SUMA CAPITAL's SCEEF II 2019 Impact Report

As of December 31st, 2019 portfolio

Report
May 2020

Content

1. Objective of this report

We are aware that SUMA CAPITAL has identified responsible investment as a relevant business opportunity; indeed, challenges such as climate change or the depletion of resources will necessarily generate new investment needs in the following years. Nevertheless, we also understand that, as a responsible impact investor, SUMA CAPITAL recognizes a social role for investment, supporting economic activity that upgrades rather than damages natural and social capital.

As a result of the latter, SUMA CAPITAL, in its 'SC Infra' investments, seeks a **double objective in its investments: financial and social-environmental performance, which is quantified and reported to its investors**. Therefore, the aim of this report is to complement the financial information of the investments and to cover this second objective.

In order to do so, the 'SC Infra' Projects, which are grouped in Energy Transition and Circular Economy initiatives, have been analysed and modelled, in order to obtain its social-environmental impact by calculating its **Key Impact Indicators**.

'SC Infra' – Types of projects

Energy Transition

SUMA CAPITAL promotes projects that optimize the most efficient use of energy, by improving energy efficiency, generating renewable energy, or rationalizing mobility and transport.

Circular Economy

SUMA CAPITAL promotes projects that increase the reuse, recycling or recovery of waste by generating new resources or energy.

Objective of this report – Impact valuation

Social-environmental Impact

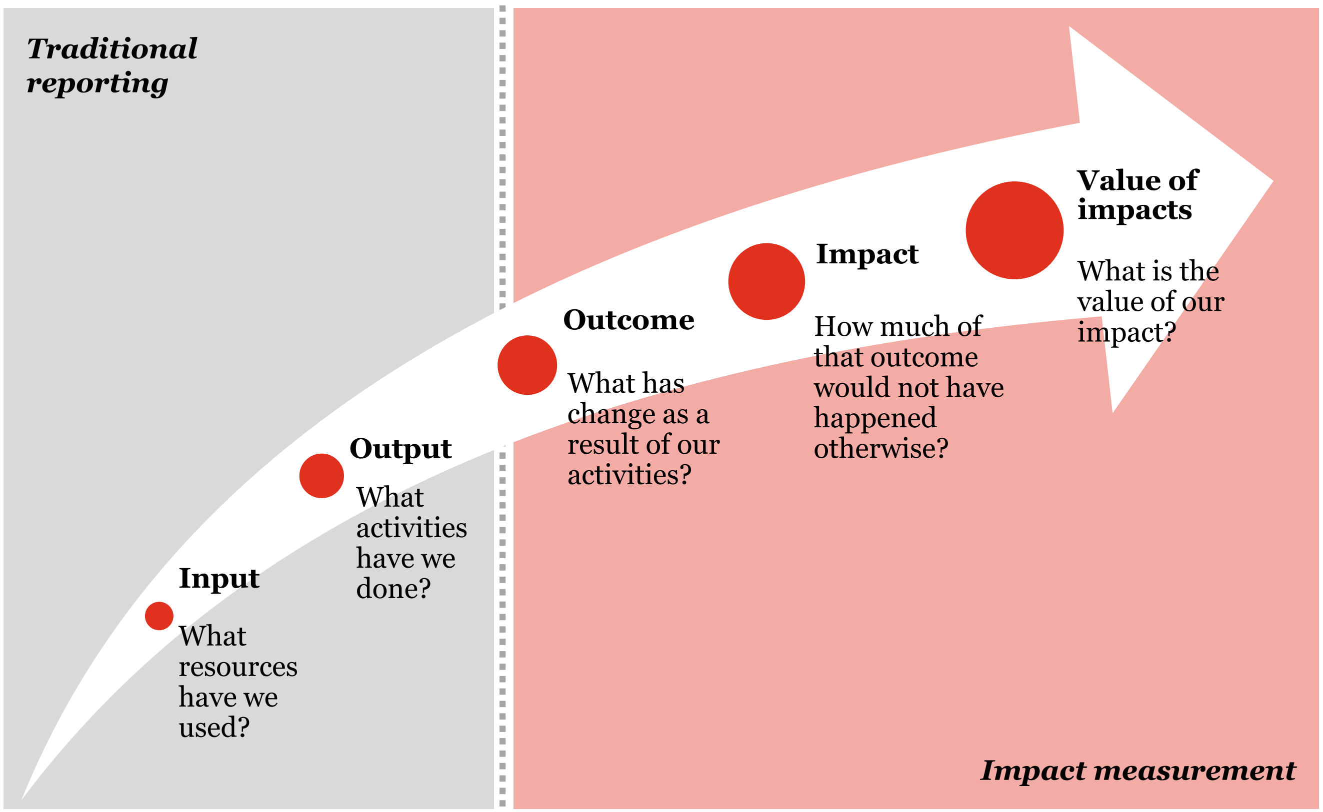
By promoting Energy Transition and Circular Economy projects, SUMA CAPITAL improves ***key indicators*** *for our society.*

In this respect, SUMA CAPITAL asked PwC to help him build a robust, consistent methodology specifically designed to measure the environmental and social impact associated to SUMA CAPITAL's funded activities in SCEEF II, throughout the life span of the projects. The results obtained will also enable to broadly communicate the social and environmental benefit associated to these activities.

2. Measuring what matters
Impact valuation: going a step further

We have used Impact Valuation to take our investments beyond traditional reporting frameworks to help us and our investors to understand the **full extent of our impact and the value that is created for society**. Whilst conventional measurement techniques mainly focus on the inputs and outputs of a given activity, Impact Measurement & Valuation (IM&V) techniques can reveal the relationship between a business's inputs and activities, their outputs and their longer term outcomes and associated impacts for society.

Impact measurement is gaining momentum in the Impact Investment industry. The impact investors are able to clearly measure their social and environmental impact generated alongside a financial return.



2. Measuring what matters
Impact valuation: a brief insight

We have used IM&V to take traditional environmental and social metrics (eg. kgCO2e, m^3 of water, job creation, etc.) and convert them into monetary values, allowing comparison and evaluation across impact areas. PwC's approach to IM&V seeks to **value the impacts on people that result from corporate-driven changes in the natural and socio-economic environment**, for example through the use of natural resources within a corporate value chain. The values generated represent an estimate of the **change in wellbeing** (or in economic terms 'welfare') experienced by people as a result of corporate activities. These values, also called as **'externalities'**, can be either positive or negative in order to reflect an associated benefit or an associated cost to society.

