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# Welcome to the Presentation: Sustainable Energy Planning:

## „The Appraisal-Model“

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„The Appraisal-Model“

# CONCEPT AND IDEA

**"DESTINY IS NO MATTER OF CHANCE. IT IS A MATTER OF CHOICE. IT IS NOT A  
THING TO BE WAITED FOR, IT IS A THING TO BE ACHIEVED."**

WILLIAM J. BRYAN



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**„ You don't need only more Ideas than the others, but the ability to  
decide which of them are the best”**

Linus Carl Pauling



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# The Appraisal-Model - Sustainable Development and Economy -

**Sustainable development** means a development that fulfils the needs of today's generation without risk that further generations won't be able to fulfil their needs

Sustainable economy means to strengthen the region in future. This happens through a healthy and useful development, which identifies growth possibilities and incomes to be achieved from regional potentials

From "Sustainable Report Pielachtal, Austria"



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# The Appraisal-Model - Model premises -

**A potential project will only be  
sustainable if it is possible to implement it!**



Main question: What kind of information will increase the chance to implement a sustainable energy project?

Required information :

- What is possible (feasible)?
- What is profitable (worthwhile)?
- What is practicable (accepted) ?



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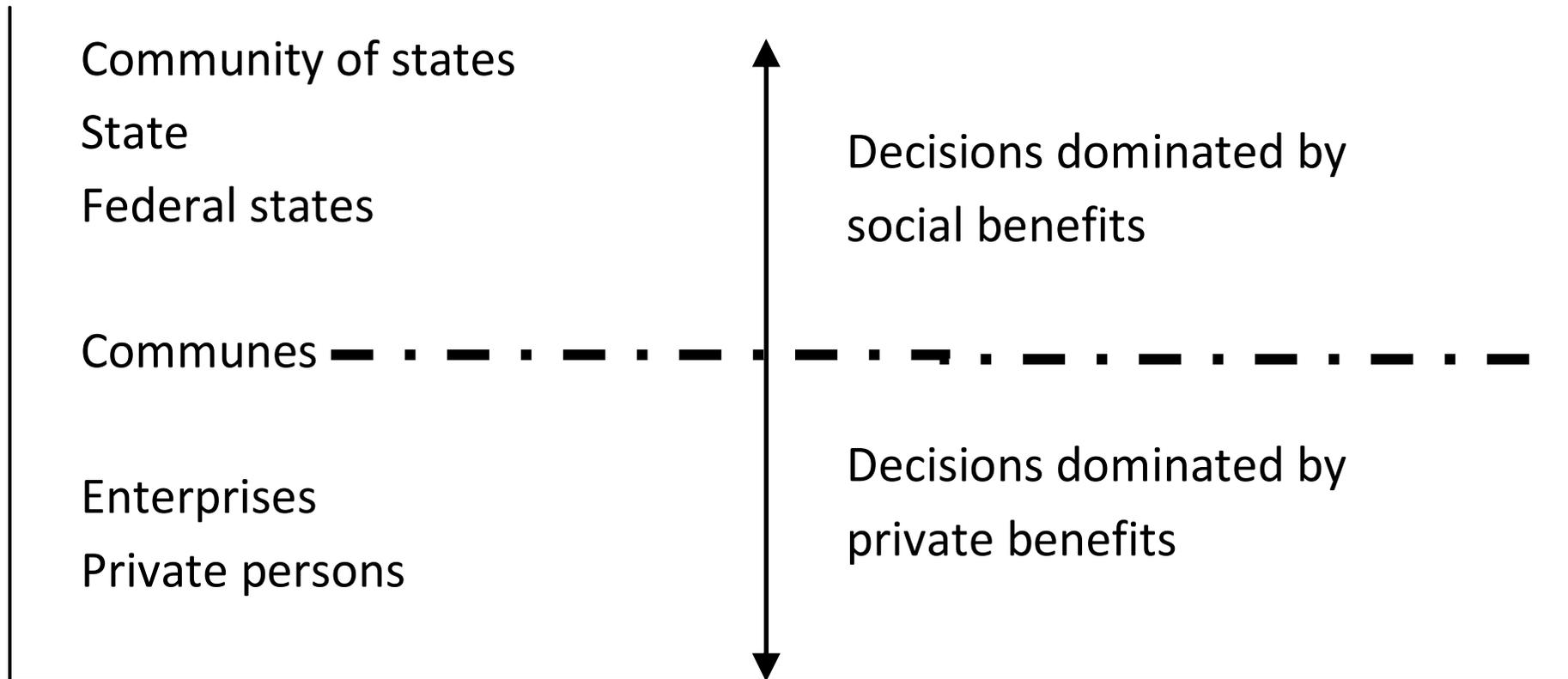


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# The Appraisal-Model

## - Participants in the sustainable process and their point of view -





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# The Appraisal-Model

## - Assumptions behind the model -

The model is based on three important assumptions:

1. The chance of implementing a sustainable project will be much higher if there are achievable benefits - regardless of type - during the implementation.
2. Because there is normally more than one stakeholder (e.g. politicians/private companies and inhabitants) involved, the project evaluation needs the potential to show them their personal benefit.
3. Normally, potential projects will be criticized by the group of stakeholders that can't expect any benefits from the project.



