Survey on Eco-innovations in the Lighting Industry

This survey investigates the barriers to eco-innovation in the lighting industry. We define eco-innovation as any novelty or significant improvement developed or adopted by your company to reduce environmental impacts.

This survey is made within the <u>CycLED</u> project which is supported by the European Commission 7th Framework Program for Research and Technological Development (FP 7).

The results of this survey will be used in a scientific project and the final report will be provided to the participants upon their request.

All contact information will be held confidential and will not be disclosed in survey results. We will use your name and email address to follow-up with you and send you the results.

This survey will take less than 15 min.

There are 34 questions in this survey

Field by:

| []Name: | |
|--------------------------------|--|
| Please write your answer here: | |
| | |
| | |
| []Job title: | |
| Please write your answer here: | |
| | |
| | |
| | |
| []Phone: | |
| Please write your answer here: | |
| | |
| | |
| | |
| []Email: | |
| Please write your answer here: | |
| | |
| | |

Information about the Enterprise

| []Name of the Enterprise: * |
|--|
| Please write your answer here: |
| |
| |
| []Adress: |
| Please write your answer here: |
| |
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| |
| |
| []Main activity (NACE 4 digit code if possible): |
| Please write your answer here: |
| |
| |
| []What is the capital structure of your enterprise (an enterprise group consists of two or more enterprises under common ownership): |
| Please choose only one of the following: |
| O Public |
| O Private |
| O Shared |
| Other |
| |
| |

| []If shared could you please indicate the percentage of the private capital? |
|--|
| Only answer this question if the following conditions are met: Answer was 'Shared' at question '8 [capitalStructure]' (What is the capital structure of your enterprise (an enterprise group consists of two or more enterprises under common ownership):) |
| Please write your answer here: |
| |
| []Does your enterprise carry out research on OR is involved in the production chain of LEDs? * |
| Please choose only one of the following: |
| O Yes, only on LEDs |
| O Yes, but we are also involved in other lighting technologies |
| O No involvement at all in LEDs |
| []Does you enterprise have any plans to extent its activities to the LED sector? |
| Only answer this question if the following conditions are met: Answer was 'No involvement at all in LEDs' at question '10 [rdLED]' (Does your enterprise carry out research on OR is involved in the production chain of LEDs?) |
| Please choose only one of the following: |
| O Yes |
| O No |
| []Since 2011, in which geographic market/s did your enterprise sell services or products linked to the lighting technologies or to LED-related products? |
| Please choose all that apply: |
| Local/regional within your country |
| ☐ National market |
| ☐ EU market |
| ☐ North American market |
| Asian market |
| ☐ African market |
| Australian market |
| |

| []Does your enterprise have any granted patents? |
|--|
| Please choose only one of the following: |
| O None |
| O 1-20 |
| O 21-50 |
| O 51-100 |
| O More than 100 |
| |

Eco-innovation

Answer all the questions from the point of view of your enterprise.

| []Since 2011, did your enterprise develop any of the following eco-innovations? | | | | | |
|---|-----|----|-------------------|--|--|
| Please choose the appropriate response for each item: | | | | | |
| | Yes | No | Not applicable | | |
| Eco-innovations enabling to consume less energy when manufacturing your products | 0 | 0 | 0 | | |
| Eco-innovations enabling to consume less energy when using your products | 0 | 0 | 0 | | |
| Products or production processes using less raw materials | 0 | 0 | 0 | | |
| Products or production processes reducing the use of hazardous materials | 0 | 0 | 0 | | |
| Products or production processes generating less emissions (to air, water, or soil) | 0 | 0 | 0 | | |
| Products or production processes generating less waste | 0 | 0 | 0 | | |

| []Was any of your eco-innovations related to a LED product or service? * |
|---|
| Only answer this question if the following conditions are met: |
| Scenario 1 |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Eco-innovations enabling to consume less energy when manufacturing your products)) |
| or Scenario 2 |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Eco-innovations enabling to consume less energy when using your products)) |
| or Scenario 3 |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes using less raw materials)) |
| or Scenario 4 |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes reducing the use of hazardous materials)) |
| or Scenario 5 |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less emissions (to air, water, or soil))) |
| or Scenario 6 |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) |
| Please choose only one of the following: |
| O Yes |
| O No |

[]Since 2011, what has become of your enterprise's eco-innovations?

