MIDAS includes the descriptions of models in use by the Commission in support to the policy cycle. MIDAS is developed and managed by the **Competence Centre on Modelling** of the European Commission.

Find out more at https://ec.europa.eu/knowledge4policy/modelling_en
Contact: EU-MIDAS@ec.europa.eu

Factsheet

SWD/2019/0357

Impact accompanying the document COMMISSION REGULATION (EU) .../... laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012 and COMMISSION DELEGATED REGULATION (EU) .../... supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of light sources and repealing Commission Delegated Regulation (EU) No 874/2012

Supporting model(s)

MELISA

Impact assessment
SWD/2019/0357 final

Fact sheet on model contributions

Source: Commission modelling inventory and knowledge management system (MIDAS)

Date of Report Generation: 06/11/2020

Overview

Title
Impact accompanying the document COMMISSION REGULATION (EU) .../... laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012 and COMMISSION DELEGATED REGULATION (EU) .../... supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of light sources and repealing Commission Delegated Regulation (EU) No 874/2012

Document ID
SWD/2019/0357 final

Year of publication
2019

Led by
ENER

Model(s) used
MELISA

MELISA

Full title

Model for European LIght Sources Analysis

Run for this impact assessment by

VHK Van Holsteijn en Kemna BV

Contributed to

Baseline and assessment of policy options

Helped to assess the following impacts

Impact area	*Impact category*	*Impact subcategory*
Economic impacts	Operating costs and conduct of business	Cost/availability of essential inputs (raw materials, machinery, labour, energy, ..)
Economic impacts	Operating costs and conduct of business	Market & marketing
Economic impacts	Trade and investment flows	Investment flows & trade in services
Economic impacts	Operating costs and conduct of business	Opening/closing down of business
Economic impacts	Competitiveness (sectoral) of business	Cost of doing business
Economic impacts	Innovation and research	Stimulation of research and development
Economic impacts	Innovation and research	Markets for Innovation
Economic impacts	Public authorities	Budgetary consequences for public authorities
Economic impacts	Consumers and households	Prices, quality, availability or choice of consumer goods and services
Economic impacts	Consumers and households	Safety or sustainability of consumer goods and services

Economic impacts	Specific regions or sectors	Significant effects on sectors
Economic impacts	Third countries and international relations	EU foreign policy and EU development policy
Economic impacts	Macroeconomic environment	Economic growth and employment
Social	Employment	Impact on jobs
Social	Employment	Impact on jobs in specific sectors, professions, regions or countries
Social	Effects on income, distribution and social inclusion	Households income and at risk of poverty rates
Social	Public health and safety and health systems	Health and safety of individuals/populations
Social	Public health and safety and health systems	Health risks due to substances harmful to the natural environment
Social	Public health and safety and health systems	Health due to changes energy use and/or waste disposal
Environmental	Climate	Emission of greenhouse gases
Environmental	Climate	Emission of ozone-depleting substances
Environmental	Air quality	Emissions of acidifying, eutrophying, photochemical or harmful air pollutants
Environmental	Water quality and resources	Availability or quality of Fresh- or ground water
Environmental	Waste production / generation / recycling	Waste production, treatment, disposal or recycling
Environmental	Efficient use of resources (renewable & non-renewable)	Use of non-renewable resources
Environmental	Sustainable consumption and production	Sustainable production and consumption
Environmental	Sustainable consumption and production	Relative prices of environmental friendly and unfriendly products
Environmental	Transport and the use of energy	Energy intensity of the economy

MELISA
Model for European LIght Sources Analysis

Fact sheet

Source: Commission modelling inventory and knowledge management system (MIDAS)

Date of Report Generation: 06/11/2020

Overview

Acronym MELISA
Full title Model for European LIght Sources Analysis

Main purpose:
To model environmental and socio-economic impacts of environmental product policy options on light sources, as part of preparatory-, review-, and impact assessment studies for ecodesign, energy labelling and similar end-use instruments.

Summary
The Model for European LIght Sources Analysis (MELISA) has been developed by VHK in the context of the 2015 Ecodesign and Energy Labelling review study on light sources (ENER Lot 8/9/19). The model was reviewed by experts from the European lighting industry (LightingEurope) and adapted following their comments. It has become an important reference for studies on light sources.

