ECONOMIC REPORT

FOR THE CONSTRUCTION OF

A PHOTOVOLTAIC SYSTEM OF 2,25 kWp

NAMED

Countryside chalet

SITE IN THE TOWN OF

Histon

Cottenham Road 152

CB24 9ET - Cambridgeshire

CUSTOMER:

Joe Black

Cambridge

Warkworth. 987D -

DATE
25/10/2017

THE TECHNICAL
Cooper Michael

Economic analysis

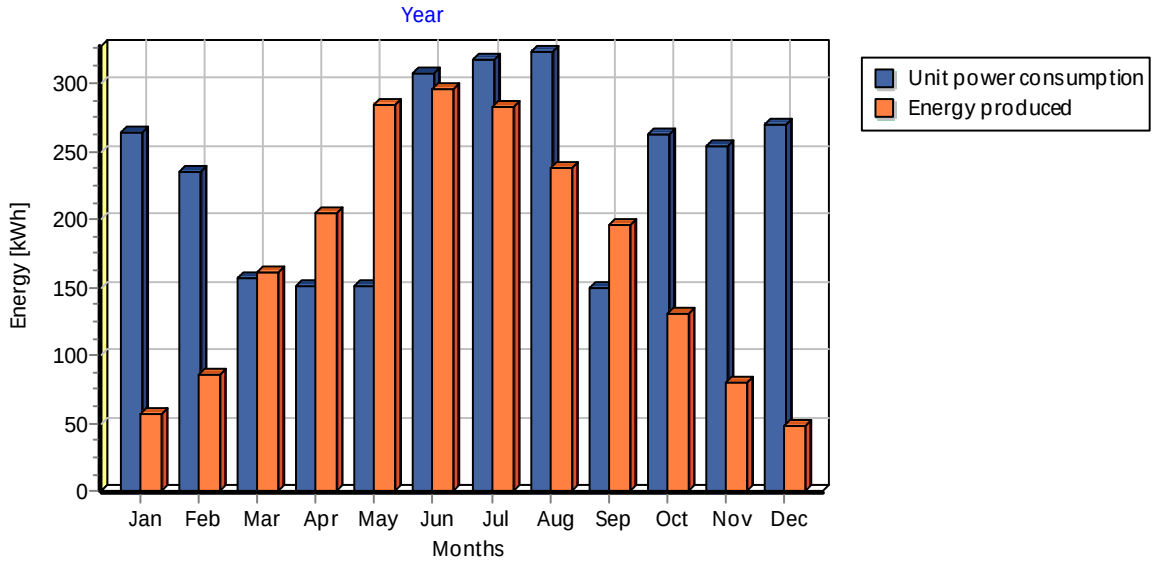
Analysis of the economic conditions for the installation of a stand-alone system producing electricity through photovoltaic conversion, named Countryside chalet, to be installed in the town of Histon for a nominal power of 2,25 kWp.
The photovoltaic plant will act as a generator to recharge the battery with nominal capacity equal to 81 Ah.
There's an auxiliary generator with a rated power of 5 kW that will intervene to supply energy in case of consumptions not covered by the photovoltaic system and the battery or to recharge the battery, if it is necessary.