Only answer this question if the following conditions are met:

----- Scenario 1 -----

Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'No' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Eco-innovations enabling to consume less energy when manufacturing your products)) and Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'No' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Eco-innovations enabling to consume less energy when manufacturing your products)) and Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'No' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Eco-innovations enabling to consume less energy when manufacturing your products)) and Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'No' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Eco-innovations enabling to consume less energy when manufacturing your products)) and Answer was NOT 'Yes' or 'Yes' o

----- or Scenario 2 -----

Answer was NOT 'Yes' or 'No' or 'Yes' or 'Yes' or 'Yes' or 'Yes' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'No' or 'Yes' or 'Yes' or 'Yes' or 'Yes' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'No' or 'Yes' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'No' or 'Yes' o

----- or Scenario 3 -----

Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'Yes' or 'No' or 'Yes' or 'Yes' or 'Yes' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'Yes' or

----- or Scenario 4 -----

Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'No' or 'Yes' or 'Yes' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'Yes' or

| or Scenario 5 |
|--|
| Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'No' or 'Yes' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'Yes' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'Yes |
| or Scenario 6 |
| Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'No' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or 'Yes' or 'Yes' or 'Yes' or 'No' at question '14 [anyEcolnnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) and Answer was NOT 'Yes' or |
| Please choose the appropriate response for each item: |
| Most of them were abandoned or suspended before completion Most of them were still ongoing in August 2014 Yes No O |

| []Why did you eco-innovate? Please give the imp | ortance | of the pro | positior | ۱. | |
|---|---------|------------|-------------|-----------------|--|
| Only answer this question if the following conditions are m | et: | | | | |
| Scenario 1 | | | | | |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, di eco-innovations? (Eco-innovations enabling to consume less en | | | | | |
| or Scenario 2 | | | | | |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, di eco-innovations? (Eco-innovations enabling to consume less en | | | | ne following | |
| or Scenario 3 | | | | | |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, di eco-innovations? (Products or production processes using less | | | p any of tl | ne following | |
| or Scenario 4 | | | | | |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes reducing the use of hazardous materials)) | | | | | |
| or Scenario 5 | | | | | |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less emissions (to air, water, or soil))) | | | | | |
| or Scenario 6 | | | | | |
| Answer was 'Yes' at question '14 [anyEcoInnov]' (Since 2011, did your enterprise develop any of the following eco-innovations? (Products or production processes generating less waste)) | | | | | |
| Please choose the appropriate response for each item: | | | | | |
| | High | Medium | Low | Not relevant | |
| To reduce costs | 0 | 0 | 0 | 0 | |
| To comply with legal obligations | 0 | Ō | Ō | Ō | |
| To meet standards or labeling requirements | Ō | Ō | Ō | O | |
| To increase sales on existing markets | 0 | 0 | Ö | O | |
| To enter new markets | 0 | 0 | 0 | Ō | |
| To improve reputation | 0 | 0 | \circ | 0 | |
| To improve compatibility with other products on the market | 0 | 0 | \circ | 0 | |
| To increase product range | 0 | 0 | 0 | 0 | |
| To improve product quality | 0 | 0 | 0 | 0 | |
| Because we seek to outperform regulatory requirements | 0 | 0 | 0 | 0 | |

Barriers to eco-innovation

Since 2011, which barriers to eco-innovation did your enterprise face? Please give the importance of the proposition.