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# The Appraisal-Model - Results -

Based on the main assumptions, there are two important goals for the model:

1. The model should improve the project selection process by providing information for decisions about the implementation of a sustainable project and/or to create a project ranking
2. The model should be usable as a marketing instrument to present your sustainable plans to the important stakeholders (e.g. investors or inhabitants).

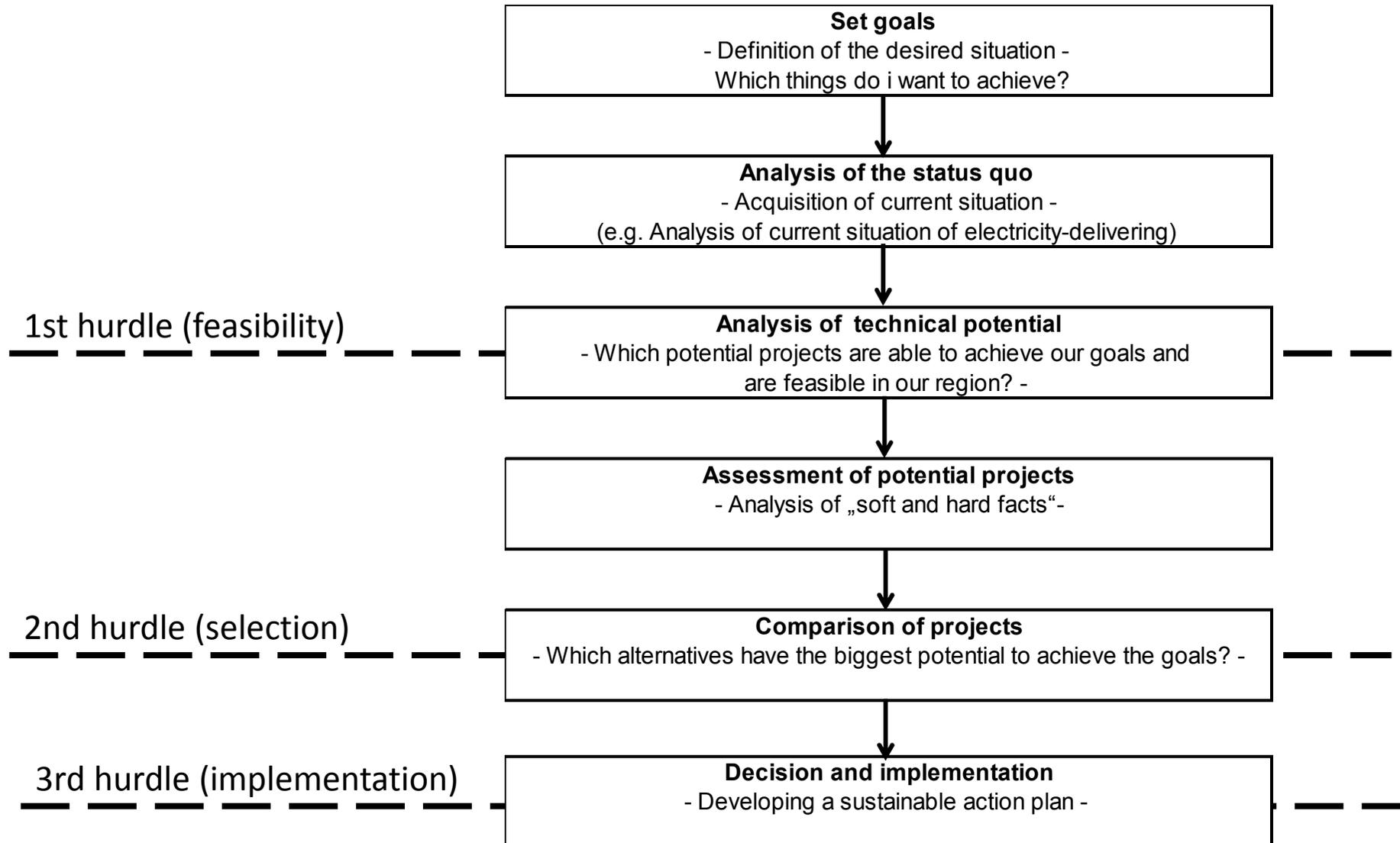


**Main question behind the model:**

**What is necessary to appraise a sustainable energy project and/or to present it?**

# The Appraisal-Model

## - Result: Road map for sustainable planning -





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# THE SOLUTION STEP BY STEP

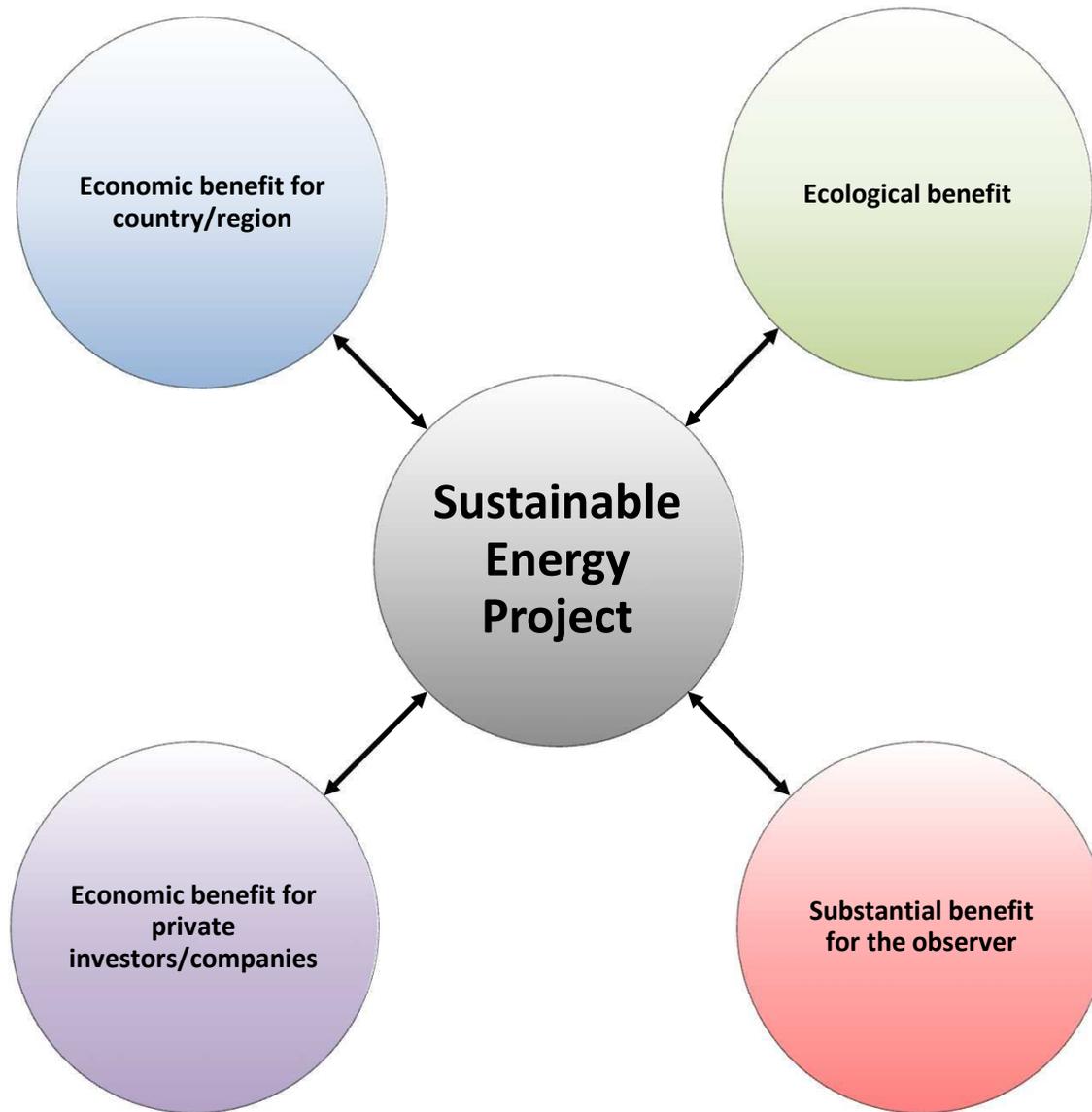
**„A PERSON IS ONLY FOCUSED ON HIS OWN REAL ADVANTAGE , WHEN HE ALSO THINKS ABOUT THE ADVANTAGES OF THE OTHERS.“**

CHINESE SAYING



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## **Substantial benefit perspective - Background -**

- A value-benefit analysis is a well-established and relatively simple process for assessing or weighing up ‘soft’ or intangible factors (e.g. improving the image of your region) for a project or planned investment.
- It offers the possibility to assess qualitative i.e. non-measurable factors which you, however, consider essential to the project.
- The value-benefit analysis is a method that typically complements the analysis of the hard facts (e.g. project incomes) by assessing the “soft benefits” for the decision maker.
- You can use the method as an add-on or before detailed project planning.



