ENEXIS
HOLDING N.V.

ACCOUNTABILITY DOCUMENT IMPACT ANALYSIS ENEXIS HOLDING NV

FEBRUARY 2023

CONTENTS

INTRODUCTION

1.1 SOCIAL IMPACT ANALYSIS

Enexis is constantly working on an energy supply that provides access to reliable, affordable and renewable energy for everyone. Our activities have a considerable social impact on our environment: economy, nature, knowledge development and safety in society. In short, an impact on our prosperity (money and economy) and well-being (health and happiness).

Enexis provides insight, now already for the third year in a row, into the social effects by quantifying and valuing these effects (expressed in a unit: €). The aim is to obtain more and more insight into the social value of Enexis's activities by means of transparent and (externally) verifiable reporting. Therefore, Enexis aims to expand its impact reporting every year with a number of targeted impact measurements on the organisation level. In 2022, this concerned additional impact measurements within natural capital, a social capital inventory and an energy poverty orientation (see box in 2.2 The scope of impacts).

Enexis works together with various infra companies (for example, the 'Werkgroep Impact Meten Infra) on the development, expansion and harmonisation of impact measurement. For instance, together with other energy grid operators, Enexis worked on an updated version of 'Het Handboek Impactmeting Infrabedrijven' (first version under the name 'Handboek Impactmeten Netwerkorganisaties' published in September 2020 on the website of the Impact Institute). This updated version (published in November 2022 on the website of the Impact Institute) provides a further substantiation of the impact with the description of new impacts. In addition, a number of impact calculations were further harmonised and more detailed calculations were made for the energy sector.

With the above developments, Enexis aims to increase the transparency of the reporting, so that this can be used to steer value creation and decision-making in the future. The methodology will be assessed in 2023.

The non-financial information is consolidated. In general, we aim to integrate non-financial information of new acquisitions/disposals as soon as possible; however, no later than after a full year of ownership/disposal.

1.2 BUILDING ON EXISTING METHODS AND DATA

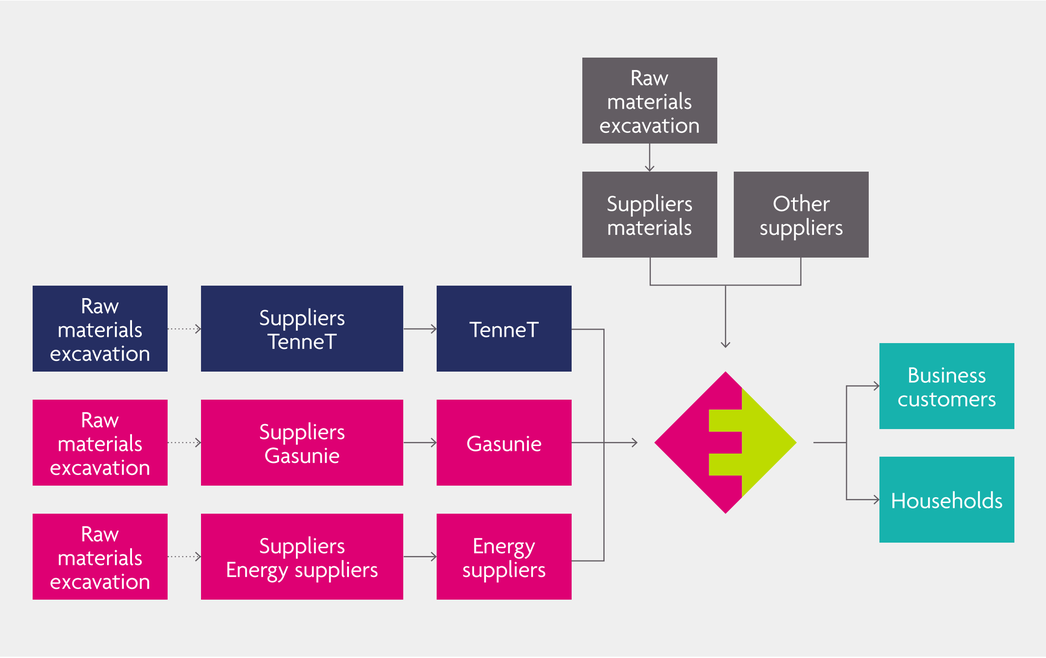
Enexis applies the accounting principles of the International Integrated Reporting Council (IIRC). Measuring impact is in line with and is the next step in integrated reporting.

Enexis reports these figures in accordance with the aforementioned Handboek Impactmeting Infrabedrijven (November 2022). This manual sets out a number of harmonised methods and guidelines for basic concepts, process steps, and impact calculations and forms a basis for agreements regarding uniform impact measurement and reporting. The manual builds on the Framework for Impact Statements (2019) and IP&L Assessment Methodology Core (2020) of the Impact Institute, which build on integrated reporting principles.

SCOPE

2.1 SCOPE OF ENEXIS'S VALUE CHAIN

The calculations are based on the diagram of the electricity and gas transmission value chain depicted below.



Value chain Enexis

2.2 THE SCOPE OF IMPACTS

In order to determine which positive and negative contributions are provided by Enexis, the six capitals model of the IIRC was used to determine which impacts are relevant. The impacts were quantified for the selection of these impacts. The selection of impacts was determined based on an analysis of the materiality, feasibility and strategic focus on the standard list of defined impacts in the Manual; see the adjacent table.

Expansion of scope in 2022

Ecological damage due to waste and the purchase of materials (natural capital)

The impacts in connection with ecological damage due to processing waste and the purchase of materials consist of the total of a number of impacts on natural capital, including the use of scarce materials, the use of scarce water, soil, air and water pollution, and exhausting fossil fuels. The calculation of these effects per activity (processing waste and purchasing materials) provides insight into the degree of circularity within Enexis.

The value of reputational change (social capital)

Enexis's reputation among its customers and the confidence that customers have in Enexis have social value for the organisation, which is important for carrying out its tasks and facilitating the energy transition. Measuring this value is rather complicated. Enexis has examined the set up and applicability of reputation research carried out by Enexis using a method developed within the sector. As Enexis wishes to focus on the development of steerable indicators, the decision was taken not to include this impact as a quantifiable item in the impact model.

