

The Dilemma of an Innovative Solar Farm



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HISTORY

AureVolta, S.A. is a group of investors committed to sustainable development. They recently identified a rural area with high potential to develop a clean energy integral project in Guanajuato, Mexico: an innovative solar farm that will not only generate electricity, but it will also include:

- A community water treatment system.
- A renewable energy training center.

Even when the social and environmental impact of the project is clear, the investors want to confirm their economic feasibility through a rigorous financial analysis.

Image. Isaac Taylor in Pexels, 2025.

It is projected that part of the initial investment that is required be as follows:			
CONCEPT	PROJECTED AMOUNT (MXN)	USEFUL LIFE (YEARS)	SALVAGE VALUE*
Solar panels	10,000,000	20	\$1,000,000
Water treatment system	4,000,000	10	\$400,000
Training center	3,000,000	20	\$500,000
Preoperational expenses	2,000,000	0	

Source. Own elaboration, 2025. Footnote: * At the end of the assets' useful life.



INITIAL DISTRIBUTION OF THE WORKING CAPITAL

To ensure the project’s initial operation through the coverage of short-term needs in cash, inventories, services, accounts receivable, and other circulating assets, considering the rural context and the project’s activities, it is established that the working capital that must be considered when starting operations, is determined as follows:

CONCEPT	AMOUNT (MXN)	JUSTIFICATION
Cash on hand and banks	125,000	Liquidity for payroll, unexpected situations, and basic maintenance.
Operation inventories	123,700	Filters, didactic material, tools.
Prepaid expenses	70,000	Insurance, maintenance, licenses, and initial permits.
Operational accounts payable	55,000	Short-term suppliers.
Other circulating assets	100,000	Network connections, annual software monitoring rights.

Source. Own elaboration, 2025.
Footnote: *The working capital is expected to be recovered at the end of the project.

FUNDING SOURCES

Overall, AureVolta’s investors have \$7,363,700 pesos (MXN) that they will be able to invest as their own capital to start the project. They agreed that the given investment must generate at least a 15% annual return. The rest of the necessary capital will be covered by \$12 million pesos (MXN) bank credit, with a TIIE financial cost plus 5% with a 10-year financing term, which will also be regarded as the horizon of the project’s financial assessment.



Image. Isaac Taylor in Pexels, 2024.

AureVolta is a project with great social and environmental impact, thus, their owners believe that at the end of these ten years, the community will be able to purchase the remaining assets at their carrying value and themselves continue with the benefits provided by AureVolta.

INCOME AND EXPENSE PROJECTION

Three main income sources are considered: electric power, purified water, and renewable energy training. The following sales level has been projected for the first year (both units and sales price):

- 1. Energy sales, with a projected volume in the first year of 4,000 MWh/year at a cost of \$1,800/MWh. An annual 4% growth is expected for the following years for the total of this area.
- 2. Water treatment, with 100,000 L/month at \$20 (MXN) for every thousand liters, and a 2% annual growth in the total corresponding to this concept; and,
- 3. the trainings, that will generate \$50,000 pesos (MXN) per year with a 4% annual growth rate.

Regarding the expected expenses, the following concepts and their projections have been established:

CATEGORY	CONCEPT	DETAIL
Operation expenses	Operation costs (staff, maintenance, services)	\$2,500,000 (MXN) annually, adjusted to a 4% inflation
Depreciation	Method applied	Straight line
Taxes	Tax rate over profit	30%

Source. Own elaboration, 2025.

