

# **Social and environmental impact measurement**

Methodology and results



## 1. Introduction

This report marks Naturgy's first disclosure on the impact of its activities on society and the environment in monetary terms. The main objective is to provide stakeholders with a comprehensive measure of the company's performance and value creation beyond financial results.

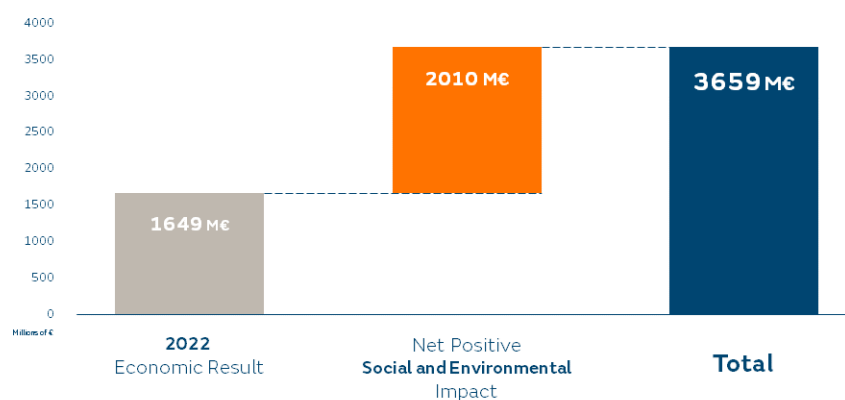
Naturgy is aware that business activities create, maintain or destroy environmental, social and economic values. In turn, these results represent both risks and opportunities for companies in the long term. However, the metrics currently used to measure environmental and social aspects often do not effectively reflect these risks and opportunities.

To solve this problem, it is essential to understand the impact of companies on their environment and to take into account intangible factors such as natural resources (natural capital), the skills of the workforce (human capital) and the relationships between individuals, groups and organisations (social capital) when determining the overall value of a company.

Naturgy joins the growing number of leading organisations that are exploring different methods to calculate the monetary value associated with their impacts on society and the environment.

The results presented below complement the traditional financial and non-financial metrics and seek to offer an additional perspective that allows a better understanding of the impact that Naturgy's business activity has provided to society and the environment in 2022.

## 2. Net positive impact of Naturgy in 2022





The graph above shows the net cumulative effect that the company's positive and negative impacts had in 2022, added to its economic result.

The financial and non-financial data used for the calculations presented in this report are consolidated and refer to the companies over which the company has control or significant influence that are detailed in of the Consolidated Financial Report for 2022.

The scope of the measurement of these impacts is confined to the scope of Naturgy's own operations and does not consider the activity in the rest of the value chain.

The calculation is based on data reported in the [Consolidated Annual Report](#) of Naturgy for the financial year 2022, which includes sustainability indicators.

The main conclusion of the analysis carried out reveals that Naturgy generates a value for society 1.2 times higher than its financial result in 2022; this means that Naturgy creates positive net externalities with a value of more than 2 billion euros.

### 3. Methodology

In order to assess and quantify the company's social and environmental impact in monetary terms, Naturgy has used the methodological guidelines developed by the [Value Balancing Alliance](#) (VBA) and available on its website.

VBA is an alliance of multinational companies that are at the forefront of creating standards for measuring and benchmarking the contributions of business to the economy, society and the environment. Translating these impacts into monetised data allows for better comparison across companies and sectors.

It should be noted that the VBA work is still ongoing and has not been finalised, so there may be updates. The results presented here should therefore be understood in this context. Naturgy has adapted some of the indicators to more accurately reflect the specific circumstances of the company.

As an organisation committed to sustainability and continuous improvement, Naturgy will closely follow the progress made in measuring environmental and social impact by VBA or other entities in this field. Naturgy's goal is to ensure that the approach and methodologies employed are the best practices available for this purpose, while providing accurate performance information on key sustainability metrics.

A detailed explanation of the methodological approach, premises and assumptions made for the calculation of the impact measurement is given below.