These 'externalities' can be categorised in a series of **Key Impact Indicators (KII)**, thus, obtaining a complete understanding of the social performance of the projects. Also, through these KII, these externalities can be monetized, being able to reflect the performance of the projects through their **SEROI (Social and Environment Return on Investment)**.

Expression of impacts from investments in monetary terms

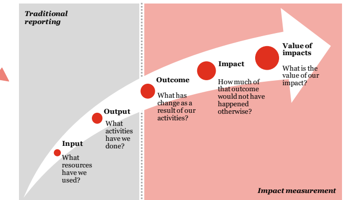
Impact valuation takes these…		***…and by means of Key Impact Indicators…***		***converts them into…***
Fuel consumption Electricity production Electricity reduction thanks to energy efficiency measures …	→	Particulate Matter emissions avoided (PM10-eq) Total primary energy savings (MJ, or oil-eq) Greenhouse Gas Emissions reduction (ton CO2e) …	→	€ **SEROI (Social and Environment Return on Investment)**

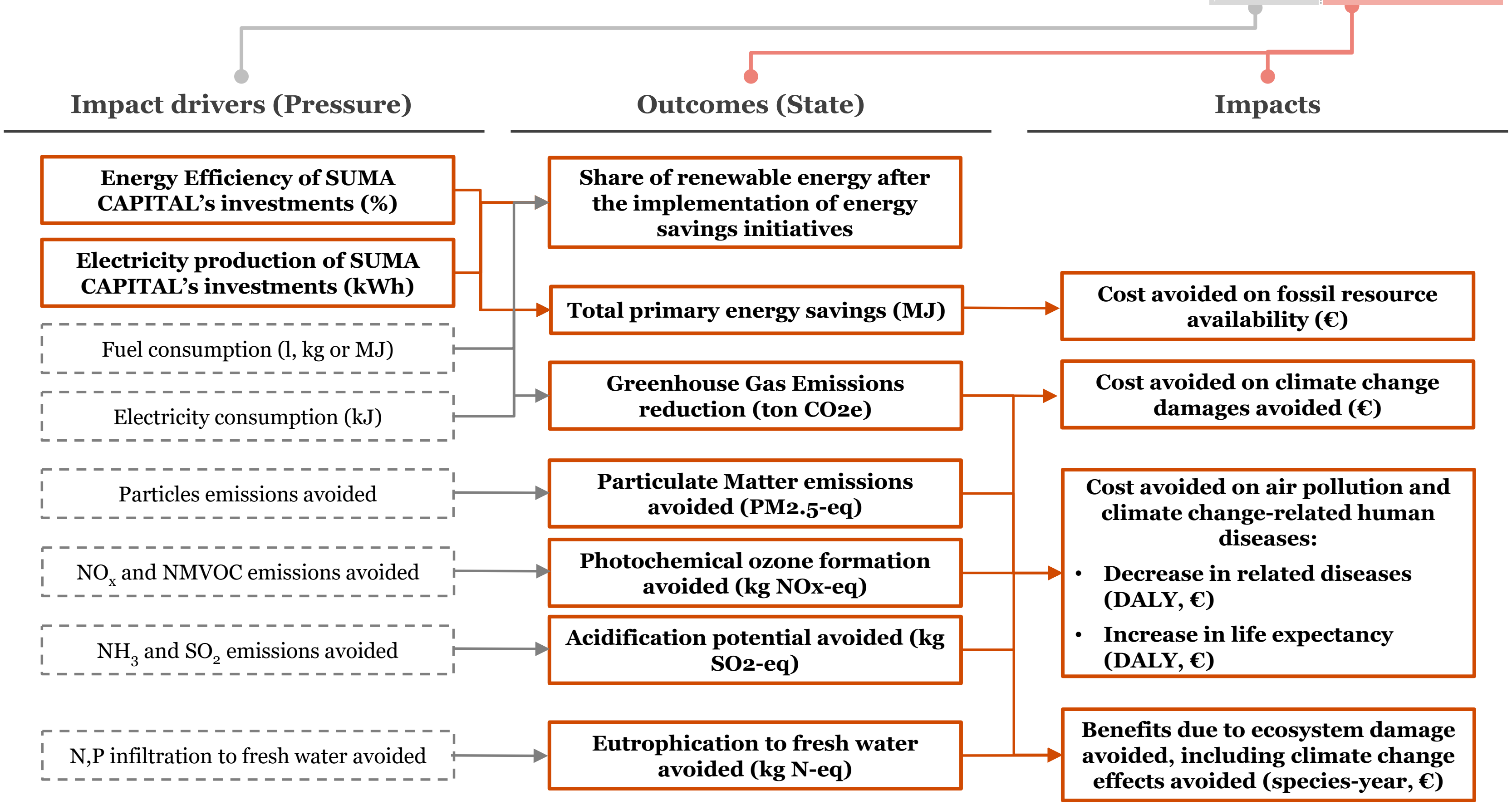
Externalities avoided thanks to sustainability positive investments

The monetization of these impacts makes it possible to translate the social costs avoided thanks to SUMA CAPITAL's positive investments into economic terms.

2. Measuring what matters
Impact valuation: overview of Key Impact Indicators

The following chart summarizes the Impact drivers, intermediate indicators and **Key Impact Indicators** to be assessed for the SCEEF II Projects. The chart follows the previously proposed **impact valuation scheme**, upon which the IM&V methodology has been built.





3. SCEEF II's Global Impact at a Glance
SCEEF II's Impact Valuation: Portfolio

The Impact Valuation calculations have been conducted for SCEEF II projects as of **December 31st, 2019** and have considered all the financial inputs required for the project to function (CAPEX and OPEX). In this sense, CAPEX invested by the Fund has a multiplier effect by permitting additional expenditures (OPEX and additional CAPEX) throughout the life span of the projects.