The impact of energy poverty

In view of the price increases in the past year, we have carried out orientational research into the impact of energy poverty. At present, we report the total value of manufactured capital for customers. Rising energy prices lead to a decrease in the consumption of energy; however, a large share of the energy consumption (heating, cooking, telecommunication, communication) remains necessary. For households with limited financial means, energy then becomes a larger share of their spending pattern. More and more households are therefore unable to pay their energy bill (energy poverty). We include this effect under social capital.

CAPITAL	IMPACT	SINDS
Financial capital	Various impacts such as payments to suppliers, employees, taxes and payments by customers.	2021
Manufactured capital	Changes in the value of tangible assets	
	Well-being value creation for consumers	2021
	Well-being value loss for consumers	2021
	Value creation for business customers	2021
	Value loss for business customers	2021
	Digital security: preventing cybercrime and hacking	
	Value of purchased goods	2021
Intellectual capital	Changes in the value of intangible assets	
	Technological developments	
Natural capital	Use of scarce materials	2022*
	Use of scarce water	2022*
	Soil contamination	2022*
	Air pollution	2022*
	Water pollution	2022*
	Exhausting fossil fuels	2022*
	Contribution to climate change	2020
	Land use and land transformation	2022*
	Nature value	
Social capital	Changes in reputation and trust	
	Contributing to or reducing inequality in society	
	Contributing to improved institutions and regulations	
	Societal effect of diversity and inclusion	
	Societal value of infrastructure	
	Human rights violations in the value chain	
	Digital security: privacy violations	
Human capital	Development of employees	
	Well-being effects of having a job	2020
	Safety incidents and loss of well-being in the local environment	
	Work-related absenteeism and accidents of employees	2021
	Economic value of labour	

* The ecological damage due to waste and the purchase of materials was quantified in 2022. This represents part of the contribution to the various negative impacts on natural capital.

The calculation of impacts on manufactured, natural and human capital (that have been quantified) is then converted into impacts and impact indicators for grid operators.

IMPACT MANUAL	IMPACT GRID OPERATOR	IMPACT INDICATOR
Well-being value creation for consumers	Contribution of energy transmission well-being of consumers (specified in electricity and gas)	■ External component energy transmission households (attributed to grid operator and suppliers) ■ Internal component energy transmission households ■ Increase in well-being due to feeding solar energy back into the grid (only included for electricity) ■ Well-being loss due to interruptions in the energy supply (specified in electricity and gas)
Well-being value loss for consumers		
Value creation for business customers	Value of energy transmission for business customers	■ Internal component electricity transmission business customers ■ Internal component gas transmission business customers
Value of purchased goods	Value of purchased goods for energy transmission (specified in electricity and gas)	■ External component electricity transmission (attributed to suppliers) ■ Purchase of goods for electricity transmission ■ External component gas transmission (attributed to suppliers) ■ Purchase of goods for gas transmission
Contribution to climate change	Contribution to climate change	■ Contribution to climate change due to greenhouse gas emissions of grid operator (direct - own organisation) ■ Contribution to climate change due to greenhouse gas emissions of grid operator (indirect - upstream- grid losses) ■ Contribution to climate change due to greenhouse gas emissions of grid operator (indirect - upstream- excluding grid losses) ■ Contribution to climate change due to greenhouse gas emissions chain emissions (indirect - upstream) ■ Contribution to climate change due to chain emissions gas (indirect - upstream)
	Mitigation of climate change	■ Mitigation of climate change (direct) ■ Mitigation of climate change (indirect)

IMPACT MANUAL	IMPACT GRID OPERATOR	IMPACT INDICATOR
Use of scarce materials	Ecological costs purchase of materials*	■ Ecological costs of purchased materials
Use of scarce water		
Soil contamination		
Air pollution	Ecological costs due to waste*	■ Ecological costs due to waste
Water pollution		
Exhausting fossil fuels	Other environmental impacts*	
Land use and land transformation		
Well-being effect of having a job	Well-being effects of having a job	■ Well-being effects of having a job
Work-related absenteeism and accidents	Accidents and absenteeism of employees	■ Non-fatal accidents ■ Fatal accidents ■ Other work-related absenteeism

* The ecological damage due to waste and the purchase of materials was quantified. Other components of the contribution to the various negative impacts on natural capital were not.

METHOD

For the calculation of the impact measurement, impacts are quantified first. After which, the share of the quantified impact that can be attributed to Enexis is determined. This is referred to as attribution.

3.1 QUANTIFYING IMPACT

In the following sections, we will substantiate the impact indicators with impact calculations. We will also explain how the impacts are built up. The following criteria apply for the calculated impacts:

- **Indicator.** The definition of the impact indicator.
- **Impact.** The positive and negative impact is analysed and quantified for each indicator (expressed in social costs and benefits) as these cannot be directly offset against one another.
- **Limitations.** Criteria, points of departure and assumptions are used in the calculation of impacts, these are explained separately if applicable.
- **Calculation.** The explanation of the calculation of the financial valuation of the impact, expressed in social costs and benefits and the sources used are as transparent as possible. We have entered into consultations with experts (Impact Institute) and other grid operators to determine the most suitable valuation method, the corresponding indicators and the available information.
- **Sources.** The sources of the input for the calculations and an explanation why these sources were chosen, if relevant; the calculations are based on recent sources.
- **Attribution.** The choice was made to allocate the impact to the stakeholders in the value chain.

3.2 ATTRIBUTION OF IMPACT

The attribution of impact is an important part of the measurement of impact in the value chain in order to estimate the share of the impact that can be attributed to Enexis. As impact arises outside of Enexis together with suppliers (of goods and services). We attribute part of the value of Enexis's work to suppliers. If part of this impact is not attributed to suppliers, the impact would be disproportionally large.

In this case, the value chain is regarded from the generation to the consumption of energy. Downstream, there are the business and household customers of Enexis. Upstream, there are the energy suppliers, national grid operators, material and energy suppliers of Enexis and, of course, Enexis itself (see illustration of Enexis's value chain).

Impact is allocated via attribution; the allocation of the total impact based on responsibility in the value chain. As yet, there is no widely used or accepted method to attribute impact. Therefore, transparency with regard to choices that have been made in this process is important. The infra companies (including Enexis) make use of the method described in the Integrated Profit & Loss Assessment Methodology (IAM) Supplement Impact Contribution (Handboek Impactmeting Infrabedrijven).The impact in the value chain is allocated based on a) responsibility and chain responsibility and b) economic added value.