MELISA is a variant of the Ecodesign Impact Accounting (EIA) model, described in a separate MIDAS fact sheet. The main difference between the EIA-model (for all products) and the more specific MELISA model (only for light sources) is the addition in MELISA of a sales-shift mechanism. This mechanism allows modelling of shifts in sales from less efficient (e.g. incandescent-, halogen-, fluorescent-) to more efficient (LED-) light source types, while keeping the development of the overall EU stock of light sources the same. The user can control the sales-shift by defining up to 3 shift-scenarios (per type of light source, separately for residential and non-residential sectors), but MELISA will display results only for the currently selected scenario (alternative scenarios have to be saved as separate files or as fixed values). To facilitate the sales-shift mechanism, MELISA uses a different internal organisation of the data. Where the EIA-model basically uses an organisation per parameter (e.g. Sales, Stock, Load, Efficiency, Energy, Emission, Expense), MELISA is based on an organisation per light source type (e.g. Linear fluorescent, Compact fluorescent, High-Intensity discharge, Incandescent GLS, Halogen, LED). In addition, MELISA separately addresses residential and non-residential sector from the start, while EIA performs an ex-post-split of the sectors.

MELISA has been used in the Lot 8/9/19 review study on light sources, in the Lot 37 preparatory study on lighting systems, and in the impact assessment accompanying Commission (Delegated) Regulations 2019/2020 (ecodesign) and 2019/2015 (energy labelling). In addition, MELISA data were used as input for the study regarding the environmental and cost impacts of renewal (or not) of RoHS exemptions for the mercury content of light sources.

Keywords
stock model , sustainable consumption , ecomodelling , eco-design , energy label , light sources

Model category (thematic)
Environment, Energy

Model home page
http://ecodesign-lightsources.eu/documents

Ownership & license

Ownership
Sole copyright [3rd party]

Ownership details
Van Holsteijn en Kemna BV ('VHK'): The model was developed by VHK in 2015 as an internal tool in the context of the Lot 8/9/19 review study. MELISA has been updated several times, most recently in 2020 to reflect the final voted lighting regulations. It has been implemented using Microsoft Excel. The European Commission has the right to internally use the tool. Further distribution, duplication, and use by third parties is allowed only after explicit written consent by VHK. Commercial use is prohibited.

Licence type
Non-Free Software licence. The license has one or more of the following restrictions: it prohibits creation of derivative works; it prohibits commercial use; it obliges to share the licensed or derivative works on the same conditions.

Details

MELISA structure and approach

The Model for European LIght Sources Analysis (MELISA) addresses the technical potential and associated socio-economic impacts for EU policy options regarding resource efficiency improvement and emission abatement (greenhouse gases) for light sources. The resulting EU-level scenarios cover a 1990 to 2050 time-horizon.

MELISA is a variant of the Ecodesign Impact Accounting (EIA) model, see details in a separate MIDAS fact sheet, and thus based on the 'Methodology for Ecodesign of Energy-related Products (MEErP)' for preparatory (review) studies in Ecodesign.

MELISA has been developed by VHK in the context of the 2015 Ecodesign and Energy Labelling review study on light sources (ENER Lot 8/9/19) with the aim to harmonize the data for two related preparatory studies on lighting, i.e. the ENER Lot 8/9/19 study on Light Sources (concluded in October 2015 [1] and basis for the 2019 Impact Assessment [2] and the ENER Lot 37 on Lighting Systems (concluded in December 2016) [3].

A detailed description of the October 2015 version of calculations and assumptions behind MELISA can be found in the Light Sources study [4]. The input data for the model (e.g. annual sales volumes, lifetimes, average luminous flux, power and efficacy, light source prices, etc.) have been extensively checked against other data sources and discussed with stakeholders.

The model validation, and the interaction with stakeholders, continued during the Impact Assessment study. In July 2016 this resulted in an updated MELISA version, incorporating new input data supplied by industry, and implementing an enhanced method to compute the installed stock of light sources from the annual sales and (variable) lifetimes.

A further update was performed in October 2017, in particular as regards the projections for the development of average LED efficacy and price. The projection curves were adapted to match the average LED efficacy derived from 2015-2017 catalogue data and taking into account recent projections from UNEP and US DoE [5]. A separate projection curve was created for directional lamps. In addition, electricity rates were updated from Eurostat data, and the option was inserted to use electricity rate projections from the PRIMES 2016 reference scenario [6].

The updated MELISA version of October 2017 has been used for the 2019 Impact Assessment on Light Sources [7]. The July 2016 version was used for the scenario analysis in the Lighting Systems (Lot 37) preparatory study [8] (using a dedicated model extension), thus ensuring compatibility of data and methods between the two related studies, and avoiding double counting of energy savings.