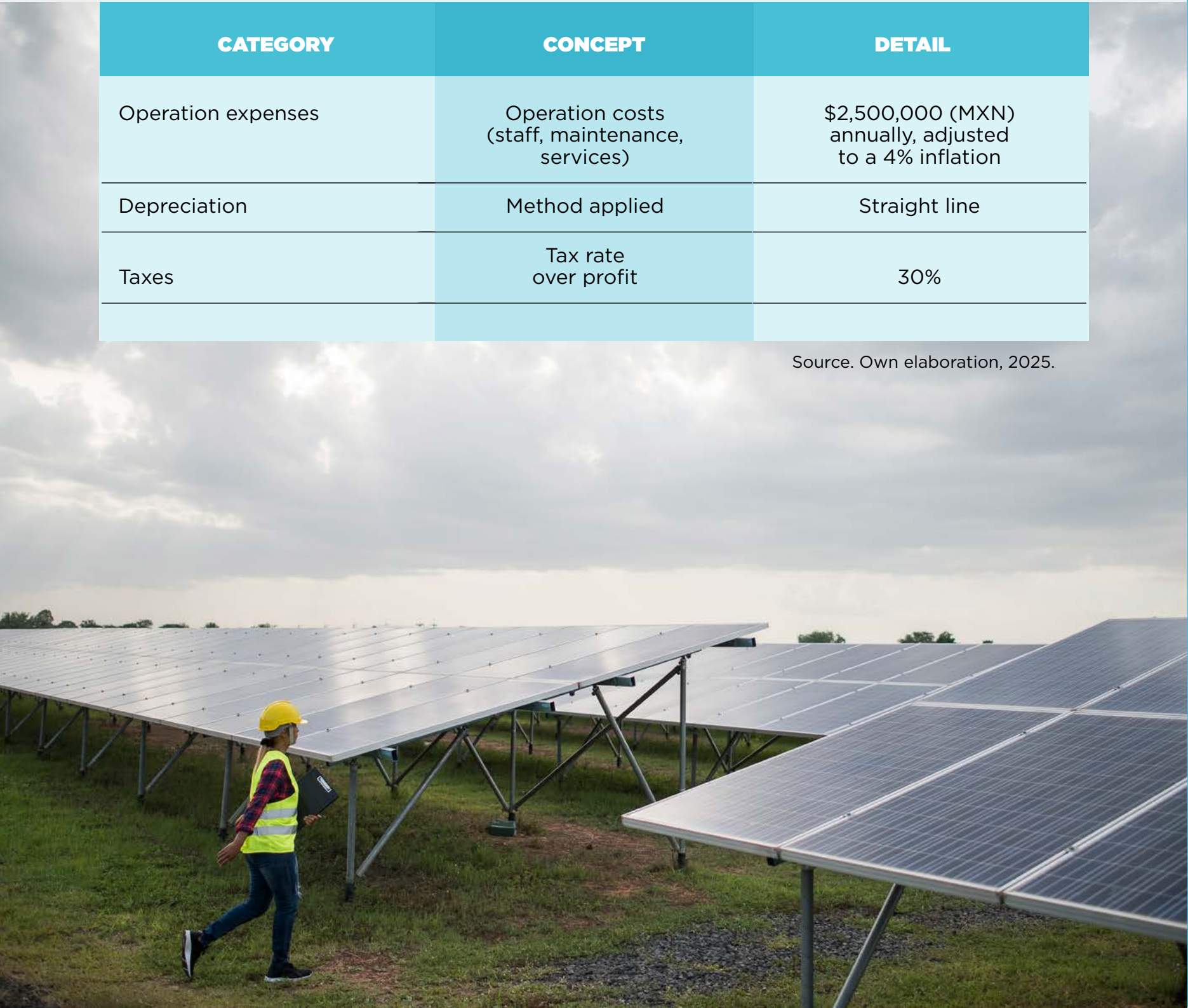


Image. jcomp in Freepik, 2025.

WORKING CAPITAL PROJECTION

Based on the operation plan of the project, AureVolta’s investors acknowledge that the working capital is essential for the solar farm to work without interruptions. This capital will be used to cover operation needs like the anticipated payment to maintenance suppliers, consumables for the water treatment system, and logistics expenses of the community center, before they have resources from the sale of energy or services.

The necessary working capital for each year is expected to be equivalent to 5% of the project’s annual income, and it is expected to be recovered by the end of year 10, when the project is transferred to the community.

THE DECISION

AureVolta’s investors are convinced of the social, environmental, and economic potential of the innovative solar farm, but they are aware that the market’s conditions can vary with time. Thus, they have decided to contemplate alternative scenarios that will allow them to anticipate how the project’s profitability would be affected before possible changes in energy sales prices, the demand for water treatment services, and annual operating costs.

Based on the project’s financial assessment, and the different scenarios considered, should AureVolta S.A.’s investors go ahead with the investment on the innovative solar farm? Which would be the financial indicators and the specific results that would support or advise against their decision?

Three possible financial scenarios have been posed based on this analysis:				
SCENARIO	ENERGY PRICE	WATER TREATMENT INCOME	OPERATION COSTS	PROBABILITY
Optimistic	\$2,200/MWh (MXN)	\$30/1,000L (MXN)	-10 %	30 %
Basis	\$1,800/MWh(MXN)	\$20/1,000L (MXN)	Expected	50 %
Pessimistic	\$1,350/MWh(MXN)	\$10/1,000L (MXN)	+15 %	20 %

Source. Own elaboration, 2025.
Footnote: It is expected that the training annual income will not be affected by the different scenarios.