#### 3.1. Approach used

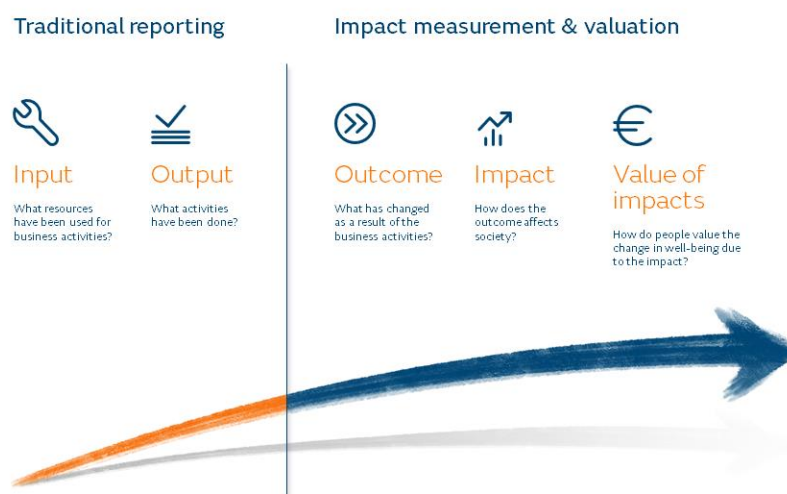
The approach used for social and environmental impact assessment and monetisation focuses on identifying the positive and negative outcomes that a company's activities have on stakeholders and



the environment. This approach goes beyond traditional financial and non-financial reporting practices, which only take into account the origins of these impacts and the commonly used input-based metrics- such as energy produced through the burning of fossil fuels- and outputs - e.g., greenhouse gas emissions produced in the generation of that electricity.

To measure these effects, a calculation logic is used that assesses the impacts of the intended (e.g., tax payments) and unintended (e.g. greenhouse gas emissions) outputs on society. This valuation is quantitative and is estimated in monetary units for ease of understanding and comparability. For this purpose, multipliers are used which are provided by [relevant external sources](#) and are based on VBA methodology with slight adaptations in some cases.

With this exercise, Naturgy seeks to provide an analysis that takes into account not only the financial effects, but also the environmental and social impacts of its activity. The ultimate goal is to provide additional and complementary information to stakeholders and the company itself to help them better understand its overall influence so that they can make informed decisions about its operations going forward.



### 3.2. Selection of metrics and scope of measurement

To identify the metrics to be included in this analysis, Naturgy began with the materiality assessment that the company regularly carries out for sustainability reporting purposes. The company also conducted a benchmarking analysis that identified the metrics that other leading impact measurement

Source: Value Balancing Alliance.



companies were considering. In addition, metrics for which VBA currently has a defined methodology have been taken into account.

Based on the foregoing sources of information, Naturgy determined the relevant metrics to measure the impact produced.

Type of Indicator	Material Topic	Subtopic	Metrics
<b>Economic</b>	Resilience of the business model	Long-term value creation	Gross value added (GVA) Suppliers, wages, taxes and interests
<b>Social</b>	Occupational safety and laboral wellness	Occupational health and safety	Accidents and Occupational Illness
	Talent development	Employee development	Training
<b>Environmental</b>	Climate change and energy transition	GHG emissions and reductions	Greenhouse gases emissions (scopes 1 + 2)
		Air emissions	Other air emissions
		Hazardous waste management	Waste
		Non-hazardous waste management	
		Water	Water consumption
		Water pollution	Water pollution
	Biodiversity and natural capital	Managing land use and reducing deforestation	Land Use
		Protection of natural land cover	

Source: Compiled in-house.

### 3.3. Methodology for calculating economic indicators

The economic indicators block measures the Gross Value Added (GVA) by the company through spending on supplier payments, salary payments, tax payments and interest payments. GVA measures the impact of these items on the Gross Domestic Product of a country and therefore measures the indirect impact that these business expenditures have on society. The economic impacts are the result of the GVA of each sector and the spillover to other sectors of the economy.

For its calculation, Naturgy followed the VBA methodology.

