Cost-Benefit Analysis of a Solar Ordinance

Introduction

The calculation of the solar investment should be optimized for maximum effect with the available financial resources. The potential of solar resources in terms of productivity can only be properly reflected in the calculation of profitability if the criteria used in traditional processing of fossil fuels do not carry over into the solar resources.

The use of renewable energy offers cost variability much higher than that of fossil fuels. While they have a unique relationship of cost-benefit renewable energies open other opportunities for commercial exploitation

Avoid costs is the most important aspect of a calculation of profitability solar and renewable energy offer a range of possibilities to avoid them. Solar power provides an alternative decentralized from the point of view of energy dependence. The challenge is to obtain low cost benefits and lower rates of return on investment.

Criteria for a cost-benefit analysis of a solar ordinance

The fundamental formula desirable cost-benefit analysis is basically:

Benefit> Cost

The purpose of such analysis is to understand this equation and apply it to our procedure of STO.

The key issue is to study its components and evaluate them in monetary terms, each of them, whenever it is possible.

Increasing Benefit/ Decreasing Cost

To increase benefits and reduce costs in a solar thermal ordinance a set of criteria and basic applications must be established that can serve as a tool and support for any cost-benefit analysis.

The following table sets out all the factors to be considered in carrying out this analysis. Each community can choose them, but they all are essential and provide criteria to study.

Factors to consider to improve the relationship Benefit> Cost of an STO

1. Economics

ID	Parameter	Units	Valuable	Direct / Indirect	How
1.1	Provision of incentives	€	Yes	Direct	Providing direct financial support to energy efficiency
1.2	Revaluation of property	€	Yes	Indirect (Long term)	Housing sales is more valued for the solar system
1.3	Tax relief	€	Yes	Direct	Solar energy expenditure deductible. Municipal tax or annuity reduction
1.4	Tax Avoidance	€	Yes	Indirect	Saving on energy tax
1.5	Cheaper solar system	€	Yes	Indirect (long term)	Revitalizing the market. Institutional support of the ordinance to the market. Supporting solar systems for big consumers (administration, commerce and industry). There will be a cost reduction
1.6	Best Available Technology	€	Yes	Indirect	Promoting research in solar energy and other solar applications (heat, cold, fluid, ...)

2. Social Aspects

ID	Parameter	Units	Valuable	Direct / Indirect	How
2.1	Job creation	Workers / year	Yes	Direct	Supporting the local economy. Providing workforce of installers (installation and maintenance)
2.2	Bureaucratic	Time & Money	Yes	Indirect	Facilitating the builder / user to start the installation. It saves time and money.
2.3	Image of Clean Technology	-	Not	Indirect (overall benefit)	Awareness about the safety of solar energy

2.4	Image of the city / neighbourhood	-	Not	Indirect (long term)	The image of a sustainable city possible impact on future income (private investment, tourism, ...)
2.5	Principle of intergenerational responsibility	-	Not	Indirect	Raise awareness of climate change impacts and benefits for future generations

3. Environmental aspects

ID	Parameter	Units	Assessable	Direct / Indirect	How
3.1	Energy expenditure saved	kWh	Yes	Direct (long-term improving)	Calculating the cost per family per year in conventional energy, minus solar energy consumed
3.2	CO_2 emissions avoided	CO_2 equivalents	Yes	Direct	Calculating the CO_2 that would have been released by consuming conventional energy
3.3	Control of solar systems	-	Not	Indirect	Regularly checking the proper functioning of the solar system we get an efficiency that its affects energy use (energy certification, shading, loss, maintenance, ...)
3.4	Solar potential surface	M^2	Yes	Direct	Recording the area of solar panels installed
3.5	Public awareness regarding water and energy saving	-	Yes	Indirect	Creating campaigns to save water and energy (thermal comfort)
3.6	Thermal energy consumption	kWh	Yes	Direct	By monitoring and inspection of facilities (monitoring) we can know what is the real energy consumption per household

Conclusions and Recommendations

There is a key point in this analysis; it is that the benefit is sometimes not measurable or palpable by the citizen / user. A change of consciousness and perception is required. The global environmental benefit we bring when installing a thermal solar system must be made understood. It is what is called hidden indirect benefit. A contribution to stop climate change (with palpable consequences that affect us directly) and avoid crisis and climate catastrophes to future generations.

They have to look at each individual case of each community what shares of the STO will make the benefit be greater and lesser the cost.

The only way is to establish a working tool like this to serve other communities to analyze the economic, social and environmental impact of its ordinance.

References

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