In the first place, impacts are categorised according to the responsibility of the value chain partners for the impact that arises. A distinction is made between full responsibility and shared responsibility. For shared responsibility, a distinction is made between impacts that can be primarily attributed to the own organisation, impacts that can be primarily attributed to other organisations in the value chain and impacts without a clear primarily responsible party.

The share of the value chain is then estimated based on economic added value. The added value for energy transmission is calculated based on the share of the grid price in the total energy price and then Enexis's share within the grid price.

As the last step, the impact is attributed using an attribution factor. This attribution factor is determined based on the identified responsibility of the own organisation in the value chain and, if relevant, the economic added value.

The calculation of the attribution factors is set up in such a manner that the sum of the impact of all organisations equals the total impact of the chain (no double counting or omissions). Furthermore, it is the case that when an organisation can be regarded as primarily responsible, this organisation will be attributed the largest share of the impact (> 50%). This takes place as follows:

Responsibility for the activity that causes impact:	Social annual report of the grid operator	(total) Social annual reports of the chain partners	Total impact of the chain
Only grid operator	Attribution factor 1: 100%	No attribution: 0%	100%
Primarily grid operator	Attribution factor 2a: 50% + 50% * share added value	Attribution factor 2b: 50% * share added value	100%
Primarily chain partners	Attribution factor 2b: 50% * share added value	Attribution factor 2a: 50% + 50% * share added value	100%
Chain responsibility	Attribution factor 3: Share added value	Attribution factor 3: Share added value	100%

IMPACT CALCULATIONS PER CAPITAL

4.1 FINANCIAL CAPITAL

Definition and description of impact

The financial cash flows are included under the financial capital divided over the various categories. These impact indicators are calculated as direct absolute impact, in which the reference concerns no alternative activities. The impacts that are included under the financial capital can be derived directly from the consolidated financial statements of Enexis Holding N.V.

Description	Financial cash flows between the organisation and stakeholder groups.
Stakeholder group	Government, the organisation and investors, employees, suppliers, customers.
Scope of activities	Financial transactions.
Valuation	Combination of negative (for incoming cash flows) and positive (for outgoing cash flows).
Attribution	Direct (internal) impacts for which the responsibility lies with Enexis; these impacts have been attributed to Enexis for 100%.

Calculation and limitation

The impacts are calculated based on Enexis's income statement and cash flow statement.

Valuation

These impact indicators are already financial data (therefore monetisation is not required).

Sources

Income statement and cash flow statement annual report Enexis Holding N.V. The information is in alignment with the consolidated income statement and the cash flow statement. This comprises Enexis's incoming and outgoing cash flows.

4.2 MANUFACTURED CAPITAL

As described, manufactured capital comprises various impacts. If relevant, these impacts have been calculated in accordance with Enexis's two main activities, gas and electricity transmission, and contain the following indicators:

- Contribution of energy transmission to consumer well-being (specified in electricity and gas);
- Value of energy transmission for business customers;
- Value of purchased goods for energy transmission (specified in electricity and gas).

For electricity transmission, the increase in well-being due to feeding solar energy back into the grid is also calculated. The indicators are then grouped after attribution.

The impacts are calculated in the rest of this section, after which the applied attribution factors are explained in the Attribution section.

4.2.1 CONTRIBUTION OF ENERGY TRANSMISSION TO CONSUMER WELL-BEING (SPECIFIED IN ELECTRICITY AND GAS)

By delivering gas and electricity to consumers and business customers, Enexis is adding value to society. This value is not the same for households and for business customers. Therefore, it is of essential importance to make a distinction between these two types of customers. Price elasticity studies show that, in general, the well-being value of having electricity and gas is larger than the price that is actually paid by our customers. This surplus value is referred to as the consumer surplus. For household customers, this surplus is quantified and attributed to the energy chain. For business customers, the ultimate surplus is in the products that they supply to the (end) consumers. This falls outside the scope of the impact measurement.

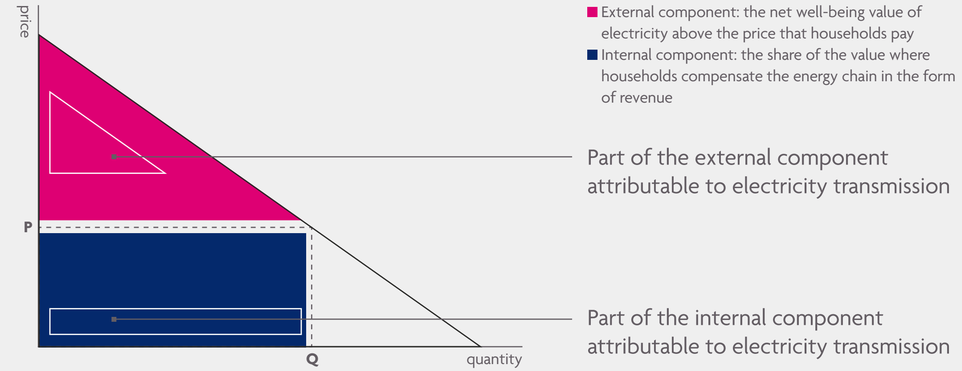
Energy prices rose rapidly in 2022 due to geopolitical developments. The willingness to pay of households is not expected to change equally rapidly. As a consequence, the added value of energy in relation to the price has decreased. Use has been made of the average transaction prices determined by Statistics Netherlands (CBS). As the figures for the reporting year are only determined by Statistics Netherlands after the publication of the annual report, this effect is estimated based on the prices of the year before the reporting year (in this case 2021). Therefore, the price increase in 2022 is not yet reflected in the results. A sensitivity analysis based on the quarterly figures of Statistics Netherlands shows that using the gas price in the year 2022 would reduce the contribution of gas transmission to consumer well-being by 5% to 10%. The average transaction price in 2022 for electricity does not show a price increase, which is due to long-term contracts and the lower energy tax.

Definition and description of impact

Consumer well-being in connection with the consumption of electricity and gas is higher than simply the price that is paid for the consumption of electricity and gas. The contribution of electricity and gas transmission to consumer well-being is estimated based on the consumer surplus. The well-being value of electricity and gas can be divided into two parts: an internal and an external component. Part of the well-being value of electricity and gas transmission is discounted in Enexis's standing charge. This part equals the revenue from households and is referred to as the internal component of the value of electricity and gas transmission. The other well-being value is the amount that consumers would be willing to pay for electricity and gas less what they actually pay. This net well-being benefit is estimated by means of an estimation of the consumer surplus: the difference between the value and the price of electricity and gas for households. We refer to this part as the external component of the value of electricity and gas transmission.