Type of project	Project	Sector	SCEEF II Investment	Total amount (CAPEX)[1]	Total amount (OPEX)[2]	Total amount (CAPEX+OPEX)
Circular Economy	1. Aranda District Heating	Waste to Energy				
Energy Transition	2. Cooltra Inversión Motos	Mobility				
Energy Transition	3. EE Infrastructures	Energy Efficiency				
Circular Economy	4. Guadalajara District Heating	Waste to Energy				
Energy Transition	5. Hinojosa Solar Power	Solar Power				
Circular Economy	6. SC Valorizaciones Agropecuarias	Waste to Resource				
Circular Economy	7. SC Zero Waste Biopower	Waste to Energy & Resource				
Energy Transition	8. SC Generación Renovable	Solar Power				
			TOTAL AMOUNT (CAPEX + OPEX)			**1,285.5 M€**

[1] *The figures included in this table, and considered in the IM&V calculations, do not include committed quantities that are add-ons.*

[2] *OPEX estimated for the life span of the projects and discounted at 6%.*

Also, SCEEF II's projects contribute, to at least some extent, to the following **Sustainable Development Goals (SDGs)**:

SDG 3:
Good health and well-being

SDG 7:
Affordable and clean energy

SDG 8:
Decent work and economic growth

SDG 9:
Industry, innovation and infrastructure

SDG 11:
Sustainable cities and communities

SDG 12:
Responsible consumption and production

SDG 13:
Climate Action

SDG 15:
Life on land

3. SCEEF II's Global Impact at a Glance

SCEEF II Impact Valuation: Headline Results

Based on the Key Impact Indicators for SCEEF II, some additional information related to the **social and environmental impact** to be achieved during the **life span of the projects** have been obtained, as follows:

CO_2

13 CLIMATE ACTION

~6.4 million tons of CO_{2e} will be avoided...

...throughout the life span of SCEEF II projects. GEI Emissions avoided are comparable to 0.36 million tons of CO_{2e} per year in the next 18 years[1]...

...this is approximately equivalent to the CO_2 absorbed per year by 40,000 hectares of Spanish pine forest.

~40,000 ha.

[1] 18 years is the weighted average by Social Benefit estimated life span of SCEEF II Projects.

7 AFFORDABLE AND CLEAN ENERGY

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

~43 million GJ of primary energy from fuels will be avoided...

...throughout the life span of SCEEF II projects. The primary energy avoided is comparable to 2.4 million GJ per year in the next 18 years[1]...

... this is equivalent to the household consumption of gas and petroleum products of around 20,000 EU citizens.

~20,000

[1] 18 years is the weighted average by Social Benefit estimated life span of SCEEF II Projects.

3 GOOD HEALTH AND WELL-BEING

~ 390 DALYs[2] (years of 'healthy' life gained)

SCEEF II projects will contribute with +360 DALYs, mainly due to the reduction of climate change-related damages and diseases in the population.

[2] DALYs stands for: Disability-Adjusted Life Years, and it is a measurement of one lost year of 'healthy' life.

15 LIFE ON LAND

~ 1.5 species-year[3]

...will be protected thanks to SCEEF II Projects. This is equivalent to the **restoration and preservation of over 1,000 ha. of Mediterranean forest.**

[3] The indicator: 'species-year' is established by ReCiPe methodology, and accounts for the Ecological Damage caused or avoided in terrestrial, freshwater and marine water ecosystems.

3. SCEEF II's Global Impact at a Glance

SCEEF II Impact Valuation: Headline Results (continued)

Based on the Key Impact Indicators for SCEEF II, some additional information related to the **social and environmental impact** to be achieved during the **life span of the projects** have been obtained, as follows:

Increase of +18% of energy efficiency performance…

…thanks to over 1,000 million kWh of energy consumption reduction, throughout the life span of Energy Efficiency and District Heating projects.

Reduction of $PM2.5_{eq}$ emissions in ~210 tons and…

…reduction of $SO_{2,eq}$ emissions in ~2,800 tons…

…$PM2.5_{eq}$ avoided are equivalent to emissions of around 90,000 petrol cars in the next 18 years[1]

~90,000 petrol cars

[1] *18 years is the weighted average by Social Benefit estimated life span of SCEEF II Projects.*

SCEEF II's waste valorisation projects help diminish eutrophication of freshwater ecosystems…

~ 10 hm³

…of fresh water will not be eutrophized throughout the life span of these projects. This is approximately equal to 4,000 Olympic swimming-pools.

~ 4,000 net jobs

SCEEF II's projects will help create on the order of 4,000 net jobs.

3. SCEEF II's Global Impact at a Glance

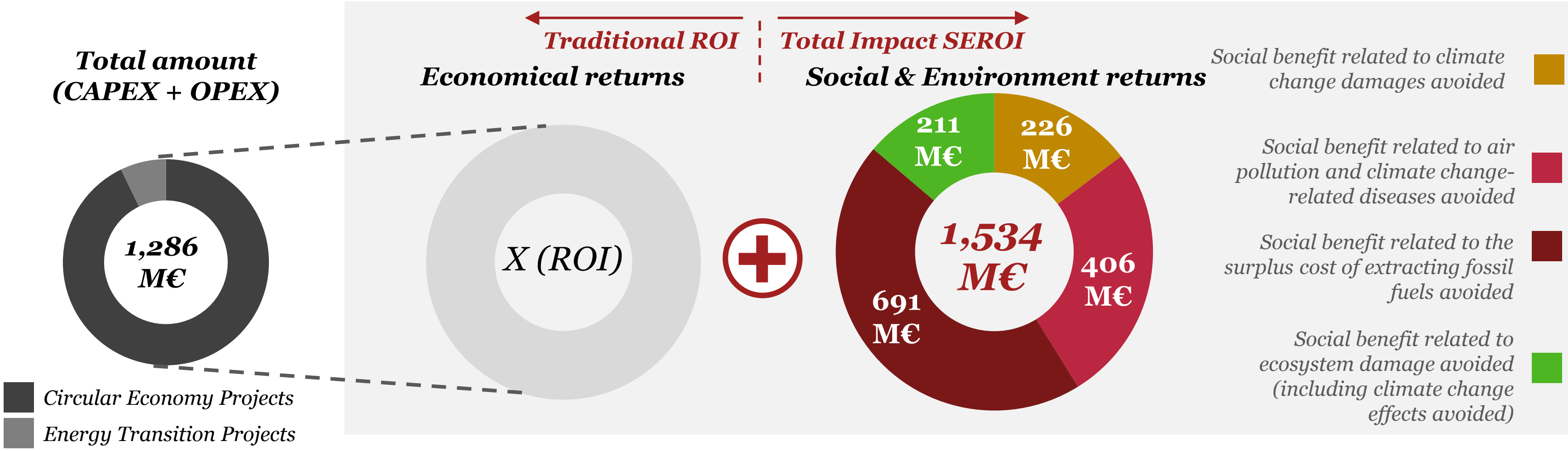
SCEEF II's Impact Valuation: Global Results

After applying the Impact Valuation methodology[1], it has been demonstrated that SCEEF II generates value beyond what is captured by traditional financial measurement. Alongside traditional expected benefits, SCEEF II's projects turn out to be a trigger for additional positive co-benefits for the society which are represented in these monetized Key Impact Indicators, which are related to the following SDG:

- **Social benefit related to climate change damages avoided**
- **Social benefit related to air pollution and climate change-related diseases avoided**
- **Social benefit related to the surplus cost of extracting fossil fuels avoided**
- **Social benefit related to ecosystem damage avoided (including climate change effects avoided)**

SCEEF II promote, in a **multiplier effect**, additional financial inputs (**up to 14x in OPEX and extra CAPEX during the lifespan of the projects**) which, in turn, result in relevant benefits to society.