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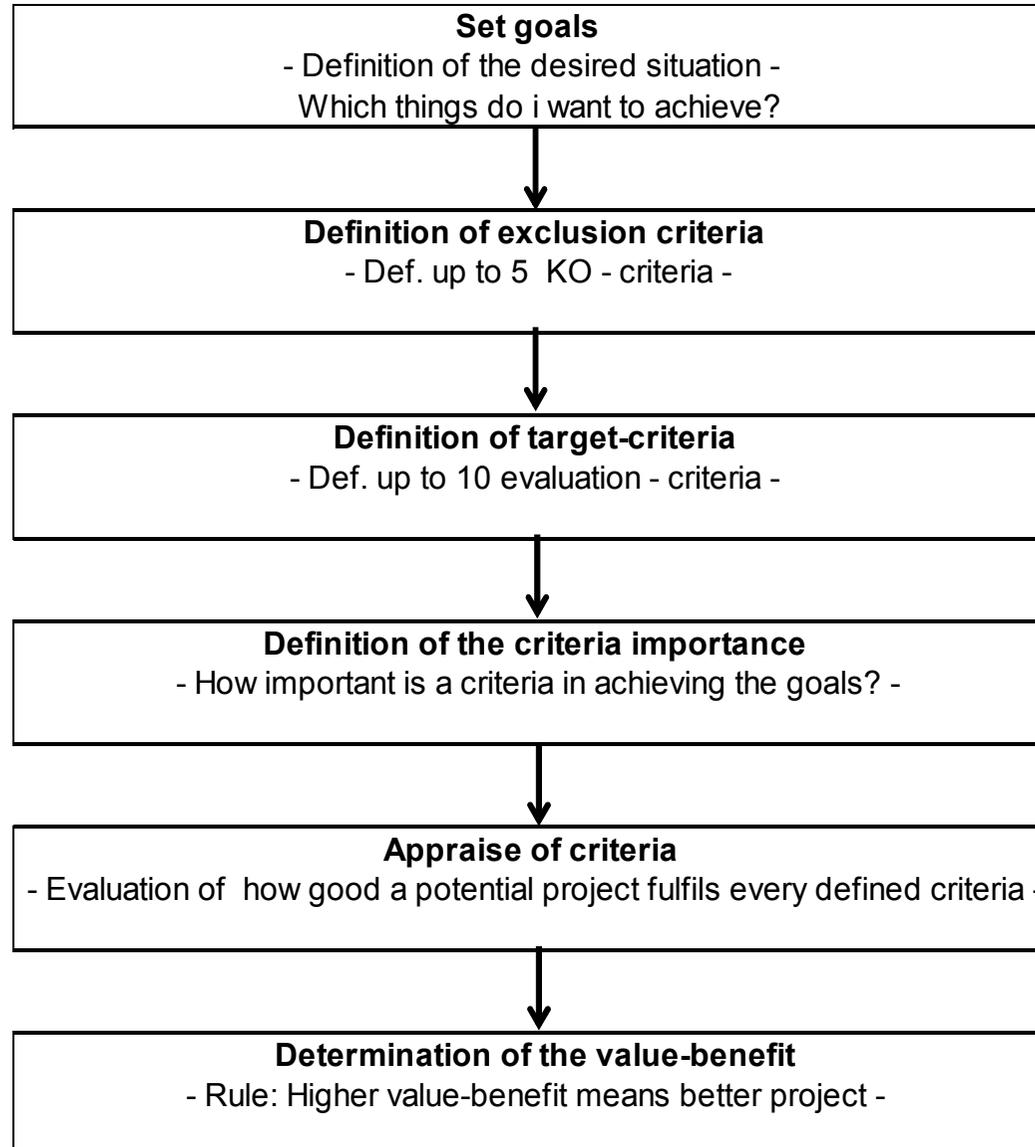


# **Substantial benefit perspective - Content -**

The following questions should be answered during the analysis:

1. Are there any obstacles which could fundamentally hinder the implementation of the project?
2. Which factors do I wish to take into consideration in the analysis?
3. How significant are the individual criteria for a positive assessment of the project?
4. How well does the project fulfil the chosen criteria?
5. What does the result of the analysis really mean for me?

# Substantial benefit perspective - Process of the analysis -



# Substantial benefit perspective - Example -

K.O. criteria	
K.O. criterium	Result
Is the project feasible from a legal point of view?	fulfilled
Is the project economically beneficial for you?	fulfilled
Can the project realistically be financed?	fulfilled

Analysis of the benefit-value of a project			
Assessment criterion	Weighting (0-100 %)	Evaluation (1-10)	Benefit-Value
(K)	(G)	(W)	(G) * (W)
Popular acceptance	40.0 %	6	2.4
Decision maker acceptance	35.0 %	7	2.45
Achievable environmental benefit	25.0 %	6	1.5
<b>Result</b>	100.0 %	<b>Total Benefit-Value</b>	6.35

Assessing the benefit-value : 6.35 (63.5 %) = good



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# Private benefit perspective - Background -

**„The mission of a company is to earn money. And nothing else.**

Erich Sixt (\*1944), german Businessman, CEO Sixt AG (Car renting)

- According this quotation the advantage of an investment will always be measured by “hard facts” (quantifiable outcomes).
- Therefore the analysis concentrates on the monetary benefits generated by a project, because companies and private persons attach a lot of importance to this fact.