The figure below clarifies this relationship.

The demand for electricity



Limitations

- To calculate the consumer surplus, estimates of the demand curve for electricity and gas were used. In addition, estimates were used for the average market prices for electricity and gas in 2022.
- For the demand curve, data is available for the elasticity of the general consumption of households. Regarding more extreme situations, such as price elasticity for a very low supply, less is known. We make use of price elasticity as calculated by CE Delft and we extrapolated this to low and high quantities. This results in a linear line below which we estimate the consumer surplus.
- Other secondary data regarding the willingness to pay for renewable energy have been derived from national and international averages and estimates. This has not been determined specifically for Enexis's customers. The assumption has been made that Enexis's customers are a reflection of the total national and international society.

To compare the consumer surplus between the various grid operators, the choice was made to determine the maximum willingness to pay for electricity and gas for the whole sector. To also make the comparison possible between impact measurements of different years, the willingness to pay is calculated as a running average of the past three years. The demand curve is then determined as a linear function based on the willingness to pay, the most recent sector price, and the transmitted volumes for the time period.

Calculation

Internal component electricity transmission households	Net revenue grid operator electricity households (EUR/year)
External component electricity transmission households	(Maximum willingness to pay for electricity in the sector based on running average years t-1, t-2 and t-3 (EUR/kwh) -/- Transaction price electricity households sector year t-1 (EUR/kWh)) * Transmitted volume electricity by grid operator to households (kWh/year)
Internal component gas transmission households	Net revenue grid operator gas households (EUR/year)
External component gas transmission households	(Maximum willingness to pay for gas in the sector based on running average years t-1, t-2 and t-3 (EUR/m^3) -/- Transaction price gas households sector year t-1 (EUR/m^3)) * Transmitted volume gas by grid operator to households (m^3/year)

Sources

Transmitted volume of energy	Annual report Enexis Holding N.V.
Price elasticity of energy	CE Delft (electricity -0.20; gas -0.15) [% delta quantity]/[% delta price]
Sector price (including energy tax and VAT)	Statistics Netherlands (CBS): ■ Sector price including energy tax and VAT electricity - households – 2020 EUR/kWh 0.205 ■ Sector price including energy tax and VAT gas - households – 2020 EUR/GJ 26.207 ■ Sector price including energy tax and VAT electricity - households – 2021 EUR/kWh 0.139 ■ Sector price including energy tax and VAT gas - households – 2021 EUR/GJ 27.815 ■ Sector price including energy tax and VAT electricity - households – 2022 EUR/kWh 0.134 ■ Sector price including energy tax and VAT gas - households – 2022 EUR/GJ 28.103
Net revenue grid operator electricity (EUR/year)	Annual report Enexis Holding N.V.
Net revenue grid operator gas (EUR/year)	Annual report Enexis Holding N.V.
Transmitted volume electricity (kWh/year)	Annual report Enexis Holding N.V.
Transmitted volume gas (m^3/year)	Annual report Enexis Holding N.V.

Well-being loss due to interruptions in the energy supply

The reliability of the electricity and gas supply has an effect on consumer well-being. Interruptions in the electricity and gas supply cause inconvenience that is expressed as a loss of well-being. This loss of well-being is measured based on the number of unplanned outage minutes per household per year and the consumers' willingness to accept (WTA) compensation for outages. The WTA for electricity outages of Enexis and the average in the Netherlands is determined based on the relationship between outage frequency, outage minutes, and the WTA as set up by Blauw (2013). The WTA for gas outages is determined based on secondary literature (London Economics at the request of Ofgem). The scope is limited to unplanned outages.

Calculation

Loss of well-being due to interruptions of electricity transmission	(Desired compensation per minute of electricity outage (EUR/year) * Annual outage time electricity grid operator per household (min/household/year)) -/- Loss of well-being due to electricity outages NL * Number of connections grid operator electricity households
Loss of well-being due to interruptions of gas transmission	(Desired compensation per second of gas outage (EUR/year) * Annual outage time gas grid operator per household (sec/household/year)) -/- Loss of well-being due to gas outages NL * Number of connections grid operator gas households

Valuation

Valuation is based on willingness to pay (WTP) and willingness to accept (WTA).

Sources

Outage frequency electricity unplanned, excluding high voltage Enexis	Annual report Enexis Holding N.V.
Outage frequency and outage time energy unplanned excluding high voltage NL	Netbeheer Nederland & Movaris: ■ Outage frequency electricity NL unplanned - excluding high voltage outages/households/year 0.22 ■ Outage frequency electricity NL unplanned - MV outages / households/ year 0.18 ■ Outage frequency electricity NL unplanned - LV outages/ households/year 0.04 ■ Outage time electricity NL unplanned - excluding high voltage minutes/households/year 19 ■ Outage time electricity NL unplanned - MV minutes/households/ year 11.4 ■ Outage time electricity NL unplanned - LV minutes/households/ year 7 ■ Outage time NL gas average unplanned min/households/year 0.8
Outage time energy unplanned Enexis	Annual report Enexis Holding N.V.
Connections energy households	Annual report Enexis Holding N.V.

Increase in well-being due to feeding solar energy back into the grid

The impact of Enexis that enables feeding energy back into the grid consists mainly of two parts: the financial impact of the use of solar panels (PVs) and the increased well-being of the use of greener energy. The financial consequences result from the difference between electricity payments between PV owners and consumers without PVs. For PV owners, the electricity costs are calculated via the difference between savings as a result of the produced electricity and the money invested in the PVs. The well-being of PV owners increased due to the consumption of renewable electricity instead of electricity from more polluting energy sources and the corresponding contribution to environmental problems such as climate change. This increase in well-being is reflected in the higher willingness to pay (WTP) for renewable energy in comparison to conventional energy.

Calculation

Increase in well-being due to feeding solar energy back into the grid	Electricity costs for customers of the grid operator without PVs (EUR/year) -/- Electricity costs for customers of the grid operator with PVs (EUR/year) + (Willingness to pay (WTP) for renewable energy (EUR/kWh) * Consumed solar power own generation customer grid operator (kWh/year))

Valuation

Valuation is based on willingness to pay (WTP) and willingness to accept (WTA).