In this regard, **every 1€ dedicated to SCEEF II projects** (CAPEX and OPEX) **will generate an estimated 1.19 € for society**, over the whole life span of these projects.



3. SCEEF II's Global Impact at a Glance
SCEEF II's Impact Valuation: Global Results (continued)

The Impact Valuation methodology has been applied for each type of project that comprises SCEEF II, obtaining these monetized Key Impact Indicators. The following chart summarizes this data.

Type of project	Project	Sector	Social benefit related to climate change damages avoided	Social benefit related to air pollution and climate change-related diseases avoided	Social benefit related to the surplus cost of extracting fossil fuels avoided	Social benefit related to ecosystem damage avoided (including climate change effects avoided)	*Social Benefit of the projects*	*SEROI Benefit of the Projects*
Circular Economy	1. Aranda District Heating	Waste to Energy	15.2 M€	1.1 M€	51.2 M€	9.5 M€	**77.0 M€**	**2.41x**
Energy Transition	2. Cooltra Inversión Motos	Mobility	0.04 M€	0.13 M€	0.14 M€	0.04 M€	**0.35 M€**	**0.07x**
Energy Transition	3. Efficiency & Environment Infrastructures II	Energy Efficiency	0.6 M€	3.1 M€	1.4 M€	0.9 M€	**6.0 M€**	**0.64x**
Circular Economy	4. Guadalajara District Heating	Waste to Energy	43.6 M€	3.2 M€	146.5 M€	27.1 M€	**220.4 M€**	**2.55x**
Energy Transition	5. Hinojosa Solar Power	Solar Power	4.4 M€	20.2 M€	11.5 M€	6.3 M€	**42.4 M€**	**1.98x**
Circular Economy	6. SC Valorizaciones Agropecuarias	Waste to Resource	16.2 M€	44.7 M€	27.6 M€	17.7 M€	**106.3 M€**	**0.94x**
Circular Economy	7. SC Zero Waste Biopower	Waste to Energy & Resource	126.7 M€	282.2 M€	422.2 M€	134.0 M€	**965.1 M€**	**1.00x**
Energy Transition	8. SC Generación Renovable	Solar Power	19.0 M€	51.0 M€	30.4 M€	16.0 M€	**116.4 M€**	**2.06x**
	TOTAL IMPACT (SOCIAL&ENVIRONMENT RETURNS) – RESULTS		**225.8 M€**	**405.7 M€**	**691.0 M€**	**211.5 M€**	**1,533.9 M€**	**1.19x**

3. SCEEF II's Global Impact at a Glance

SCEEF II's Impact Valuation: Global Results (continued)

Additionally, the Impact Valuation methodology has enabled to obtain other relevant Key Impact Indicators, in particular terms for each type of project that comprises SCEEF II. These indicators have been calculated in terms of the life span of each project. The following chart summarizes this data.

Type of project	Project	Sector	GHG emissions avoided	DALYs increase in society	Primary energy from fuels avoided	Species-year increase in biodiversity
Circular Economy	1. Aranda District Heating	Waste to Energy	494,500 ton $CO_{2,e}$	19.9 DALY	1,257,800 GJ	0.05 species-year
Energy Transition	2. Cooltra Inversión Motos	Mobility	930 ton $CO_{2,e}$	0.2 DALY	8,900 GJ	0.001 species-year
Energy Transition	3. Efficiency & Environment Infrastructures II	Energy Efficiency	16,300 ton $CO_{2,e}$	3.8 DALY	558,000 GJ	0.01 species-year
Circular Economy	4. Guadalajara District Heating	Waste to Energy	1,414,700 ton $CO_{2,e}$	57.2 DALY	3,631,000 GJ	0.14 species-year
Energy Transition	5. Hinojosa Solar Power	Solar Power	141,100 ton $CO_{2,e}$	10.0 DALY	2,344,000 GJ	0.03 species-year
Circular Economy	6. SC Valorizaciones Agropecuarias	Waste to Resource	466,000 ton $CO_{2,e}$	27.8 DALY	3,323,800 GJ	0.12 species-year
Circular Economy	7. SC Zero Waste Biopower	Waste to Energy & Resource	3,535,900 ton $CO_{2,e}$	245.0 DALY	26,081,400 GJ	1.11 species-year
Energy Transition	8. SC Generación Renovable	Solar Power	364,100 ton $CO_{2,e}$	25.5 DALY	5,963,500 GJ	0.07 species-year
	KEY IMPACT INDICATORS (KII) - RESULTS		6,433,500 ton $CO_{2,e}$	389.4 DALY	43,168,300 GJ	1.53 species-year

4. SCEEF II's Portfolio Detailed Impact

Circular Economy: 1. *Aranda District Heating*

Challenge

Bioenergy for heat is gaining force in the EU, due to, among other reasons, its **positive contribution in reducing fossil fuel dependence**. It is important to note that the latter factor is crucial in Spain, where almost all its fossil fuels are imported.

In the EU, biomass use for heat is already mainstream, and represents around **86,000 ktoe** (44% of the overall renewable energies production), although Spain is still lagging in this respect.

District Heating: Response and Impact

The main impacts of the District Heating projects come from its contribution in **diminishing fossil fuel dependence** and **CO2 emissions**.

In particular, since the **production** of energy in the 'District' is **centralized**, the resulting 'economies of scale' bring about a significant increase in energy efficiency, which consequently results in an extra **decrease on primary energy demand**.

With regard to atmospheric pollution, in overall terms the impact is lower than the impact associated with conventional boilers. This is possible thanks to the gas cleaning systems installed in the project (cyclon and sleeve filter), which reduce particulate matter (PM2.5) emissions.

All the biomass supply comes from Spanish **PEFC-certified** forests. The sustainable management of these natural resources helps **diminish the occurrence of forest fires** and **promote local employment**, along with other positive effects.