The following considerations have been applied for the calculation:

- Expenditure on suppliers corresponds to operating expenses and does not include the cost of procuring raw materials, as it is considered that the purchase of raw materials becomes part of the company's production process and its outcome is reflected in the profits derived from the business activity.
- The expenses and salaries item has only taken into account the direct amount received by employees and excludes employee benefits, social security payments, pension plan contributions, etc. These exclusions are due to the lack of homogeneity of these items between different countries, and it was considered that equivalent baseline data should be used for all geographies included in the analysis.

### 3.4. Methodology for calculating social indicators

The social indicators block includes the Training and Accidents and occupational diseases metrics.



The training metric measures the social benefit of training. The impact assessment is calculated by evaluating the positive outcome on salary of training provided by the company during the employees' working life in the event that they leave the company. The main assumption considered in the calculation of this metric is that all employee resignations that took place during the year were employees going to work for other companies until they reach retirement age. In addition, for the calculation of training hours, the hours devoted to mandatory or regulatory training are excluded.

The occupational accidents and diseases metric measures the social cost associated with occupational accidents or diseases borne by society and the employee, through the use of medical services and the decrease in economic activity caused by sick leave and occupational diseases.

For the calculation of the impact of both metrics, the VBA methodology has been followed.

### **3.5. Methodology for calculating environmental indicators**

The environmental indicators block includes metrics on greenhouse gas emissions, other air emissions, water consumption, water pollution, waste and land use.

#### **Greenhouse gas emissions**

The metric represents the damage caused to the environment by extreme weather events, such as losses and alterations in crop yields, the spread of diseases, economic losses caused by interruptions in production and supply, etc.

The monetisation of the impact is obtained by applying a social cost of carbon (according to the study carried out by the Environmental Protection Agency) which reflects the damage caused to society by the emission of one additional tonne of CO<sub>2</sub> into the atmosphere, in a given year, considering the period in which this emission remains in the atmosphere.

For the calculation of the impact, the methodology set out in the VBA's *Impact Statement-Focus: Environment, version 0.1* has been followed

#### **Other emissions to air**

The metric represents the social impact linked to the increase in respiratory diseases as a result of decreased air quality, as well as the environmental impact associated with the loss of recreational and provisioning services provided by ecosystems.

The air pollutants considered are particulate matter below 2.5 µ (PM 2.5), nitrogen oxides, sulphur oxides, ammonia and volatile organic compounds.

In the case of this metric, it was concluded that the methodology proposed by VBA represents a highly complex calculation and requires a much higher deployment of resources than that of other



methodologies widely used by other companies. For this reason, it was decided to follow the environmental cost methodology proposed in the *Environmental Prices Handbook* published by CE Delft.

### Water consumption

The metric represents the impacts that business activity has on increasing water scarcity in a region; and the consequences it would have on water supply costs, economic activity in the region, food production and the provision of ecosystem services.

For the calculation of the impact, it was noted that the damages identified in the methodology proposed by VBA were not fully aligned with the nature of Naturgy's activities. Similarly, due to methodological limitations and lack of access to external information, an alternative methodology based on the social costs calculated by *Trucost Natural Capital at Risk: The Top 100 externalities of Business* was used, based primarily on the impact of freshwater scarcity.

In addition, given that some of the facilities operated by Naturgy use recycled water, in the total impact calculation the use of recycled water was considered as a positive input, so it was subtracted from the impact produced by the facilities that use freshwater.

### Water pollution

The metric represents the social impact linked to the worsening of human health as a result of chemical water pollution and the environmental impact associated with thermal water pollution resulting in the loss of species.

For the calculation of the impact, the VBA methodology in the *Impact Statement-Focus: Environment, version 0.1* document has been followed. In addition, given the relevance of thermal pollution in the activity of electricity generation in natural gas combined cycle plants, Naturgy also considered it appropriate to include the impact of this type of pollution. Since there is no methodology proposed by VBA for this type of pollution, an in-house methodology based on literature has been adopted.

Chemical water pollution includes the discharge of toxic substances and nutrients (phosphorus and nitrogen) in both fresh- and salt-water.

Thermal water pollution reflects the environmental impact in terms of loss of freshwater species.