Sources

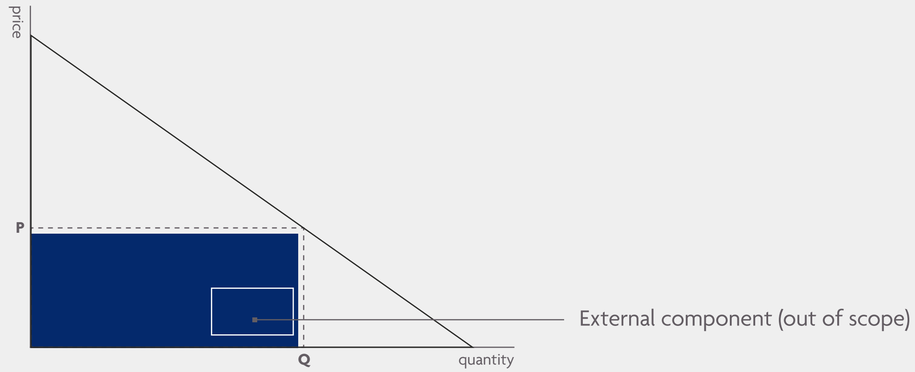
Electricity costs for customers without PVs	(Sector price including energy tax and VAT electricity – households – 2019 EUR/kWh 0.21)/transmitted volume
Electricity costs for customers with PVs	Combined data regarding household solar power generations systems of: KWINK Groep (Number of PV holders: before the meter; number of households 3,550 Power PV holders: before the meter kWp 7,921; Factor kilo watt peak to kilo watt hours kWh/kWp 900); Share of produced solar power own use/fed back into the grid from: Dutch Consumer Association; (Share produced solar power for own use 30% Share produced solar power fed back into the grid 70%) production costs solar power households of: National Solar Trend Report (Production costs solar power households (including installation) EUR/kWp/year 54.00 Costs PV households EUR/kWp 1,350)
Connections for feeding back solar power - households	Annual report Enexis Holding N.V.

4.2.2 VALUE OF ENERGY TRANSMISSION FOR BUSINESS CUSTOMERS

Definition and description of impact

The method for this is still being developed; therefore, only the internal part of the consumer surplus is taken into account for this impact. This is based on revenue figures; adjusted for turnover- and energytax (this is attributed to Enexis).

The figure below clarifies this relationship.



Calculation and limitations

- Net revenue of electricity and gas for high volume consumers is set at equal to the internal component of energy transmission for business customers.
- The willingness to pay of business customers is more difficult to determine. Therefore, conservatively, it is assumed that the value of energy for business customers equals the amount that was paid; i.e., the external component for business customers equals zero.

Calculation

Internal component electricity transmission business customers	Net revenue grid operator electricity business customers (EUR/year)
Internal component gas transmission business customers	Net revenue grid operator gas business customers (EUR/year)

Sources

Net revenue grid operator electricity business customers (EUR/year)	Annual report Enexis Holding N.V.
Net revenue grid operator gas business customers (EUR/year)	Annual report Enexis Holding N.V.

4.2.3. VALUE OF PURCHASED GOODS FOR ENERGY TRANSMISSION (SPECIFIED IN ELECTRICITY AND GAS)

These impacts are also part of the impact contribution of energy transmission to consumer well-being. These impacts indicate which share of the value creation can be attributed to suppliers. It is thus an adjustment item for manufactured capital.

Calculation

Value of purchased goods electricity transmission	External component electricity households attributed to suppliers (EUR/year) + Purchase of goods for electricity transmission (EUR/year)
Value of purchased goods gas transmission	External component gas households attributed to suppliers (EUR/year) + Purchase of goods for gas transmission

Sources

The costs of transmission services and of distribution losses (EUR/year)	Annual report Enexis Holding N.V.
Costs of outsourced work, materials and other external costs (EUR/year)	Annual report Enexis Holding N.V.
Net revenue grid operator electricity (EUR/year)	Annual report Enexis Holding N.V.
Net revenue grid operator gas (EUR/year)	Annual report Enexis Holding N.V.

4.3 NATURAL CAPITAL

As described earlier, natural capital comprises various impacts:

- Contribution to climate change
- Climate change mitigation
- Ecological damage due to the purchase of materials
- Ecological damage due to waste

The impacts are calculated in the rest of this section, after which the applied attribution factors are explained in the Attribution section.

4.3.1 CONTRIBUTION TO CLIMATE CHANGE

Contribution to climate change is defined as the organization's own greenhouse gas emissions and in the value chain which lead to climate change, which has a negative impact on people and ecosystems.

The impact contribution to climate change is calculated based on greenhouse gasses emitted by the own organisation and in the value chain. This is in accordance with the scopes in the Greenhouse Gas GHG - protocol for the sourcing and production phase (and to a limited extent the consumption phase) of electricity and gas.

- Direct greenhouse gas emissions from own operations - this corresponds with the scope 1 emissions that Enexis reports.
- Indirect greenhouse gas emissions of suppliers - this corresponds with the scope 2 and 3 emissions that Enexis reports.
- Chain emissions of gas and electricity production and sourcing - this concern a broad interpretation of scope 3 emissions: the emissions of the chain partners that Enexis contributes to in the production phase up to the consumption of the energy. These total emissions of electricity and gas consumption are estimated by multiplying the distributed amount with the corresponding emission factors.

The six greenhouse gasses defined in the Kyoto Protocol are in scope: carbon dioxide (CO_2), methane (CH4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphurhexafluoride (SF6).

4.3.2 CLIMATE CHANGE MITIGATION

The compensation of greenhouse gasses is reported separately as a separate (positive) impact mitigating climate change.

