Valuation methods for investment projects

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Abstract

The vision over investments is, especially now, that the economy has passed through the crisis, one cautious. The motivation for choosing the subject is the important role of renewable energy investment on economic, social, environmental and even the development of markets. But to analyze a realistic way the impact of implementing such investments, the valuation methods chosen in this process are very important. This paper will analyze the determinants of energy consumption from wind and the valuation methods will be applied on an investment in a wind farm to demonstrate the necessity of using several methods and, in particular, the analysis techniques.

Introduction

The indispensable element in the adoption and analysis of investment projects is represented by the feasibility studies, precisely the investments are analyzed and it is determined whether it is cost effective to be implemented or not. They include an overview of the project, investment options, financial ratios of efficiency and risk analysis scenarios. The importance of these studies lies in the fact that they are the basis of the adoption or rejection of investments, according to the results of the analysis.

Prior to 2008, due to the fact that the economic environment was in boom, the analyzes showed greater certainty and investor risk aversion was significantly reduced. Compared with that time, in present the analyzes must be more rigorous and accurate as the risk on the market is higher. Otherwise, investors may face situations in which they record losses due to incomplete assessments, by omitting certain scenarios or hypotheses and thus the probability of occurrence of certain risks.

Thus, the decision to implement an investment should be supported by several methods of valuation, for greater certainty and accuracy in analysis.

It is expected that the valuation methods tested in this paper to provide information that will turn investment decision in the same direction: either adoption of the investment project or its rejection due to financial reasons.

Under presented context, the work is based on an analysis of investment in renewable energy, specifically in a wind farm, which is a topical issue and a requirement for the European Union's Member States.

Valuation methods for investments

From the published studies results that 51% of financial analysts have confirmed that the preferred method in the analysis of investment is NPV. 20% of the respondents prefer the internal rate of return calculation, while 16% prefer the method of profitability index. [1]

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[1]Dragotă, V., Vintilă, N., Țâțu, L., Pele, D., Semenescu, A. (2010). "Capital Budgeting: The Romanian University Professors' points of view". *The Review of Finance and Banking* (Vol. II). Pag. 95-102

Among the techniques of risk measurement most used is the sensitivity analysis (44%) and the second place is occupied by the Monte Carlo simulation (11%).
NPV is used as the main method in the choice of investment projects (94%), followed closely by the Internal Rate of Return (90%).[2] Unlike the previous study, in Ahmed (2013) [3] we can observe a change in preferences. The most commonly used method is the recovery period (77.6%), followed by the NPV (76.4%).
In Dragota & Dragota (2006) [4], the investment valuation methods based on actuarial indicators are considered classic. It is believed that they take into account the risk only through the influence of the discount rate: the higher the risk, the higher the discount rate. Thus, it is outlined the importance of the discount rate as its estimation accuracy leads to greater relevance and fairness of the financial indicators (NPV, IRR, Payback, Profitability Index).
Modern techniques of valuation, however, take into account other risk factors such as changes in prices, production, operating costs and, in some cases, their associated probabilities. By analyzing the sensitivity of the NPV is determined a pottential level, where one of the components variables change. The problem remains, and in this case, it is a more of a qualitative analysis and therefore does not quantify the actual risk. This analysis ultimately shows how the NPV would change at certain levels of the elements in financial analysis. An analysis showing greater importance is Monte Carlo analysis. This method takes into account each component of the NPV, a variation interval and a probability distribution. By generating random values of these intervals for each variant is calculated NPV. For greatest possible relevance of this method, the number of scenarios should be high (over 5000).
Although the results of these methods, classical and modern, are similar, the latter have the advantage of taking into account the risks generated by other variables besides the discount rate.
Thus, there are classic criteria for assessing investments that do not take into account the time value of money. They are: the average rate of return is calculated as the ratio between the average annual benefit and the annual average classic recovery term (nominal) which refers to the period of time required to recover the initial investment (initial investment costs) without taking into account the discounted cash-flows.
The limit of these methods is represented by the fact that they neglect fluctuations in the cash flows and the discount rate. Thus, if the analysis is made only on these indicators, there is a risk to generate favorable results that have no real basis. Therefore, these methods are insufficient for a rigorous and complete analysis.
Besides them, there are also actuarial indicators. The main criteria in choosing an investment is the net present value. When comparing several projects, will be chosen the investment with the highest value of this indicator. When considering an investment, it will be implemented only if the NPV is positive. IRR is the discount rate for which NPV equals 0. This method is used most often to delimit two investment projects with equal net present value. Because the