MELISA was last updated in 2020, to reflect differences between the 2019 impact assessment and the final adopted Commission (Delegated) Regulations 2019/2020 and 2019/2015, with the aim to update light source data in the Ecodesign Impact Accounting. This MELISA version was also used as

input for the study regarding the environmental and cost impacts of renewal (or not) of RoHS exemptions for the mercury content of light sources [9].

MELISA distinguishes the light source base cases presented in Box 1. There are five groups of light source types:

- Linear Fluorescent Lamps (LFL),
- High-Intensity Discharge lamps (HID-lamps),
- Compact Fluorescent Lamps without integrated ballast (CFLni),
- Directional lamps (DLS) and
- Non-directional lamps (NDLS).

Each group is subdivided in classical technology base cases and two associated LED base cases, respectively for LED retrofit lamps and light sources in integrated LED luminaires. The shift in light source sales from the (less efficient) classical technology base cases to the (more efficient) LED base cases of the same group is one of the essential mechanisms in MELISA, which distinguishes it from the more generic EIA-model. The user can control the sales-shift by defining up to 3 shift-scenarios (per type of light source, separately for residential and non-residential sectors), and MELISA will ensure that, when switching between scenarios, the overall EU stock of light sources remains the same. However, MELISA displays results only for the currently selected scenario (alternative scenarios have to be saved as separate files or as fixed values). To facilitate the sales-shift mechanism, MELISA uses a different internal organisation of the data than the EIA-model. Where EIA basically uses an organisation per parameter (e.g. Sales, Stock, Load, Efficiency, Energy, Emission, Expense), MELISA is based on an organisation per light source type (e.g. Linear fluorescent, Compact fluorescent, High-Intensity discharge, Incandescent GLS, Halogen, LED).

MELISA derives the total EU installed stock of light sources from data on the annual sales and on the average useful lifetimes [10]. These stock data are combined with average unit power values (W) and average annual operating hours per unit (h/a) to compute the total electricity consumption per base case (TWh/a). The contributions of the various base cases are summed to get the EU totals per sector (residential, non-residential) and overall.

Greenhouse gas (GHG) emissions directly related to electricity consumption for lighting are calculated on the basis of the Global Warming Potential (GWP) for electricity.

The electricity consumption is multiplied by the electricity rates (euros/kWh) to compute the associated annual electricity costs (bn euros per year). These are combined with the annual maintenance costs to obtain the total annual running costs.

Purchase costs (per base case, per sector, and overall EU total) are calculated multiplying the annual sales by unit prices per light source. Total acquisition costs include purchase costs and installation costs. The sum of total acquisition costs and running costs is the total consumer expense.

Business sector revenues (industry, wholesale, retail, installation, maintenance) are derived from the acquisition costs using the revenue-shares per sector derived in the Lot 8/9/19 review study. Associated jobs are derived ex-post from the EU total revenues, dividing by the same revenue/employee factors as used in the EIA-model.

In MELISA the main outputs are calculated for the EU as a whole.

Box 1

Light source base cases distinguished in the MELISA model. The shift in sales from classical technology base cases to LED base cases is one of the main mechanisms in the MELISA scenarios:

From classical technology base cases

- LFL T12
- LFL T8 halo-phosphor (T8h)
- LFL T8 tri-phosphor (T8t)
- LFL T5 (T5 14- 80W and Circular)
- LFL other (T5 ≤ 13W, special FL) (LFL X)

To LED base cases

- LED Retrofit lamps for LFL replacement
- Integrated LED luminaires for LFL application

From classical technology base cases

- High-pressure Mercury (HPM)
- High-Pressure Sodium (HPS)

- Metal Halide lamps (CMH, QMH)

To LED base cases

- LED Retrofit lamps for HID replacement
- Integrated LED luminaires for HID applications

From classical technology base cases

- Compact Fluorescent Lamps without integrated ballast (CFLni)

To LED base cases

- LED Retrofit lamps for CFLni replacement
- Integrated LED luminaires for CFLni applications

From classical technology base cases

- Halogen Low-Voltage mirrored (HL LV R) (MR11, MR16, etc., GU4, GU5.3 caps)
- Halogen Mains-Voltage Reflector (HL MV X) (R-lamps, PAR-lamps, etc. GU10 or E-cap)
- Incandescent reflector lamps (GLS R)

To LED base cases

- LED Retrofit lamps for DLS replacement
- Integrated LED luminaires for DLS applications