KII Results (over the life span of the project)

0.49 million ton CO2e emissions avoided

1.26 million GJ of primary energy avoided

19.9 DALYs that benefit society

0.05 species-year that benefit biodiversity

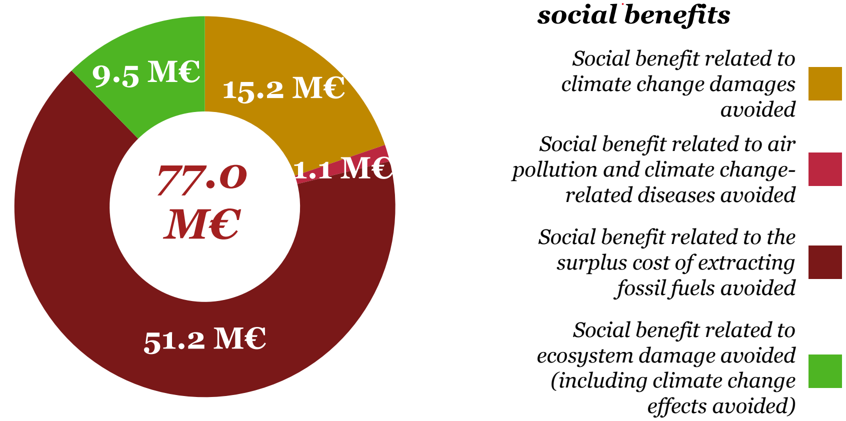
Additional facts...

...Increase in Thermal Energy Efficiency.

...13,700 ton of residues from sustainable certified forests (PEFC), per year.

Total Impact Results

...every 1 € invested in the project results in 2.41 € of social benefits



4. SCEEF II's Portfolio Detailed Impact

Energy Transition: 2. *Cooltra Inversión Motos*

Challenge

The EU is strongly committed to promoting an ecologic transition in the mobility sector. Specifically, the European Commission has launched a **Sustainable Urban Mobility Planning**, which, among other goals, intends to help balance the need for economic viability, social equity, health and environmental quality.

Sustainable Mobility: Response and Impact

Vehicles utilized in this sustainable mobility project function exclusively with electricity. The combustion avoided thanks to its utilization will result in social benefits: **reduction of fossil fuel dependence** and **improvement of the air quality** in cities, by diminishing NOx, SO2 and particulate matter (PM2.5) concentrations.

Since the electricity consumed to charge the vehicles is 100% renewable, there is a significant **reduction of CO2 emissions**.

In addition, this project have other relevant co-benefits that, although beyond the Impact Valuation Model proposed, must be taken into consideration: **improved vehicle utilization** (which consequently leads to an increment in overall social benefits) and **noise levels reduction**. When compared with automobiles, other co-benefits arise, such as its **lower space required**.

KII Results (over the life span of the project)

930 ton CO2e emissions avoided

8,900 GJ of primary energy avoided

0.19 DALYs that benefit society

4.8 ton NOx,eq emissions avoided
(along with SO2 and PM2.5 emission reduction)

Additional facts…

…100% renewable energy consumed when charging the vehicles.

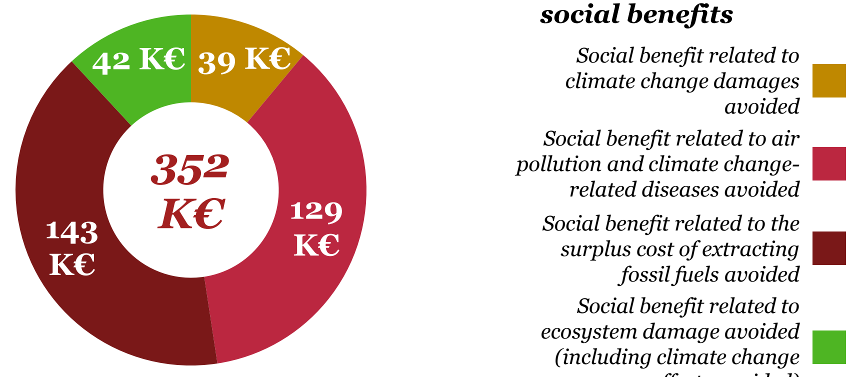
…the project promotes integration of renewables.

…the project will reduce noise levels in the cities, and increase space availability.

…the project guarantees better vehicle utilization ratios.

Total Impact Results

…every 1 € invested in the project results in 0.07 € of social benefits



4. SCEEF II's Portfolio Detailed Impact

Energy Transition: 3. *Efficiency & Environment Infrastructures II*

Challenge

Global demand for energy is forecast to increase by as much as 50% by 2030. The need for sustainable solutions may well be at odds with the need for resources to fuel growth. A new rethinking of energy efficiency treats it as an energy source in its own right representing **the value of energy saved**.

Specifically for the **EU**, a new **2030** Framework for climate and energy aims to attain at least **27% energy savings** compared with the business-as-usual scenario.

Energy Efficiency: Response and Impact

The social benefits obtained derive from an increment in electricity efficiency in several buildings, which is accomplished by implementing **electric system upgrades**, as well as a **self-consumption electric system** (with photovoltaic energy).

With regard to the actualization of electric systems, the measurements implemented have allowed to **increase the energy efficiency** of the lighting (by installing LED and presence detectors), and air conditioning and compressors, in domestic, commercial and industrial buildings.

The most important benefits monetized in the impact valuation model are, in order of importance, **air pollution and climate change-related diseases avoided and fossil resource availability**.

KII Results (over the life span of the project)

16,300 ton CO2e emissions avoided

0.56 million GJ of primary energy avoided

3.8 DALYs that benefit society

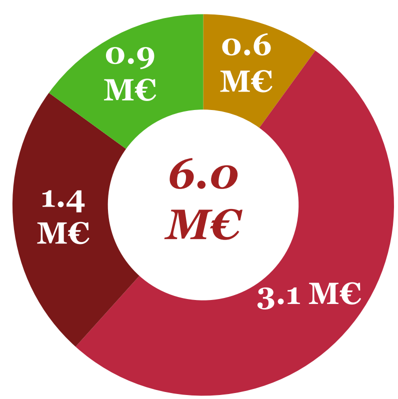
0.014 species-year that benefit biodiversity

Additional facts…

…Reduction of electricity and natural gas demand, thanks to the implementation of different energy efficiency measures.

…reduction of lighting pollution.