[2]Wang, X. (2010).“Implementing Capital Budgeting for the Multinational Corporation”. Port Elizabeth.
[3]Ahmed, I. E. (2013).“Factors Determining the Selection of Capital Budgeting Techniques”.*Journal of Finance and Investment Analysis*, vol. 2, 77-88. ISSN 2241-0996
[4,11] Dragota, V., Dragota, M. (2009), “Models and indicators for risk valuation of direct investments”. Pag 6.

internal rate of return criteria assumes reinvestment of cash-flows generated by the investment at a rate of return equal to the project's, in order to avoid this inconvenience, another indicator can be calculated, the modified internal rate of return. It takes into account a rate of return different from that of the project, at which the resulting cash-flows will be capitalized. For a more realistic analysis, this reinvestment rate can be considered to be equal to the company's cost of equity. The valuation method based on the profitability index reflects the net present value obtained for a unit invested and is calculated as ratio between net present value and the initial value of the investment.[5]

The advantage of the net present value calculation is that it allows comparison between projects for which the initial investment costs are different. Most often, the two methods are used together, especially if the company is facing budgetary restrictions. The period of recovery is important to know the period in which the initial investment will be recovered. However, it is not relevant enough so as to be used independently in adopting an investment. If only this method would be used, we could have chosen a project whose cash-flows are greater in the early years, but that can record, up to the end of the period, significant decreases.[6]

Besides the classical and actuarial methods there are also the analysis techniques that are more relevant and better quantify the risk. Sensitivity analysis involves testing the influence that an item may have on the net present value. To this end, one element is modified at a time, other things being equal. The factors used most often in the analysis and whose influence is tested are: discount rate, revenues generated from investment and expenditure incurred during the lifetime. In this analysis, the performance indicators mentioned above will be calculated. It will, thus, influence the choice of these values change. The drawback of this method of valuation of investments is modifying a single parameter that influences the outcome of the investment, while fluctuations are likely to occur simultaneously for multiple items. Scenario analysis complement the drawback of sensitivity analysis, considering amending several items at one time. Thus are being built three scenarios, optimistic and pessimistic, along with the normal one. For each of these scenarios we then calculate investment performance indicators. In the optimistic scenario we take into account changes in the factors that positively influence the result of the investment, while in the pessimistic scenario assumptions are considered fluctuations which would have a negative impact on the NPV. Each scenario is assigned a probability of occurrence. The weighted sum of NPVs for each scenario represents the value that is most likely to register. Monte Carlo simulation is based on all considered scenarios. However, in contrast to scenario analysis in this case are taken into account more changes. Therefore we choose the range for the items and the number of scenarios that will be generated. Overall, the number of scenarios should be large for the accuracy of the model, this number should be around 10,000. Thus, the 10,000 scenarios, taking into account all the combinations selected with the items varying in the limits set from the start. The advantage is, compared to the prior evaluation methods, that we no longer establish a single rate of change, but a range. It can be analyzed based on the results the probability that the NPV to be negative or in a certain range. Also, based on the distribution, you can see which is the most probable value this indicator can take.

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[5] Brealey, R., Myers, S., Marcus, A. (2001). "Fundamentals of corporate finance"(Editia a III-a). Ed. McGraw-Hill. Pag. 341- 376

[6] Stancu, I., Stancu, D. (2012). "Finanțe corporative cu excel". Ed. Economică. Pag. 211

Wind energy

Evoluția sectorului de energie eoliană din Europa va depinde, în viitor, de deciziile Uniunii Europeane pentru strategia privind energia regenerabilă pentru 2030. Mulți specialiști consideră ca actuala criză din Ucraina va conduce la consolidarea ideii de autonomie energetică. Astfel, țările europene ar trebui să își crească autonomia energetică prin utilizarea surselor interne de energie regenerabilă și să se bazeze din ce în ce mai puțin pe combustibilii fosili importați. În anul 2014, România a fost recunoscută și în raportul companiei de consultanță EY, "Indici de atractivitate a țarilor în domeniul energiei regenerabile" (ediția februarie 2014). In acest raport, România se clasează pe locul al 10-lea în lume în 2013, în ceea ce privește potențialul de energie eoliană. Majoritatea parcurilor eoliene din România sunt localizate în Dobrogea, pe coasta Mării Negre, unde viteza medie a vântului este în jur de 7 m/s la 100 de metri altitudine. Terenurile din acestă zonăau caracteristica de a fi plane iar regiunea este slab populată, ceea ce face posibilă instalarea unui număr mare de turbine eoliene.