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# Private benefit perspective - Content -

- To appraise the economic benefit of a given project from the perspective of private investors and companies, the program uses four procedures which are well-established.

## 1. Net Present Value Method

Is the project worthwhile for the investor, given a minimum required rate of return?

## 2. Equivalent Annuity Method:

What will be the yearly surplus cash flow in relation to the minimum required rate of return?

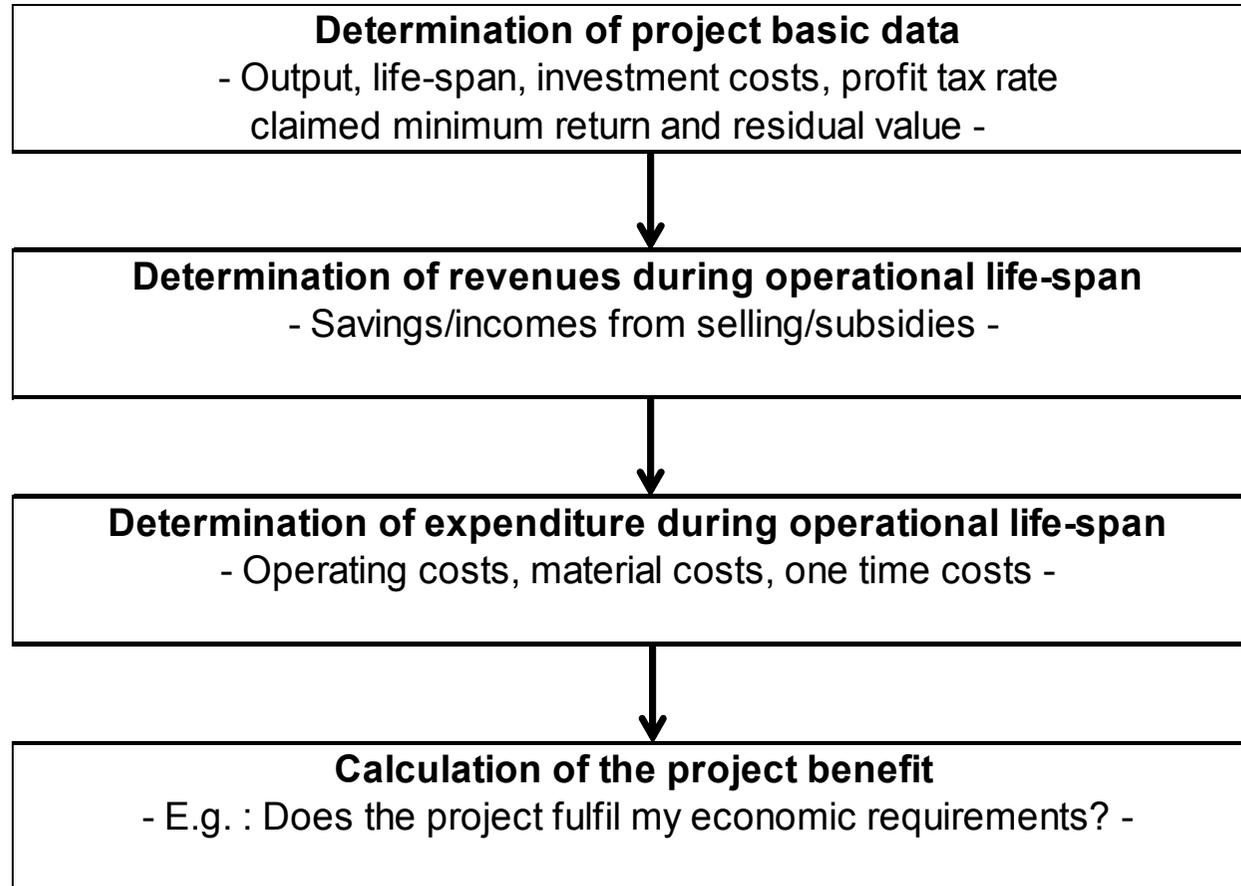
## 3. Dynamic Amortization:

How long will it take before the investor recovers his capital investment?

## 4. Internal Rate of Return:

What real rate of return (interest rate) can an investor expect to get on his investment?

# Private benefit perspective - Process -





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## Private benefit perspective - Example -

Table 1: Economic benefit before tax

Description	Result	Evaluation
Net present value (in euro)	5,992.00	The project will earn the minimum required rate of return.
Equivalent annuity (in euro)	480.81	The project will provide a surplus cash flow of € 480.81 per year
Real rate of return (in %)	10.90	The project's real rate of return is 5.90 % above the required minimum rate of return.
Amortization	11	The capital investment will be recouped during the life-time of the project.