### Waste

The metric measures the effects on human health of increased emissions to air and possible leachate in water from waste sent to landfill and the effect on the landscape and possible loss of well-being or comfort.

For the calculation of the impact, the recommendations of the VBA methodology have been followed in terms of the damages to be assessed. However, due to limitations in the availability of both internal and external information to rigorously apply the equations provided by the VBA methodology, it was decided



to use the environmental and social costs reported in *A Study on the Economic Valuation of Environmental Externalities from Landfill Disposal and Incineration of Waste*.

All waste generated is considered to be municipal solid waste. The literature used as a reference only considers the externalities that are caused by landfill and incineration operations and does not take account of the externalities caused by the collection, transport and pre-treatment of waste.

Additionally, the value generated by Naturgy's environmental management of waste through recycling and recovery has been included as a positive input to be deducted from the total impact.

#### Land use

The metric represents the impact that the use of natural areas by Naturgy facilities has on the ecosystem services of an eco-region.

For the calculation of the impact, the VBA methodology has been followed with some methodological adjustments. The amount of ecosystem services lost or recovered in each type of facility has been determined according to relevant academic information and Naturgy's internal knowledge of its land use and biodiversity management practices.

The following land use categories have been identified: hydroelectric plants, wind farms, photovoltaic plants, power grids, buildings, thermal power plants, warehouses, cogeneration plants and restored areas.

## 4. Conclusions and next steps

Naturgy considers this way of measuring its positive and negative impacts to be an excellent tool that has great potential to support decision-making, and the communication with relevant stakeholders.

Impact measurement is further proof of Naturgy's commitment to sustainability and is an optimal starting point to continue exploring the advantages of this methodological approach as a basis for measuring the impact of our operations, both overall and on a case-by-case basis for specific projects and initiatives.

Naturgy will continue to monitor trends and new developments in the field of impact assessment and will work to expand the number of metrics and to optimise the way its impacts are calculated.





## Bibliographical references

- Value Balancing Alliance. [Impact Statement, General Paper. V 0.1](#)
- Value Balancing Alliance. [Impact Statement-Methodology Paper: Social & Economic](#)
- Value Balancing Alliance. [Impact Statement - VBA Methodology Paper: Extended Input -Output Modelling](#)
- Value Balancing Alliance. [Impact Statement - Methodology Paper: Environment V 0.1](#)
- The World Bank Data. [Inflation, GDP deflator](#)
- OECD. Input-Output Tables. <https://stats.oecd.org/Index.aspx?DataSetCode=IOTS#>
- Safe Work Australia. [The Cost of Work-related Injury and Illness for Australian employers, Workers and the Community: 2012–13.](#)
- OECD. Teaching Hours. <https://data.oecd.org/eduresource/teaching-hours.htm>
- World Bank Group. Policy Research Working Paper. [Comparable Estimates of Returns to Schooling Around the World.](#)
- OECD. [Effective age of labour market exit.](#)
- Interagency Working Group on Social Cost of Greenhouse Gases, United States Government. [Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 1399](#)
- CE Delft. [Environmental Prices Handbook EU28 version](#)
- European Commission. DG Environment. [A Study on the Economic Valuation of Environmental Externalities from Landfill Disposal and Incineration of Waste](#)
- Trucost. [Natural Capital at Risk: The top 100 externalities of business.](#)
- World Resources Institute. [Aqueduct-Water Risk Atlas](#)
- Society of Environmental Toxicology and Chemistry. [Human- Toxicological Effect and Damage Factors of Carcinogenic and Noncarcinogenic Chemicals for Life Cycle Impact Assessment](#)
- Science of the total Environment. [Assessing the environmental impacts of freshwater thermal pollution from global power generation in LCA](#)
- European Commission. Joint Research Center. [Evaluation of Weighting Methods for Measuring the EU-27 Overall Environmental Impact](#)
- The Economics of Ecosystems and Biodiversity. [The TEEB Valuation Database](#)



Naturgy Energy Group, S.A.  
Avenida de América, 38  
28028 Madrid  
[www.naturgy.com](http://www.naturgy.com)