The development of wind power in Europe will depend on the future European Union's decisions on renewable energy strategy for 2030. Many experts consider that the current crisis in Ukraine will lead to strengthening the energy autonomy idea. The European countries should increase their energy independence using domestic sources of renewable energy and rely increasingly less on imported fossil fuels. In 2014, Romania was recognized in the consulting company EY's report, "The country attractiveness indices renewable energy" (February 2014 edition). In this report, Romania is ranked 10th in the world in 2013 in terms of wind energy potential. Most wind farms in Romania are located in Dobrogea on the Black Sea coast, where average wind speed is around 7 m / s at 100 meters altitude. The land in this area has the characteristic of being flat and the region is sparsely populated, which makes it possible to install a large number of wind turbines.

The determinants of energy consumption from wind

Based on existing studies in the field, it is expected a positive influence on energy consumption from wind from the fixed gross capital formation and GDP / capita and a negative of the economic growth (Lameira, V., 2014)[7]. Kocsis, I. and Kiss, J. (2014)[8], demonstrates that the GDP / capita and expenditure on research and development on the share of renewable energy in total consumption have a positive influence. Regarding the regression results achieved, these are presented below.

Variable	Coefficient	R^2	R^2 adjusted	F-statistic	Prob (F-statistic)
Economic growth	-0.0819**	0.9861	0.9803	171.0488	0.0000
GDP/capita	0.0014**				
GFCF	0.021***				
CD	1.169*				
Oil sources	-0.0739**				
c	0.0315***				

*significant at 1%; ** significant at 5%; *** significant at 10%

[7]Lameira, V., Chiappori, D., Pereira, R., Quelhas, O., (2014)."Renewable energies and economic development". INESC – Coimbra. ISSN: 1645-2631

[8]Kocsis, I., Kiss, J., (2014). "Renewable energy consumption, R&D and GDP in European Union countries".*Environmental Engineering and Management Journal, vol. 13, nr.11, 2825-2830*

Economic growth is negatively impacting wind energy consumption. These energy sources can be attributed to the fact that developed countries record lower growth rates than those in developing countries, but all developed countries are those that invest most in production energy from renewable sources. Also, the more developed countries are, the higher targets for energy production from wind is established at European level. GDP / capita, in turn, positively affect the use of wind to produce electricity sources. The explanation also concerns the level of development because the high level of GDP / capita shows a high degree of development of the country. A high level of GDP / capita shows a high purchasing power for residents of that country, which may explain an increase in energy consumption. Thus, the development of the country positively affect energy from wind.

Gross fixed capital formation is another element that shows the level of development of a country. This indicator refers to investments made to increase production capacity of consumer goods (such as clothing or household appliances). To achieve this, investments are made in infrastructure, equipment, machines. Thus, countries that invest more in infrastructure also create the necessary conditions for massive investment in energy production from renewable sources.

Expenditure on research and development shows the level of innovation of industries in the country. Positive influence of these expenses on energy consumption from wind can be explained by the fact that, in recent years, it is envisaged that these investments represent and clean alternative oldest structures. Through investments in various industries, it therefore seeks to implement newer technologies, more efficient, but also that does not affect the environment. This trend shows the concern of the majority, which is to replace polluting sources with less harmful alternatives.

The last variable analyzed is energy from conventional sources, namely oil sources. As expected, the share of consumption influences the evolution in reverse for the consumption from wind. The explanation is that, in recent years, renewable electricity production began to replace conventional ones.

The investment in wind farm

The project is in the Pantelimon village, in Dobrogea, near the Romanian coast of the Black Sea. Currently, this region comprises the majority of wind farms in Romania, being the best region in the country, in terms of topography, for this type of site. According to studies by the European Wind Energy Association (EWEA), the Dobrogea region is considered to be the second most favorable in Europe after Scotland.

The wind farm will consist of 31 Alstom ECO 110 turbines. Each turbine has an installed capacity of 3 MW and a height of 90 meters. It results that the entire wind farm capacity will be 93 MW per hour.

Information on wind equipment are from the manufacturer’s offer (Alstom). Costs are estimated by the manufacturer based on 1 MW installed capacity. Initial investment expenditure amounted EUR 90.58 millions, the largest share being the turbines and installing them (73%).

The funding will be mixed from own sources and borrowed ones. Assuming that the entire net profit available for investment of 39,048,350 euros would be used to finance part of the investment, it shows that the company has the ability to finance 43.13% of the wind farm from own funds. I will consider the hypothesis that investment will be financed from own sources 40% and 60% of borrowed capital. Equity contribution to be invested is EUR 36,232,800. The remaining EUR 54,349,200 will be funded through a bank loan, contracted at an interest rate of 4.31% over 12 years with a 1 year grace period.

