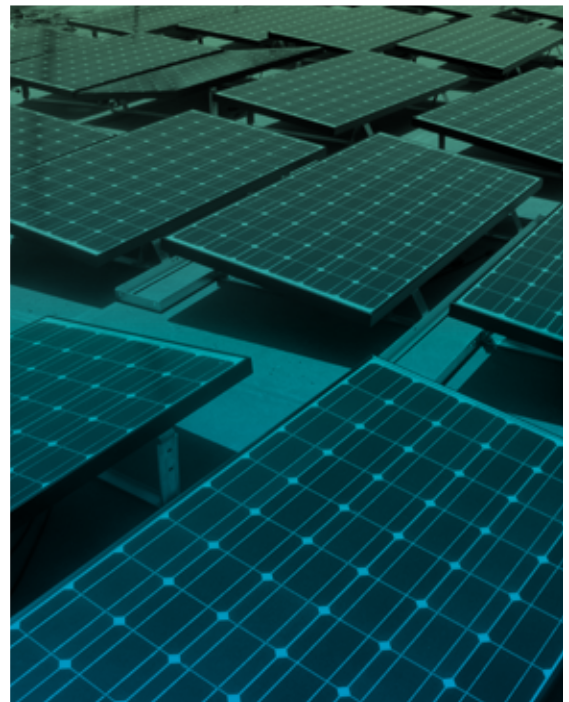


ECONOMIC SUPPORT TOOL FOR SMES TO USE MORE RENEWEABLE ENERGY AND SMART GRID



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In light of the European Union's objectives to develop a sustainable, reliable and efficient electricity market, renewable and distributed generation technologies are being deployed, together with smart grid technologies which allow their active participation in the electricity market. However, these technologies are still facing technical, economic, regulatory and social barriers, particularly towards deployment by residential consumers and small and medium enterprises.

Development of Multifunction Economic Tool for SMEs based on

- 4 Renewable Energy Generation Sources
- in 4 Regions Ireland, Belgium, Netherlands and United Kingdom
- serve 3 different purposes

Wittenborg University of Applied Sciences in the Netherlands, as one of the partners of GREAT project, has developed an economic tool targeted at SMEs to inform and encourage them to orientate on the possibilities of smart grids and the use of renewable energy for their own business.

GREAT, supported by the NWE INTERREG IV Program, aims at accelerating the deployment of smart grid benefits in North West Europe by means of encouraging communities and small to medium size enterprises to develop technological solutions for smart grids, renewable energy and distributed generation.

Information related to financial aspects from all four countries, Ireland, Belgium, Netherlands and United Kingdom have been gathered and implemented into the tool. The tool is available on line via GREAT project website: www.great-project.eu.com. It has been also developed into an APP which is available in Apple App and in Android App stores.

The Economic Tool will allow SMEs from one of the four countries to quickly view the estimated payback period if they choose to install any system that is based on one of the four renewable energy generation sources, namely solar energy or Photovoltaic Energy, wind energy, heat pumps and solar heat pumps.

Through this easy-step-in approach, SME can save considerable amount of time and quickly get an indication on the estimated ROI, Return on Investment, which is considered as a straightforward criteria for their decision making process.

Serve the purpose of ROI Indicator

By giving this indication in a process that require no further technical knowledge, nor financial background, a SME manager maybe encouraged to proceed further with any of the four popular renewable energy sources implementation process. The first stage of barrier of implementation such a system, or even making a choice of different possibilities, which possibly be caused by fear caused by lack-of-financial-indication, might be taken away by this Economic Tool. With its APP application, one shall believe that this might be the first tool that is addressing this issue that is widely lying within community of SMEs. It is simple to use therefore fit well with the no-nonsense demand from SMEs who are usually busy with daily running of the business.