Calculation

Contribution to climate change	Contribution to climate change due to greenhouse gas emissions grid operator (direct - own organisation)	Emissions Scope 1 * Monetisation coefficient (EUR/kg CO_2 eq)
	Contribution to climate change due to greenhouse gas emissions grid operator (indirect - upstream - grid losses)	Emissions Scope 2 * Monetisation coefficient (EUR/kg CO_2 eq)
	Contribution to climate change due to greenhouse gas emissions grid operator (indirect - upstream - excluding grid losses)	(Emissions Scope 2+ Emissions Scope 3) * Monetisation coefficient (EUR/kg CO_2 eq)
	Contribution to climate change due to greenhouse gas emissions chain emissions electricity (indirect - upstream)	((Transmitted volumes of electricity (kWh/year) * Emission factor NL electricity mix (WTW*)) -/- Chain emissions electricity - production and own consumption) * Monetisation coefficient (EUR/kg CO_2 eq)
	Contribution to climate change due to greenhouse gas emissions chain emissions gas (indirect - upstream)	((Transmitted volumes of gas (m^3/year) * Emission factor NL natural gas (WTW)) -/- Chain emissions own gas consumption) * Monetisation coefficient (EUR/kg CO_2 eq)
Climate change mitigation	Climate change mitigation (direct)	Guarantees of Origin * Monetisation coefficient (EUR/kg CO_2 eq)
	Climate change mitigation (indirect)	Guarantees of Origin * Monetisation coefficient (EUR/kg CO_2 eq)

* WTW: Well to Wheel: concerns the emission of scope 1 and scope 2.

Valuation

True Price Monetisation factors 2022	0,157	EUR/kg CO_2 eq

Sources

Point of departure for the impact calculation is therefore the CO_2 figures as reported in the CO_2 footprint in the annual report of Enexis Holding N.V.

CO_2 emissions	Annual report Enexis Holding N.V.
Emission factor NL Electricity mix	CO_2 emission factors 2022 (Emission factor Netherlands electricity mix (WTW) kg CO_2-eq/kWh 0.427)
Emission factor NL Natural gas (WTW)	CO_2 emission factors 2022 (Emission factor natural gas (WTW) kg CO_2-eq/m^3 2.085)
Transmitted volumes electricity (kWh/year)	Annual report Enexis Holding N.V.
Transmitted volumes of gas (m^3/year)	Annual report Enexis Holding N.V.

The secondary data consists of emission factors electricity and gas consumption and the monetisation coefficient. It states in the Handboek Impactmeting Infrabedrijven that the grid operators apply an updating period of 3 years for this data. Enexis deviated from this and applied an update in 2022.

4.3.3 ECOLOGICAL DAMAGE DUE TO PURCHASE OF MATERIALS

Definition and description of impact

Enexis purchases a large amount of materials for its activities. The scope of this impact comprises transformers, cables and gas pipes. These are Enexis's largest product flows and the raw material passports are available for these products which are required to separate the material flows. The production of these materials has an impact on natural capital. By allocating ecological costs to these purchases, we gain insight into this impact. Eco-costs is a method to express the environmental burden of a product.

Limitations

In addition to the three aforementioned categories of grid components, other components and materials are also purchased; these components and materials fall outside the scope of this indicator. Moreover, only the largest seven material categories (copper, aluminium, steel, PV, (XL)PE and petroleum) within these grid components are in scope. The total eco-costs provide an indication for the contribution to the various negative impacts on natural capital due to the purchase of materials; however, the results per impact cannot be provided separately with the existing method. Together with the Impact Institute, we are looking into the possibility in the coming years to improve this method so that this will be possible in the future.

Calculation

Point of departure is the purchased tonnes of materials. Each quantity of the most important purchased material flows is multiplied by their respective eco-costs (secondary data source - Idemat database). Virgin and non-virgin (recycled) materials have different eco-costs. The eco-costs of the various materials are totalled to calculate the total eco-costs of the purchase of materials (€). Enexis is allocated impact for its value in the chain. This is computed using the following formula, in which it stands for a specific type of material:

Eco-costs purchase of materials	∑ <of 1 to 7> (tonnes purchased virgin material$_i$)*(eco-costs production virgin material$_i$)+(tonnes purchased recycled material$_i$)*(eco-costs recycled material$_i$)

$_i$ Copper, Aluminium, Steel, PVC, Rubber, (XL)PE and Petroleum

Sources

Eco-costs per material (EUR/kg)	Idemat database (2022)
Quantity purchased components (kg/year)	Circularity model Enexis
Quantity of material per grid component (kg/kg)	Circularity model Enexis (Raw Materials passports)

4.3.4 ECOLOGICAL DAMAGE DUE TO WASTE

Definition and description of impact

Enexis uses materials for its activities. The scope of waste includes all registered waste flow of Enexis. As soon as the materials (such as transformers, gas pipes, office supplies) are no longer in use, they are disposed of. This causes ecological damage to natural capital. We estimate this damage based on the eco-costs of processing waste. Eco-costs is a method to express the environmental burden of a product.

Limitations

The eco-costs of waste are estimated based on the average impact per type of processing (for example, incineration, dumping, recycling) and no distinction is made per material. In reality, the impact differs per material flow. The effect compared to the average impact is estimated as non-material.

The eco-costs of the CO_2 footprint overlap partially with the contribution to climate change of scope 3: upstream: own suppliers, for example grid components. The eco-costs include all emissions in the production chain of the materials. In order to ensure that the negative impact is not underestimated in any case (conservative estimate), the eco-costs of the CO_2 footprint are not adjusted for this.

The category processing hazardous waste only comprises the waste flow ‘Small hazardous waste’. Other waste flows that can be qualified as hazardous, such as ‘Materials containing asbestos’ are included in this processing form category, as indicated in the circularity model. The impact of the processing of hazardous waste is estimated with the eco-costs of dumping waste. The eco-costs of processing hazardous waste are not available in the secondary data source used. The eco-costs of dumping are the highest of the other types of processing. As a result, the impact of hazardous waste, a relatively small waste flow, is estimated conservatively.

Calculation

The point of departure is the tonnes of waste flows, as reported in Enexis’s waste reporting. The waste flows are categorised per processing method. These waste flows are multiplied by the eco-costs. Each waste flow has its own eco-costs, as defined in the Idemat database (secondary data source). The eco-costs of the various waste flows are totalled to calculate the total ecological damage caused by waste (€). This is calculated below using the following formula:

Ecological damage caused by waste	(tonnes of dumped material*eco-costs of dumping)+(tonnes of incinerated material*eco-costs of incineration)+(tonnes of hazards waste*eco-costs of dumping)+(tonnes of recycled material)+ (tonnes of fermented material*eco-costs of fermentation)

The eco-costs for recycling are zero. In a circular economy, the term waste is no longer used, waste is regarded as raw materials. The processing of waste into raw materials has an impact on natural capital.