The **discount rate** was calculated as the weighted average cost of capital. The cost of equity was calculated according to the modified CAPM formula. Thus, to the classical formula is added a risk premium to the company's size, according to Ibbotson, of 1.12%, a 1% risk premium for energy sector and 1% for the wind sector, given the fact that Romania has reached the target set and we do not exactly know the legislative changes that will occur. Regarding the cost of debt was considered the average interest rate at which new loans in euro could be taken, according to the report published by BNR. This interest rate is 4.31% and taking into account for tax savings, it results the cost of debt of 3.62%. The cost of capital is 6.47%, which will be used to discount the cash-flows generated by the investment.

The **revenue** generated by the wind farm will come from two sources: from selling the energy produced in the national network of electricity and from the exploitation of green certificates received. Considering the sale price was based on estimates made by OPCOM for the period 2015 – 2036, which have not taken into account inflationary effect, for the period of analysis of 20 years, these values will be indexed with the inflation projected for the EU28.

Operating expenses include maintenance and operating expenses, the insurance for the site, the fee paid by ANRE for connection to the national network of distribution, salaries and other expenses. Maintenance costs, estimated by the manufacturer, are EUR 68,000 / turbine, meaning EUR 2.10 million for the whole site. These costs will vary with inflation to UE28. Insurance of all wind farm is 0.5% per annum of the total amount of installed devices. Thus, considering EUR 66,262,500 as a base, the actual costs were estimated at 331,000 euros. It was assumed that, apart from maintenance to be provided by the manufacturer, there will be situations where the investor will have to carry out repair and maintenance actions. They will be undertaken by the company's employees dealing with wind farm. As noted at the beginning, the producer offers free training in this respect for 4 employees. It is estimated that, per year, these maintenance costs are EUR 5,000 per MWh installed (EUR 15,000 / turbine), which means a total cost of EUR 465,000 for the entire wind farm.

Other expenses generated by the wind farm operations include the costs with secutiry. Their real value was estimated at 80,000 euros per year, and these costs are indexed to inflation.

Any company that produces energy must be connected to the national distribution network. To have this access and the opportunity to sell the electricity produced, an annual fee must be paid to ANRE. According to the information published by ANRE, this cost represents 0.08% of the total annual income produced by the company. On the basis of legal provisions, the first year of operation of parks that generate energy from renewable sources are not subject to charging this fee.

Salaries and other expenses were considered to be 1% of the total revenues generated by the wind farm in a year, both from the sale of wind energy and the sale of green certificates.

Additional energy costs if it does not produce sufficient are called balancing and were estimated at 10% of total revenues solely from the sale of electricity generated.

The first phase of the analysis consisted of valuating the investment by calculating the **actuarial indicators**. Their results were favorable, which demonstrates the feasibility of the project. We thus have an NPV of EUR 6,001,354, IRR and MIRR are higher than the discount rate (8.1% and 7.14%) and a real recovery period of 14 years and 41 days, less than the period of analysis.

NPV	IRR	MIRR	PI	Payback nominal	Payback real
6,001,354	8.1%	7.14%	1.0663	10 y 184 d	14 y 41 d

Sensitivity analysis

To analyze the sensitivity of net present value to the amendment by a component, while the others remain at the level as at the basic situation, were made several scenarios for each category which can change and influence the final value. Initial investment costs, operating costs and revenues were considered to have fluctuations of ± 10%.

The biggest influence on the fluctuation of NPV is of the initial costs of investment, in their growth by 10% resulting a negative NPV value of EUR 5,798,768.

Scenario analysis

To analyze the uncertain investment environment were considered two scenarios, besides the basic one, pessimistic and the other optimistic.

For the optimistic scenario, the assumptions were taken from the sensitivity analysis: based on initial investment costs decrease and operating and maintenance costs by 10%, total revenue growth of 10% and a decrease in the discount rate by 0.5 pp. the NPV for this scenario is 41,951,286.

In the pessimistic scenario, the assumptions considered were opposed to the optimistic scenario: a rise in initial and operating costs by 10%, a 10% decrease in revenues, with an increase in the discount rate by 0.5 pp. The result was a negative net present value of EUR 27,863,864.

Associated probabilities are 15% for the pessimistic scenario, 70% for basic and 15% for the optimistic scenario. Calculating NPV as the sum of weighted averages of each scenario has resulted in an amount of EUR 6,314,061, with approximately EUR 313,000 higher than normal.

Monte Carlo Simulation

Given the likelihood of NPV components to change to a more precise quantification of the risk it was considered necessary a valuation method based on the Monte Carlo analysis of variance. The ranges for the elements were considered to be those of the assumptions used in the scenarios to determine sensitivity. As can be seen, the expectation for NPV is very good, with a probability of 90.42% for positive net present value. This result is favorable and sends a positive signal to the selection and implementation of the investment. Also, analyzing the distribution of NPV, it can be seen that the most probable value of this indicator will be more than EUR 10 million, which means a better result than that obtained in the initial analysis.