Total Impact Results



…every 1 € invested in the projects results in 0.64 € of social benefits

Social benefit related to climate change damages avoided

Social benefit related to air pollution and climate change-related diseases avoided

Social benefit related to the surplus cost of extracting fossil fuels avoided

Social benefit related to ecosystem damage avoided (including climate change effects avoided)

4. SCEEF II’s Portfolio Detailed Impact

Circular Economy: 4. *Guadalajara District Heating*

Challenge

Bioenergy for heat is gaining force in the EU, due to, among other reasons, its **positive contribution in reducing fossil fuel dependence**. It is important to note that the latter factor is crucial in Spain, where almost all its fossil fuels are imported.

In the EU, biomass use for heat is already mainstream, and represents around **86,000 ktoe** (44% of the overall renewable energies production), although Spain is still lagging in this respect.

District Heating: Response and Impact

The main impacts of the District Heating projects come from its contribution in **diminishing fossil fuel dependence** and **CO2 emissions**.

In particular, since the **production** of energy in the ‘District’ is **centralized**, the resulting ‘economies of scale’ bring about a significant increase in energy efficiency, which consequently results in an extra **decrease on primary energy demand**.

With regard to atmospheric pollution, in overall terms the impact is lower than the impact associated with conventional boilers. This is possible thanks to the gas cleaning systems installed in the project (cyclon and electrostatic precipitator), which reduce particulate matter (PM2.5) emissions.

All the biomass supply comes from Spanish **PEFC-certified** forests. The sustainable management of these natural resources helps **diminish the occurrence of forest fires** and **promote local employment**, along with other positive effects.

KII Results (over the life span of the project)

1.41 million ton CO2e emissions avoided

3.63 million GJ of primary energy avoided

57.2 DALYs that benefit society

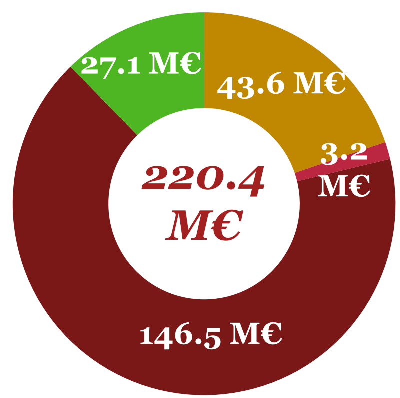
0.14 species-year that benefit biodiversity

Additional facts…

…Increase in Thermal Energy Efficiency.

…39,400 ton of residues from sustainable certified forests (PEFC), per year.

Total Impact Results



…every 1 € invested in the project results in 2.55 € of social benefits

Social benefit related to climate change damages avoided

Social benefit related to air pollution and climate change-related diseases avoided

Social benefit related to the surplus cost of extracting fossil fuels avoided

Social benefit related to ecosystem damage avoided (including climate change effects avoided)

4. SCEEF II's Portfolio Detailed Impact

Energy Transition: 5. *Hinojosa Solar Power*

Challenge

In the EU, the share of electricity generation from renewable sources is equal to 32%, being this share in Spain slightly higher (35%). **Solar energy** still represents a relatively small fraction (**3.8% in the EU**, and **5.5%, in Spain**, in terms of total electricity generation).

Nevertheless, **the trend is expected to change in the following years**. In this regard, in 2019 **photovoltaic capacity in Spain has increased 66%**,with respect to 2018, reaching an overall capacity of **7,800 MW**.

Photovoltaic power: Response and Impact

This photovoltaic plant, located in Hinojosa, Badajoz, has an installed capacity of 22 MW. The energy generated in this plant is sold through the electricity grid.

The most important benefits, according to the impact valuation model, are **air pollution and climate change-related diseases avoided**, in first place, **and fossil resource availability**, in second place. Also, with the regard to this latter type of impact, the project also helps **reduce Spain's dependency on the import of fossil fuels**.

KII Results (over the life span of the project)

0.14 million ton CO2e emissions avoided

2.34 million GJ of primary energy avoided

10.0 DALYs that benefit society

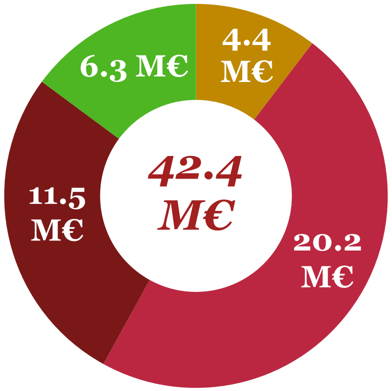
0.027 species-year that benefit biodiversity

Additional facts…

… Reduction of Spain's dependency on fossil fuels.

… contribution to Spain's energy transition.

Total Impact Results



…every 1 € invested in the project results in 1.98 € of social benefits

Social benefit related to climate change damages avoided

Social benefit related to air pollution and climate change-related diseases avoided

Social benefit related to the surplus cost of extracting fossil fuels avoided

Social benefit related to ecosystem damage avoided (including climate change effects avoided)

4. SCEEF II's Portfolio Detailed Impact

Circular Economy: 6. *SC Valorizaciones Agropecuarias*

Challenge

Turning waste into a resource is one key to a circular economy. In this direction, the EU defines a so-called **'waste hierarchy'**, upon which non-recyclable waste should be materially or energetically recovered whenever possible, thus, limiting the use of landfilling.

Specifically, with regard to pig slurry treatment, Spain is one of the main pig producers in Europe. Annually, circa 50 million tons of pig slurry are generated in this country, and most of this waste is not treated adequately.

Waste management: Response and Impact

The project is a **pig slurry treatment plant**, which integrates a **cogeneration heat and power** (CHP) system.

The plant is divided in two units. The first unit consists of anaerobic digestors where pig slurry is treated and **biogas and fertilizer** is generated as a result. The other unit is the CHP system, where natural gas and biogas generated by the biomethanization of pig slurry is utilized to **generate electricity and heat**. The electricity is fed into the grid and the heat is used in the slurry treatment process in the anaerobic digestors. The fertilizer produced in the digestion process, rich in nutrients, is used in local crops.

Other benefits that derive from the project are to **avoid uncontrolled management of pig slurry** (thus, decreasing acidification or eutrophication impacts and methane emissions) and **decrease water consumption**, thanks to the use of water from the pig slurry in the process.