| []Financial factors hampering the development of eco-innovative lighting product and services | | | | | | | | |
|--|---|----------------|-------------|---|--|--|--|--|
| Only answer this question if the following conditions are met: Answer was 'No involvement at all in LEDs' at question '10 [rdLED]' (Does your enterprise carry out research on OR is involved in the production chain of LEDs?) | | | | | | | | |
| Please choose the appropriate response for each item: | Please choose the appropriate response for each item: | | | | | | | |
| Lack of funds within your enterprise or group | High | Medium | Low | Not experienced O | | | | |
| Lack of public funding sources to support eco-innovation | 0 | 0 | 0 | 0 | | | | |
| Lack of private funding sources to support eco-innovation | 0 | 0 | 0 | 0 | | | | |
| Lack of financial support for SMEs | 0 | 0 | 0 | 0 | | | | |
| Eco-innovation costs are too high | 0 | 0 | 0 | 0 | | | | |
| Educational institutions do not provide enough people well trained to develop eco-innovations | 0 | 0 | 0 | 0 | | | | |
| The gross intrinsic value of your products is not high enough | 0 | 0 | 0 0 | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| []Knowledge factors hampering the development of th | ment of | eco-innova | tive ligh | iting products | | | | |
| | re met: | | | | | | | |
| and services Only answer this question if the following conditions a Answer was 'No involvement at all in LEDs' at question '10 | re met: | | | | | | | |
| and services Only answer this question if the following conditions at Answer was 'No involvement at all in LEDs' at question '10 OR is involved in the production chain of LEDs?) Please choose the appropriate response for each item: | re met: | | | rry out research on Not experienced | | | | |
| and services Only answer this question if the following conditions at Answer was 'No involvement at all in LEDs' at question '10 OR is involved in the production chain of LEDs?) Please choose the appropriate response for each item: Lack of qualified personnel to eco-innovate | ure met: [rdLED]' (High | Does your ente | erprise ca | rry out research on Not | | | | |
| and services Only answer this question if the following conditions at Answer was 'No involvement at all in LEDs' at question '10 OR is involved in the production chain of LEDs?) Please choose the appropriate response for each item: Lack of qualified personnel to eco-innovate Lack of skilled people to repair used products | re met: [rdLED]' (High | Does your ente | erprise car | rry out research on Not experienced | | | | |
| and services Only answer this question if the following conditions at Answer was 'No involvement at all in LEDs' at question '10 OR is involved in the production chain of LEDs?) Please choose the appropriate response for each item: Lack of qualified personnel to eco-innovate | ure met: [rdLED]' (High | Does your ente | erprise car | rry out research on Not experienced | | | | |
| and services Only answer this question if the following conditions at Answer was 'No involvement at all in LEDs' at question '10 OR is involved in the production chain of LEDs?) Please choose the appropriate response for each item: Lack of qualified personnel to eco-innovate Lack of skilled people to repair used products Lack of information on recent technological developments related to eco-innovations Lack of information on markets for eco-innovations | re met: [rdLED]' (High | Does your ente | erprise car | rry out research on Not experienced | | | | |
| and services Only answer this question if the following conditions at Answer was 'No involvement at all in LEDs' at question '10 OR is involved in the production chain of LEDs?) Please choose the appropriate response for each item: Lack of qualified personnel to eco-innovate Lack of skilled people to repair used products Lack of information on recent technological developments related to eco-innovations | High | Does your ente | Low | rry out research on Not experienced | | | | |

[]Market factors hampering the development of eco-innovative lighting products and services Only answer this question if the following conditions are met: Answer was 'No involvement at all in LEDs' at question '10 [rdLED]' (Does your enterprise carry out research on OR is involved in the production chain of LEDs?) Please choose the appropriate response for each item: Not Medium experienced High Low Established firms prevent you from entering 0 0 0 0 eco-innovation markets Demand for eco-innovative goods or services is too \bigcirc 0 0 uncertain Consumers are not willing to spend money on 0 0 eco-innovative products or services Consumers lack knowledge about eco-innovative products and services Unfair competition from non-European enterprises Difficulty to find suppliers to develop

eco-innovations

[]Other factors hampering the development of eco-innovative lighting products and services

Only answer this question if the following conditions are met:

Answer was 'No involvement at all in LEDs' at question '10 [rdLED]' (Does your enterprise carry out research on OR is involved in the production chain of LEDs?)