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# Country/regional benefit perspective - Background -

- Beside the direct project revenues an investment always also generates indirect revenues in the form of regional added value. The added value is subdivided into:
  - companies' profits founded on project realization and running the project
  - employees' income
  - local authority tax receipts
- Therefore this perspective appraises in which way the implementation of a project will create monetary advantages for the region.
- So this step shows how projects help to strengthen the region overall.



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# Country/regional benefit perspective - Content -

- The added value is focused on the complete project life span, beginning with the project planning and ends with the removal.
- In addition to the required information in the private perspective you have to define which working-step of the added-value will be done by local protagonists.
- As the result the appraisal-model shows approximately the added value through implementing a sustainable energy project and, additionally, the country return on investment.

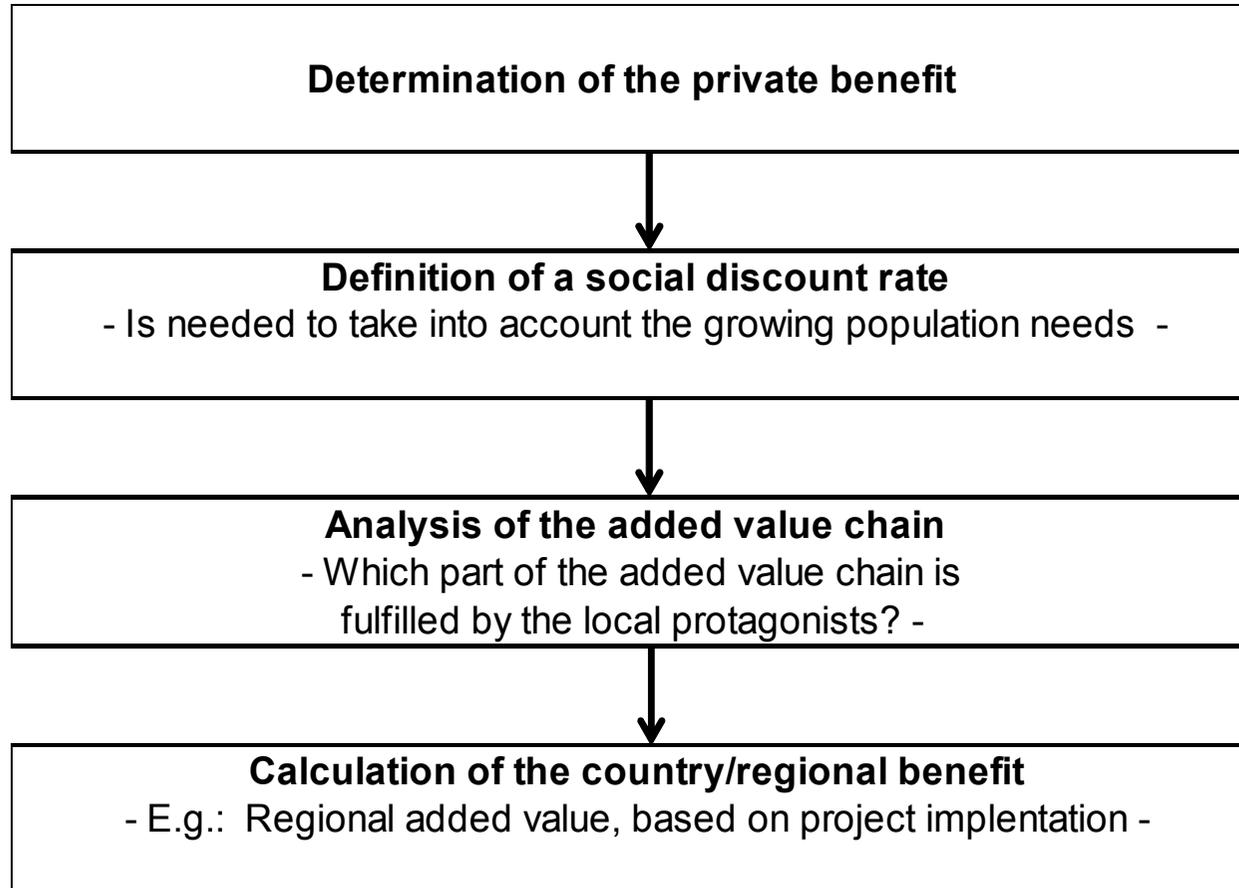


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# Country/regional benefit perspective - Process -





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# Country/regional benefit perspective - Example -

**Table 1: Regional added-value generated by the project**

	<b>RVA in the year of investment</b>	<b>RVA from investment over useful life-span</b>	<b>Total RVA generated by investment</b>
After-tax profits of companies (in Euro)	144.60	6,741.12	6,885.72
Net income of employees (in Euro)	845.04	712.32	1,557.36
Local authority tax revenues (in Euro)	65.64	1,372.92	1,438.56
Total RVA for the project (in Euro)	1,055.28	8,826.36	9,881.64
Regional added-value for the investor (in Euro)	-1,140.00	2,259.81	1,119.81
Total RVA (in Euro)	-84.72	11,086.17	11,001.45