Serve the purpose of transnational business opportunity indicator

Furthermore, this Economic Tool for SMEs will also allow companies who are having business in the area of all four renewable energy generation systems to see the most promising market by entering the same financial information of the four countries and compare the outcome of the payback period. This functionality is purely made possible by the universal calculation system that has been designed to assure all four regions are comparable to one another if the renewable energy generation source is the same. Through this functionality, market opportunity can be spotted quickly and easily, and transnational cooperation and trade can be stimulated.

Serve the purpose of localised & sophisticated economic tool

Additionally, for technical consultant or other SMEs who are more familiar with the background information that influence the calculation of the payback period, the more advanced setting will provide possibility to re-enter more up-to-date, or more localised figures to allow the system to draw up results that are more advanced and accurate. In the Appendix of this report, a very brief impression of the online system is given.

APPROACH

Step 1: Check Validity Default Variables

These approaches are recommended when using the Economic Tool:

1. Start with a check whether the default variables (such as costs of energy etc.) are still valid.
2. Determine the size of the equipment that will be installed. This will depend on:
 - a. the physical (unshaded) space available for the installation of PV modules, solar heating equipment or access to wind if installing micro-turbines;

Step 2: Determination Size Equipment

- b. how much investment is possible. Will this investment be readily available or will it have to be a loan?
- c. what portion of electrical demand will be generated.

If these data are available these can serve as input for the tool and the payback time and return on investment can easily be calculated.

Step 3: Outcome Serves as Input for Spreadsheet

OUTPUT

The following elements are part of the tool:

1. Solar energy PV: Quick calculation	Calculation of payback time based of a minimum of input variables
2. Solar energy PV: Extended calculation	Calculation of payback time based of a large amount of input variables
3. PV cash flow	Cash flow analysis to calculate the payback time and return on investment. Per country, different rules for tax apply, these are integrated in the cash flow analysis
4. Collectives solar quick calculation	Calculation of payback time based of a minimum of input variables for Collectives
5. Smart meter	Calculation of investment costs and operational costs of a smart meter
6. Heat pump	Calculation of payback time based of a large amount of input variables
7. Heat pump cash flow	Cash flow analysis to calculate the payback time and return on investment. Per country, different rules for tax apply, these are integrated in the cash flow analysis
8. Solar heating	Calculation of payback time based of a large amount of input variables
9. Solar heating cash flow	Cash flow analysis to calculate the payback time and return on investment. Per country, different rules for tax apply, these are integrated in the cash flow analysis
10. Solar heating Collectives	Calculation of payback time based of a minimum of input variables for Collectives
11. Wind energy	Calculation of payback time based of a large amount of input variables
12. Wind energy cash flow	Cash flow analysis to calculate the payback time and return on investment. Per country, different rules for tax apply, these are integrated in the cash flow analysis
13. Wind energy Collectives	Calculation of payback time based of a minimum of input variables for Collectives
14. Comparison	Comparison of payback time of the different types of renewable energy

APPENDIX:

Screenshots of Economic Tools: <http://greatproject.eu.com/calculator/#/>

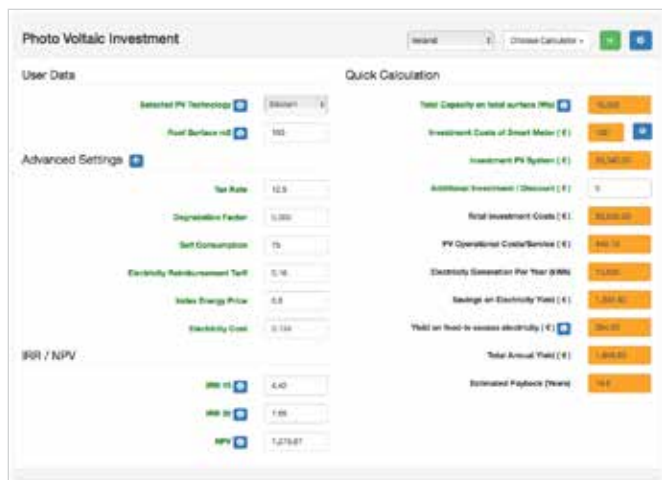


Figure A: Screenshot of Photovoltaic Investment tool for SMEs

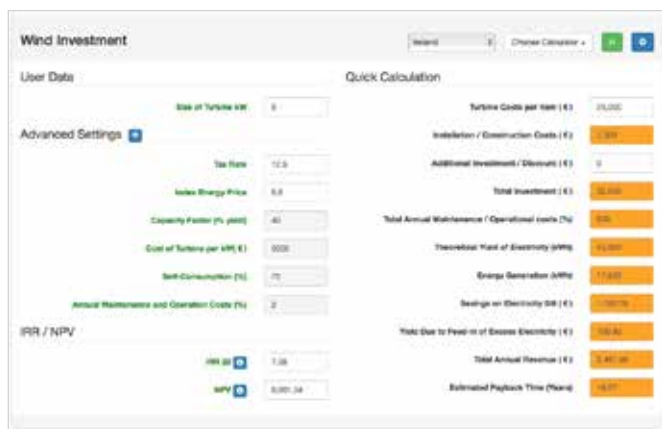


Figure B: Screenshot of Wind Energy Investment tool for SMEs

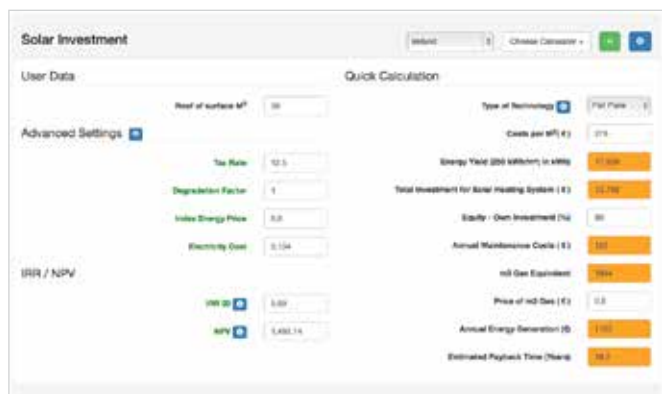


Figure C: Screenshot of Solar Heating Investment tool for SMEs

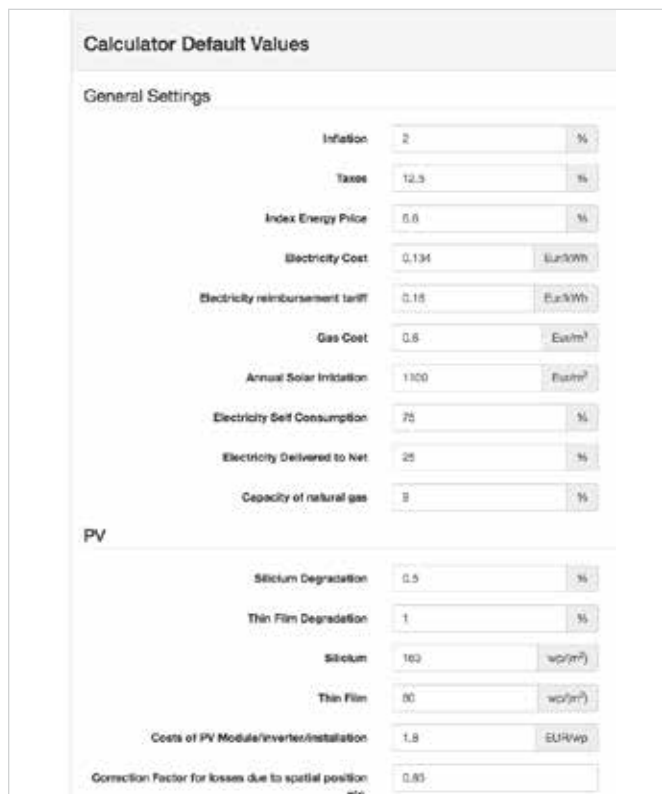


Figure D: Screenshot of Heat Pump Investment tool for SMEs



Figure E: Screenshot of Advanced Settings