Sources

Eco-costs per type of processing (EUR/kg)	Idemat database (2022)
Waste quantities specified according to type of processing (kg/year)	Circularity model Enexis

4.4 HUMAN CAPITAL

Enexis is responsible for nearly 5,000 employees. The question regarding the degree in which Enexis has an impact on its employees can be approached from two perspectives.

The possible negative impact of working is examined. Although Enexis takes good care of its employees and has extensive safety instructions, accidents do occur when work is being carried out, such as impact injuries and tripping. The work can also contribute to work-related absenteeism such as back complaints or burnout. The aim is to determine the impact of these accidents and work-related absenteeism on the well-being of our employees.

We also examine to what extent having a job contributes to well-being (positive impact). In the impact, the non-financial benefits for employees of having a job in relation to unemployment is measured.

4.4.1 ACCIDENTS AND ABSENTEEISM OF EMPLOYEES

Definition and description of impact

The health effects of work-related absenteeism and accidents of employees. The degree in which work-related incidents and absenteeism have a negative effect on the general state of health, the well-being and the safety of the employees. This comprises fatal and non-fatal work-related accidents in the working environment and preventing chronic stress. This applies to both incidents in the organisation (direct impact) and in the value chain (indirect impact).

Calculation and limitation

The loss of employee well-being is measured based on the indicator Disability-Adjusted Life Year (DALY). This represents both the observed loss of an employee's well-being as well as his/her loss of future income. DALYs for an illness or state of health are calculated as the sum of the years of life lost due to an early death (Years of Life Lost, YLL) and the loss of healthy years of life due to illness and/or disability (Years Lost due to Disability, YLD) (definition from WHO, 2020).

Work-related absenteeism and accidents of employees consist of three components: non-fatal accidents, fatal accidents, and other work-related absenteeism. The three components are modelled separately, as shown below:

non-fatal accidents	The incidents within Enexis are divided into the categories: squeezing/banging/cutting, falling/tripping, traffic, toxic substances, etc. animals, aggression (people) mental/physical, fire and other to combine with the DALY data in connection with these types of health effects
fatal accidents	Determined based on the number of fatalities due to work-related incidents within Enexis, where the number of fatalities is multiplied by the valuation coefficient for fatal incidents.
other work-related absenteeism	Comprises health loss that is not included under that other two items. The work-related absenteeism is divided into mental and physical & ergonomic and other. The three forms of absenteeism are estimated based on the number of absenteeism days and a weighing factor of inability to work. The weighing factor due to physical problems is estimated as the weighted average for complaints regarding the upper limbs, back and lower limbs. The total absenteeism in the three categories (mental, physical and other) are then multiplied by a corresponding factor for the lower value of a year of life (disability weight) (definition from GBD, 2017). The total of the categories thus provides an estimate of the number of Disability-Adjusted Life Year (DALY) caused by other work-related absenteeism. Finally, the number of DALY is multiplied by the valuation coefficient of a DALY.

The assumption is made that absenteeism that has been determined to be not 'work-related' is not related to the work at Enexis.

The calculation of the impacts of work-related absenteeism and accidents of employees (safety) is limited to direct impacts; aimed at the own organisation. An accident or illness can lead to other accidents or illnesses, which is not measured.

Accidents and absenteeism of employees	Loss of well-being due to non-fatal accidents own organisation (EUR/year)+ Loss of well-being due to fatal accidents own organisation (EUR/year) + Loss of well-being due to work-related absenteeism own organisation (EUR/year)

Valuation

The valuation coefficients for DALYs and fatal accidents are related to each other. The monetisation of a fatal accident is estimated based on the Value of Statistical Life (VSL) form a meta study by the Organisation for Economic Co-operation and Development (OECD) (2010). The monetisation of a DALY is then derived from this based on average life expectancy. The coefficient is adjusted based on inflation (World Bank, 2021).

Sources

Work-related absenteeism	HR report Absenteeism; TNO Arbobalans 2018 Share of work-related illnesses mental 39% Share work-related illnesses bones, muscles and joints 42% Share of work-related illnesses unknown and other 18% Share of work-related absenteeism 46%)
Number of accidents	HSE VGWM Reports
Disability Weights	GBD (2017), 'Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2017'; Haagsma et al. (2016) (Disability weight Mental Lost years/year 0.13 Disability weight Physical & ergonomic Lost years/year 0.09)

4.4.2. WELL-BEING EFFECTS OF HAVING A JOB

Definition and description of impact

The well-being effect of having a job has an impact on self-confidence, autonomy, social relationships and status. Having a job increases personal well-being, both through increased social contacts and a greater sense of trust in society, as through increased work fitness and a greater self-esteem. The well-being effects of having a job represent the average changes in life satisfaction (in addition to the financial impact of salary) of an employee who has a job at an organisation compared to a person without a job.

Calculation and limitation

- Well-being effects of having a job are applied to all employees of the organisation. This is estimated by making use of an average increase of the life satisfaction. A distinction is made in: well-being effects for employees without distance to the labour market and well-being effects for employees with distance to the labour market.
- For employees without distance to the labour market, the Netherlands average of well-being effects of having a job is estimated making use of the best available well-being factor of having a job (LS-points - European Social Survey (ESS)). This factor indicates the average difference in life satisfaction between a person with and without a job, irrespective of difference in income.
- For employees who previously had distance to the labour market, the Netherlands average of well-being effects of having a job is estimated making use of a different well-being factor (specific for persons who are limited in their daily activities due to an illness, handicap, disability or mental problems), in this case also from the European Social Survey (LS points - ESS).
- The well-being factors for both groups are specified with an adjustment factor based on Enexis's employee satisfaction surveys: the ratio between average employee satisfaction in the Netherlands and the average employee satisfaction of Enexis, JS points. This ratio is multiplied by the well-being factor for employee satisfaction of the ESS (expressed in life satisfaction per employee satisfaction) and added to the well-being factor of having a job.
- The factor for employees without distance to the labour market is multiplied by the number of employees per organisation who do have distance to the labour market.
- The factor for employees with distance to the labour market is multiplied by the number of employees per organisation with distance to the labour market.
- The total of these calculations is the footprint of the impact, expressed in life satisfaction points. This footprint is multiplied by the monetisation coefficient.
- An underlying assumptions is that the employees of Enexis do not differ structurally from the average Dutch workforce. Such structural differences are unlikely as Enexis does not apply any specific selection to its employees and has a large group of employees with diverse jobs.