Please choose the appropriate response for each item:

| | High | Medium | Low | Not experienced |
|---|------|--------|-----|--------------------|
| Eco-innovation is not a strategic priority for your enterprise | 0 | 0 | 0 | 0 |
| Difficulty to adopt business models suitable to eco-innovations | 0 | 0 | 0 | 0 |
| High risks associated with eco-innovations | 0 | 0 | 0 | 0 |
| Lack of cooperation between firms of your sector on eco-innovative activities | 0 | 0 | 0 | 0 |
| Lack of standardization in your sector | 0 | 0 | 0 | 0 |
| Future standards in your sector are uncertain | 0 | 0 | 0 | 0 |
| High licensing costs of eco-innovations | 0 | 0 | 0 | 0 |
| Firms in your sector refuse to license eco-innovations or keep them secret | 0 | 0 | 0 | 0 |
| High risk of legal conflicts on intellectual property rights following eco-innovation developments | 0 | 0 | 0 | 0 |
| Rigid information systems discourage eco-innovation in your enterprise (hence you cannot keep up with the pace of current technological developments) | 0 | 0 | 0 | 0 |
| Used products becoming waste are not returned to their producers | 0 | 0 | 0 | 0 |
| Low collection rates of e-waste take-back systems | 0 | 0 | 0 | 0 |
| Lack of EU policies supporting eco-innovation | 0 | 0 | 0 | 0 |
| Difficulties to access EU instruments supporting eco-innovations | 0 | 0 | 0 | 0 |

[]Financial factors hampering the development of eco-innovative lighting products and services Only answer this question if the following conditions are met: Answer was 'Yes, only on LEDs' or 'Yes, but we are also involved in other lighting technologies' at question '10 [rdLED]' (Does your enterprise carry out research on OR is involved in the production chain of LEDs?) Please choose the appropriate response for each item: Not High Medium relevant Low Lack of funds within your enterprise or group 0 0 0 0 Lack of **public** funding sources to support 0 0 0 eco-innovation Lack of **private** funding sources to support eco-innovation Lack of financial support for SMEs Eco-innovation costs are too high Educational institutions do not provide enough people well trained to develop eco-innovations The gross intrinsic value of your products is not high enough []Knowledge factors hampering the development of eco-innovative lighting products and services Only answer this question if the following conditions are met: Answer was 'Yes, only on LEDs' or 'Yes, but we are also involved in other lighting technologies' at question '10 [rdLED]' (Does your enterprise carry out research on OR is involved in the production chain of LEDs?) Please choose the appropriate response for each item: Not High Medium Low relevant Lack of qualified personnel to eco-innovate Lack of skilled people to repair used products Lack of information on recent technological developments related to eco-innovations Lack of information on markets for eco-innovations Difficulty to find complementary expertise to eco-innovate Our established competences made it too costly to eco-innovate Cost to shift to LEDs due to our established

 \bigcirc

 \bigcirc

competences

[]Market factors hampering the development of eco-innovative lighting products and services

Only answer this question if the following conditions are met:

Answer was 'Yes, only on LEDs' or 'Yes, but we are also involved in other lighting technologies' at question '10 [rdLED]' (Does your enterprise carry out research on OR is involved in the production chain of LEDs?)

Please choose the appropriate response for each item:

| | High | Medium | Low | Not relevant |
|--|------|--------|-----|-----------------|
| Established firms prevent you from entering eco-innovation markets | 0 | 0 | 0 | 0 |
| Demand for eco-innovative goods or services is too uncertain | 0 | 0 | 0 | 0 |
| Consumers are not willing to spend money on eco-innovative products or services | 0 | 0 | 0 | 0 |
| Consumers lack knowledge about eco-innovative products and services | 0 | 0 | 0 | 0 |
| Unfair competition from non-European enterprises Difficulty to find suppliers to develop eco-innovations | 0 | 0 | 0 | 0 |

[]Other factors hampering the development of eco-innovative lighting products and services

Only answer this question if the following conditions are met:

Answer was 'Yes, only on LEDs' or 'Yes, but we are also involved in other lighting technologies' at question '10 [rdLED]' (Does your enterprise carry out research on OR is involved in the production chain of LEDs?)