Conclusions

In an economic environment constantly evolving, investments are an essential placement of capital. However, it is of high importance to for these investment projects to be valuated properly, in order to minimize possible risks.

In this sense are involved the feasibility studies for assessing investments by several methods, thus achieving a complex analysis of investments that need to be implemented. These criteria take into account economic, social, environmental, technical, for a more accurate prediction of both the profitability indicators and the impact that the investment can have. Also, they are pursued factors which may occur during implementation or operation period of the investment and that may lead to its failure to complete and thus to losses for investors.

In the case study on renewable energy investment in wind, by conducting analyzes to assess the feasibility of the project, it demonstrated its importance especially in financial terms. Were observed all the steps to follow to choose the best options for investment - environmental studies, funding sources, financial analysis environment quasi-certain and uncertain environment.

Being a European requirement to have a certain share of total energy derived from wind, EU countries have had to comply. With the start of these investments and financial analysis of the results generated by them, more and more investors are turning to such placements of equity.

Note that with the adoption of an investment we should consider the impact on the environment, especially in this case, the wind farm aims to reduce pollution and to move gradually to less expensive electricity production methods.

Recent years have seen a trend of accelerated growth of electricity production from renewable sources. Although solar sources have gathered momentum in recent years, wind energy still a leading position among renewables.

An influence on the evolution of energy production from wind sources was tested. The constructed regression results were consistent with the literature in the field, in the sense that it was noted that energy production from wind is positively influenced by the degree of development of the country. However, with the negative influence of oil energy sources, it appears that their replacement is achieved with the wind.

The importance of investing in renewable energy comes from both the environmental impact and the impact on the economy as a whole. It should be noted that conventional sources of electricity are more expensive and are also depleting. Alternative, renewable energy, namely wind, is an inexhaustible source of electricity generation (when placed in a favorable area). From the standpoint of the economy as a whole, these investments generate profits for investors and bring added value to the economy and to the state budget revenues collected through taxes by these companies. Also, operators using conventional sources are legally obliged to buy a certain number of green certificates, depending on how the pollute. By this obligation is encouraged the use of alternative sources (eco) and is expected to increase this use. At the same time, electricity generation from renewable sources, especially in disadvantaged areas, can lead to an increase in labor productivity in these regions and to increase the standard of living.

From what was observed in the analysis of investment, especially in this area, the legislation is very important. In this case, for a more accurate analysis of such projects, the relevant regulations should cover a longer period, taking into account the life span of such investments. Thus, I noticed that a shortfall given by the ambiguity as regards to the system of granting green certificates after 15 years. To encourage this type of investment and a less polluted environment, legislation should help the operators who might be interested in a placement of capital in this area.

Given the results in wind farm investment analysis, one can conclude the importance of using multiple valuation methods for a more precise analysis. Subjective elements in analysis will always exist, as well as exceptional items. To mitigate these risks as much as possible, it is necessary to analyze the investment through analysis techniques (sensitivity scenarios, Monte Carlo). The conclusion is that, in assessing an investment for a more realistic result and to reduce the risk of unexpected elements, the correct approach is the use of all methods used in the case study. If the results are favorable and the likelihood that the NPV is positive, following completion of a Monte Carlo analysis is satisfactory, we can accept the investment project with greater certainty of its profitability.

Regarding future directions of study, an analysis of the options would be important. Thus, with the necessary information available will be considered the best option for wind turbines for the investment. Depending on the location of the wind farm and turbine power curve, it is important to consider what type of turbine is the most cost-effective to build. It is expected that if the area does not have a very good wind potential, that wind speed is not very large, high capacity building plants but which can not be seized, would entail additional costs. Such turbines may be, first of all, expensive in terms of initial investment costs. In another sense, if on an area with wind potential will be placed a turbine with a small capacity, the investment will not generate revenue potential. In the current economic context, such investments in renewable energy are very important and their assessment should be carried out carefully by taking into account all factors that could influence the outcome.

