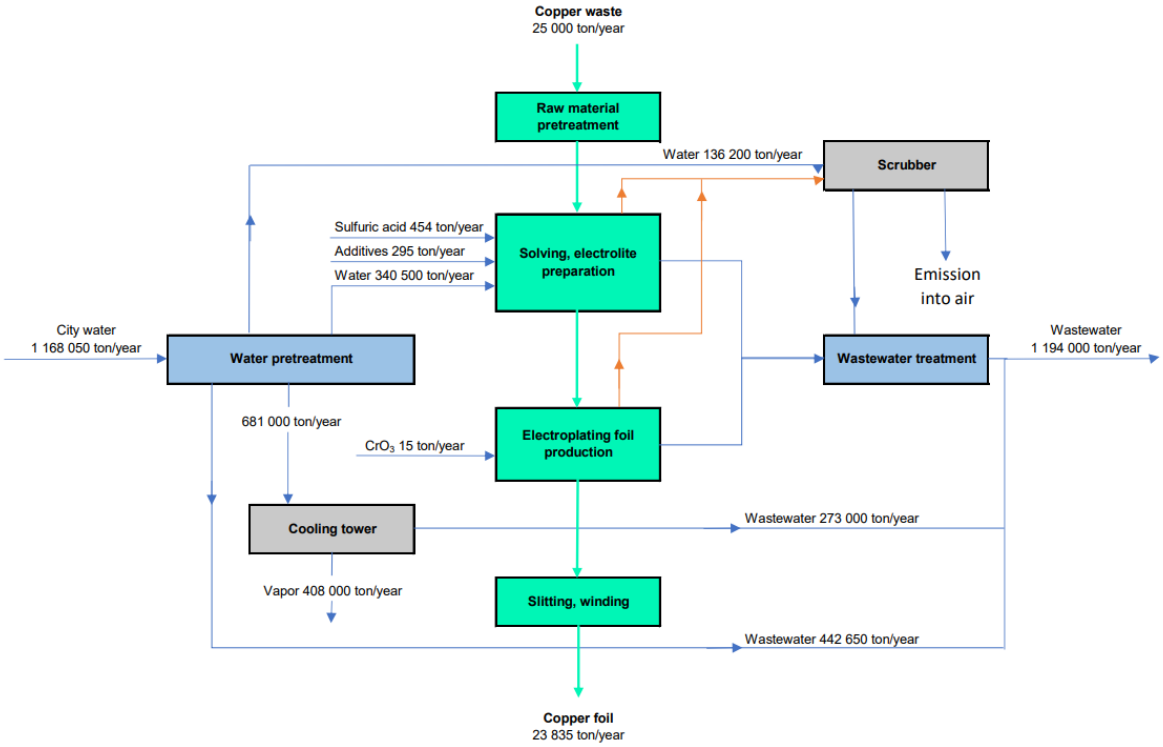
The amount and composition of waste generated on-site shall be subject to the production programme. For the collection of waste from any activity, workplace collection points have been established. The operational code of the waste management system of the site has been approved by the environmental authority by decision KE-06/KTO/00134-11/2020.

Typical on-site waste is packaging waste, laboratory waste, waste water treatment waste, waste of technological origin (activated carbon, electrolyte not suitable for recycling). The waste is collected by licensed contractors.

Raw material sourcing and transportation

Metal copper scrap of different origin used as raw material is placed in a separate collection area when shipped to the site. The import of copper waste from foreign origin into Hungary is not subject to authorisation under Regulation No 1013/2006 of the European Parliament on shipments of waste. Domestic copper scrap sources are actively investigated. Production and supply materials are partly stored in warehouses within service halls and partly in outdoor tank parks. The use of the tank park is authorised by the competent government office (FE-08/MMBO/01714-16/2020).

The combined material flow of Phases 1. and 2.:



Cumulative impacts

The cumulative impact of the existing plant and the new installations is limited to the site and its immediate environment. No adverse effects on air quality, surface and groundwater, geological medium and natural or manmade environment are expected at the construction phase or during operation.

Occupational health and safety issues, environmental management plans

An integrated management system in accordance with ISO 14001 and 45001 is being implemented on the site, for which certification will take place in October 2021. During the preparation phase of the management system, the procedures governing the basis of operation, internal audit and regular safety partition visits were developed and implemented. Corrective actions are being implemented continuously.