\* RVA = Regional added value



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# **Ecological benefit Perspective - Background -**

**„ Reconciling the economy and the ecology means you keep the chimneys smoking without the stink”**

Peter Gillies (\*1939), gm.. Journalist, t. 1995 Chief editor "Die Welt"

- According to this quotation this part shows you how a sustainable energy project will influence the regional ecological costs today and in the future.
- In this context the reduction of CO<sub>2</sub>-emissions is often used to show the achievable advantages for the environment created by a sustainable project. That's why this part also evaluates the achievable reductions of CO<sub>2</sub>-emissions.



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# Ecological benefit Perspective - Content -

- The calculation of the ecological benefit is based on a European research project called NEEDS. It analyzes the environmental damage caused by a wide range of energy generation technologies and converts this into monetary equivalents (costs) for various countries.
- In addition well known standard data for CO<sub>2</sub>-emissions are used.

The following conditions apply in this case:

- Every kind of project for producing energy creates more or less ecological damage and in therefore ecological costs.
- Every kind of project also has a specific CO<sub>2</sub>-emission through out its life-span



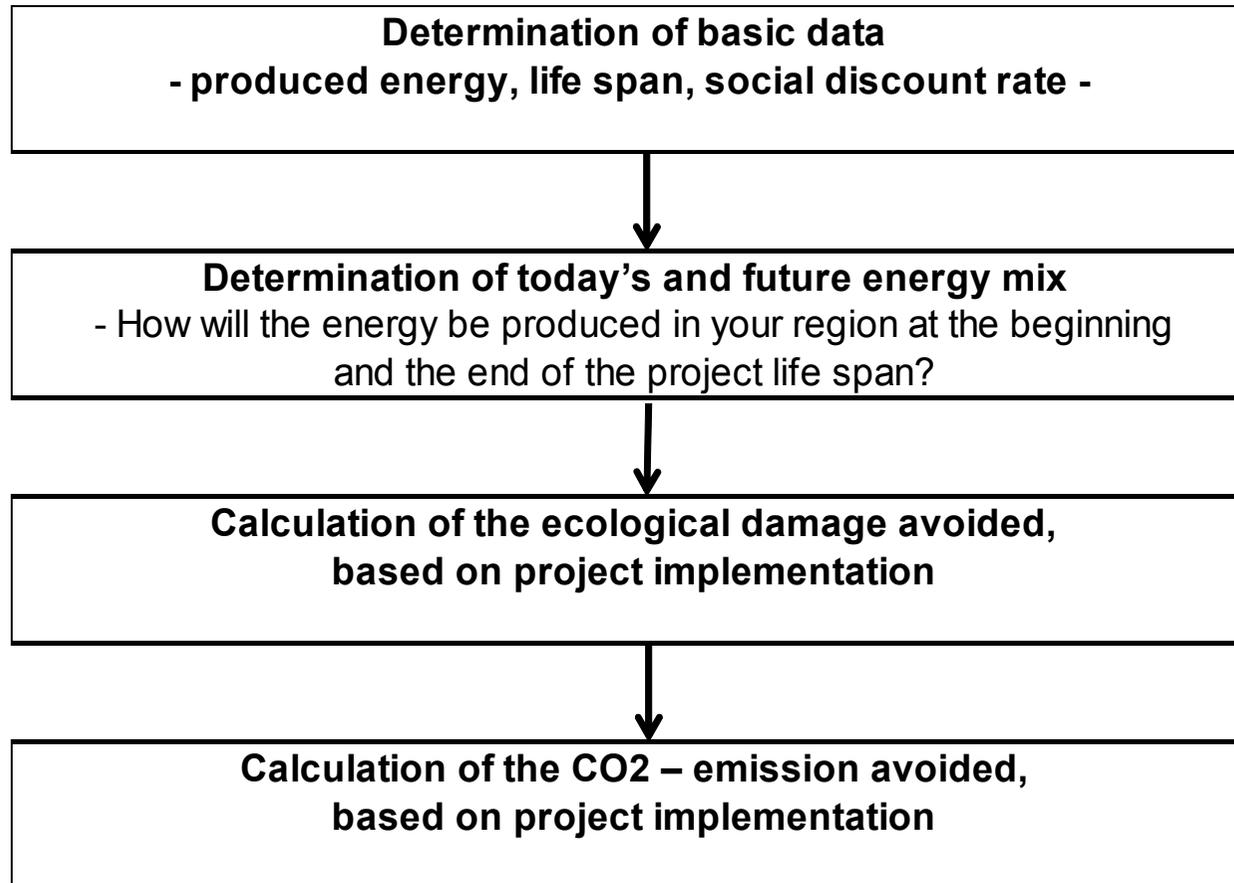
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# Ecological benefit Perspective - Process -





