



Annex A

EENergy Implementation Plan Examples



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Example 1: Installing PV system

- **What is the scope of your investment:** Company
- **Please describe briefly the nature of your investment:** Currently the company does not have a PV system installed, and its energy consumption comes exclusively from the grid. We would like to invest in a PV installation in order to reduce our dependency on the grid.
- **What is the current approximate annual consumption of the scope where you are carrying out your implementation plan, in kWh / year?** 20000
- **How is this consumption measured:** Energy bills
- **What will be the approximate annual consumption of the scope once you have carried out your implementation, plan in kWh / year?** 10000
- **How will this consumption be measured:** Energy bills
- **What is the expected energy reduction in % that will be achieved with this investment:** 50%
- **Please explain the rationale for expecting this reduction:** We plan to install a PV power installation with the following nominal capacity (peak power): 10 kWp in total. We currently consume 20 MWh/year within the given scope and we plan to produce 10 MWh/year thanks to the PV system. This self-production will correspondingly reduce our grid consumption by 10 MWh/year. Therefore we estimate an energy saving of about 50% at company level.

Example 2: PV in place, upgrading the PV capacity

- **What is the scope of your investment:** Building
- **Please describe briefly the nature of your investment:** We have a fully operational PV system with a capacity of 20 kWp. We plan to upgrade the existing installation and increase its capacity up to 30 kWp.
- **What is the current approximate annual consumption of the scope where you are carrying out your implementation plan, in kWh / year?** 40000
- **How is this consumption measured:** Internal metering system
- **What will be the approximate annual consumption of the scope once you have carried out your implementation, plan in kWh / year?** 30000
- **How will this consumption be measured:** Internal metering system
- **What is the expected energy reduction in % that will be achieved with this investment:** 25%
- **Please explain the rationale for expecting this reduction:** We currently have a 20 kWp PV installation. We plan to upgrade the existing PV system up to a capacity of 30 kWp. The current net energy consumption is 40 MWh/year (the gross consumption from the grid is 60 MWh/year and 20 MWh/year is provided by the existing PV system). We plan to reduce the net consumption by 10 MWh/year thanks to the PV system upgrade. Therefore we estimate a saving of 25 % in terms of grid consumption reduction.

Example 3: Installing a RES storage facility

- **What is the scope of your investment:** Building
- **Please describe briefly the nature of your investment:** We currently have 20 kWp PV system in operation. We want to install a storage facility to the PV system to be able to store energy produced during periods of excess generation, and utilise it in periods where insufficient energy is generated.
- **What is the current approximate annual consumption of the scope where you are carrying out your implementation plan, in kWh / year?** 30000
- **How is this consumption measured:** Internal metering system
- **What will be the approximate annual consumption of the scope once you have carried out your implementation, plan in kWh / year?** 26400
- **How will this consumption be measured:** Internal metering system
- **What is the expected energy reduction in % that will be achieved with this investment:** 12%
- **Please explain the rationale for expecting this reduction:** We plan to install a storage facility with a nominal storage capacity of 10 kWh. We assume the storage will be making 360 charging cycles a year (360 x 10 kWh = 3.6 MWh/year savings). Given the current consumption, this equals to approximately 12% reduction of the energy consumption of the building.

Example 4: PV (or wind) installation upgrade + storage facility

- **What is the scope of your investment:** Company
- **Please describe briefly the nature of your investment:** We currently have 20 kWp PV system installed, we intend to extend the existing PV capacity and to add a storage facility.
- **What is the current approximate annual consumption of the scope where you are carrying out your implementation plan, in kWh / year?** 40000
- **How is this consumption measured:** Energy bills
- **What will be the approximate annual consumption of the scope once you have carried out your implementation, plan in kWh / year?** 26400
- **How will this consumption be measured:** Energy bills
- **What is the expected energy reduction in % that will be achieved with this investment:** 34%
- **Please explain the rationale for expecting this reduction:** We currently have a 20 kWp PV system installed and fully operational. We plan to upgrade it with an additional capacity of 10 kWp. Further, we plan to install a storage facility with a nominal storage capacity of 10 kWh. These two investments altogether are expected to lead to a reduction of the company's energy consumption by 13,6 MWh/year cumulatively (10 MWh/year from the increased solar capacity and 3,6 MWh/year from the storage assuming it makes 360 charging cycles a year x 10 kWh), which equals to approximately 34% reduction.

Example 5: Changing lights

- **What is the scope of your investment:** Equipment
- **Please describe briefly the nature of your investment:** Currently we have 70 fluorescent tube lights. We plan to replace them with more energy efficient ones – LED tube lights.
- **What is the current approximate annual consumption of the scope where you are carrying out your implementation plan, in kWh / year?** 2310
- **How is this consumption measured:** Manufacturer declaration
- **What will be the approximate annual consumption of the scope once you have carried out your implementation, plan in kWh / year?** 1390
- **How will this consumption be measured:** Manufacturer declaration
- **What is the expected energy reduction in % that will be achieved with this investment:** 40%
- **Please explain the rationale for expecting this reduction:** Currently 2.31 MWh/year is consumed by fluorescent tube lights in the building. We don't have a separate measurement for the lights circuit. Their energy consumption is calculated on the following basis - 70 lights, 30W each, total working hours per year 1100h (2.31 MWh/year). We plan to replace them with more energy efficient ones – LED tube lights, of 18W single power each, which equals to a consumption of 1.39 MWh/year (70x18x1100) and improvement of the energy efficiency by 40%.