KII Results (over the life span of the project)

0.47 million ton CO2e emissions avoided

3.32 million GJ of primary energy avoided

27.8 DALYs that benefit society

0.12 species-year that benefit biodiversity

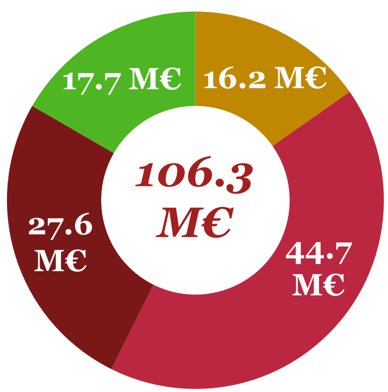
Additional facts…

…production of fertilizer thanks to manure treatment.

…water from pig slurry used in process, which involves a decrease of water consumption.

…direct contribution to the rural economy in Spain, dependant on the agricultural and livestock sector.

Total Impact Results



…every 1 € invested in the project results in 0.94 € of social benefits

Social benefit related to climate change damages avoided

Social benefit related to air pollution and climate change-related diseases avoided

Social benefit related to the surplus cost of extracting fossil fuels avoided

Social benefit related to ecosystem damage avoided (including climate change effects avoided)

4. SCEEF II's Portfolio Detailed Impact

Circular Economy: 7. *SC Zero Waste Biopower*

Challenge

Turning waste into a resource is one key to a circular economy. In this direction, the EU defines a so-called **'waste hierarchy'**, upon which non-recyclable waste should be materially or energetically recovered whenever possible, thus, limiting the use of landfilling.

Waste management: Response and Impact

The project comprises seven **cogeneration heat and power** (CHP) and **biomass assets**, which allow to adequately manage the main types of waste generated by olive oil and pig farming sectors: **olive mill waste (OMW)** and **pig slurry**, respectively.

In order to do so, **waste** from these activities **is treated and valorised** (materially and energetically). In the case of OMW treatment, this is achieved by drying this waste by means of a cogeneration heat and power (CHP) plant, fed with natural gas and using the waste, along with other biomass, in another CHP process. In the case of pig slurry, this waste is introduced in an anaerobic digestor in order to produce biogas and compost; the biogas obtained is then mixed with natural gas in a CHP process.

The project has a **relevant benefit in biodiversity**, since it helps **diminish** the **conventional management** of the waste (uncontrolled storage and disposal or utilization on soil), thus, reducing impacts such as acidification or eutrophication of fresh water. Additionally, in the case of pig slurry treatment, methane emissions are also avoided thanks to its controlled valorisation.

KII Results (over the life span of the project)

3.54 million ton CO2e emissions avoided

26.1 million GJ of primary energy avoided

245 DALYs that benefit society

1.11 species-year that benefit biodiversity

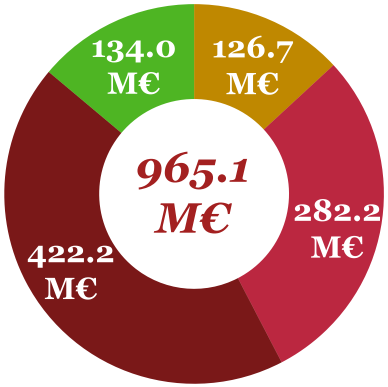
Additional facts…

…production of fertilizer thanks to manure treatment.

…water from pig slurry used in process, which involves a decrease of water consumption.

…direct contribution to the rural economy in Spain, dependant on the agricultural and livestock sector.

Total Impact Results



…every 1 € invested in the projects results in 1.00 € of social benefits

Social benefit related to climate change damages avoided

Social benefit related to air pollution and climate change-related diseases avoided

Social benefit related to the surplus cost of extracting fossil fuels avoided

Social benefit related to ecosystem damage avoided (including climate change effects avoided)

4. SCEEF II's Portfolio Detailed Impact

Energy Transition: 8. *SC Generación Renovable*

Challenge

In the EU, the share of electricity generation from renewable sources is equal to 32%, being this share in Spain slightly higher (35%). **Solar energy** still represents a relatively small fraction (**3.8% in the EU**, and **5.5%, in Spain**, in terms of total electricity generation).

Nevertheless, **the trend is expected to change in the following years**. In this regard, in 2019 **photovoltaic capacity in Spain has increased 66%**,with respect to 2018, reaching an overall capacity of **7,800 MW**.

Photovoltaic power: Response and Impact

The project is comprised of **two photovoltaic plants located in Tudela** (Navarra), with an overall capacity of **62 MW**: Guardián (37 MW) and Cierzo (25 MW).

The most relevant impacts avoided in these projects are **air pollution and climate change-related diseases avoided**, in first place, **and fossil resource availability**, in second place. In line with this latter type of impact, the project also helps **reduce Spain's dependency on the import of fossil fuels**.

KII Results (over the life span of the project)

0.36 million ton CO2e emissions avoided

5.96 million GJ of primary energy avoided

25.5 DALYs that benefit society

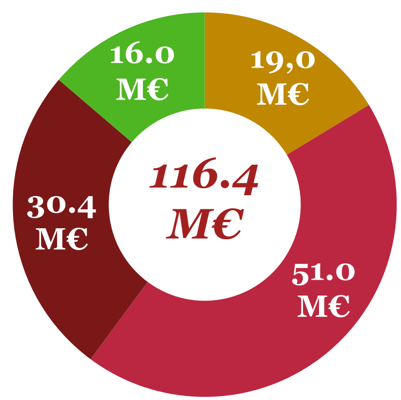
0.07 species-year that benefit biodiversity

Additional facts...

... Reduction of Spain's dependency on fossil fuels.

... contribution to Spain's energy transition.

Total Impact Results



...every 1 € invested in the project results in 2.06 € of social benefits

Social benefit related to climate change damages avoided

Social benefit related to air pollution and climate change-related diseases avoided

Social benefit related to the surplus cost of extracting fossil fuels avoided

Social benefit related to ecosystem damage avoided (including climate change effects avoided)

pwc

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Appendix 1. Summary of methodology used

PwC suggested the following quantitative Key Impact Indicators for reflecting the environmental and social impact that arise from SCEEF II's investment activities. Other benefits (i.e. noise reduction, integration of renewables, etc.) have been considered through a qualitative assessment.