From classical technology base cases

- Halogen LV capsules (HL LV C) (G4, GY6.35 cap)
- Halogen MV capsules (HL MV C) (G9 cap)
- Halogen MV, GLS substitute (HL MV E) E-cap
- Incandescent non-reflector (GLS X)
- Compact Fluorescent Lamps with integrated ballast (CFLi)

- Halogen MV linear (HL MV L) R7s-cap

To LED base cases

- LED Retrofit lamps for NDLS replacement
- Integrated LED luminaires for NDLS applications

Footnotes

[1] http://ecodesign-lightsources.eu/documents

[2] SWD/2019/357

[3] http://ecodesign-lightingsystems.eu/documents

[4] http://ecodesign-lightsources.eu/documents (Task 7 report, Annex D)

[5] Accelerating the Global Adoption of Energy-Efficient Lighting', UN Environment – Global Environment Facility | United for Efficiency (U4E), U4E policy guide series, UNEP 2017, in particular figure 4 (based on US DoE 2016 data).

[6] https://ec.europa.eu/energy/data-analysis/energy-modelling/eu-reference-scenario-2016_en

[7] SWD/2019/357

[8] http://ecodesign-lightingsystems.eu/

[9] Update of the data provided by the analysis model developed in the course of the "Study to assess socioeconomic impact of substitution of certain mercury-based lamps currently benefiting of RoHS2 exemptions in Annex III", 10.07.2020, https://rohs.exemptions.oeko.info/index.php?id=127

[10] A more complex lifetime distribution is used for linear fluorescent lamps.

References

Kemna, R., Wierda, L. et al, Preparatory Study on Light Sources for Ecodesign and/or Energy Labelling Requirements ('Lot 8/9/19'), Final report, Task 2 Markets. Prepared for the European Commission, DG ENER.C.3, Prepared by VHK in cooperation with VITO and JeffCott Associates, 31 October 2015. In particular chapter 2.

Kemna, R., Wierda, L. et al, Preparatory Study on Light Sources for Ecodesign and/or Energy Labelling Requirements ('Lot 8/9/19'), Final report, Task 3 Use of Light Sources. Prepared for the European

Commission, DG ENER.C.3, Prepared by VHK, in cooperation with VITO and JeffCott Associates, 31 October 2015. In particular chapter 2.

Kemna, R., Wierda, L. et al, Preparatory Study on Light Sources for Ecodesign and/or Energy Labelling Requirements ('Lot 8/9/19'), Final report, Task 7 Scenarios. Prepared for the European Commission, DG ENER.C.3, VHK with VITO contract manager, 31 October 2015. In particular Annex D.

Van Tichelen, P., et al, Preparatory study on lighting systems 'Lot 37'. Prepared for the European Commission, DG ENER.C.3 by VITO in cooperation with VHK, Kreios, Waide, 15 December 2016. In particular sections 2.1 and 7.4.

Baron, Y., et al, Update of the data provided by the analysis model developed in the course of the "Study to assess socioeconomic impact of substitution of certain mercury-based lamps currently benefiting of RoHS2 exemptions in Annex III", Prepared for the European Commission, DG ENV.B.3 by Öko-Institut, 10.07.2020

Wierda, L., Kemna, R., EIA II – Status Report Dec. 2018, VHK for European Commission DG ENER, rev. January 2019 (for EIA-model)

Input and parametrization

The main input variables and the calculated intermediate results for MELISA are (for the formulas used in the calculations, see the Task 2 and 7 reports of the Lot 8/9/19 preparatory study):

Model Input data (per Basecase where applicable)

- Sales in EU-28 per year
- Average useful lifetime (hours)
- Average annual operating hours (hours per annum (h/a))
- Average unit capacity (lm)
- Average sales efficiency (lm/W)
- Average unit price (euros)
- Taxes (VAT20% residential)
- Average unit install cost (euros)
- Historical Electricity rates (euros /kWh)
- Escalation rate for future electricity rates (4%/a)
- Average Unit maintenance (euros/a)

Intermediate results

- Stock in EU-28 per year
- Average useful lifetime (years)
- Average unit power (W)
- Average stock efficiency (lm/W)
- Purchase costs (billion euros)
- Electricity costs (billion euros)

Product-specific input values are taken from the Lot 8/9/19 review study [1], adapted as far as necessary during the subsequent impact assessment study [2]. The input data for the model (e.g. annual sales volumes, lifetimes, average luminous flux, power and efficacy, light source prices, etc.) have been extensively checked against other data sources and discussed with stakeholders.