Well-being effects of having a job	Employees of the own organisation (excluding employees with distance to the labour market) * ((Average employee satisfaction NL -/- average employee satisfaction Enexis) * Average increase in life satisfaction of having a job at the organisation per person) * Monetisation coefficient
	Employees of the own organisation with distance to the labour market * ((Average employee satisfaction NL -/- average employee satisfaction Enexis) * Average increase in life satisfaction of having a job at the organisation per person with poor job prospects) * Monetisation coefficient

Valuation

In line with the Manual, the impact is valued using a monetisation coefficient for life satisfaction points.

True Price Monetisation factors 2022	2,359	EUR/LS points

Sources	
Number of employees	Annual report Enexis Holding N.V.
Average employee satisfaction Enexis	Annual report Enexis Holding N.V.
Well-being factors	European Social Survey: ■ Average increase in life satisfaction due to having a job per person LS points (0-100) 7.000 ■ Average increase in life satisfaction due to having a job per person per employee satisfaction point LS points (0-100)/JS points (0-100) 0.180 ■ Average increase in life satisfaction due to having a job per person (distance to labour market) LS points (0-100) 15.900 ■ Average increase in life satisfaction due to having a job per person per employee satisfaction point (distance to labour market) LS points (0-100)/JS points (0-100) 0.180
Average employee satisfaction Netherlands	CBS-Statistics Netherlands National Survey Employment Conditions Average employee satisfaction Netherlands JS points (0-100) 72.250

ATTRIBUTION

As described above, impacts are attributed to stakeholders based on (a) responsibility and (b) share in the chain. The attribution calculation then takes place in three steps.

STEP 1: CLASSIFICATION BASED ON RESPONSIBILITY

ATTRIBUTION-TYPE	ATTRIBUTION	IMPACT
1	Predominantly internal effects	Impact within financial capital
		Internal component energy transmission households
		Internal component electricity transmission business customers
		Internal component gas transmission business customers
		Purchase of goods for electricity transmission
		Purchase of goods for gas transmission
2a	Attribution factor for external impacts for which the primary responsibility lies with the grid operator (direct) with regard to the whole energy chain	Well-being loss due to interruptions in the energy supply (specified in electricity and gas)
		Contribution to climate change due to greenhouse gas emissions grid operator (direct - own organisation)
		Contribution to climate change due to greenhouse gas emissions grid operator (indirect - upstream - grid losses)
		Climate change mitigation (direct)
		Ecological damage due to purchase of materials
		Ecological damage due to waste
		Non-fatal accidents
		Fatal accidents
		Other work-related absenteeism
		Well-being effects of having a job
2b	Attribution factor for external impacts for which the primary responsibility does not lie with the grid operator (indirect) with regard to the whole energy chain	Contribution to climate change due to greenhouse gas emissions grid operator (indirect - upstream - excluding grid losses)
		Contribution to climate change due to greenhouse gas emissions chain emissions electricity (indirect - upstream)
		Contribution to climate change due to greenhouse gas emissions chain emissions gas (indirect - upstream)
		Climate change mitigation (indirect)
3	Attribution factor for external impacts for which no party is primarily responsible in the whole energy chain	External component energy transmission households (attributed to grid operator and suppliers)
		Increase in well-being due to feeding solar energy back into the grid (only included for electricity)
		External component electricity transmission (attributed to suppliers)
		External component gas transmission (attributed to suppliers)

STEP 2: CALCULATION OF ECONOMIC ADDED VALUE

For the calculation of the added value, a distinction is made between a number of value chains that differ per type of product - electricity, gas, feeding energy back into the grid - and type of customer - business customers and households.

This takes place in two steps:

- The share of the grid price in the transaction price is determined first based on data from Statistics Netherlands (CBS data). An adjustment is then made for the energy tax. To avoid large fluctuations and to make the results more steerable and easier to interpret, it has been agreed within the sector, to set the attribution factors for a period of three years. The factors from 2020 are used in the reporting year 2022. Enexis did not follow the above agreement for the reporting year 2022. For the reporting year 2022, Enexis used the factors from 2021.
- The share within the grid price is then calculated. This is calculated by dividing the added value (revenue - purchasing costs and investments) by the revenue.

The multiplication of these two shares is used to estimate the economic Added Value (AV) factor for each value chain. Finally, the average AV factor is calculated as a weighted average based on the revenue per value chain.

DESCRIPTION	WEIGHTED AVERAGE	ADDED VALUE ELECTRICITY	ADDED VALUE GAS
Grid operator	12,43%	13,0%	10,8%
■ Business grid operator		17,2%	15,5%
■ Business suppliers		10,9%	4,7%
■ Households grid operator		10,8%	10,3%
■ Households suppliers		6,9%	3,1%
■ Feeding energy back into the grid households		4,4%	NA

STEP 3: CALCULATION OF ATTRIBUTION FACTORS

The attribution factors are determined as a combination of attribution type and (for type 2 and 3) the AV factor in the value chain to which the impact pertains (average AV factor, if not chain specific). The combination of step 1 and 2 in accordance with the method as described in IAM Supplement Impact Contribution (Handboek Impactmeting Infrabedrijven) results in the attribution factors per impact indicator.

REPORTING

In the 2022 annual report of Enexis Holding N.V., we report the following impacts.

Financial capital	Received contributions
	Payments to suppliers
	Payments to employees
	Taxes
	Capital raised, repayments and interest received
	Dividends, repayments and interest
	Other income
	Change in the cash reserves
	Payments by customers (large volume consumers)
	Payments by customers (small volume consumers)
Manufactured capital	Contribution of electricity transmission to consumer well-being
	Contribution of gas transmission to consumer well-being
	Value of energy transmission for business customers
	Value of purchased goods for electricity transmission
	Value of purchased goods for gas transmission
Natural capital	Contribution to climate change
	Climate change mitigation
	Ecological damage due to purchase of materials
	Ecological damage due to waste
Human capital	Accidents and absenteeism of employees
	Well-being effects of having a job

Enexis's CSR vision is aimed at increasing the focus in Enexis's activities on behalf of society in combination with a clear structuring and framing of existing activities. The framework to structure, communicate and steer these activities on behalf of society is based on the SDGs. Therefore, we report a qualitative estimate of Enexis's contribution to the Sustainable Development Goals (SDGs). The qualitative materiality analysis, as described in Scope, on the standard list of impacts was used for this to obtain insight into Enexis's contribution to the SDGs.