Please choose the appropriate response for each item:

| | High | Medium | Low | Not relevant |
|---|------|--------|-----|-----------------|
| Eco-innovation is not a strategic priority for your enterprise | 0 | 0 | 0 | 0 |
| Difficulty to adopt business models suitable to eco-innovations | 0 | 0 | 0 | 0 |
| High risks associated with eco-innovations | 0 | 0 | 0 | 0 |
| Lack of cooperation between firms of your sector on eco-innovative activities | 0 | 0 | 0 | 0 |
| Lack of standardization in your sector | 0 | 0 | 0 | 0 |
| Future standards in your sector are uncertain | 0 | 0 | 0 | 0 |
| High licensing costs of eco-innovations | 0 | 0 | 0 | 0 |
| Firms in you sector refuse to license eco-innovations or keep them secret | 0 | 0 | 0 | 0 |
| High risk of legal conflicts on intellectual property rights following eco-innovation developments | 0 | 0 | 0 | 0 |
| LED drivers are obstacles to eco-innovation (e.g. because they are too fragile or lack compatibility) | 0 | 0 | 0 | 0 |
| Firms using LEDs feel that by doing so they are already eco-innovating and do not further invest in eco-innovation | 0 | 0 | 0 | 0 |
| Rigid information systems discourage eco-innovation in your enterprise (hence you cannot keep up with the pace of current technological developments) | 0 | 0 | 0 | 0 |
| Used products becoming waste are not returned to their producers | 0 | 0 | 0 | 0 |
| Low collection rates of e-waste take-back systems | 0 | 0 | 0 | 0 |
| Lack of EU policies supporting eco-innovation | 0 | 0 | 0 | 0 |
| Difficulties to access EU instruments supporting eco-innovations | 0 | 0 | 0 | 0 |

Basic information about your enterprise

| []What | was your enterprise's average number of employees in 2011 and in 2014? |
|----------|--|
| Please v | vrite your answer(s) here: |
| 2011 | |
| 2014 | |
| ١ | |
| | |
| []What | was your enterprise's the total turnover (Euro) for 2011 and 2013? |
| Please v | vrite your answer(s) here: |
| 2011 | |
| 2013 | |
| | |
| | |
| []In wh | ich area of lighting are you specialized in? |
| Please v | vrite your answer here: |
| | |
| | |
| | |
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| | |
| | |
| | |
| ∏In wh | nich country are your headquarters located? |
| | vrite your answer here: |
| | - |
| | |

| []Have you made any license agreement with a firm to use their patents? | | | |
|---|--|--|--|
| Please choose only one of the following: | | | |
| O Yes | | | |
| O No | | | |
| | | | |
| []What type of license agreement have you made? | | | |
| Only answer this question if the following conditions are met: Answer was 'Yes' at question '31 [enterpriseLicense]' (Have you made any license agreement with a firm to use their patents?) | | | |
| Please choose only one of the following: | | | |
| Our firm is the licensee. | | | |
| Our firm is the licensor. | | | |
| Our firm have made a cross-license agreement. | | | |
| | | | |
| []Approximately what percent of your enterprise's employees in 2014 had a university degree? | | | |
| Only numbers may be entered in this field. | | | |
| Please write your answer here: | | | |
| | | | |
| | | | |
| | | | |
| []Do you want to receive the results of this research? | | | |
| Please choose only one of the following: | | | |
| O Yes | | | |
| O No | | | |
| | | | |

Thank you very much for you contribution to this survey.

Best regards on behalf of the cycLED project.

Submit your survey.
Thank you for completing this survey.