Theme	KII	KII description	Raw/intermediate data
Energy savings	Energy efficiency of SUMA CAPITAL's investments	Amount of total energy savings by using funded technologies compared to the initial amount of total energy consumed (MJ)	- Amount of fuel/electricity consumption avoided by using funded technologies (in kWh, kg, m^3, l...) - Heating value of fuels (in MJ/kg, m3, l...) - Amount of total electricity energy avoided by using funded technologies (in MJ)
Energy savings	Total primary energy savings	Amount of total primary energy savings by using funded technologies (in MJ)	- Amount of total energy savings by using funded technologies compared to the initial amount of total energy consumed (MJ) - Factors of primary energy consumed over energy consumed in the combustion (in MJ/MJ)
Depletion of energy resources	Social benefit related to the surplus cost of extracting fossil fuels avoided	Estimation of the Surplus cost potential avoided, derived from fossil resources not extracted thanks to primary energy savings (€ 2020)	- Amount of total primary energy savings by using funded technologies (in MJ) - End-point Characterization Factor: Fossil Fuel Scarcity (in $/kg, m3, l...) - GDP deflator (annual %) and Exchange rate
Climate change	Greenhouse gas emissions reduction	Amount of carbon savings by using funded technologies (in ton CO2e)	- Amount of fuel consumption avoided by using funded technologies (in kg, m3, l...) - Emission factor for every energy sources used (in ton CO2e/kg, m3, l...)
Climate change	Social benefit related to air pollution and climate change-related diseases avoided	Economic estimation of the societal damages associated to climate change (in € 2020)	- Amount of carbon savings by using funded technologies (in ton CO2e) - Societal Cost of Carbon (in $/ton CO2e) - GDP deflator (annual %) and Exchange rate
Air pollution	Particulate Matter emissions avoided	Estimation of particulate matter emissions avoided by using funded technologies (in kg PM2.5,eq)	- Amount of fuel/electricity consumption avoided by using funded technologies (in kWh, kg, m3, l...) - Emission factor for every energy sources used (in kg pollutant/kWh, kg, m3, l...) - Mid-point Characterization Factor: (in kg PM2.5,eq/kg pollutant)
Air pollution	Photochemical ozone formation avoided	Estimation of photochemical ozone formation avoided by using funded technologies (in kg NOx,eq)	- Amount of fuel/electricity consumption avoided by using funded technologies (in kWh, kg, m3, l...) - Emission factor for every energy sources used (in kg pollutant/kWh, kg, m3, l...) - Mid-point Characterization Factor: (in kg NOx,eq/kg pollutant)
Air pollution	Acidification potential avoided	Estimation of Acidification potential avoided by using funded technologies (in kg SO2,eq)	- Amount of fuel/electricity consumption avoided by using funded technologies (in kWh, kg, m3, l...) - Emission factor for every energy sources used (in kg pollutant/kWh, kg, m3, l...) - Mid-point Characterization Factor: (in kg SO2,eq/kg pollutant)
Human Health	Social benefit related to climate change damages avoided	Disability-adjusted life years (DALY) gained thanks to funded technologies Cost avoided on air pollution and climate change-related human diseases (in € 2020)	- Amount of air pollutants avoided by using funded technologies (in kg pollutant) - End-point Characterization Factor: (in DALY/kg pollutant) - GDP deflator (annual %) and Exchange rate
Biodiversity	Eutrophication avoided	Avoidance of nutrients (N,P) infiltrated to fresh water, leading to a reduction in eutrophication	- Amount (ton) of olive mill and slurry treated - LCA data on olive mill and slurry untreated
Biodiversity	Social benefit related to ecosystem damage avoided (including climate change effects avoided)	Species-year gained thanks to funded technologies Benefit related to species-year preserved thanks to funded technologies (in € 2020)	- Amount of SO2 avoided by treating olive mill and slurry - Amount of nutrients (N,P) avoided by treating olive mill and slurry - End-point Characterization Factor (in species-year/kg pollutant) - GDP deflator (annual %)

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Appendix 2. Bibliography

1.- Methodologies:

PwC Methodology (Valuing corporate environmental impacts)

ReCiPe Methodology (Report I: Characterization).

2.- Main documentation and papers consulted:

EMEP/EEA air pollutant emission inventory guidebook 2019:

- *1.B.2.a.i Oil – Exploration, production, transport; and 1.B.2.b Natural gas.*
- *1.A.1 Energy industries.*
- *1.A.4.a.i, 1.A.4.b.i, 1.A.4.c.i, 1.A.5.a, Small combustion*
- *1.A.3.b.i, 1.A.3.b.ii, 1.A.3.b.iii, 1.A.3.b.iv - Passenger cars, light commercial trucks, heavy-duty vehicles including buses and motor cycles.*

WELL-TO-TANK Appendix 2 - Version 4a. Summary of energy and GHG balance of individual pathways. JRC Technical Reports

Table 8.2. Average Tested Heat Rates by Prime Mover and Energy Source, 2007 - 2017 (EIA, U.S. Energy Information Administration)

Escenarios para el sector energético en España 2030-2050. Economics for Energy ('Maintenance of current policies' scenario).

Getting Energy Prices Right. From Principle to Practice. IMF

3.- Additional documentation:

Monetary valuation in Life Cycle Assessment: a review

Emisiones de CO2 asociadas a la generación. REE

Electricity and heat for 2017. IEA

UK Government GHG Conversion Factors for Company Reporting DEFRA 2019

Inflation, consumer prices (annual %). The World Bank; GDP per capita. The World Bank

Appendix 2. Bibliography (continued)

3.- Additional documentation (continued):

Tipos de Interés y Tipos de cambio - Banco de España

Cuadros de cálculo de las emisiones para los ganaderos (avícola y porcino). PRTR

Comparison of Olive Pomace and Biowaste Composts in a Vegetable Cropping System

Life Cycle Assessment of Slurry Management Technologies - Danish Ministry of Environment

Life Cycle Assessment of waste disposal from olive oil production: Anaerobic digestion and conventional disposal on soil

Life cycle assessment (LCA) of different fertilizer product types

Solid and gaseous bioenergy pathways: input values and GHG emissions. JRC

Sistema Español de Inventario de Emisiones. Metodologías de estimación de emisiones. MITECO

Development of a weighting approach for the Environmental Footprint. JRC

Fijación de CO2 por Pinus sylvestris L. y Quercus pyrenaica Willd. en los montes «Pinar de Valsaín» y «Matas de Valsaín»

Population and population change statistics. Eurostat

Final Energy consumption by sector. EEA

Statistics on private vehicle utilization. INE

Brake wear particle emissions: a review

Brief on biomass for energy in the European Union. JRC

Renewable energy statistics Electricity production, consumption and market overview. Eurostat

Response of paddy rice to fertilisation with pig slurry in northeast Spain: Strategies to optimise nitrogen use efficiency

www.pwc.es/sostenibilidad