Example 6: Energy efficiency improvement of a production line

- **What is the scope of your investment:** Production line
- **Please describe briefly the nature of your investment:** We are currently using 3 types of sewing machines (M) as follows: M1(10 pieces) - overlock 5 stitch machine (with 900W single power), M2 (10 pieces) - a 'double needles' sewing machine (550W single power), and M3 (10 pieces) - an interlock sewing machine (750W single power). We plan to replace the overlock ones and the 'double needles' ones (M1 & M2) with more efficient equipment energy-wise according to the technical specifications (manufacturer declaration).
- **What is the current approximate annual consumption of the scope where you are carrying out your implementation plan, in kWh / year?** 34650
- **How is this consumption measured:** Manufacturer declaration
- **What will be the approximate annual consumption of the scope once you have carried out your implementation, plan in kWh / year?** 26334
- **How will this consumption be measured:** Manufacturer declaration
- **What is the expected energy reduction in % that will be achieved with this investment:** 24%
- **Please explain the rationale for expecting this reduction:** M1 – each overlock 5 stitch machine (900W) operates 8h/day, 1760 h/year. M2 - each 'double needles' one (550W) operates 6h/day, 1320h/y. And M3 - each interlock sewing machine (750W) operates 7h/day, 1540h/y. Thus the energy consumption of the production line is $(900 \times 1760 + 550 \times 1320 + 750 \times 1540) \times 10 = 34.7 \text{ MWh/y}$. The new M1 has 540W power, and M2 - 400W power. Similarly after the production line upgrade, all 30 machines would consume 26.3 MWh/y with the assumption of having the same operational hours. This spells out in 8.32MWh/y saving, i.e. 24%.

Example 7: Vehicle replacement

- **What is the scope of your investment:** Equipment
- **Please describe briefly the nature of your investment:** We currently have 1 diesel vehicle and we plan to replace it with an electric car.
- **What is the current approximate annual consumption of the scope where you are carrying out your implementation plan, in kWh / year?** 25540
- **How is this consumption measured:** Dedicated Measurement
- **What will be the approximate annual consumption of the scope once you have carried out your implementation, plan in kWh / year?** 6000
- **How will this consumption be measured:** Dedicated Measurement
- **What is the expected energy reduction in % that will be achieved with this investment:** 77%
- **Please explain the rationale for expecting this reduction:** The diesel car consumes 6 l/100 km, or 2400 l/year for 40 000 km/year, which equals to 25.54 MWh/year based on a gasoline energy content (conversion rate) of 10.64 kWh/l (2400 x 10.64). The electric car consumes 150 Wh/km according to technical specification (manufacturer declaration). For the same level of exploitation – 40 000 km/year, it will consume 6 MWh/year (150 x 40 000). Thus the energy consumption reduction is 77%.

Example 8: Replacement of air conditioning

- **What is the scope of your investment:** Equipment
- **Please describe briefly the nature of your investment:** We plan to replace 2 old Air Conditioners (AC) with new and more efficient ones.
- **What is the current approximate annual consumption of the scope where you are carrying out your implementation plan, in kWh / year?** 8800
- **How is this consumption measured:** Manufacturer declaration
- **What will be the approximate annual consumption of the scope once you have carried out your implementation, plan in kWh / year?** 5280
- **How will this consumption be measured:** Manufacturer declaration
- **What is the expected energy reduction in % that will be achieved with this investment:** 40%
- **Please explain the rationale for expecting this reduction:** According to technical specifications (manufacturer declaration) a single AC of the current ones consumes 20 kWh/day, which is approximately 4400 kWh/year for 220 working days. The new AC consumes 12 kWh/day, or 2640 kWh/year for 220 days, which equals to a reduction of the AC energy consumption by 40% after the investment.

Example 9: Building renovation (changing of windows)

- **What is the scope of your investment:** Building
- **Please describe briefly the nature of your investment:** We plan to change windows with a total area of 40 sq.m. Currently they are of the type 'wood single glazed' windows. We intend to replace them with 'PVC triple glazed' ones.
- **What is the current approximate annual consumption of the scope where you are carrying out your implementation plan, in kWh / year?** 50500
- **How is this consumption measured:** Energy certificate
- **What will be the approximate annual consumption of the scope once you have carried out your implementation, plan in kWh / year?** 47000
- **How will this consumption be measured:** Energy certificate
- **What is the expected energy reduction in % that will be achieved with this investment:** 7%
- **Please explain the rationale for expecting this reduction:** We are replacing the current 'wood single glazed' windows that have a U-Value of 4.8 W/m²K, with PVC 'Triple Glazed' ones with a U-Value of 2.1 W/m²K. Total area of the windows: 40 m². According to the certified expert we consulted in advance, the replacement of the windows with these parameters will lead to about 7% energy savings, i.e. the estimated energy consumption would be 47MWh/y.

Example 10: Energy audit (consultancy)

- **What is the scope of your investment:** Building
- **Please describe briefly the nature of your investment:** We have an old building, and big energy consumers such as CNC machines. We want to carry out an energy audit that would identify the most effective actions that would best impact our consumption and guarantee at least 5% energy efficiency improvement.
- **What is the current approximate annual consumption of the scope where you are carrying out your implementation plan, in kWh / year?** 200000
- **How is this consumption measured:** Energy bills
- **What will be the approximate annual consumption of the scope once you have carried out your implementation, plan in kWh / year?** 180000
- **How will this consumption be measured:** Energy certificate
- **What is the expected energy reduction in % that will be achieved with this investment:** 10%
- **Please explain the rationale for expecting this reduction:** Currently we have 200 MWh/year of energy consumption. After the audit and the implementation of the needed investment and improvement measures, we expect the consumption to be lowered to 180 MWh/year, which is a reduction of 10%.