LED efficacy projections depend on the user-choice of an ecodesign / energy labelling scenario. LED price projections are linked to the efficacy projections and thus also depend on the scenario choice [3]. The sources of the main general input parameters are as follows [4]:

- historical electricity rates are based on Eurostat data (diversified per usage sector: residential, tertiary, industry, other);
- electricity rate projections are based on PRIMES reference scenario 2016 (low escalation rate) or on the MEErP (4%/a escalation), as selected by user,
- the conversion primary energy into electricity is made on the basis of the following conversion coefficient CC=40%= 1/PEF=1/2.5 [5],
- global warming potential for electricity (GWP-100) is based on UNFCC and MEErP [6]

Fields for data input are clearly identified in the Excel model. Generic input data and user choices are grouped on the Excel sheets 'General Input' and 'Option Control'.

MELISA uses fixed 2010 euros prices to calculate prices and costs variables.

MELISA uses the revenue shares per business sector derived in the Lot 8/9/19 review study for industry (including manufacturing, OEM and services), wholesale, retail, installation, and VAT. MELISA uses the same annual revenues per employee as the Ecodesign Impact Accounting.

Footnotes

[1] http://ecodesign-lightsources.eu/documents, in particular Task 2 (sales, stock), Task 3 (light source usage parameters), Task 4 (summary of input data per base case), and Task 7 reports.

[2] Impact Assessment SWD/2019/357 Part 2, Annex 4.

[3] This scenario choice is independent from and in addition to the choice between sales-shift scenarios.

[4] MELISA uses the same general input parameters used in EIA.

[5] Essentially, MELISA computes electricity consumption. The primary energy equivalent is computed ex-post only for the EU-totals, using PEF=2.5. In the Energy Efficiency Directive amendment (EU)2018/2002, OJ L 328, 21.12.2018, the default reference value for the PEF changed from 2.5 to 2.1. The EIA-model now applies PEF 2.5 until 2020, and PEF 2.1 starting from 2021. It would be straightforward to implement the same approach in MELISA.

[6] EEA (https://www.eea.europa.eu/), GWP-100 factors for electricity production (reworked), conversions following UNFCC. Values in kgCO2eq/kWh decrease with time.

Main output

Main outputs (EU-28 total) calculated in MELISA are:

- EU-28 total installed capacity (Tlm)
- EU-28 total installed power (GW)
- Electric energy (TWh/a)
- Acquisition costs (billion euros)
- Running costs (billion euros)
- Total consumer expense (billion euros)

Subtotals are provided for the residential and non-residential sectors.

MELISA calculates business revenues (for industry, wholesale, retail, installation, repair and maintenance sectors) based on revenue-shares per sector. Associated jobs (revenue per employee) are computed ex-post for the EU totals.

Spatial - temporal extent

The output has the following spatial-temporal resolution and extent:

Parameter	Description
Spatial Extent / Country Coverage	European Union

(Spatial) resolution	European Union
Temporal extent	Up to 2050
Temporal resolution	Yearly

Quality & transparency

Quality

Question	Answer	Details
Models are by definition affected by uncertainties (in input data, input parameters, scenario definitions, etc.). Have the model uncertainties been quantified? Are uncertainties accounted for in your simulations?	yes	To a limited extent. Most uncertainty is typically not in the model but in the input data. At the low aggregation level of commercial, economic and environmental data for consumer- and professional products the uncertainty is often high, and the model is typically used to reach consensus amongst stakeholders of what are acceptable data.
Sensitivity analysis helps identifying the uncertain inputs mostly responsible for the uncertainty in the model responses. Has the model undergone sensitivity analysis?	yes	As much as possible. Sensitivity analyses with the model have been extensively used during the Lot 8/9/19 review study and the subsequent impact assessment phase to reach consensus. The model set-up facilitates quick evaluation of changes in input parameters (user choices between scenarios on sheet Option Control). In particular LFL-lifetimes, LED efficacies, LED prices and electricity rates were subject to sensitivity analysis. The final IA reports the results of sensitivity analysis on electricity rates (see SWD (2019) 357 Part 2, Annex 4.9).
Has the model undergone external peer review by a panel of experts, or have results been published in peer-reviewed journals?	yes	In addition to the general scrutiny by stakeholders (industry, NGOs, Member States, EU institutions), MELISA was examined in detail by industry experts (LightingEurope). The model is generally appreciated by lighting experts in the field and an important reference for studies on light sources. It has been used for the Lot 8/9/19 review study, the Lot 37 study on lighting systems, the impact assessment SWD (2019) 357, and in the context of RoHS evaluation of exemptions for mercury in light sources.
Has model validation been done? Have model predictions been confronted with observed data (ex-post)?	yes	Yes, model validation by industry, experts, stakeholders has been done, see above. In the context of the review of regulations a comparison between the projected saving from the first IA versus what actually happened ex-post is a mandatory part of the analysis (following REFIT in Better Regulation Toolbox). See also SWD (2019) 357 Part 3, Annex 9.