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*** www.capitaliq.com

Appendices

Figure 1. Eviews regression

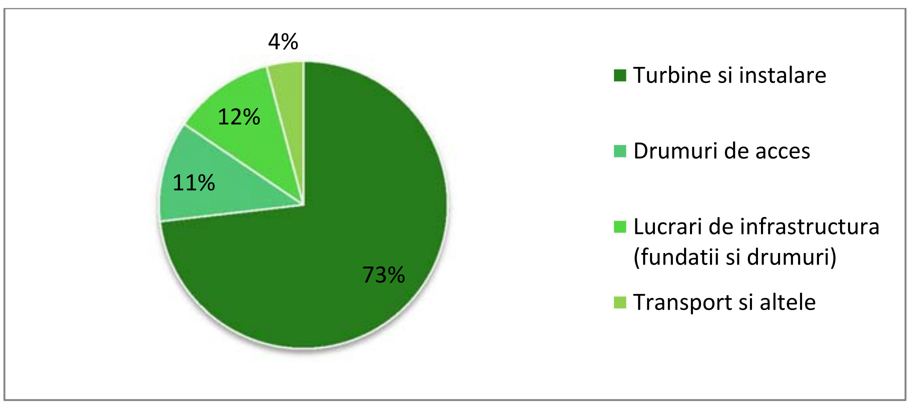
Dependent Variable: EOL_CONS
Method: Least Squares
Date: 05/23/15 Time: 11:01
Sample: 1996 2013
Included observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CR_EC	-0.081942	0.028621	-2.862963	0.0143
PIB_CAP_SQ	0.001466	4.87E-05	2.999494	0.0111
FBCF	0.021071	0.010005	2.106037	0.0569
CD_CAP	1.169044	0.283490	4.123764	0.0014
PETROL_CONS	-0.073972	0.031262	-2.366231	0.0356
C	0.031512	0.014736	2.138417	0.0537

R-squared	0.986163	Mean dependent var	0.004145
Adjusted R-squared	0.980398	S.D. dependent var	0.003698
S.E. of regression	0.000518	Akaike info criterion	-12.03317
Sum squared resid	3.22E-06	Schwarz criterion	-11.73638
Log likelihood	114.2986	Hannan-Quinn criter.	-11.99225
F-statistic	171.0488	Durbin-Watson stat	1.843882
Prob(F-statistic)	0.000000		

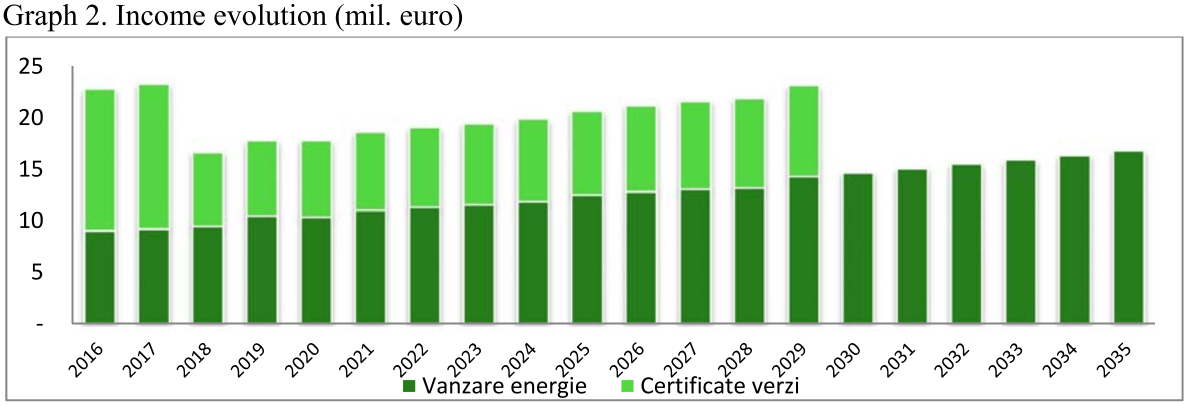
Source: Eviews regression

Graph 1. The share of total investment



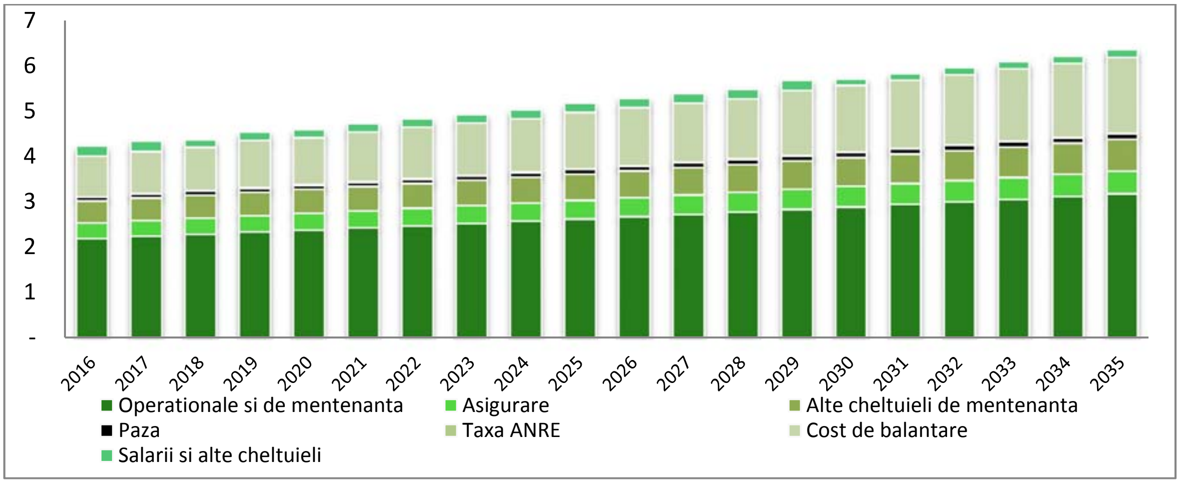
Sursa: Producer offer

Graph 2. Income evolution (mil. euro)