Unit power consumption

Annual Unit power consumption:	2.842,1 kWh
Average daily consumption:	7,8 kWh

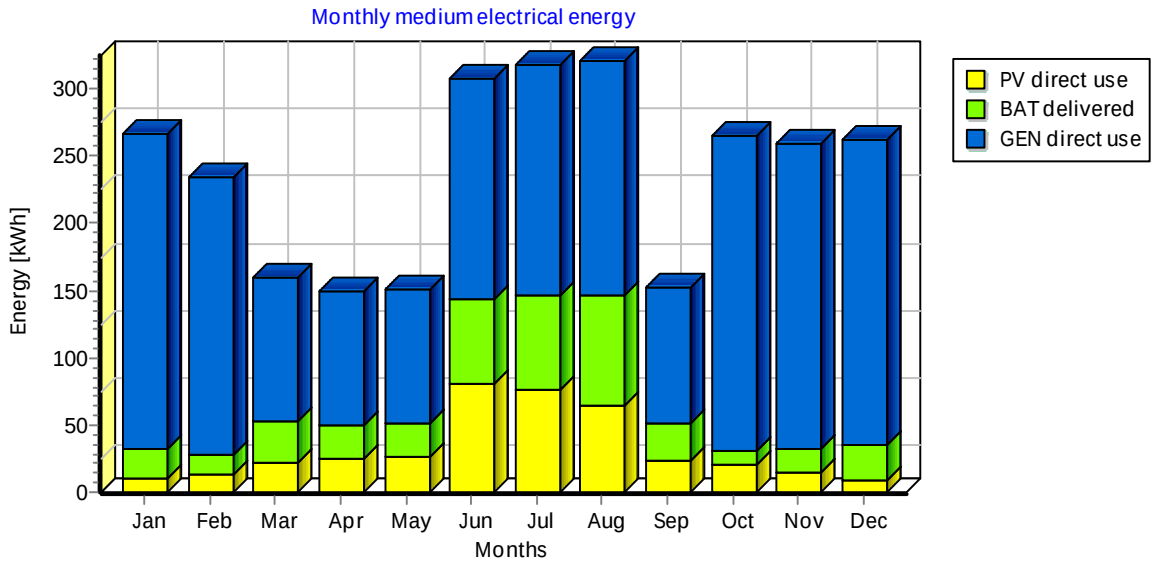
Load profile

Description	Consumption [kWh]	Power [W]
Dryer	314	2.000
Dishwasher Class A	602,2	1.650
Washing Class A	219,8	1.400
Ceiling lights	133,2	150
Electric heater	490,5	1.500
Television	292	200
Conditioner fixed - 2.6kW	498,3	2.600
Electric oven Class A	292	800



Contributions to the load of plant components

The 13,5 % of energy requirements is provided through the photovoltaic production, the 14,6 % is provided through the energy supplied by the battery and the 71,8 % is provided through the energy supplied by the auxiliary generator directly used.
The percentage of consumptions not covered is equal to 0 % with a annual lack of energy of 0 hours.
The battery recharge is provided by the photovoltaic system and the auxiliary generator; the first contributes with the 30,5 % of the total energy producted, the second contributes with the 5,1 % of the total energy supplied.
The photovoltaic energy unused is equal to the 50,1 %, as the energy supplied by the auxiliary generator and not used is equal to the 4,1 %.



Costs analysis

The costs for the realization of the plant are listed below:

Code	Description	M.U.	Q.ty	Price €	VAT %	Amount €
	Photovoltaic modules					
MFV3890	Modulo YGE 60 - YL250P-29b		9	180,00	20,00	1.944,00
	Charge controller					
	STECA MPPT 6000 parallel	cad	1	2.300,00	20,00	2.760,00
	Cables					
PIR20009439	N07V-K 1X6 MA S SPEEDY-FLAM ECO-LINE	LM	17.78	1,00	20,00	2.134,00
PIR20009438	N07V-K 1X6 NE S SPEEDY-FLAM ECO-LINE	LM	17.78	1,00	20,00	2.134,00
PIR20009456	N07V-K 1X16 MA M RETOX ECO-LINE	LM	2.39	3,00	20,00	86,00
PIR20009455	N07V-K 1X16 NE M RETOX ECO-LINE	LM	2.39	3,00	20,00	86,00
PIR20009466	N07V-K 1X25 MA M RETOX ECO-LINE	LM	4	5,00	20,00	24,00
PIR20009465	N07V-K 1X25 NE M RETOX ECO-LINE	LM	4	5,00	20,00	24,00
PIR20009463	N07V-K 1G25 GV M RETOX ECO-LINE	LM	2	5,00	20,00	12,00
	Storage system					
	FIAMM 12FGL27	cad	12	140,00	20,00	2.016,00
	Inverter DC/AC					
	STECA XTH 8000-48	cad	1	1.800,00	20,00	2.160,00
	Auxiliary generator					
	Diesel generator 5 kVA	cad	1	2.200,00	20,00	2.640,00
	SOCOMEC EXCEL-CF 400/220 16A	cad	1	220,00	20,00	264,00
	Total					16.284,00

Periodic costs

	Purchase	Ordinary maint.	Every	Extraordinary maint.	Every
Auxiliary generator	440,00 €/kW	15,00 €/kW	400 h	350,00 €/kW	8.000 h
Photovoltaic system	3.566,17 €/kWp	25,00 €/kWp	1 Years	258,00 €/kWp	5 Years
Storage system	432,10 €/kWh	15,00 €/kWh	1 Years	295,00 €/kWh	10 Years

Operating costs

Calculation of plant total costs (installation, maintenance and operation) in the evaluation period 25 Years:

Cost auxiliary generator:	41.154,25 €
Cost photovoltaic system:	12.332,63 €
Cost accumulation system:	5.431,92 €
Total cost stand-alone hybrid system:	58.918,80 €
Energy cost:	**0,83 € / kWh**

Fuel consumption

Annual fuel consumption	693,6 l
Daily fuel consumption:	3,6 l