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# Ecological benefit Perspective - Example -

**Table 2: Calculation of the reduction in CO2 emissions due to the project**

	2012	2032
CO2 emissions of the given electricity mixture [g/kwh]	557.83	535.49
CO2 emissions of the given project [g/kwh]	121.00	121.00
Reductions in CO2 emissions/kwh due to project [g/kwh]	436.83	414.49
Annual reduction of CO2 emissions due to project [t]	2.56	2.42
Total reduction of CO2 emissions over project life-time [t]	49.80	



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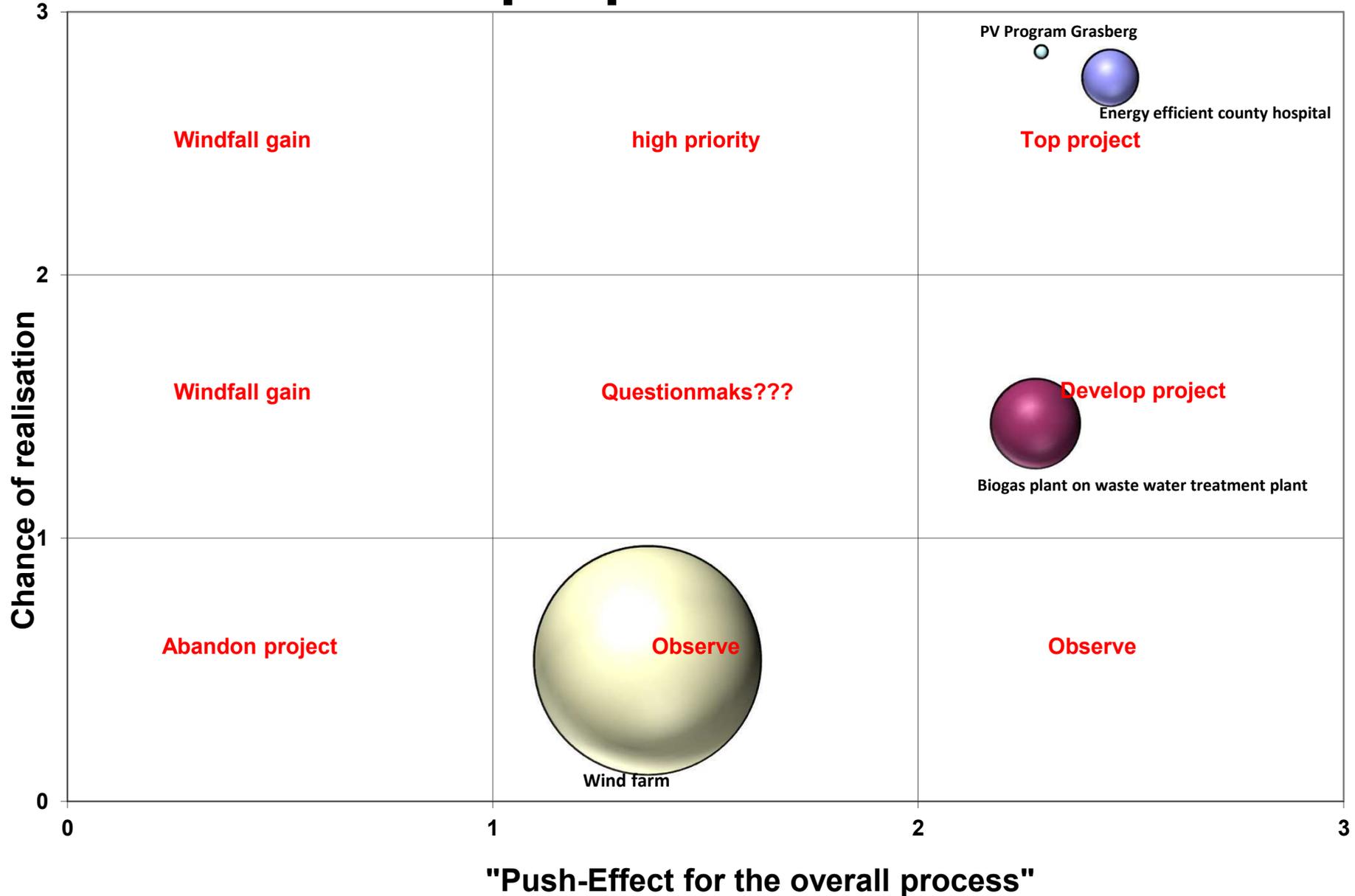


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# Vision



## - Possibility to compare projects depending to the perspectives -





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# Execution of the appraisal-model - Web-Tool as an information supplier -

- <http://test.omniscale.net:5000/>



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**Please contact me any time for further information**

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Thanks for your attention 😊