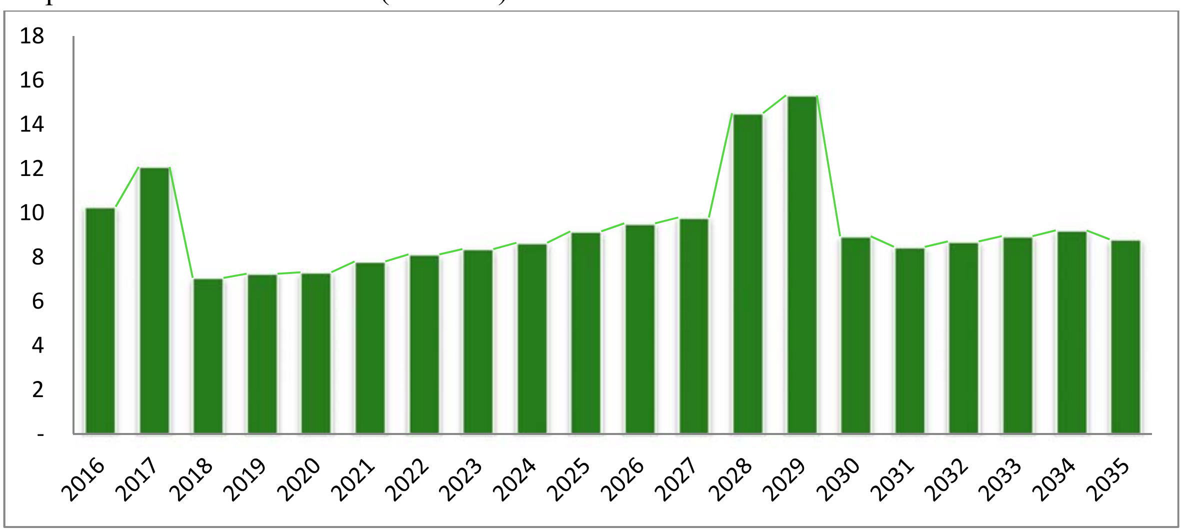
Source: Own calculations

Graph 3. Expenses evolution (mil. euro)



Source: Own calculations

Graph 4. Cash-flows evolution (mil. euro)



Source: Own calculations

Table 1. NPV sensitivity

Modificare	-10.00%	-5.00%	0.00%	5.00%	10.00%
VAN	17,801,477	11,901,416	6,001,354	101,293	(5,798,768)

Source: Own calculations

Table 2. NPV sensitivity

Modificare	-10.00%	-5.00%	0.00%	5.00%	10.00%
VAN	9,140,444	7,570,899	6,001,354	4,431,809	2,862,264

Source: Own calculations

Table 3. NPV sensitivity

Modificare	-5.00%	-3.75%	-2.50%	-1.25%	0.00%
VAN	(1,768,320)	174,099	2,116,517	4,058,936	6,001,354

Source: Own calculations

Table 4. NPV sensitivity

Modificare	-0.50%	-0.25%	0.00%	0.25%	0.50%
VAN	10,547,484	8,236,817	6,001,354	3,838,165	1,744,447