References related to external peer-review and publication in scientific journals:

- No references provided in MIDAS

Transparency

Question	Answer	Details
Is the model underlying database (i.e. the database the model runs are based on) publicly available?	yes	Partly. The vast majority of the input data and output data are reported in the various studies that used MELISA (Lot 8/9/19 study, Lot 37 study, IA SWD (2019) 357). The final reports of these studies are available on the Commission website.
Can model outputs be made publicly available?	yes	The output have been presented in various studies that used MELISA (Lot 8/9/19 study, Lot 37 study, IA SWD (2019) 357).
Is the model transparently documented (including underlying data, assumptions and equations, architecture, results) and are these documents available to the general public?	yes	Partly. Data and calculations are directly visible in the model and partly presented/ explained in the various study reports. However, there is no full manual of the architecture of the software available. References related to documentation: http://ecodesign-lightsources.eu/documents Task 2 report, chapter 2; Task 3 report, chapter 2; Task 7 report, Annex D; Impact Assessment SWD(2019)357 Part 2, Annex 4;
Is the model source code publicly accessible or open for inspection?	yes	Partly. The Commission has full access to the files and code. VHK holds all distribution rights. If it so decides, VHK can grant third party access for the whole or part of the model.

References related to documentation:

- No references provided in MIDAS

The model's policy relevance and intended role in the policy cycle

The model is designed to contribute to the following policy areas

- Energy
- Environment
- Consumers
- Business and industry

The model is designed to contribute to the following phases of the policy cycle

- Formulation
- Evaluation

The model's potential

The model is designed for use in policy formulation on light sources, specifically for economic and technical characterisation of policy options, and for impact assessments. The model can also be used (after a review study) for post evaluation of the impacts of policies.

It can help to assess the following impacts:

Environmental impacts

- Energy efficiency (energy use per unit of performance)
- Energy consumption
- GHG emissions

Economic impacts

- Sales (units, price)
- Stock (units)
- Acquisition costs
- Running costs
- Consumer expenditure
- Revenues market actors

Social impacts

- Employment (jobs)

Previous use of the model in ex-ante impact assessments of the European Commission

Use of the model in ex-ante impact assessments since July 2017.

In the Year	MELISA contributed to the Impact assessment called	Led by	By providing input to the	The model was run by	Details of the contribution
2019	Impact assessment accompanying the document COMMISSION REGULATION (EU) .../... laying down: ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012 and COMMISSION DELEGATED REGULATION (EU) .../... supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of light sources and repealing Commission Delegated Regulation (EU) No 874/2012 SWD/2019/0357 final	ENER	Baseline and assessment of policy options	*VHK Van Holsteijn en Kemna BV*	The model helped to assess the following impacts: - Cost/availability of essential inputs (raw materials, machinery, labour, energy, ..) - Market & marketing - Investment flows & trade in services - Opening/closing down of business - Cost of doing business - Stimulation of research and development - Markets for Innovation - Budgetary consequences for public authorities - Prices, quality, availability or choice of consumer goods and services - Safety or sustainability of consumer goods and services - Significant effects on sectors - EU foreign policy and EU development policy - Economic growth and employment - Impact on jobs - Impact on jobs in specific sectors, professions, regions or countries - Households income and at risk of poverty rates - Health and safety of individuals/populations - Health risks due to substances harmful to the natural environment - Health due to changes energy use and/or waste disposal - Emission of greenhouse gases - Emission of ozone-depleting substances - Emissions of acidifying, eutrophying, photochemical

	or harmful air pollutants - Availability or quality of Fresh- or ground water - Waste production, treatment, disposal or recycling - Use of non-renewable resources - Sustainable production and consumption - Relative prices of environmental friendly and unfriendly products - Energy intensity of the economy

Bibliographic references

- *No references provided in MIDAS*