Environmental and occupational health and safety impacts considered to require mitigation measure (issues addressed by the ESAP)

The ESAP items include adaptation and implementation of ISO certified environmental and health and safety systems, CSR, collective bargaining systems, carbon footprint assessment, life cycle analysis, energy audit, LOTO system, H&S awareness programme and SEP.

Energy use

The plant is a major energy user and reduction of specific energy consumption of production is one of the most important environmental and economic priorities. According to the EU Energy Efficiency Directive (2012/27/EU) as implemented in Hungary, the facility is subject to energy audits every four years and the first energy audit is expected to be carried out within 1-2 years. Energy audits may be carried out by an independent and qualified energy experts or by in-house staff, under the supervision of an independent and qualified energy expert, unless ISO 50001 energy management system is introduced.

5 Social Benefits, Adverse Impacts and Mitigation Measures

Land acquisition and resettlement

The capacity increase project does not involve land acquisition or involuntary resettlement.

Labour issues and standards

The company's HR policy is in compliance with the Hungarian labour code, equal opportunity, gender equality and cafeteria benefit system. Ethic codes and HR policies are codified in a number of documents; there is no Collective Agreement yet, but the company is committed to introduce it within five years.

Volta Energy Solutions Hungary does not have a comprehensive plan outlining the company's policy to prevent discrimination. The proportion of women in the workforce is relatively low (21%). International conventions and agreements, as well as the Hungarian labour code and legislation, ensure the freedom of formation of workers ' organisations.

Contractor management

There are currently about 150-200 contract workers working on the site on the capacity expansion project. In addition, there are 30 contract workers employed in the operation of the plant: in maintenance, cleaning and gardening and in the security service.

Community impacts

Under normal operating conditions, the new facility will not have any adverse impacts on the people living nearby, as its emissions to the air will be low and the other effects will be negligible, leaving the quality of life and the lifestyle of the population unchanged.

The state of health of the local population is not expected to change compared to the current situation. However, the new plant provides continuous employment for 100 people, thus maintaining the level of employment of the population.

6 Monitoring of Impacts

Air quality: air emission control shall be monitored by periodic sampling.

Waste water discharge: the quality of waste water discharged into the public sewer is checked at a frequency consistent with the monitoring plan. If necessary, additional tests will be carried out if high water use and effluent level is observed.

Safety is Prerequisite: with this motto the company intends to continue to follow the OHS priorities.

LCA, CCF: a life cycle analysis and carbon footprint project has been launched in recognition of the better visibility of the challenges of the age and company policy on social and environmental responsibility. An internationally recognised advisory and certification company will implement this project, which will provide a guarantee by building on the basis of current operations to set future objectives, to meet social, environmental and customer expectations.

7. Grievance and feedback mechanism:

The purpose of the grievance and feedback mechanism is to ensure that all requests and complaints from individuals, groups and local communities are dealt with systematically in a timely manner with appropriate corrective actions being implemented and the complainant being informed of the outcome. Volta Energy Solutions will establish several channels for the submission of grievances and information to enable the public to register their concerns about Company’s operations and a grievance form is attached below.

GRIEVANCE FORM

Reference No:	
Full Name Note: you can remain anonymous if you prefer or request not to disclose your identity to the third parties without your consent	First name _____ Last name_____ ❑ I wish to raise my grievance anonymously ❑ I request not to disclose my identity without my consent
Contact Information Please mark how you wish to be contacted (mail, telephone, e-mail).	❑ By Post: Please provide mailing address: _____ _____ ❑ By Telephone:_____ ❑ By E-mail_____
Preferred Language for communication	English Hungarian Other (specify)
Description of Incident or Grievance:	What happened? Where did it happen? Who did it happen to? What is the result of the problem?
Date of Incident/Grievance	❑ One time incident/grievance (date _____) ❑ Happened more than once (how many times? _____) ❑ On-going (currently experiencing problem)
What would you like to see happen to resolve the problem?	

Signature: _____ Date:_____

Please return this form to: Ms Katalin Nagy, ESG Team Leader, Hungary, 2851 Környe, Han Folyó utca 1; e-mail: katalin.nagy@volta-es.com, Telephone: +36-34520007, +36-70884508