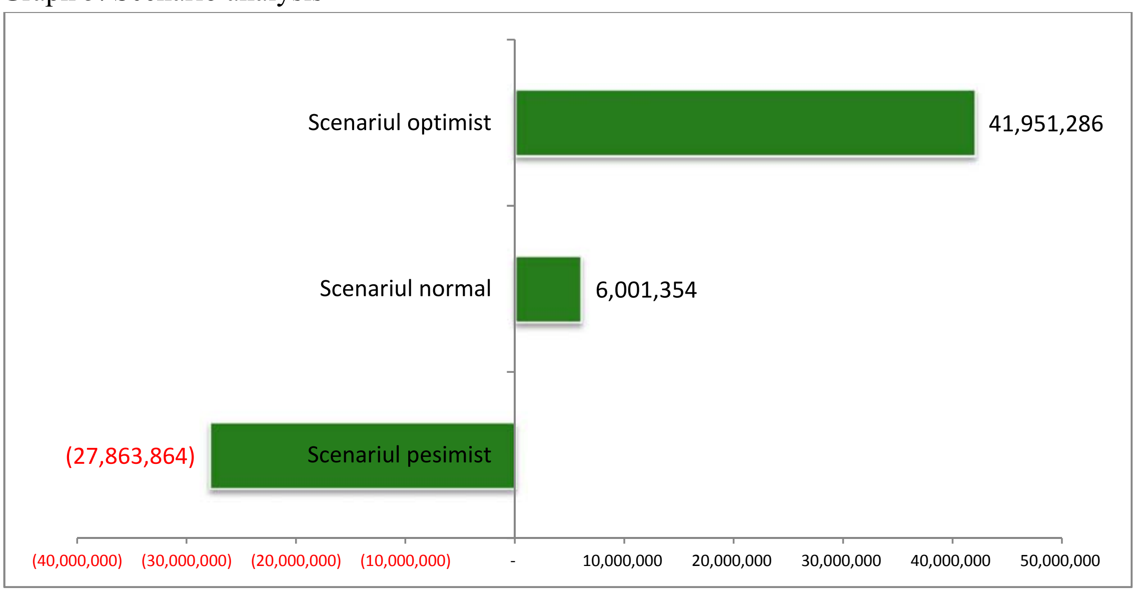
Source: Own calculations

Table 5. NPV sensitivity

Income from electric energy	Modificare/ VAN	Income from GC -10.00%	-5.00%	0.00%	5.00%	10.00%
	-10.00%	(9,537.994)	(6,346.965)	(3,155.936)	35.092	3,226.121
	-5.00%	(4,959.349)	(1,768.320)	1,422.709	4,613.738	7,804.766
	0.00%	(380.703)	2,810.326	6,001.354	9,192.383	12,383.412
	5.00%	4,197.942	7,388.971	10,580.000	13,771.028	16,962.057
	10.00%	8,776.588	11,967.616	15,158.645	18,349.674	21,540.702

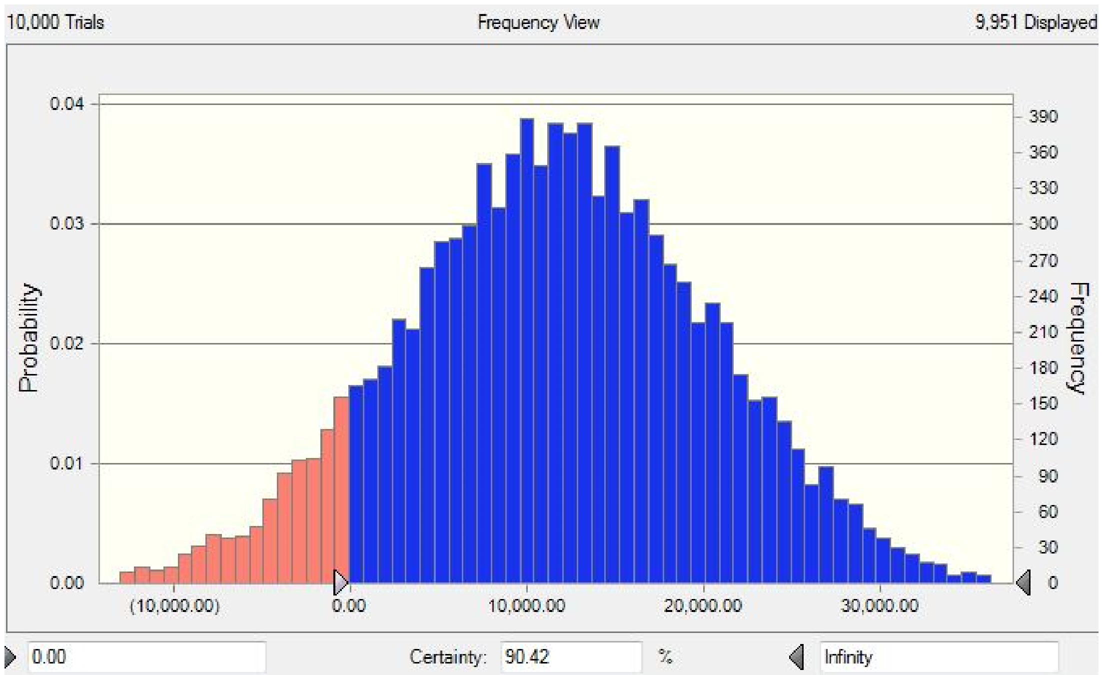
Source: Own calculations

Graph 5. Scenario analysis



Source: Own calculations

Figure 2. Monte Carlo



Source: Monte Carlo Crystall Ball